

# **Review of Independent Regulation in Downstream Hydrocarbon Sector in India**

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## CERTIFICATE OF ORIGINAL AUTHORSHIP

I, Sudha Mahalingam, declare that this thesis, is submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Faculty of Engineering and Technology, at the University of Technology Sydney. This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis. This document has not been submitted for qualifications at any other academic institution. This research is supported by the Australian Government Research Training Program.

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## *Abstract*

Prompted by the widespread and persistent failure of developing economies to provide their citizens with basic utilities like water and energy, decades after these industries were restructured and reformed, this research sought to examine the role of independent regulatory institutions, the cornerstone of utility reforms, to understand if these are indeed the appropriate institutions for the task of expanding utility provision to hitherto unconnected populations in developing countries. The case study for this enquiry was provided by PNGRB, India's independent hydrocarbon regulatory institution set up with an express mandate to incentivise rapid rollout of pipeline and local distribution networks countrywide, to take cooking gas to India's 240 million domestic households. Analysis suggests that the regulator has not been able to incentivise any extension of infrastructure in the twelve years of its existence, notwithstanding the fact that it broadly conformed to canons of good governance. A more penetrating look also reveals that the efforts by the Indian government aimed at distancing the state from utility provision, depoliticising governance through installation of PNGRB, and withdrawal of state funding for building infrastructure, have created inherent contradictions and complexities. PNGRB is singularly ill-equipped to deal with these contradictions, designed as it is, on a generic one-size-fits-all model. With government withdrawing from utility provision and markets reluctant to build the networks, utilities fall between the two stools. This thesis concludes, therefore, that the regulatory model of utility governance is both irrelevant and inappropriate for developing economies like India, with incipient and immature markets and that the state has an important role to play in planning and funding utility infrastructure at least until the market matures to a level where independent regulation can contribute to 'nudging' it to desirable ends. Although this study focused on natural gas utilities in India, it has valuable lessons for other network utilities across developing countries where markets have been introduced prematurely and selectively even as sizeable chunks of the population make do without basic utilities.

## **List of Figures**

|                                                      |     |
|------------------------------------------------------|-----|
| Figure 1: Global GDP Growth 1970-2010 .....          | 4   |
| Figure 2: Map of Henry Hub in the United States..... | 56  |
| Figure 3 Pipeline Map of India .....                 | 135 |
| Figure 4 Pipeline Network in India (KM) 2018 .....   | 173 |

## **List of Tables**

|                                                                                      |     |
|--------------------------------------------------------------------------------------|-----|
| Table 1: Total Natural Gas Pipeline Network in India in 2007 .....                   | 135 |
| Table 2: Trunk Pipeline Infrastructure, Production, Consumption & Import of LNG..... | 161 |
| Table 3: Operational Gas Pipelines as of 2007 .....                                  | 161 |
| Table 4: List of Natural Gas Pipelines Licensed by PNGRB after 2007.....             | 163 |
| Table 5: Domestic Cooking Gas Connections pre and post Regulation.....               | 169 |
| Table 6 Infrastructure Market Concentration .....                                    | 173 |

# Abbreviations

|       |                                       |
|-------|---------------------------------------|
| APM   | Administered Price Mechanism          |
| ASG   | Additional Solicitor General          |
| CGD - | City Gas Distribution                 |
| CIS   | Confederation of Independent States   |
| CNG   | Compressed Natural Gas                |
| CRE   | Commission de Regulation de l'Energie |
| EoI   | Expression of Interest                |
| EU    | European Union                        |
| EWPL  | East West Pipeline                    |
| FERC  | Federal Energy Regulatory Commission  |
| FPC   | Federal Power Commission              |
| GAIL  | Gas Authority of India Limited        |
| GdF   | Gas de France                         |
| GDP   | Gross Domestic Product                |
| GoI   | Government of India                   |
| GSPL  | Gujarat State Petronet Limited        |
| HVJ   | Hazira Vijaipur Jagdishpur            |
| IGL   | Indraprastha Gas Limited              |

|         |                                                       |
|---------|-------------------------------------------------------|
| IMF     | International Monetary Fund                           |
| IPP     | Independent Power Producers                           |
| ISO     | Independent Systems Operator                          |
| JV      | Joint Venture                                         |
| LDC     | Local Distribution Company                            |
| LNG     | Liquefied Natural Gas                                 |
| LPG     | Liquid Petroleum Gas                                  |
| MMSCMD  | Million Metric Standard Cubic Meters a Day            |
| MMTPA   | Million Metric Tonne Per Annum                        |
| MoPNG   | Ministry of Petroleum and Natural Gas                 |
| MOU     | Memorandum of Understanding                           |
| NELP    | New Exploration Licensing Policy                      |
| NOC     | National Oil Company                                  |
| OECD    | Organisation for Economic Cooperation and Development |
| OFT     | Office of Free Trade                                  |
| OIL     | Oil India Limited                                     |
| ONGC    | Oil and Natural Gas Regulatory Commission             |
| PNG -   | Piped Natural Gas                                     |
| PNGRB - | Petroleum and Natural Gas Regulatory Board (of India) |
| RGTEL   | Reliance Gas Transmission Infrastructure Limited      |
| RIA     | Regulatory Impact Assessment                          |
| RIL     | Reliance Industries limited                           |
| TCE     | Transaction Cost Economics                            |

## Table of Contents

|                                                                                |    |
|--------------------------------------------------------------------------------|----|
| Table of Contents .....                                                        | 1  |
| Chapter 1 .....                                                                | 6  |
| Introduction.....                                                              | 7  |
| 1.1 <i>The Context &amp; Rationale</i> .....                                   | 7  |
| 1.2. <i>The Reform Model</i> .....                                             | 11 |
| 1.3 <i>Reform Scorecard Worldwide</i> .....                                    | 12 |
| 1.3.1 <i>Salience of the Independent Regulatory Agency Model</i> .....         | 18 |
| 1.4 <i>Premise</i> .....                                                       | 20 |
| 1.5 <i>Research Objective</i> .....                                            | 21 |
| 1.6 <i>Research Methodology and Scope</i> .....                                | 22 |
| 1.7 <i>Relevance and Way Forward</i> .....                                     | 26 |
| 1.8 <i>Organization of the thesis</i> .....                                    | 27 |
| Chapter 2.....                                                                 | 30 |
| Theories of Economic Regulation .....                                          | 31 |
| 2.1 <i>Theoretical Underpinnings of Government Regulation</i> .....            | 32 |
| 2.1.1 <i>Public Interest Theory of Regulation</i> .....                        | 33 |
| 2.2 <i>The Political Imperative Argument</i> .....                             | 36 |
| 2.3 <i>The Natural Monopoly Argument</i> .....                                 | 37 |
| 2.4 <i>The Convenience of Public Interest Argument</i> .....                   | 37 |
| 2.5 <i>Is Government Regulation, Informed, Benevolent and Efficient?</i> ..... | 38 |
| 2.6 <i>Problems of Information Asymmetry</i> .....                             | 39 |
| 2.7 <i>Capture/Private Interest Theory of Regulation</i> .....                 | 40 |
| 2.7.1 <i>Stigler's Interest Group Theory</i> .....                             | 40 |
| 2.7.2 <i>Posner's Disguised Taxation Theory</i> .....                          | 41 |
| 2.8 <i>Bureaucratic Theory of Regulation</i> .....                             | 42 |
| 2.9 <i>The New Institutional Economics and Transaction Cost Theories</i> ..... | 43 |
| 2.9.1 <i>Ronald Coase on Property Rights</i> .....                             | 43 |
| 2.9.2 <i>Williamson's Bounded Rationality Theory</i> .....                     | 43 |
| 2.10 <i>The Synthesis Approach</i> .....                                       | 44 |
| 2.10.1 <i>Internalising Transaction Costs</i> .....                            | 45 |
| 2.10.2 <i>Self-correcting Mechanisms</i> .....                                 | 45 |
| 2.11 <i>Over-capitalisation Inherent in Regulation</i> .....                   | 46 |
| 2.12 <i>Theoretical Underpinnings of Independent Regulation</i> .....          | 47 |
| 2.13 <i>Distinguishing Regulation, Deregulation and Reregulation</i> .....     | 48 |

|                                                                  |                                                                                           |     |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------|-----|
| 2.14                                                             | <i>Deregulation</i> .....                                                                 | 49  |
| 2.15                                                             | <i>Re-regulation</i> .....                                                                | 50  |
| 2.16                                                             | <i>The Regulatory State</i> .....                                                         | 51  |
| 2.17                                                             | <i>Regulation as constitutional anomaly</i> .....                                         | 51  |
| 2.17.1                                                           | <i>Rule-based, Technocratic Governance</i> .....                                          | 52  |
| 2.18                                                             | <i>Regulation as Government in Miniature</i> .....                                        | 53  |
| Chapter 3                                                        | .....                                                                                     | 54  |
| History of Economic Regulation Worldwide                         | .....                                                                                     | 55  |
| 3.1                                                              | <i>History of Utility Regulation in the Developed World</i> .....                         | 55  |
| 3.1.1                                                            | <i>United States</i> .....                                                                | 55  |
| 3.1.2                                                            | <i>Europe</i> .....                                                                       | 63  |
| 3.2                                                              | <i>History of Regulation in Developing Countries</i> .....                                | 72  |
| 3.3                                                              | <i>History of Natural Gas Industry in India</i> .....                                     | 74  |
| 3.3.1                                                            | <i>State Control</i> .....                                                                | 75  |
| 3.3.2                                                            | <i>Gas Network infrastructure</i> .....                                                   | 76  |
| 3.3.3                                                            | <i>Gas Pricing</i> .....                                                                  | 77  |
| 3.3.4                                                            | <i>New Supply Sources</i> .....                                                           | 78  |
| 3.3.5                                                            | <i>Moving to a Clean Growth Trajectory</i> .....                                          | 80  |
| 3.4                                                              | <i>Oil Shocks and Their Impact on Utility Industries Worldwide</i> .....                  | 81  |
| 3.5                                                              | <i>Advent of Neoliberal Policies</i> .....                                                | 82  |
| 3.5.1                                                            | <i>Applying Neoliberal Policies to Utility Reforms</i> .....                              | 83  |
| 3.5.2                                                            | <i>Questioning the Theoretical Basis for Government Regulation</i> .....                  | 83  |
| 3.6                                                              | <i>Problems Faced by Utilities in the Developing World</i> .....                          | 84  |
| 3.6.1                                                            | <i>1990s - Neoliberal Reforms and Utility Restructuring</i> .....                         | 86  |
| 3.7                                                              | <i>The Rationale for Independent Regulation</i> .....                                     | 87  |
| 3.8                                                              | <i>Distinction Between the Roles of Developed and Developing Country Regulators</i> ..... | 87  |
| 3.9                                                              | <i>Unanticipated Challenges in Developing Countries</i> .....                             | 89  |
| Chapter 4                                                        | .....                                                                                     | 91  |
| Structure, Powers, Functions and Tools of Independent Regulators | .....                                                                                     | 92  |
| 4.1                                                              | <i>Context for New Regulatory Institutions</i> .....                                      | 92  |
| 4.1.1                                                            | <i>Locating Independent Regulators in a Democracy</i> .....                               | 94  |
| 4.1.2                                                            | <i>Regulatory Tools</i> .....                                                             | 99  |
|                                                                  | <i>Price Regulation</i> .....                                                             | 102 |
| 4.2                                                              | <i>Summary</i> .....                                                                      | 106 |
| Chapter 5                                                        | .....                                                                                     | 109 |

|                                                                                    |     |
|------------------------------------------------------------------------------------|-----|
| Developing Country Regulatory Challenges & Conundrums .....                        | 110 |
| 5.1 <i>Regulatory Challenges in General</i> .....                                  | 110 |
| 5.1.1 <i>Information Asymmetry</i> .....                                           | 110 |
| 5.1.2 <i>Overcapitalisation</i> .....                                              | 111 |
| 5.1.3 <i>Threat of Capture</i> .....                                               | 112 |
| 5.2 <i>Challenges of Developing Country Regulators</i> .....                       | 113 |
| 5.2.1 <i>Difficulties in Unbundling</i> .....                                      | 113 |
| 5.2.2 <i>Difficulties in Privatization</i> .....                                   | 115 |
| 5.2.3 <i>Hurdles in Competition</i> .....                                          | 116 |
| 5.2.4 <i>Incomplete &amp; Half-hearted Reforms</i> .....                           | 117 |
| 5.3 <i>Revisiting the Role of Developing Country Regulators</i> .....              | 118 |
| 5.4 <i>Developing Country Regulatory Conundrums</i> .....                          | 120 |
| 5.4.1 <i>Absence of Planning Mandate</i> .....                                     | 121 |
| 5.4.2 <i>Inappropriate Tools to Incentivise Infrastructure</i> .....               | 122 |
| 5.5 <i>Risks in a Developing Country</i> .....                                     | 124 |
| 5.5.1 <i>Market Risk</i> .....                                                     | 124 |
| 5.5.2 <i>Price Risk</i> .....                                                      | 126 |
| 5.5.3 <i>Supply Risk</i> .....                                                     | 126 |
| 5.5.4 <i>Access Risk</i> .....                                                     | 128 |
| Chapter 6.....                                                                     | 131 |
| Case Study: Assessing Regulatory Governance Through Benchmarks .....               | 132 |
| 6.1 <i>Justifying the Case-Study Approach</i> .....                                | 133 |
| 6.2 <i>Assessing Regulatory Substance or Outcomes, Rather than Processes</i> ..... | 135 |
| 6.3 <i>Measuring Regulatory Governance</i> .....                                   | 136 |
| 6.4 <i>Choosing the Toolkit</i> .....                                              | 136 |
| 6.5 <i>Applying the Toolkit</i> .....                                              | 138 |
| 6.5.1 <i>Legitimacy of the Regulator</i> .....                                     | 138 |
| 6.5.2 <i>Regulatory Mandate &amp; Remit</i> .....                                  | 139 |
| 6.5.3 <i>Extending Universal Service</i> .....                                     | 142 |
| 6.6 <i>Extending Network Infrastructure</i> .....                                  | 143 |
| 6.7 <i>Fostering Competition</i> .....                                             | 144 |
| 6.8 <i>Regulating Monopoly</i> .....                                               | 144 |
| 6.9 <i>Applying Regulatory Governance Toolkit</i> .....                            | 145 |
| 6.9.1 <i>Clarity of Roles and Objectives</i> .....                                 | 146 |
| 6.9.2 <i>Autonomy</i> .....                                                        | 148 |

|                                                                       |                                                                                         |     |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----|
| 6.9.3                                                                 | <i>Participation</i> .....                                                              | 149 |
| 6.9.4                                                                 | <i>Accountability</i> .....                                                             | 150 |
| 6.9.5                                                                 | <i>Transparency</i> .....                                                               | 154 |
| 6.9.6                                                                 | <i>Predictability</i> .....                                                             | 155 |
| 6.10                                                                  | <i>Summary of Findings</i> .....                                                        | 157 |
| Chapter 7                                                             | .....                                                                                   | 159 |
| Case Study II – Performance of PNGRB                                  | .....                                                                                   | 160 |
| 7.1                                                                   | <i>PNGRB’s Reform Scorecard – Outcomes vs Outputs</i> .....                             | 160 |
| 7.1.1                                                                 | <i>Regulator’s Role in Expanding Trunk Pipeline Network</i> .....                       | 163 |
| 7.1.2                                                                 | <i>City Gas Distribution Networks (CGD)</i> .....                                       | 169 |
| 7.2                                                                   | <i>Regulatory Processes</i> .....                                                       | 175 |
| 7.2.1                                                                 | <i>Attracting Private Capital</i> .....                                                 | 175 |
| 7.2.2                                                                 | <i>Extent of Private Investments in Pipelines</i> .....                                 | 176 |
| 7.3                                                                   | <i>Encouraging Competition</i> .....                                                    | 177 |
| 7.3.1                                                                 | <i>Providing Access</i> .....                                                           | 177 |
| Chapter 8                                                             | .....                                                                                   | 181 |
| Case Study Analysis -III – Formidable Challenges and Inadequate Tools | .....                                                                                   | 182 |
| 8.1                                                                   | <i>Reform Context, Regulatory Lapses, Flawed Tools</i> .....                            | 183 |
| 8.1.1                                                                 | <i>The Context and Triggers for Setting up PNGRB</i> .....                              | 183 |
| 8.1.2                                                                 | <i>Inappropriate Tools for Introducing Competition</i> .....                            | 187 |
| 8.2                                                                   | <i>Inappropriate Tools for Aligning Social Objectives with Private Incentives</i> ..... | 193 |
| 8.3                                                                   | <i>Inevitability of Turf Battles in the Regulatory Paradigm</i> .....                   | 194 |
| 8.4                                                                   | <i>Ineffective Tools to Regulate Open Access</i> .....                                  | 196 |
| 8.5                                                                   | <i>Interference by government</i> .....                                                 | 197 |
| 8.5.1                                                                 | <i>Hidden Tools Available to Governments</i> .....                                      | 198 |
|                                                                       | <i>Non-notification of PNGRB Act and Section 16</i> .....                               | 198 |
|                                                                       | <i>Ambiguous Regulatory Remit</i> .....                                                 | 200 |
|                                                                       | <i>Jeopardising Financial Independence of the Regulator</i> .....                       | 201 |
|                                                                       | <i>Expropriation by the Government</i> .....                                            | 203 |
| 8.6                                                                   | <i>Lessons from the Case Study</i> .....                                                | 204 |
| 8.7                                                                   | <i>Contextual Factors Determining Regulatory Performance</i> .....                      | 206 |
| 8.7.1                                                                 | <i>Political Economy of Independent Regulation</i> .....                                | 207 |
| 8.8                                                                   | <i>Inferences</i> .....                                                                 | 210 |
| Summary, Conclusions and Recommendations for Future Research          | .....                                                                                   | 214 |
| 9.1                                                                   | <i>Summary</i> .....                                                                    | 214 |

|                                                              |     |
|--------------------------------------------------------------|-----|
| 9.2 Major Findings and Conclusions of the Study.....         | 217 |
| 9.3 Recommendations for Future Research.....                 | 221 |
| Bibliography.....                                            | 224 |
| Annexures .....                                              | 231 |
| Annexure 1. The Washington Consensus .....                   | 232 |
| Annexure 2: Toolkit for Assessing Regulatory Governance..... | 233 |
| Annexure 3: PNGRB Act 2006 .....                             | 238 |
| Annexure 4 - Pipeline Policy .....                           | 271 |
| Annexure 5 – Hydrocarbon Vision 2025 .....                   | 279 |
| Annexure 6 - Model Bid Document .....                        | 294 |
| Annexure 7 – MoPNG Orders.....                               | 367 |

# Chapter 1

# Introduction

*Three decades ago, in the aftermath of two successive oil crises, governments of the world effected a paradigm shift in the way their economies were being governed, by introducing a slew of comprehensive macroeconomic reform measures. As part of this process, infrastructure utilities were restructured and reformed, and a new pivotal institution - of independent regulation was established, avowedly to improve efficiencies through competition in monopoly industries hitherto dominated by government ownership and control. This research seeks to evaluate the impact of these reforms, especially the role of independent regulatory agencies, in delivering the desired outcomes, through a case-study approach. It further seeks to understand the factors that determine the success or failure of reforms in a developing country context. The lessons learnt from the case study could be valuable for determining the relevance and appropriateness of the current reform paradigm to developing countries; it could also provide a useful pointer for course corrections where necessary.*

This chapter outlines the rationale for research, the main research question, the scope, methodology, relevance and applicability of the study to policy makers and scholars.

## **1.1 The Context & Rationale**

The twentieth century was an eventful one. It witnessed cataclysmic global events like two major wars and the Great Depression. It was the century that gave rise to the deleterious cold war and presided over its demise. It was a century that oversaw the dismantling of imperial rule in the former colonies of Asia, Latin America and Africa, disbanded the Soviet Union

and enabled the emergence of aspirational populations in the newly-independent nation states. It was a century which established the Westphalian concept of sovereign nation states, celebrated the legitimacy of the welfare state and acquiesced in the supremacy of governments over markets. Above all, it was also a century of unprecedented economic growth and prosperity, especially in the west.

Towards the last quarter of the century, however, two successive oil crises in 1973 and 1979, exacerbated by other factors, brought the global economy to a standstill. Economists discussing the way forward believed that continuing with the existing paradigm of governance was no longer an option. While the concept of the welfare state has never been explicitly challenged, the instruments wielded by democratic governments to intervene in the marketplace came to be questioned. A relook at the governance model inspired a paradigm shift, one in which economies would be restored to the market place. Originating in the neoliberal school of thought, it involved a slew of measures which came to be known as the Washington Consensus. (Annexure 1).



*Figure 1: Global GDP Growth 1970-2010*      *Source: World Bank*

*GDP rates for the world economies plummeted in 1975 and again in the early 1980s owing to the oil price shocks in 1973 and 1979.*

Ronald Reagan in the US and Margaret Thatcher in the UK championed the ideology of neoliberalism. Increased capital mobility following the collapse of Bretton Woods fixed exchange rate system provided a fillip to reforms worldwide. Surplus capital which could not find remunerative investment avenues in saturated markets of developed countries could now turn to seemingly unlimited and promising opportunities in the developing world where economies were being liberalized. The transition to market-based economy needed a political environment that would assure its autonomous functioning. Neoliberal think-tanks played a crucial role during the times of election by providing tacit support to political parties that favoured neoliberal ideology (Kitschelt, 1997).

As mentioned before, the rubric of reforms comprised a slew of measures addressing a range of economic spheres: liberalization of the economy to accommodate foreign direct investments in

many industries hitherto reserved for governments, easing of trade restrictions, fiscal measures to bring down levels of direct taxation as well as the fiscal deficit, phasing out of subsidies, labour reforms, currency reforms, etc.

This research, however, is concerned with a few specific reform measures, namely, liberalization of the economy to make room for foreign and domestic private investments in key sectors like infrastructure and utilities, privatization of public sector undertakings, introduction of competition in sectors dominated by state monopolies, and crucially, introduction of independent regulation to oversee the transition from state ownership to market etc. This research is focused on the above-mentioned reforms in network utilities that supply commodities and services basic and essential to human life, especially in the context of developing countries. The choice is determined by the indispensable nature of utility services whose reach, under decades of state ownership and control in developing countries, is nowhere near as comprehensive as it ought to be, offering the new market paradigm an opportunity to demonstrate its superior efficacy in delivering what the state could not.

Once the need for reform reached a consensus (The Washington Consensus), the IMF and World Bank assumed a leadership role in advocating and designing reforms, and also sent their representatives and consultants to implement reforms in most of the developing world.

In 1993, the World Bank issued a document called ‘The World Bank’s Role in the Electric Power Sector: Policies for Effective Institutional, Regulatory and Financial Reform’ prescribing a standardised model of reforms worldwide. At the core of the philosophy espoused by the Bank were, “transparent regulatory

processes, commercialisation and corporatization of utilities and private participation in utility industries (World Bank, 1993). This document guided other development finance institutions like UK's Department for International Development (DFID), the Asian Development Bank (ADB), Inter American Development Bank (IADB) (Gratwick & Eberhard, 2008).

World Bank converted its loan and grant programs for development projects in poor countries into reform loans to assist them in the process. By the mid-1990s, many countries had adopted an almost identical model of network utility reforms, designed by the Bank. There was little bureaucratic resistance to this move, because bureaucrats saw attractive opportunities for themselves in a liberalized and reformed economy although there was widespread resistance from the rank and file of employees of public sector utilities. Once governments had been persuaded to adopt reforms, legislating for an independent regulatory commission and appointing regulators followed.

## **1.2. *The Reform Model***

Economies were overhauled through a gamut of macroeconomic structural reforms which are not being detailed here. The focus of this research is infrastructure reforms, a key segment of reforms launched initially in developed countries in the 1980s, spreading to developing countries in the late 1990s. These reforms were premised on the argument that they will improve the productivity of infrastructure industries and provide economy-wide benefits. Reforms comprised three distinctive elements: restructuring of the vertically-integrated utilities, liberalization and privatization, and regulation of the non-

competitive segments by independent regulatory agencies. The institution of *independent (economic) regulation* – working at arms-length from the government and depoliticised - constituted the fulcrum on which success of the reformed industries was predicated. The premise was that politicisation of decision-making was at the core of problems faced by utilities.

The objectives of network utility reforms were three-fold: Accelerating development of network infrastructure through infusion of private capital in an industry dominated by governments, enabling the benefits of competition in an industry that was considered an integrated monopoly hitherto, by unbundling utilities into monopoly and competitive segments and introducing competitive markets in the latter and instituting an independent regulator to regulate the inevitable monopoly segment of the utilities, namely, network infrastructure.

National parliaments in 12 Asian countries, 32 European countries (including Eastern Europe and the CIS countries), virtually all Latin American countries and several African countries have legislated for independent energy regulatory bodies (Sosay, Zenginobuz, 2005). Some regulatory commissions have only advisory powers and others are still government agencies, but most are independent regulatory commission on the model drawn up by World Bank.

### **1.3 Reform Scorecard Worldwide**

Three decades later, it is a good time to review the new model, especially because there seems to be some disillusionment with the reform outcomes in many parts of the world. Josef Stiglitz, himself an architect of reforms while he was in the World Bank,

found that reforms had not produced the economic miracles professed by its supporters (Stiglitz, 2002). A UN study found that the success of neoliberal policies is tempered by low per capita gross domestic product, high urban unemployment and increasing disparities between the rich and the poor.<sup>1</sup>

There is considerable scholarly interest in the state of reforms in the developed world. The UK and European reform model in particular, have attracted much scholarship. Studies have pointed to the variable outcomes of reforms in the developed countries. The European Union members have faced several teething problems in integrating into the common EU-wide market for energy.

In the developing world, there are not many systematic studies of the impact and outcomes of reform. Those that were undertaken, present mixed results. Some studies found that reforms have been successful in some jurisdictions, in improving government finances, turning around enterprise performance, but also involved major tariff increases for essential services, substantial layoffs among public sector employees, and huge asset transfers. In many countries, utility reform has proven to be politically and socially controversial (Foster et al, 2017). In Mexico, economic problems resulting from the "Tequila Effect," (devaluation of the peso in the mid-1990s) and the East Asian and Russian crises of the late 1990s, caused severe economic dislocation and declining welfare. Even Chile, considered one of the most successful developing countries, experienced nearly 10 per cent urban unemployment, unstable growth rates, and enduring income

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<sup>1</sup> United Nations, UNITED NATIONS (2001) Statistical Yearbook for Latin America and the Caribbean. Santiago: ECLAC

Wilkie et al WILKIE, J., et al. (2001) Statistical Abstract of Latin America, Volume 37. Los Angeles: UCLA Latin American Center Publications, University of Calif

inequality at the turn of the century<sup>2</sup>. An OECD report on Brazilian reforms found that regulatory policies in Brazil failed to achieve regulatory objectives (OECD, 2008)<sup>3</sup>. An assessment of the Argentinian reforms by World Resources Institute says, “The current regulatory framework has failed to ensure the expansion of the system or to guarantee reliable long-term supplies. Because power generation is no longer considered a basic public service... these objectives or goals are no longer being met in a privatized system (Bouille Daniel et al, 2001). In a program evaluation of the energy sector, the World Bank itself acknowledged “the poor are often the last to benefit, if at all, to prompt a rethinking of the sequence and substance of the reforms that the Bank has been promoting for the last decade”(Manibog et al, 2004)<sup>4</sup>.

Investigations into the failure of utilities in developing countries to come up with expected outcomes are usually attributed to regulatory lapses. In a much-cited paper, Stern and Holder hold that private investments in utilities are a barometer of regulatory effectiveness (Stern and Holder, 1999). Since private investments are a key objective of reforms, the onus is on the regulator to make the reforms succeed.

Others attribute reform failure to political interference in the functioning of the regulator. It is a recurrent theme in reform literature. Because of the political costs involved in adopting what are normally perceived as unpopular policies, regulatory institutions need to be insulated from pluralist pressures (Haggard and Kaufman, 1995; Mainwaring and Shugart, 1997). Politicians

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<sup>2</sup> Op cit, Stiglitz

<sup>3</sup> OECD Reviews of Regulatory Reform: Brazil 2008: Strengthening Governance for Growth

<sup>4</sup> Manibog et al., Power for Development, A Review of World Bank Group’s Experience with Private Participation in the Electricity Sector, World Bank 2004 pp. 39-40.

with their eye on the elections find neoliberal reforms politically risky for survival. Market-oriented reforms that attempt to eliminate market distortions and promote efficiency extract high short-term costs and provide rewards mainly in the long term (Geddes, 1995).

Laffont, who was the first to study the effectiveness of regulation in developing economies acknowledged the constraints imposed by the political system in a democracy (Laffont & Tirole, 1993). Taking his work further, his students Estache and Wren Lewis found that limited capacity, commitment, accountability and fiscal efficiency were the factors affecting regulatory performance. They concluded that simple transfers of reform knowhow from OECD to other countries can, in fact, be counterproductive (Estache & Wren Louis, 2009).

Others have emphasised institutional robustness in making regulation deliver in developing countries. Regulatory failure has been laid at the door of institutional limitations in developing countries, poor reform design, inadequate remit, lack of regulatory capacity, excessive government interference in the functioning of regulators, etc. A survey of 22 regulators in 13 Asian countries found a lack of well trained staff as a major constraint on good quality regulation (Jacob, 2004). Regulatory staff were found to have limited capacity in the use of methods of regulation policy analysis, such as regulatory impact assessment (RIA), which can assist in the design and implementation of reforms.

Many studies have also focused on compromised regulatory independence as the cause of poor regulatory performance. Dubash et al, for instance, argues that conflicts between regulatory independence and political constraints can lead to

adjustments and workarounds, which ‘preserve the myth of regulatory autonomy and technocracy, even while allowing for the accommodation of political pressures’ (Dubash et al, 2018).

Wilks, for instance, found that policy transfer of ‘best practice’ becomes a problematic issue because regulation is embedded in distinctive cultural and institutional complexes ... [and that] it is an organic regime rather than an autonomous set of rules’ (Wilks, 1996). On the same theme, Majone observed that the notion that regulatory models established in developed economies can be transferred into a context-less environment is clearly a dangerously naive conception, and there may well be a need to adapt idealised models of regulation to particular variations between national, political and administrative cultures, so that an adaptive process must be specific to each national regime (Majone, 1991).

Economists also cite underdeveloped legal and constitutional structures, rules and norms. Informal institutional environment such as conventions, customs and behaviour conducive to market transactions also play a vital role in the effectiveness of regulation. Institutional structure, in fact, is seen as a critical determinant of regulatory performance (Levy & Spiller, 1994). Economic development is related to a stable political environment, low corruption and respect for law and order (Kaufman & Kraai, et al, 2002). When new regulatory offices are created, they build on and complement this wider institutional structure. In contrast to the situation in developed economies, the institutional context of developing economies is often much less conducive to market transactions.

Other studies offered a plethora of reasons for regulatory failure in the developing world. Transaction costs, information

asymmetries, regulatory capacity, hold-up theories, etc. which impacted even developed economies were found to have worse outcomes for the less developed economies. Information asymmetry is an acute problem in developing countries where all the knowledge of constructing and operating an infrastructure network is concentrated in the single public sector monopoly utility.

Scholars have also focused on the mode of diffusion of regulatory institutions in the developing countries (Levi-Faur, Jordana, 2004). Others have pointed out that the manner of embedding the regulators in specific country contexts determines the outcomes of the regulatory processes (Dubash, 2013).

Scholarship has also addressed variables that are specific to the global south, which are not uniform across countries (Dubash & Morgan, 2013). For instance, in Brazil, bureaucratic resistance to regulatory reform jeopardised the independence of the regulator (Prado, 2013). In India, the judiciary played a crucial role in the evolution of the telecom regulator (Thiruvengadam & Joshi, 2013). In Argentina, the financial crisis put the regulatory state in tremendous stress, forcing the regulators and the government to come up with innovative solutions to deal with the situation (Murillo, 2011). With reference to Ghana and Malaysia, Gertrude Makhaya laments the lack of political will to create a strong regulator; the nature of the relationship between the regulator and the line ministry; the resources available to the regulator; and the legitimacy and credibility of the regulator. Responses to the problems have predictably ranged from strengthening laws, institutions, capacity etc, reducing government interference in regulatory functions, improving regulatory accountability etc. (Makhaya, 2002).

### ***1.3.1 Salience of the Independent Regulatory Agency Model***

Scholarship cited above has addressed the entire gamut of reforms which have multiple components such as liberalization, unbundling and privatization. But the single thread that binds all these together is the institution of independent regulation. The era of neoliberalism is also the golden era of regulation, according to some scholars<sup>5</sup>. In fact, the state that emerged post-regulation came to be called the Regulatory State on account of the number of independent regulatory agencies that have proliferated. The centrality of independent regulation to the outcomes of the reforms has turned the spotlight on this institution and regulators have come under intense scrutiny in the past two decades.

While liberalization and privatization have to be implemented by governments, the onus is on the independent regulator to make reforms deliver. It is the regulator who is expected to encourage competition in the unbundled non-monopoly segments of the industry by providing level playing field to private investors; it is the regulator's job to ensure that incumbent utilities with majority market share do not swamp the new private entrant; if the incumbent utility has not been privatized as planned and remains a government entity, the regulator has the task of shielding the marginal private investor from being discriminated against by government interference. The regulator will also have to ensure non-discriminatory open access to the government transport monopoly, set access tariffs and enforce them.

One crucial role of the regulator, and this is limited to developing countries with skeletal network infrastructure, is that of

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<sup>5</sup> Op cit Levi –Faur & Jordana, 2004

encouraging private investments in the construction and extension of infrastructure networks to unconnected regions through appropriate and effective incentives. In other words, in a context where the infrastructure is not fully developed, the regulator's role is to coax investors to build comprehensive infrastructure networks. Virtually all regulators have licensing powers, but in the context of a developing country, they signify a developmental role whereas in developed countries, it is one replacement of depreciated networks.

It is the regulator who acts as an impartial arbiter amongst a spectrum of stakeholders, monitoring and overseeing the efficient functioning of the reformed utilities. In the absence of organized consumer groups which can represent consumer interests in regulatory proceedings, some regulators go that extra mile to accommodate consumer voice in their functioning. They institute a consumer division within the regulatory commission to speak on behalf of the consumers. When stakeholders have disputes with each other, it is to the regulator they turn for resolution.

The reform model expects the regulator to function as a surrogate for the market until the sector transitions to a completely competitive one. It would not be an exaggeration to say that the regulator holds the key to the success or failure of the reform process. Therefore, studies examining the effectiveness of reforms have tended to focus on regulatory functioning as a proxy. It has been said that regulatory authorities are not a marginal aspect of the change and are a reasonable proxy of this larger process of change, as far as they are responsible for implementing new policies—also new policy styles<sup>6</sup>.

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<sup>6</sup> Levi-Faur & Jordana, Op cit

## ***1.4 Premise***

Certainly there is merit in the analyses and views expressed by experts cited above. There are flaws in regulatory design, remit, competence, powers, as well as in the independence of regulators all of which have led to chequered outcomes throughout the developing world. However, this research seeks to look deeper; it seeks to understand whether these deficiencies are merely symptoms of a more fundamental problem, namely, the very relevance and appropriateness of the institution of independent regulation to developing economies, within the overall framework of the reform model. Considering that challenges faced by developing countries are quite different from those faced by the developed world, can a one-size-fits-all regulatory model be expected to yield beneficial outcomes regardless of local context?

There have been studies focused on developing country experiences, but none questioning the relevance or rationale for the new paradigm in an immature market. Many have focused on governance, some on prices, others on regulatory effectiveness. Most studies suggest tweaks to the existing reform paradigm to fix the problems, while others advise further research (in addition to the research referred to above, there are others, for instance: Guasch and Hahn, 1999; Braadbaart, 2005; Jerome, 2006; Nagayama, 2007; Andres et al, 2008; Sovacool et al, 2011). Identifying this research gap, this research seeks to go deeper to ask the question whether the existing reform model is suitable for countries with incipient markets for utilities and sketchy network infrastructure.

The network utility model has been chosen advisedly because these utilities supply services essential to human life and dignity and as such, need to have comprehensive infrastructure and universal reach. Additionally, being essential utilities, a certain minimum quantity of electricity or cooking gas will have to be supplied to everyone in society, regardless of their ability to pay. The Welfare State concept which underscores this notion has not been formally challenged or dismantled even under the reform paradigm. All governments, democratic or otherwise, rest on their ability and willingness to provide basic minimum living conditions to their citizens.

### ***1.5 Research Objective***

As against this backdrop, the main objective of this research is to ascertain the appropriateness of the institution of independent regulation in a developing country context.

Specific objectives include

- (i) To review the theories of regulation with a view to contextualise the institution of independent regulation within the overall ambit of reforms
- (ii) To develop a historic review of infrastructure regulation in developed and developing world contexts with spotlight on India, the country of focus in this research, to understand the extent of correspondence between the design of the institution of independent regulation and its theoretical underpinnings
- (iii) To provide an overview of the structural, functional and procedural aspects of independent regulation to serve as a basis for the assessment of regulatory effectiveness

(iv) To examine the efficacy of the institution of independent regulation in the context of the Indian natural gas industry

Additionally, though not explicitly stated above, this research investigates an important aspect not directly addressed in the extant literature purporting to assess regulatory effectiveness. What should be the appropriate lens for evaluating regulatory effectiveness? The extant literature focuses exclusively on proximate outputs – extent of liberalization and market opening, extent of competition achieved, extent of private investments incentivised by the independent regulator etc. This research seeks to examine the ultimate outcomes of reforms, namely, whether post reforms, the regulator has succeeded in incentivising extension and expansion of essential utility services to hitherto unconnected populations, whether the regulator has been able to ensure that these essential services are made available at prices affordable to everyone in society. In other words, accessibility, availability and affordability are the lenses through which reform success or failure should be evaluated rather than through intermediary processes such as liberalization, privatization or competition. The extant literature on reforms conflates processes with outcomes whereas, this research seeks to examine outcomes to evaluate regulatory performance, the premise being, markets are a means to achieve efficiency and welfare, not an end in themselves.

## ***1.6 Research Methodology and Scope***

The main research question warrants identification and separation of flaws in regulatory design and implementation to remove

proximate determinants of regulatory performance from the ultimate factors. The first part of research, therefore, focuses on evaluation of regulatory design to see if it conforms to the prescribed model. The second part goes on to evaluate the actual outcomes of regulatory performance. This type of layered research can be done only through a case-study approach since it is not readily amenable to quantitative modelling techniques. Besides, time-series data on both the design features and performance of regulatory institutions in developing countries is extremely difficult to obtain except through extensive field study of many similar developing country institutions. This investigation, therefore, relies on a mix of empirical analysis of a representative case study regulatory institution and theoretical scrutiny. The case study chosen is reasonably typical of a developing country network utility that has been restructured.

This investigation focuses on the downstream hydrocarbon regulator in India, Petroleum and Natural Gas Regulatory Board (PNGRB), established in 2007. The choice is determined by several factors. Like its twin, the Electric Supply Industry, natural gas industry requires extensive network infrastructure to supply an essential utility – cooking gas and therefore, has the obligation of universal supply. But unlike electricity, cooking gas network in India is still at an incipient stage and therefore, the newly-established regulator has better opportunities to goad the markets to get it built with private capital.

Addressing the main and ancillary objectives of the research involves the following steps;

- i. to evaluate the case study regulator for conformity with best practice governance benchmarks developed by reform advocates.

- ii. To evaluate the performance of the case study regulator in terms of the outcomes of utility reforms in a developing country context, with specific reference to the objectives for which reforms were undertaken.
- iii. to distinguish the contextual and substantial differences in the roles of developed and developing country regulators and to assess the impact of such differences on reform outcomes in developing countries
- iv. to separate the impact of poor implementation of the reform model in the case study from flaws in the reform model itself
- v. to suggest course corrections where necessary
- vi. to reflect on the relevance and applicability of this evaluation to other developing countries
- vii. to explore the way forward, based on the findings and conclusions

The research will investigate whether PNGRB as a regulatory institution conforms to the best practices governance design, structure, remit and powers advocated by reform architects in the multilateral institutions. This is proposed to be done using a toolkit indicator approach prescribed by two independent economists from London Business School, Jon Stern and Stuart Holder in 1999. Their evaluation method for specifically assessing regulators in developing countries has been widely applied across the developing world (for instance: Correa, 2007; Berg 2001).

The toolkit addresses key features of independent regulation specifically with a view to testing the efficacy of the institution and the processes to see if they are suitable for the purposes for which they were instituted.

The toolkit will be applied to the framework law, the policies and the functioning of the regulator to assess whether PNGRB satisfies all canons of good governance prescribed for a developing country network utility regulator. This will help us establish the lacunae, if any, in the regulatory design and remit.

The second stage of this research will focus on the performance of PNGRB in the last 12 years of its existence. This is proposed to be conducted through an evaluation of each explicitly stated reform objective –

- i. unbundling monopoly elements of infrastructure from competitive ones,
- ii. incentivising private investments in the competitive segments as well as in construction of infrastructure,
- iii. overseeing non-discriminatory open access to monopoly infrastructure and determining tariffs for the purpose,
- iv. encouraging competition in the sourcing and retail supply of natural gas,
- v. ensuring extension of pipeline infrastructure to take this essential utility to every potential consumer in the country.

While the steps enumerated above address the processes followed in a reformed utility, the outcomes of reforms are proposed to be evaluated through the following methods:

- i. The results obtained from the toolkit referred to above are expected to reveal any lacunae in the implementation of reforms. Such lacunae will be examined to see if they can be fixed.
- ii. data relating to licenses issued by the regulator from 2007 to 2015 (assuming a 3-year lag for construction and commissioning) for building gas pipelines is compared to the actual pipelines commissioned and operating on the

- ground. This would indicate the effectiveness of the regulator in terms of actually getting infrastructure built.
- iii. Similarly, the number of households connected by City Gas Distribution companies licensed by the regulator to the number of households having cooking gas connections. Results from (ii) and (iii) above are expected to determine regulatory performance in terms of infrastructure expansion
  - iv. Empirical and inferential analysis will be undertaken to assess the regulatory processes such as incentivising private investments, competition and/or enabling non-discriminatory open access to common carrier pipelines during the 12 years of PNGRB's existence.

The data and information for the exercise outlined above has been gathered from the case study regulator PNGRB's website, documents in the public domain such as parliamentary standing committee reports, policy documents of the Ministry of Petroleum and Natural Gas, interviews with stakeholders and occasional newspaper articles. Some judicial orders provide valuable information on the performance of the regulatory board as also the petitions filed with the appellate body and these will also be factored into the analysis. While the documentation relied on for this research is voluminous, some of these have been kept as annexures to the thesis to keep the thesis focused and tight.

## ***1.7 Relevance and Way Forward***

Considering that the same model of reforms has been applied worldwide with minor variations for local contexts, the results from this research are likely to be of immense value to developing country regulatory reforms and can assist them with any course

corrections that might be necessary, to achieve the reform objectives. This research has the potential for wider application in the study of regulatory economics in as much as it provides pointers for revamping regulatory models to suit local contexts or to stagger reforms until market reaches a basic degree of maturity. Future research can focus on the design and timing of future regulatory institutions if we are to deliver the benefits of reforms to more than 4 billion people still awaiting access to affordable basic utilities.

## ***1.8 Organization of the thesis***

Theories of regulation and their evolution from the late 19<sup>th</sup> century to the present day are discussed in Chapter 2. This discussion will provide the template to determine whether the current models of independent regulatory agencies conform to the theoretical framework as formulated by economists and political scientists.

The history of regulation in the developed and developing countries, including India, right up to the present day is discussed in Chapter 3. The evolution of regulatory agencies traced in this chapter is necessary to understand their culmination into the current regulatory framework. Crucially, it will provide the context in which developing country regulators are embedded.

The structure, remit, powers, functions, independence and accountability of regulators is outlined in Chapter 4. This chapter also discusses the tools used by utility regulators worldwide. This is an important chapter which firmly locates the independent regulator in the larger reform context and provides the backdrop

for further analysis of regulatory effectiveness through a study of the tools available to regulators.

The differences in the trajectories adopted by developed and developing country models, and the challenges and conundrums faced by developing country regulators is analysed in Chapter 5. This analysis is key to addressing the main research hypothesis, namely whether the current model of independent regulatory agencies is relevant and appropriate to developing countries.

Chapter 6 & 7 contain the case study analyses. Chapter 6 examines the design and remit of the case study regulator to see if it conforms to the best practices prescribed by reform architects. Chapter 7 analyses the performance of the case study regulator.

Chapter 8 analyses the results of the case-study; it examines the performance of the case study regulator against the backdrop of its adherence or otherwise to industry best practices and draws inferences from the results thereof.

Chapter 9 presents the summary of the findings, the conclusions from the case study, their relevance and applicability to other developing countries, the scope for further research and the way forward.

*In this chapter, the rationale for research, the main and subsidiary research questions, the methodology, scope and relevance of the topic and the organization of the thesis have been outlined. The next chapter will discuss the theoretical underpinnings of utility regulation as the starting point of this research.*



## Chapter 2

# Theories of Economic Regulation

*In order to examine the relevance and appropriateness of regulatory institutions, it is necessary to understand the historic and contemporary rationale for utility regulation. This chapter engages in a comprehensive discussion on the various theories of economic regulation during its evolutionary stages. This is followed by an outline of the circumstances leading to the emergence of new independent regulatory institutions in the context of neoliberal reform. These discussions form the backdrop for analysing the main research question, namely the applicability of these theories to a developing country context.*

## ***Definition of Economic Regulation***

Until the end of the 19<sup>th</sup> century, unregulated marketplace was the norm. Thereafter, some form of regulation of economic activity came into being worldwide, prompted primarily by the abuse of market power by the dominant players. Economic Regulation refers to government intervention in the marketplace to control or affect firms' decisions about price, output, markets supplied, product quality or production processes. Properly defined, the term refers also to taxes and subsidies of all sorts as well as to explicit legislative and administrative controls over rates, entry, and other facets of economic activity.

Regulation started off as intervention in economic activities, especially in utility industries serving a large number of consumers, but over time, expanded to include health, safety and environment across a wide range of economic activities. The theories of regulation discussed in this chapter relate exclusively

to economic regulation and not to health, safety and environmental regulations.

Throughout the 20th century, economic regulation of utilities was almost universal. The advent of neo-liberal economic philosophy towards the last two decades of the 20<sup>th</sup> century introduced a paradigm shift in economic thinking. The new philosophy re-emphasised the role of markets in the supply of goods and services over all other forms of governance and consequently advocated deregulation of utility industries. Economists questioned the need for direct government regulation, arguing that laissez-faire would lead to better allocative efficiency and enhanced economic welfare. Gradually, as neo-liberal thinking gained wider acceptance, the regulatory controls put in place during the first 80 years of the 20<sup>th</sup> century began to unravel. Health, safety and environmental regulations however, remain and are even getting strengthened.

In the following section, the economic thinking which gave rise to regulation in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries is outlined. The last part of this chapter distinguishes between regulation, deregulation and independent regulation, terms that have been used widely in the literature on market reforms and regulation.

## **Section A**

### ***2.1 Theoretical Underpinnings of Government Regulation***

### ***2.1.1 Public Interest Theory of Regulation***

#### ***Correcting for Market Failures Argument***

The ‘Public Interest Theory of Regulation’ argues that regulation is the product of “responses of government to public demands for the rectification of palpable and remediable inefficiencies and inequities in the operation of the free market” (Posner, 1974). Among the proponents of this theory are James R. Bonbright, an economist and two lawyers, K. C. Davis and Henry J. Friendly. This theory argues that there are inefficiencies and inequities in the market place and that regulation is supplied in response to the demand of the public for correction of such inefficiencies and inequities.

Public interest theory introduces the concept of regulation for market failure on multiple counts. It could arise from any one of the following:

- i. discrepancies between costs and benefits arising out of imperfect competition,
- ii. unstable markets,
- iii. missing markets or
- iv. undesirable market results.

The first arises out of imperfect competition which will cause prices to deviate from marginal cost. When prices are lower than marginal cost, the supplier may be unwilling to supply the goods/services, leaving out those segments of the population who are responsible for such deviation.

Unstable markets are characterized by dynamic inefficiencies with respect to the speed at which these markets clear or stabilize. These instabilities waste scarce resources. Missing markets imply the demand for socially valuable goods and services for which

total value exceeds total cost but where prices or markets do not arise, such as in the case of externalities or markets with particularly high transaction costs. And finally, even if the competitive market mechanism allocates scarce resources efficiently, the outcomes of the market processes might still be considered unjust or undesirable from other social perspectives. Hence the government steps in to act as an omniscient, omnipotent and benevolent regulator (Dixit, 1996).

Although Posner argues that behind each specific instance of regulation (viz. worker protections, subsidies, price regulation for utilities), there is a specific market imperfection that “...(supplies) a complete justification (for the regulation)”<sup>7</sup>, empirical evidence provides little support for this theory. Little correlation has been found between the extent of regulation in an industry and how prone it is to market failures in the form of externalities and undue concentration of market power (Dempsey, 1989). Crucially, the evidence also provides remarkably little correlation between regulation and increases in efficiency, welfare, or equity, as we shall see later in this inquiry.

### *The Imperative of Universal Supply Argument*

The public interest argument runs thus: the fact that essential utility services need to be made available to everyone in society, on demand, on a non-exclusionary basis, necessitating universal supply implies the need for extensive and comprehensive network infrastructure to reach every potential consumer (Araral, 2009). Substantial upfront investments are required to set up such networks, yet utility services are typically consumed in low volumes universally or by a large segment of the population,

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<sup>7</sup> (Op cit Posner, 1974)

Furthermore, as this trickle of demand is unlikely to expand exponentially, recouping just the cost of the initial investment entails long recovery periods for the investors in network infrastructure. Electricity, urban water supply and sanitation, roads, telecommunications and piped cooking gas fall in this category. Left entirely to market forces, network infrastructure might cluster around relatively affluent urban population centres where investment would both be lower, and cheaper, due to ease of access and supply, as well as clustering of demand over relatively small geographical areas<sup>8</sup>. Investment would consequently yield higher returns, yet leaving out rural and far flung consumers as well as the urban poor. Some kind of regulatory intervention would be required in the larger public interest, to ensure that everyone in society has equitable access to utility services.

### ***The Obligation to Supply Regardless of Ability to Pay Argument***

The problem isn't just one of supply, though that certainly is the most difficult to tackle. The situation is complicated by the fact that public interest also requires that utility services must be supplied to everyone in society regardless of their ability to pay. For instance, in cold countries, regulators often decree that heating not be turned off in winter to poor consumers who are unable to pay. Even in the US, FERC decrees that electricity or heating not be turned off for non-paying consumers. In fact, most utility services have become so indispensable to modern life that a life of dignity is inconceivable without them. This, then, is the problem---the failure of the market to provide both universal *access* in addition to universal *supply* of utilities society deems

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<sup>8</sup> Op cit, Araral, 2009

essential to human life and dignity is the problem public interest regulation aims to fix. Markets may not be able or willing to supply these commodities at prices which are affordable to the consumer, but not profitable to the supplier.

## ***2.2 The Political Imperative Argument***

This is not to say that the output of utilities should be termed ‘public goods’ as defined by classical economists; they are not. Yet, treating them at par with other private goods to be supplied by markets to those who can afford to pay for them, poses a problem, especially in the context of the modern welfare state. Public interest regulations also highlight another reason why regulation is a particularly complex problem---the importance of these utilities to life and dignity mean that democratic governments are typically averse to risk of failures in provision, for self-preservation if nothing else. Even non-democratic governments need a degree of legitimacy to avoid being overthrown and hence need to ensure universal access to utility services. Some scholars have gone as far as to argue that electricity and water are a basic human right implying that governments will have to supply these to their citizens (Tully, 2006 ). Left entirely to markets, there is a risk of the poor being excluded from access to basic utilities. Thus serving the ‘public interest’ would warrant a degree of regulatory intervention in the markets. Besides, markets may be unwilling to invest in the extension of infrastructure to far flung regions, unless regulatory intervention forces investors to do so.

### ***2.3 The Natural Monopoly Argument***

There is yet another facet of utility industries. Being network industries, they tend to be natural monopolies with substantial scale economies. This is because construction of the requisite infrastructure, which by itself provides no revenue, cannot be decoupled from transport. After construction, the owner of the infrastructure can either allow others to supply the utility, serving solely as transport, or might choose to supply the utility themselves. In either case, such a natural monopoly can and often would extract monopoly rents, forcing up prices and leading to consumer exclusion. Regulation is a way of keeping a check on such abuse. Economic regulation is primarily aimed at ensuring the monopoly firm does not charge prices far above marginal cost or limit output of an essential commodity or service. Viewed from this perspective, the objective of regulation would be to improve allocative efficiency and thereby, welfare.

There are other public-interest justifications as well, for the introduction of regulation. The government might intervene in the market so as to protect consumers' interests arising out of information asymmetry between producers and consumers (Breyer, 1984). After all, a well-functioning market assumes perfect and complete information on the part of buyers and sellers, something virtually non-existent in the real world. In fact, in utility industries, the firm has all the information on costs whereas the consumer has none. An empowered regulator can demand and access relevant cost and other information from the utility for the benefit of the consumers.

### ***2.4 The Convenience of Public Interest Argument***

There are others who see the public interest argument as one of convenience rather than necessity. In fact, ‘public interest’, often used to justify government or regulatory intervention, is too vague a term and too fragile a basis for practical regulation (Feintuck, 2010). It has been argued that precisely because it is difficult to identify or formulate what constitutes public interest, regulation is ‘relegated’ to serve measurable economic, rather than social or collective interests. Yet, public interest is a useful justification for introducing regulation even when it serves only private interests.

## ***2.5 Is Government Regulation, Informed, Benevolent and Efficient?***

Earlier in the chapter, the public interest theory assumed that government intervention is informed, benevolent and efficient and therefore, maximises social welfare. Also implicit is the assumption that government intervention happens through legal instruments to fulfil socio-economic objectives. Economic literature on the subject is rich and instructive.

### ***2.5.1 Government as Utility Maximiser***

Taking the first assumption, it could be argued that government regulation of industry would be, like all else, directed by the forces of supply and demand, rather than benevolence. For instance, if voters who have the power to vote out an incumbent government can demand and pressure regulators into favouring them. Governments would then supply regulations to meet such demand because they have a vested interest in continuing in

power. Or, if industry which funds election campaigns in democratic regimes could pressure governments into supplying regulations that favour itself. Or, industry as a whole could cartelise and pressure the government into supplying regulations in its favour. Interest groups could come together and bend regulations in their favour. In which case, regulations would hardly be benevolent and in the public interest.

## ***2.6 Problems of Information Asymmetry***

Government intervention may not even be informed as assumed. There is a sizeable body of literature that points out how information asymmetry is inherent in the regulatory paradigm, that regulators seldom have the information that the regulated entity is privy to and therefore, often make decisions in an information vacuum. From this follows the concept of adverse selection wherein the operator uses its privileged information adversely to gain additional profits. In the event, regulators are forced to explore second-best solutions which are not always optimal.

Detractors of government regulation argue that even second-best optimal allocation by regulators is infeasible (Utton, 1986). Not only is the information to devise optimal policies and regulations not available to regulators, but even enforcement of regulatory orders is far from perfect (Sappington and Stiglitz, 1987a, 1987b; Viscusi and Zeckhauser, 1979). It has been argued that adverse selection and moral hazard are problems associated with the regulatory model of governance.

## ***2.7 Capture/Private Interest Theory of Regulation***

The public interest theory of regulation assumes a benevolent government, an assumption that has been questioned by many critics. Prominent among them are the proponents of Capture Theory, espoused by the Chicago school. According to this school of thought led by Posner (1971, 1974) and Peltzman (1976), regulation is a device for transferring income to well-organized groups, if the groups will return the favour with votes and/or contributions to politicians. Governments, like other stakeholders, also expect to benefit from regulation in the form of political support. Whether such support comes from the electorate (consumers) or from interest groups which fund elections, depends on the individual contexts and circumstances.

### ***2.7.1 Stigler's Interest Group Theory***

Stigler, on the other hand, points out that regulation is often sought and procured by the regulated monopoly itself in order to block competition (Stigler, 1971). His hypothesis, for which he was awarded the Nobel prize in 1982, was that regulation is secured by politically effective interest groups, invariably producers rather than consumers. According to him, the central tasks of the theory of economic regulation are to explain who will receive the benefits or burdens of regulation, what form regulation will take and the effects of regulation upon allocation of resources. Stigler's theory predicts that regulation is likely to restrict entry as the incumbents have more bargaining power than potential entrants, and their rents will be threatened by competition.

From the foregoing discussion, it is evident that distributive goals, fairness, or justice seldom figure in the scheme of economists expounding on the capture theory of regulation although governments might use these terms to justify introduction of regulation.

### ***2.7.2 Posner's Disguised Taxation Theory***

Posner goes one step further and posits that consumers could be co-opted into endorsing regulation. If entry of a new firm into an existing market increases deadweight losses and makes negotiations costlier, even consumers could be persuaded to oppose competitive entry by offering them cross-subsidies (Posner 1971) or targeting benefits appropriately (Crandall 1983). Not only can interest groups capture regulation, but can even make accomplices of out of consumers whose interest regulation is meant to serve, in the first place.

Posner further argues that regulation is a form of disguised taxation; that is, through regulation, government attempts to tax one group for the benefit of another group. As with Stigler's, Posner's theory of regulation is a theory of income redistribution which ties in with government capture of the institution for political purposes. The inefficiency of regulation, according to these theories, emerges as a consequence of the selective tax system employed. In the Peltzman model, the regulator allocates benefits from regulatory policies among different groups to maximise political support (Peltzman, 1976). Other economists believe governments seek regulation to extend their tax base for rent maximisation (North, 1990).

## ***2.8 Bureaucratic Theory of Regulation***

Bureaucracies capture regulation for their own purposes. McKenzie and Macaulay argue that regulation is purposefully designed by public bureaucracies to make the private sector inefficient, increasing the relative attractiveness of the public sector (McKenzie and Macaulay, 1980). The consequence of regulation may be 'economic waste,' but regulation can nevertheless be an important tool of bureaucracies interested in expanding the size and scope of their own economic realms. Akin to the above is the private interest theory which predicts that regulators will use their power to transfer income from those with less political power to those with more.

From the discussion above, it is evident that economic regulation comes at a cost. It is the outcome of bargaining by various interest groups, each seeking to maximise its own utility. Regulators are seen as utility-maximizing arbiters between these various interest groups. Different interest groups have different bargaining power, depending upon their costs of organizing and the benefits of manipulating outcomes, and they will intervene to redistribute benefits to their group at some additional inefficiency cost. Just as the central insight in public finance is that redistribution creates deadweight costs that must be balanced against the distributional gains of taxation, so interest group theory recognizes that policy interventions will be biased in favour of some groups at the expense of others, and at some cost in extra deadweight losses. The outcome may bear little relationship to the best feasible option that a benevolent dictator might choose in the public interest, and certainly need not minimize efficiency losses.

## ***2.9 The New Institutional Economics and Transaction Cost Theories***

In the 1970s, New Institutional Economics emerged as a distinct discipline to explain types of and the rationale for industrial organizations. The seeds of this new field of inquiry were sown by Ronald Coase in 1960.

### ***2.9.1 Ronald Coase on Property Rights***

Coase maintained that regulation was necessitated by the presence of transaction costs which arose because property rights were not clearly defined. Any issue that arises as or can be reformulated as a contracting problem is usefully examined through the lens of transaction cost economizing, according to Coase who went on to win the Nobel for his theorem. In other words, where there is a conflict of property rights, the involved parties can bargain or negotiate terms that are more beneficial to both parties than the outcome of any assigned property rights. It also asserts that in order for this to occur, bargaining must be costless; if there are costs associated with bargaining, such as those relating to meetings or enforcement, it affects the outcome. The Coase Theorem shows that, where property rights are concerned, involved parties do not necessarily consider how the property rights are granted if they can trade to produce a mutually advantageous outcome (Coase, 1960).

### ***2.9.2 Williamson's Bounded Rationality Theory***

Oliver E. Williamson carried this concept forward to explain different kinds of market behaviour, based on bounded rationality which takes the study of regulation to the sphere of behavioural economics. Bounded rationality, opportunism, the primacy of markets and the action of economizing are building blocks of transaction cost economics, as formulated in the work of Williamson (Williamson, 1993). Bounded rationality refers to the limits on the ability of an individual to acquire, assimilate and use information and anticipate all future contingencies in a contracting relationship. Opportunism assumes that some individuals will take advantage of information asymmetries, not be forthright in their dealings etc. Building on those elements, TCE has become a new orthodoxy among contemporary theories of the firm (Groenewegen and Vromen, 1996). It has been further developed by other economists such as Alchian (1961) and Demsetz (1967).

## ***2.10 The Synthesis Approach***

There have been a few attempts to incorporate and synthesise the various theoretical approaches to economic regulation. The New Haven School has developed a more serious public interest theory of regulation, taking into account transaction and information costs of regulation (Becker 1986, Rose-Ackerman, 1988, 1992; Noll, 1983, 1989a). While regulation itself is far from perfect, it could be argued that government regulation is comparatively the more efficient institution to deal with market failures (Goldberg, 1979). Breyer, however, finds regulation to be a trial and error process (Breyer, 1970).

### ***2.10.1 Internalising Transaction Costs***

Other economists also believe that the market failure theory has been assumed without reference to transaction costs, but these can be internalised to make resource allocation more efficient (Cowan, 1988; Zerbe and McCurdy, 1999, 2000, Dahlman, 1979; Toumanoff, 1984). Monopoly power for example, only appears to have inefficient outcomes. Once the inability of the monopolist to price discriminate or to prevent arbitrage or the inability of the consumers to organize and negotiate effectively, is taken into account, the market outcome is efficient. The same reasoning applies to externalities. Marginal costs appear to differ from marginal benefits, but once the transaction costs of the market mechanism are taken into account, the market outcomes turn out to be efficient. It is possible to attain cost-minimizing outcomes, according to them.

### ***2.10.2 Self-correcting Mechanisms***

Critics also point out that the market mechanism itself is often able to develop institutions to compensate for any inefficiencies. Firms will devise ways, for example, to highlight essential quality aspects such as safety or superior performance” (Hertog, 1999). Problems of adverse selection are solved by companies themselves by, for example, the issue of guarantees, the use of brand names and extensive advertising campaigns as a signal of quality (Nelson, 1974). The so-called externalities have been shown to have been internalized by the market itself (Cheung, 1973, 1978). The assumption of market failure when a dominant firm supplies the market is similarly criticized (Demsetz, 1976). Any significant returns could be a result of superior efficiency of such companies and furthermore, account

must be taken of the possibility of competition for the market as opposed to competition in the market (Baumol, Panzar and Willig, 1982).

### ***2.11 Over-capitalisation Inherent in Regulation***

Averch and Johnson pointed out inefficient combinations of production factors is inherent in price regulation (Averch & Johnson, 1962). According to this argument, since a regulated firm gets a return on its asset base, it has the incentive to increase the asset base beyond what is warranted. Inefficient decisions also lead to inefficient planning of investment projects (Viscusi, 1985; Baumol and Klevorick, 1970; Sweeney, 1981, Laffont and Tirole, 1993). Theoretical research into the efficiency and effectiveness of government regulation gradually developed into theories of non-market failures equivalent to the theories of market failures (Wolf, 1987, 1993; Tullock, Seldon and Brady, 2002).

Where regulation was put in place in response to market failure, empirical research has shown up loopholes in the design of regulation. Posner demonstrated that regulation prescribed an inefficient price structure in which mainly certain consumer groups received cross subsidies (Posner, 1971). Jordan found, based on empirical research, the influence of regulation on monopolies was slight, if at all (Jordan, 1972).

However, it would be pertinent to point out the fact that the beneficial impact of regulation is often unquantifiable – the distributional effects which reduce societal inequalities, for instance. Much of the criticism of the public interest theory stems

from the prism through which regulation is judged, namely, efficient allocation of resources which is purely an economic goal whereas, regulators are expected to deliver social goals as well. In the entire literature on market failure, there seems to be a conflation of public interest with efficient allocation of resources, which may not exactly be the case.

## **Section B**

### ***2.12 Theoretical Underpinnings of Independent Regulation***

The last two decades of the twentieth century witnessed a major paradigm shift in the way economies of the world are governed. Driven by what is loosely referred to as the Washington Consensus, it comprised a set of reform measures conceived by neo-liberal economists at a time when global economic growth was slowing down at an alarming pace. (Annexure 1 – Washington consensus) There was growing concern over the excesses of the welfare state that had brought them to the brink of a crisis in the 1960s and 1970s. Government expenditure spiralled out of control, exacerbated by inflation and increasing unemployment. This was the period that witnessed the expansion of the public sector in most of the world. The welfare state seemed to be in a crisis (Sarah, 2007).

The purpose of economic reforms was to revive growth which it sought to do by reinstating markets in a range of economic activities that were historically the preserve of governments almost everywhere. There is also a view that, part of the push for reform comes from developers seeking opportunities in emerging

markets since their own markets were already saturated. Utilities are an evergreen industry whose services always have a market and the demand for these services is universal (Michot,1998).

This section deals with the theories that inform the new independent regulatory paradigm that emerged in the 1980s and 1990s, as part of the larger reforms processes influenced by neoliberal economic policies. Here the focus is on theories that have emerged to explain the new institution of independent regulatory commissions which now govern a wide gamut of economic activities in a range of utility industries like water, electricity, telecommunications, highways, etc.

### ***2.13 Distinguishing Regulation, Deregulation and Reregulation***

In Section A, we discussed the origins of regulation and the economic theories that underpinned regulation as it emerged in the early 20<sup>th</sup> century. This section briefly defines regulation, deregulation and re-regulation all of which would form the core of the enquiry in this thesis.

An entire school of economists referred to as the neo-liberal school has theorised the rationale for market reforms in general. Independent economic regulation of utilities is a novel experiment that has been in existence for less than three decades and as such, there are few regulatory theories that specifically address independent regulation in a modern context. Their recommendations can be broadly divided into two categories, *deregulation* in the developed world, and *reregulation* in the developing world.

## ***2.14 Deregulation***

Deregulation or the introduction of markets as the ideal governance mechanism for all economic activities including utility industries, has its roots in the failure of the earlier regime of government regulation. In the 1970s, especially after the oil shocks, economies had begun to slow down, inefficiencies that had crept into the system over the previous decades had accumulated to unsustainable levels, threatening to derail the economies of the developed world. Specifically, markets were posited as an avenue for both increasing the allocative efficiency of utility distribution, and, privatizing utilities could provide an additional profitable avenue for private investment to bolster the flagging economies. In the developing countries, the problems were even more acute, exacerbated by government opportunism and other factors. A paradigm shift in the way the economies of the world were being governed was mooted to rescue the derailed economies and put them back on track. The reforms contemplated were intended to attract private investments in sectors hitherto dominated by government ownership, market-based pricing for utility services, elimination of subsidies and a host of related measures.

Therefore, neo-liberal economic policies challenge the very basis of regulation and advocate deregulation, namely the dismantling of many controls on economic activities and the distancing of the state from them. While the concept of welfare as a pillar of the modern state has not been explicitly challenged, neo-liberal economic policies tend to emphasize the gains in efficiency from allowing markets to be the primary form of distribution of

utilities. In short, the means and the institutions to achieve welfare are being redefined. The competitive segments of utility industries are governed by market forces. This phase is referred to as deregulation, prevalent mostly in the developed economies.

### ***2.15 Re-regulation***

Introduction of markets and deregulation, however desirable, is difficult to implement comprehensively in utility industries that require extensive network infrastructure. Substantial upfront costs of building the network, long recovery periods and economies of scale render network infrastructure a natural monopoly prone to abuse of market power. Therefore, even in a restructured utility, the monopoly segments need to be regulated. Instead of government regulation, the reformed utilities are being regulated by independent regulatory commissions whose remit is somewhat limited compared to the earlier regime of government regulation. This is re-regulation.

In the developing world, reforms have taken a slightly different form. Vertically-integrated power and gas utilities have been unbundled into their constituent segments. Where the political environment favoured privatization of the competitive segments, it was accomplished. But in jurisdictions where privatisation was either unacceptable or infeasible, private investment in the competitive segments of the utility businesses, such as power generation and distribution, were introduced at the margin. The new entrants would compete with the dominant, state-owned enterprises already providing utility services. This necessitated a new paradigm of non-discriminatory governance, one where a regulator would ensure level playing field for new private entrants.

This was the defining characteristic of independent regulatory agencies in the developing world. The new economic regulator would be autonomous, independent of the government and statutorily empowered to discharge well-defined and specific mandates at arms-length from all stakeholders. While level playing field is a necessary condition to attract private investments in utility industries, whether it alone is a sufficient condition for expansion of utility services to the unconnected citizens in developing countries is a question that will be examined in the subsequent chapters of this thesis.

## ***2.16 The Regulatory State***

The widespread adoption of independent regulation in almost every sphere of economic and social activity has prompted economists and political scientists to term the modern state as a regulatory state (Majone, 1994; 1997; Loughlin and Scott, 1997; McGowan and Wallace, 1996, Hood et al., 1999). However, the regulatory state does not develop in a vacuum and is not meant to operate as a sole source of regulatory control. At best, it can be embedded successfully in older layers of governance that were created for different purposes and in different eras, which is why, most developing country governments still retain ultimate control over utility businesses in the form of policy prerogative which can over-ride independent regulation.

## ***2.17 Regulation as constitutional anomaly***

The institution of independent regulation constitutes, ‘a constitutional anomaly’, one that upsets the Madisonian system of checks and balances enshrined in the traditional political architecture. The regulatory state is essentially non-majoritarian in character since regulators are not directly accountable to the citizens. The line of accountability is often diffuse and complex, reflecting the plurality and complexity of the constituencies they serve in the modern world (Veljanowski-1991).

### **2.17.1      *Rule-based, Technocratic Governance***

What justifies this ‘constitutional anomaly’ is its emphasis on rule-based governance, one that is transparent and perhaps, even participatory albeit through an apolitical process (Colin Scott, 2000). The regulatory state relies heavily on the agency of experts to oversee the transition from state to market. Majone even goes on to say that the legitimacy of the new regulatory institutions derives from the expertise of the regulators themselves. “A fundamental shift from a positive activist state associated with Keynesian demand management, public ownership of utilities and major industries, direct labour market intervention to a regulator state in which rule-making by disaggregated specialist agencies has become the dominant means of achieving desirable social, economic and environmental outcomes” (Majone 1994). Thus, regulation can be viewed as a technocratic solution to what is essentially a political economy problem. Other views emphasise the signalling of ‘credible commitments’ by the governments to improve efficiencies in infrastructure delivery through institutions that employ experts (Levi-Faur, 2004).

## ***2.18 Regulation as Government in Miniature***

Then arises the question, “Is regulation, a form of governance in miniature?” (Prosser, 1999). Regulators in some contexts combine all three functions of the state – legislative, executive and judicial although these are derived powers and not original. For instance, regulations made by regulators would be categorised as ‘delegated legislation’ wherein the parliament enacts a law which forms the framework within which regulations must be drafted and approved by the parliament. Similarly, the judicial powers of the regulators are subject to review by courts.

*In this chapter, a brief outline of the theoretical underpinnings of economic regulation as it evolved historically, has been attempted. Public interest and private interest theories as well as transaction cost theories were discussed. The chapter then went on to trace the advent of neo-liberal economic theory advocating free markets in the provision of utility services and the introduction of independent (re-)regulation in utility industries in developing economies. In analysing the rationale for re-regulation, this chapter examines the assumptions underlying the institution of independent regulatory agencies in developing countries. The following chapters will examine these assumptions to see if they hold good in geographies with incipient infrastructure and inadequate reach of basic utility services to their citizens to find out if independent regulation is the relevant and appropriate institution of governance in developing countries.*

## Chapter 3

# History of Economic Regulation Worldwide

*In the last chapter, the theoretical underpinnings of economic regulation were discussed as a backdrop to the main research question, namely, whether independent regulation is the appropriate mechanism for developing countries. The first part of this chapter traces the history of economic regulation worldwide as it evolved from the early 20<sup>th</sup> century until the oil shocks of the 1970s. This is followed by a discussion on the advent of neoliberal economic thinking and the subsequent structural reforms in utility industries in the United States, Europe and the developing world. The discussions are intended to highlight the differing contexts in which the regulators have been embedded although their remit and powers are similar. This exercise has been undertaken to gain insights on the suitability of independent regulatory institutions to developing country contexts.*

## ***3.1 History of Utility Regulation in the Developed World***

### ***3.1.1 United States***

In the United States, natural gas has been in use as fuel for lighting and space-heating since the 19<sup>th</sup> century. Gas supply, like water supply, electricity or sewerage, is essentially a local network utility serving industries, businesses and residential consumers in a defined area - a municipality, town or city. In most jurisdictions, natural gas industry developed organically into a local distribution business wherever gas was available or synthesised from coal. Over time, the businesses expanded to get interconnected with other gas utilities within a state and/or across states to form a national gas grid (Troesken, 1997a).

### *Organic Growth of Gas Networks*

An excellent analysis of the evolutionary path of the different regulatory regimes in the US can be found in the works of Werner Troesken (Troesken, 1994, 1997a & 1997b). In a vast country like the United States, this meant the emergence of multiple local gas utilities wherever the fuel was found, some privately-owned, others, municipal utilities. Typically, in small areas, municipally-owned gas utilities provided gas supply while large and profitable towns were supplied by private companies. In most cities and towns, these businesses were unregulated. The term 'rate' here refers to the final unit price paid by a gas consumer and would include both the price of gas and the transportation costs incurred to reach the gas to the consumers (ibid).

At the turn of the century, several states passed laws authorizing municipal governments to directly regulate gas rates and other utility rates. These new municipal regulation laws meant that once a gas company's franchise contract with the city expired, city authorities could unilaterally dictate rates. Gas companies did not have to consent to the new rates for them to become legally binding. Moreover, once the state legislature granted a local government the power to regulate rates, the local government could not contract that power away (Troesken, 1997b).

Some state constitutions sometimes prevented local authorities from establishing municipally owned gas plants without first securing permission from the state legislature. These provisions were meant to protect gas companies' investments. Private gas companies were wary of competition from municipally owned plants because they often received subsidies and had no obligation to be profitable. Yet, in many jurisdictions, substantive

due process also protected gas companies against confiscatory rate regulation-regulation that set rates so low that firms could not earn a reasonable rate of return. In the famous *Reagan and Smyth v. Ames* decisions the courts frowned upon regulators who set rates too low, and declared that they violated producers' Fourteenth Amendment rights. Adopted in 1868, the Fourteenth Amendment to the U.S. Constitution protected all industries against overzealous regulatory policies (ibid).

Towns with limited gas service opposed municipal regulation laws, because such laws undercut their ability to credibly commit to reasonable rates. The first states to pass municipal regulation laws were those with well-developed gas industries.

Historically, the number of municipally owned gas companies varied across space. For example, in 1910, 35 of Iowa's 117 gas companies were municipally owned, while only three of Illinois' 78 gas companies were municipally owned (ibid). Market size and regulatory regimes also varied across space. In some cities and towns, gas companies faced onerous regulatory policies; in other places, they got away with light-handed regulation. Some gas companies had large markets while others operated in a small area. As market size and regulatory institutions varied, the number of municipally owned gas plants also would have varied.

According to Troesken, when the gas companies were being regulated by local politicians, their rate-making decisions were determined by the ballot box (ibid, 1997a). However, the state regulatory commissions were not so responsive to voter demands and aspirations. State regulators often tolerated higher gas rates than did local regulators. Given that state regulation was less politicized, it would have encouraged private capital formation and discouraged municipal ownership.

Originally, this credible commitment was manifested in the state constitution's prohibition of municipal rate regulation and in the granting of exclusive franchise rights. In addition, the Fourteenth Amendment's guarantee of substantive due process protected the firm from rates that were so low as to be non-compensatory. Agencies were, therefore established to regulate utilities<sup>9</sup>.

### ***Interstate Commerce Commission, 1887***

The first such agency was the Interstate Commerce Commission (ICC) set up in 1887 to regulate railroads and trucking businesses. In the early 20<sup>th</sup> century, ICC's remit expanded significantly to include most other utility industries. In fact, within a quarter of a century, regulated industries accounted for 23 per cent of US GDP. (Breyer, 1982) As more and more utilities became indispensable to modern life and commerce, regulatory agencies proliferated in the US.

### ***Natural Gas Act 1938***

The Natural Gas Act of 1938 gave the FPC, the power to regulate sale and transportation of natural gas. In 1940, the Natural Gas Act was amended to enable FPC to certify and regulate natural gas facilities. Gradually, FPC's mandate expanded to include both interstate and intrastate sale of gas. Federal Energy Regulatory Commission, a successor entity to the Federal Power Commission, was set up in 1977 to regulate interstate commerce, infrastructure and other related issues <sup>10</sup>.

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<sup>9</sup>       ibid

<sup>10</sup>       Compiled from the websites of FERC and EIA

***Federal Energy Regulatory Commission (FERC), 1977.***

Interestingly, FERC not only determined interstate pipeline tariffs, but even regulated the wellhead price of natural gas for nearly 25 years from 1954 to 1978, thanks to the Supreme Court's Phillip decision (347 US 672 (1954))<sup>11</sup>. Well-head gas price controls were repealed only in 1992<sup>12</sup>. The post-war recovery started around 1950 and coincided with the period of wellhead price control, which resulted in plentiful supplies of domestic gas. The regulator incentivised exploration and production activity by offering generous wellhead prices which included all costs plus a reasonable rate of return. Intense exploration efforts yielded new oil and gas wells which came on stream in rapid succession, portending a promise of plentiful domestic petroleum supplies. Even as early as 1940, 100% of US households had electricity connections, 73% had gas connections for cooking and space heating (Gordon, 2016). Not only did regulatory policies incentivise production, but also construction of network infrastructure to monetise the gas by fixing tariffs that were remunerative.

***Order No.436, 1980s***

A complex series of events in the early 1980s led FERC to lift all price controls in 1985. Order 436, effectively ended the earlier role of pipelines as purchasers and resellers of gas to LDCs. Order 436 (followed by Order 636 in 1992) turned pipelines into "open access" transporters for gas owned by producers, LDCs, and others<sup>13</sup>. FERC still set maximum pipeline rates, but also left pipelines free to charge less to attract business. For the first time

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<sup>11</sup> <https://supreme.justia.com/cases/federal/us/347/672/> accessed on August 11, 2019

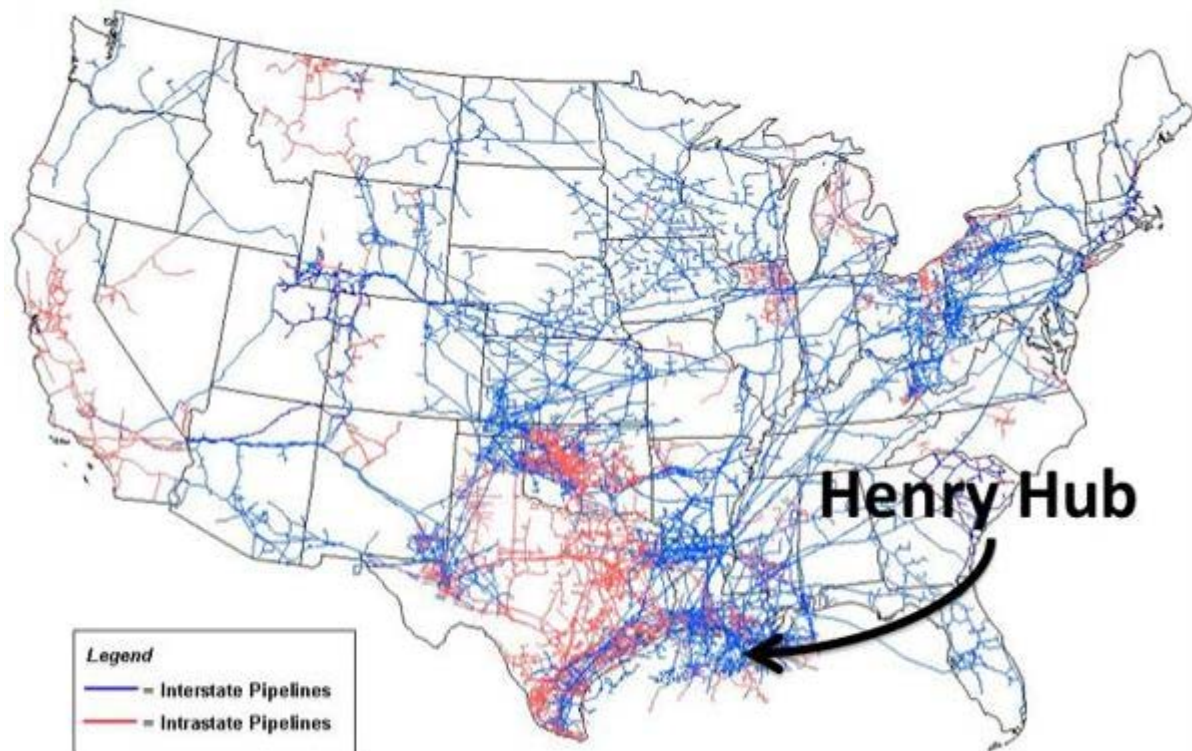
<sup>12</sup> <http://naturalgas.org/regulation/history/> accessed on 11<sup>th</sup> August 2019

<sup>13</sup> <https://www.ingaa.org/Pipelines101/Economics/25816/1341.aspx>

since the 1930s, producers and LDCs could contract for gas as they wished, sometimes with the help of a new industry of marketers. Soon these parties learned to use the new rules to trade rights to pipeline transportation among themselves and to repack legal rights into more valuable combinations. Although pipelines may be natural monopolies, exchangeable transport rights allowed competitive markets to allocate much of their capacity.

The shortages and politically determined allocations of gas that accompanied price controls are no more. Open access to pipelines and storage has brought about a nationwide market that is becoming continent-wide as Canadian gas is integrated into U.S. supplies. In the unified market, prices at different locations differ only by the cost of transporting gas between them, as long as pipeline capacity is not a constraint due to severe weather. Most gas is traded in short-term markets for delivery during the next month. Long-term contracts and large storage capacities were necessary when price controls created risk that the gas would not be delivered, but now both gas and its transportation are available on short notice.

Figure 2: Map of Henry Hub in the United States



Source: EIA 2017 [https://www.eia.gov/naturalgas/archive/analysis\\_publications/ngpipeline/ngpipelines\\_map.html](https://www.eia.gov/naturalgas/archive/analysis_publications/ngpipeline/ngpipelines_map.html)  
accessed on 11 Aug 2019

### ***The North American Gas Pipeline Network***

The North American natural gas market is structured based on what has been called the “hub” model of gas pricing. In markets with hub pricing, the interaction of supply and demand sets prices at a small number of specific locations. These locations are the “hubs.” The “local” price at any other location or points of consumption in the commodity network is thus the hub price plus the cost of transportation from the hub. Price differences between any two points in the gas pipeline network represent just the cost of transportation between those two points.

One implication of the hub pricing model is that the entire gas market should roughly obey the law of one price, which says that if the gas market is working efficiently, then price differences should reflect transportation costs. A change in the wellhead price

of natural gas would be reflected everywhere else in the network. The major hub pricing point in North America is the “Henry Hub,” which is a physical location in Louisiana. Henry Hub is well-connected to the rest of the North American market. The market price of gas is more volatile than that of any other major commodity (Alterman,2012). To hedge it, a wide variety of financial derivatives is now available, many based on the New York Mercantile Exchange’s futures contract, a highly successful instrument introduced in 1990. Over-the-counter derivatives also allow hedging of regional price differences and transportation costs.

### *Deregulation 1990s*

Like crude oil, natural gas is an energy commodity whose prices were gradually deregulated through the 1980s, culminating in full wellhead price deregulation in the early 1990s. Pricing of natural gas is determined by supply, demand, and transportation (pipeline) factors, and the natural gas market has its own distinct North American price benchmark - the Henry Hub - just as crude oil has West Texas Intermediate as its North American benchmark. Unlike crude oil, natural gas is used directly in virtually all sectors of the U.S. economy (residences, businesses, industry, power generation), with the exception of transportation. Also, unlike crude oil, natural gas is more homogeneous but more difficult to transport, meaning that trade in natural gas is more closely tied to the availability of pipeline capacity than is trade in other energy commodities.

In 2019, there are 150 large investor-owned utilities, 2000 municipal utilities, and approximately 1000 rural electric cooperatives and about 6 to 8 federal power agencies such as the Bonneville Power

Administration<sup>14</sup>. Many of them are combined electric and gas utilities. These numbers fluctuate from year to year owing to mergers and acquisitions. Despite their smaller numbers, investor owned utilities have a large market share.

It is important to note here that price controls for nearly a quarter of a century offered a modicum of stability and predictability to the consumers and ensured expansion of the consumer base, which made the private expansion of networks sustainable. Investors came forth to build the necessary pipeline networks to ferry the gas from the newly producing wells to new consumer markets because there was assurance of plentiful supply as well as a viable market downstream. Thus, there was an organic and rapid growth of network infrastructure under conducive conditions. In other words, network infrastructure in the US got built over the decades of price control when regulatory policies helped mitigate supply, price and market risks.

### ***3.1.2 Europe***

#### ***The United Kingdom***

In the late 19th century, gas, synthesized from coal, first began to be used as fuel for lighting purposes. It was used by town councils to light up streets and public spaces. Called town gas, it was produced by thousands of small private firms and sold to county councils. Town gas varied in its heat value, had low pressure and needed huge storage facilities in towns and cities to ensure stability of supply.

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<sup>14</sup> Compiled from Wikipedia [https://en.wikipedia.org/wiki/List\\_of\\_United\\_States\\_natural\\_gas\\_companies](https://en.wikipedia.org/wiki/List_of_United_States_natural_gas_companies) accessed on 23rd June 2019

### ***The Heyworth Report***

In the 1930s, there was a public debate on the need to grow the gas industry. A number of experts had pronounced on the small scale of many gasworks and advocated a regional solution to the industry's problems. The wartime Coalition Government appointed a committee of inquiry, chaired by Sir Geoffrey Heyworth, to review the structure and organisation of the industry and to make recommendations for the future. The Heyworth Report, published in 1945, confirmed that the gas industry was not as efficient as it could be, and that there were likely to be gains from closing smaller works, and concentrating production in the larger works. The Heyworth Committee believed that consolidation into larger units was crucial to the future success of the gas industry although it did not advocate a national gas grid at that time (Jenkins, 2004).

### ***The Natural Gas Act 1948***

The Labour Government broadly accepted the proposals of the Heyworth Report. It was decided to add a central co-ordinating body to the structure of the industry. The gas industry was transferred into public ownership by the 1948 Gas Act. This established 12 Area Boards, each responsible for gas supply in their respective jurisdictions. The main duties of the Area Boards were 'to develop and maintain an efficient, co-ordinated and economical system of gas supply for their respective areas. A Gas Council was established, with remit that covered research and development, industrial relations at the national level, and it was

also to act as the representative of the Area Boards in discussions and consultations with ministers and civil servants <sup>15</sup>.

During the 1950s, gas industry managers set about tackling the problems identified by the Heyworth Report through a programme of integration, concentrating production in the larger works. The number of gasworks in operation was reduced from 1,050 at vesting day in May 1949 to only 428 by March 1960 <sup>16</sup>. However, economies in production and distribution were insufficient to prevent increases in the costs of gas manufacture. The price of coal, the gas industry's main raw material, rose rapidly in the 1950s. As costs rose gas struggled to compete with electricity, which also benefited from a modern, progressive image in contrast to the image of gas at that time as 'a Victorian hangover, associated with antique gasworks, smells and suicides' <sup>17</sup>.

The gas industry responded with a highly successful programme of research and development. Experimentation with the transport of liquefied natural gas over long distances in sea tankers eventually led to a large-scale project to import liquid methane from Algeria. This was supplying about ten per cent of British gas requirements by 1966 (Williams, 1981). The gasification of cheaper grades of coal by means of the Lurgi process was also investigated. Two commercial scale plants were built to investigate the potential of the method, but other processes proved to be more economic. The most important technological breakthrough was in the development of new gas manufacturing processes using oil feedstock.

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<sup>15</sup>        *ibid*

<sup>16</sup>        *ibid*

<sup>17</sup>        *ibid*

### *North Sea Gas Discovery, 1965*

British Petroleum discovered the first substantial natural gas field in the North Sea in 1965 and this was followed by a series of discoveries which proved a game changer for Britain. For politicians, North Sea gas offered an opportunity to ease balance of payments problems and also, perhaps, to improve the competitiveness of British industry through lower fuel costs. This meant a rapid expansion of the use of North Sea gas.

It is noteworthy that throughout this period, gas prices were negotiated between the producer and the Gas Council on a cost-plus basis. Also noteworthy is the fact transportation tariff was subsumed in the final delivered price of gas. This was possible because gas marketing and transportation were vertically integrated government entities. Typically monopolies, these served the voting, but poor consumers through cross-subsidies paid for by the relatively well-off consumer segments.

### *The Thatcher Era 1980s*

This situation continued until the 1980s when Margaret Thatcher took over the reins of the British government. An ardent supporter of neo-liberal economic policies and a staunch believer in the supremacy of markets as the ideal governance mechanism for all manner of industries, she went about denationalizing infrastructure industries one by one. Her government deregulated, cut marginal tax rates, repealed exchange controls, and tamed militant labour unions. But it was privatization that became her most important and enduring economic legacy. Thatcher oversaw the sale of many major businesses, including

British Airways, British Telecom, British Steel, and British Gas. Underpinning the policy changes was the belief that competitive markets could be relied upon to deliver energy more effectively and efficiently to consumers than the planning of the energy sector adopted by policy-makers in the thirty years or so prior to Mrs. Thatcher's first election victory in 1979 (Millward & Singleton, 1995).

The energy policy of the day was based on the premise that, given the level of maturity achieved in the energy market(s), access should be given to more players, which would vastly improve competition and hence reduce prices for the end consumer. This could be achieved because significant investments in infrastructure had already been made (and written down), meaning an "open-door" policy could be put into place, effectively introducing a market mechanism for the private entities involved <sup>18</sup>.

### ***Privatization of British Gas***

So, during the Thatcher years several privatisations were carried out in a broad drive encompassing the entire UK gas market. One of the first of these measures put into place, the Gas Act of 1986, led to the privatisation of British Gas, and in December that year, its shares were floated on the London Stock Exchange. The IPO (initial public offering) of its shares yielded a price of 135 pence per share valuing the company at £9 billion, the highest equity offering ever at the time. Britain moved from state ownership and control to independent regulation of the gas industry <sup>19</sup>.

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<sup>18</sup>       ibid  
<sup>19</sup>       ibid

## *Advent of OFGEM, the Independent Regulator*

OFGEM, Office of the Gas and Electricity Markets, was set up to regulate the newly privatized gas industry. The regulatory system was designed to avoid the perceived problems of rate of return regulation as practised in the United States. Price reviews were to be conducted at infrequent intervals using an RPI-X pricing mechanism that was expected to provide high-powered incentives for companies to reduce costs<sup>20</sup>. It was assumed that entrants to the market would rapidly erode any residual monopoly power in the energy sector.

The subsequent history of the privatised industry has been well described as ‘an excellent case study of the problem of regulating and restructuring a dominant, vertically integrated firm’ (Armstrong, et al, 1994). Nearly four decades after restructuring and privatization of British gas industry, a fully competitive market is yet to emerge.

Even though privatization was undertaken on the plea that it would lower consumer prices and increase output availability, neither of these objectives was achieved. Initiatives by the competition authorities (the MMC and the OFT) in support of the industry regulator were nevertheless successful in limiting the market power of British Gas and in extending competition to industrial and domestic markets. British Gas was not only not unbundled, but has retains significant market power in select markets within the UK, especially in transportation and storage.

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<sup>20</sup> RPI-X, a formula devised by Stephen Littlechild proposed tariff increases equal to inflation, but after allowing for an efficiency factor denoted by X. The regulator would fix the X-factor after much deliberation. If the utility made efficiency improvements in excess of the X- factor, it could keep the gains whereas, if it failed to improve efficiencies equal to the X-factor, would be required to absorb the losses. Thus, RPI-X is considered an incentivising tariff formula.

British gas is now a group of separated but not divested companies under common ownership.

Over the period of 1990 to 1998, a liberalised gas market emerged, with gas supply continuing to come primarily from UK sources (small amounts of Norwegian gas came to the UK during some of this period). The market at this stage can be described as transitioning from one of advanced competition to a fully integrated one (driven by domestic gas supplies). There were plentiful gas supplies from the UK Continental Shelf which meant that gas prices fell to a low level and supply competition via market based policies would ensure that low prices could continue. The UK gas market at this stage has the features of a fully integrated market. The UK provided its own gas supplies, being both a producer and consumer country, downstream market liberalisation thus being applicable to both supplier and consumer countries in this particular case.

### ***Continental Europe***

In the 1960s, the giant European gas field, Groningen came on stream, promising plentiful supplies not only to The Netherlands, but also adjoining European countries. This spurred the construction of extensive pipeline infrastructure in Europe. Additionally, as early as 1964, the CAMEL project was shipping Algerian LNG to UK and France through long-term contracts. Negotiations to ship Algerian gas through undersea pipelines to Italy, Spain and France were underway (Gales, 2013).

### ***France***

Currently, almost all of France's gas requirements are met by imports. France has developed an independent model of gas regulation quite distinct from its European or trans-Atlantic counterparts. The State plays a major role in strategic choices and in the regulation of the gas industry. During the last fifty years, this role has changed as the State has become modernised, but it has never been questioned. Local gas distribution companies are also owned by the local governments or municipalities, or licensed by them to operators (Craig, et al, 2018).

Since 1991 it has been based on a contractual relationship between the government and the state-owned vertically integrated utility, Gas de France (GDF). Even when the gas industries of Europe were being liberalised, the French gas industry remained heavily State-controlled and the most integrated both vertically and horizontally, at both transport and distribution levels<sup>21</sup>. The French gas market was initially governed by Act No.46-628 of 1946 which nationalised generation, transport, distribution, import and export of gas. The line ministry controlled and regulated the activities of the vertically integrated state utility until the turn of the century. France's energy and gas policies, set by the Minister for Energy, focused on three main objectives: ensuring security and continuity of supply, allowing energy utilities to obtain energy at the lowest price to enable them to remain competitive on foreign markets and to offer favourable conditions to their consumers. Thus, government ownership and regulation of gas industry seems to have been pivoted on the principle of public interest<sup>22</sup>.

Following the integration of France into the European Union, the European Parliament laid down common rules for the internal

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<sup>21</sup>       ibid  
<sup>22</sup>       ibid

market, requiring member countries to open up their domestic markets to competition. The French market is regulated by Commission de Regulation de l'Energie (CRE), an independent administrative authority in charge of ensuring that producers and eligible consumers can access the public grid under fair and non-discriminatory condition. The CRE also lays down accounting principles relating to unbundling of generation, transmission and distribution activities and monitors their implementation to avoid any discrimination, cross-subsidization or any other restriction on competition <sup>23</sup>.

### ***Rest of Western Europe***

With North Sea discoveries and pipeline imports from Russia and north Africa, not to mention the many LNG terminals that were getting built, supplies to Europe posed little risk although demand also expanded concurrently to use up whatever supplies came on stream. European governments ensured that network infrastructure covered as much of their geography as possible. Some countries like The Netherlands used industry-state partnerships to fund pipelines while in countries where utilities were state-owned, state funding was provided to expand the infrastructure<sup>24</sup>. Governments in Europe acknowledged the political value of making available basic utilities such as electricity and cooking gas to every voting consumer in society. If this entailed taking long transmission lines to distant provinces, it was done, often with taxpayer funds. Politics, rather than economics,

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<sup>23</sup>

ibid

<sup>24</sup>

Op cit Gales, 2013

drove the development of infrastructure in Europe which soon expanded to cover the most of the population.

### ***Comparison of US and European Models***

The differences between the US and European regulatory institutions are instructive. Regulatory Commissions – be they FERC in the US or OFGEM have evolved in response to local contexts and ground realities. While in the US, faith in laissez-faire has ensured that intervention is minimal and need-based, in Europe, drastic regulatory intervention had to be introduced because the utilities had been nationalized around the middle of the century. In that sense, the European model can be aptly termed ‘deregulation’ – namely, a package of measures that include privatization, liberalization and independent regulation as distinct from government regulation. Natural, structural reforms such as these required a heavy-handed model of regulation whereas in the US, light-handed regulation and limited need-based intervention was the norm. While the UK eventually moved to the market model for utility industries, in France, utilities are still controlled by state ownership. In the UK, the regulator moved away from the US model of Rate of Return regulation to come up with the innovative RPI-x formula, essentially an incentive regulation.

### ***3.2 History of Regulation in Developing Countries***

Utility industries in much of the developing world was set up during colonial rule and as such, followed the model of their

rulers. Thus, South Asian developing countries largely followed the British model of vertically integrated government-owned monopoly model for utilities like electricity, water supply and natural gas. While water supply and sewerage remained local or municipal utilities, electricity and natural gas industries generally transcended provincial or state borders and developed into a centralised national grid. This is because resource endowments were unequal across regions whereas demand was widespread. Intercity and later inter-state exchange of utility services developed organically and in some countries, coalesced into a large or even nationwide network. For instance, both Pakistan and Bangladesh have extensive nationwide gas pipeline networks to take advantage of the substantial reserves found within their national jurisdictions. In India, the establishment of National Thermal Power Corporation under the ownership of Government of India led to centralised power generation which was transmitted through networks built by Powergrid Corporation, also a public sector entity, to the demand centres scattered throughout the country. Argentina, Bolivia and Brazil too developed extensive gas and electricity networks, spurred by the availability of natural gas in the former two and hydroelectricity in Brazil.

Other Asian, African and Latin American developing economies also followed the pattern prevalent in the home countries of their respective imperial rulers - French, Dutch, Italian, Spanish, as the case may be. In most developing Asian economies, as in most countries outside North America, utility services have, over the last 50 years, typically been provided by state-owned vertically integrated monopolies. There have been exceptions (e.g. electricity distribution in the Philippines) but, in general, the norm has clearly been for heavy state involvement, typically at national

level but sometimes with state-level or local involvement (e.g.in India) (Stern and Holder, 1999).

Thus, the utility model that emerged in the developing countries was similar to that of Europe. Developing countries liberated from colonial rule had the arduous responsibility of nation-building which occupied their attention and budgets for decades. Expansion and extension of utility networks proceeded at a pace that could not keep up with national aspirations. Besides, over the decades, inefficiencies crept into the system. Neglect of new investments coupled with nepotism and opportunism turned utilities into worker-heavy monoliths ruled by trade unions. Populism ensured utility prices did not keep pace with rising costs. Utilities had become loss-making monoliths, frequently or even perpetually in debt. Interest groups and distributive coalitions became powerful over time and failed to internalise the deadweight losses from their rent-seeking behaviour (Mancur Olson, 1982). Resource-starved developing country governments did not have the wherewithal to put their utilities back on track.

The evolution of the natural gas industry in India up to the advent of independent regulation in 2007 is dealt with in detail here, to facilitate an understanding of the factors that led to the establishment of independent regulatory agency in India's downstream hydrocarbon industry.

### ***3.3 History of Natural Gas Industry in India***

A temple dedicated to the fire goddess Jwalamukhi in Himachal Pradesh, a mountain state in north India is the first indication of the presence of natural gas on the Indian subcontinent. British military personnel looking for oil in the state of Assam in the late

19th century came across associated gas which they flared because there was no infrastructure to use it. Over the years, gas pipelines were built to nearby tea plantations where gas was supplied to homes for lighting as well as to the tea factories for processing tea leaves. Concurrently, from the mid-19th century, Calcutta and Bombay were supplied by coal gas for street lighting and cooking as were London and Chicago on the other side of the world <sup>25</sup>.

### ***3.3.1 State Control***

Independent India chose a mixed economy model in which certain industries were reserved for state ownership and control. Petroleum as well as coal, considered strategic industries fell under this category. The development of Natural Gas industry in the country started in 1960s with discovery of gas fields in Assam and Gujarat, the former in the 19<sup>th</sup> century and the latter, in the early years of the 20th century. After discovery of the substantial South Bassein fields by National Oil Company ONGC in 1970s, natural gas came into its own as part of the country's energy basket.

After Independence, exploration activities in India were carried out by the National Oil Companies (ONGC & OIL) under a nomination regime <sup>26</sup>. Gas industry developed organically on the basis of production from two major fields in the Gulf of Cambay and offshore Bombay High. Customers clustered around production sources. In 1997, Government of India invited private companies to explore for hydrocarbons in joint venture with

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<sup>25</sup> Compiled from conversations with industry officials at various stages.

<sup>26</sup> Under this model government would issue permissions to its NOCs to explore for oil and gas on land as well as in the exclusive economic zone.

NOCs. From 2000 onwards, 100% foreign participation in exploration was allowed in what was called the NELP regime.

### ***3.3.2 Gas Network infrastructure***

In 1984, Government of India set up Gas Authority of India Limited (GAIL) as an integrated gas transportation and marketing company and having monopoly control over almost the entire gas market. GAIL was directed to build India's first major trunk pipeline called HVJ, connecting the new gas finds in Gujarat to northern India right up to Delhi. The government realised the value of gas as feedstock in fertilizers and as fuel in power generation and decided to accord priority allocation of gas to these two industries. A gas allocation policy came into being. A high level committee of bureaucrats reviewed gas allocation to various industries from time to time. The government of the day decided to set up fertiliser and power plants in select states of northern and western India in line with its political preferences. GAIL built the first trunk pipeline infrastructure in the country. Called the HVJ pipeline, it served only western and parts of north India. In 2000, when a major new gas discovery was made, the HVJ network proved woefully inadequate to reach this gas to markets.

At present, GAIL owns and operates 12000 kms of trunk pipelines out of the total of 16470 kms. Historically, there have been 36 city gas distribution networks concentrated in the gas producing states of Maharashtra and Gujarat on the west coast, Assam in the north east of the country and some scattered small local area distribution companies supplied by isolated gas wells in southern India. GAIL remains the predominant market player,

purchasing gas from ONGC and OIL and since 1997, from JV producers, transports it through its network to supply all bulk consumers – fertilizers, power, sponge iron and other process industries as well as to city gas distribution companies. CGD operators are monopoly franchises in their respective areas <sup>27</sup>.

### ***3.3.3 Gas Pricing***

Price of natural gas from domestic fields discovered prior to 1997 was fixed by a government appointed committee, taking into account costs of production as well as the price of substitutes. It was called APM gas (Administered Pricing Mechanism) and its use was also directed by the government through a Gas Allocation Policy. The rationale was, gas being a scarce domestic resource, it should be used for productive purposes. As mentioned above, fertilizers which use gas as feedstock got priority allocation, citing food security considerations. Electricity generation from combined cycle gas turbine plants of which there were already a few, got second priority in the allocation of domestic gas. City gas distribution was also prioritised, but its allocation was small considering the low levels of penetration of local gas distribution networks. Alternate cooking fuel in the form of bottled LPG for urban consumers and kerosene for rural consumers were supplied at heavily subsidised rates by the government. In fact, fuel subsidies were a major drain on the government budget and over the years, it kept increasing to unsustainable levels. Dealerships and distribution networks were set up all over the country to ensure that cooking fuel reached as large a population as possible. A perverse outcome of this subsidy scheme was that subsidised

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Compiled from various sources including websites of the respective organizations.

kerosene meant for cooking got diverted for adulterating diesel used in automobiles. In fact, this problem still persists and is a major cause of concern for the government. Replacing kerosene with piped gas would not only eliminate the subsidy burden, but also take care of the diversion for adulteration. It was in the interest of the government to promote piped cooking gas to households all over the country. Similarly, replacing LPG with piped cooking gas in urban areas reduced the subsidy burden substantially.

LPG was a refinery product made mostly from crude although part of the domestic gas was also converted into LPG for supply in the absence of pipeline networks reaching households. Nearly three quarters of India's crude requirements were imported at the turn of the millennium. To the extent kerosene and LPG could be substituted by domestic natural gas, it would reduce the import burden.

### ***3.3.4 New Supply Sources***

In 2000, Reliance Industries Limited, a major industrial house which had won the license to explore for oil and gas in 1997 announced a substantial discovery in what came to be known as the Krishna Godavari Basin (KG-D6), off the east coast of India, in the Bay of Bengal. Since this field fell under the new licensing regime, the producer was free to supply its gas to any consumer although the government did fix the price of this gas also, at levels higher than APM prices.

Following this major offshore gas discovery by RIL, the promise of plentiful gas supplies necessitated rapid roll-out of pipeline infrastructure, synchronising it with production from KG-D6.

Government licensed a subsidiary of RIL to build a pipeline to take it to markets. In 2004, liquefied Natural Gas was imported from Qatar and LNG terminal was set up at Dahej of 5 MMTPA capacity, by a consortium of public and private sector investors. A second merchant terminal was set up by Shell also on the west coast of India. Regassified LNG from Qatar also flowed through GAIL's pipeline network. GAIL had different types of Gas Sales Contracts with its customers depending upon the time of their entry into the gas market. Thus there were many retail gas prices, ranging from APM prices to imported LNG and sometimes even spot LNG which came through the Shell terminal.

While government ensured APM gas for its priority consumers like fertilizer and power and to a small extent, city gas companies, with several sources of supply now available, gas consumers who could not get priority allocation could use re-gassified LNG for which they needed access to GAIL's monopoly network. India has been in talks with Iran, Turkmenistan and Myanmar for bringing gas to its shores through transnational pipelines. Thus, plentiful gas supply seemed imminent. RIL gas from KG-D6 was expected to come on stream around 2004 and that too would have to pass through GAIL's network to reach customers, although RIL was to build its own pipeline from the gas field up to western India where it would hook up with GAIL's HVJ pipeline system. Open access to pipeline networks now became an urgent necessity, as India geared up for greater use of natural gas in its energy basket.

Government policy papers also envisaged that henceforth, gas would account for a much larger share. A new pipeline policy announced by Government of India required all pipeline owners to earmark a third of their capacity for common carrier use.

### ***3.3.5 Moving to a Clean Growth Trajectory***

In 1999, Supreme Court of India, hearing a public interest petition on urban pollution ordered that all public transport in the national capital be converted to CNG (compressed natural gas) which necessitated the setting up of compressor stations all over the city which can be done only through a city gas distribution network<sup>28</sup>. The court ordered a few other highly polluted cities in north India also to convert their public transport to CNG. Around the same time, other cities also were keen to reduce vehicular pollution through the use of CNG, and were keen to have a pipeline network to connect their cities. As mentioned before, only the north and west were connected by HVJ. The other cities in the south and east as well as in central India were keen to take advantage of the opportunity to shift to a cleaner automotive fuel like gas. Network infrastructure expansion assumed priority. Automobile manufacturers began making cars with CNG engines, not only for public transport but even for private cars. More and more CNG fuelled cars began to ply on the roads of the national capital.

This is the context for setting up a downstream hydrocarbon regulator in India. There is already an upstream hydrocarbon regulator under the administrative control of the Ministry of Petroleum and Natural gas for overseeing licensing activities for exploration and production of hydrocarbons. Thus PNGRB was envisaged essentially as a natural gas infrastructure regulator tasked with licensing gas pipelines and city gas distribution networks and to oversee open access to the existing pipelines of

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<https://indiankanoon.org/doc/92613/> accessed on Feb 6, 2017

GAIL and a few others. Non-discriminatory open access is crucial to introduction of competition both at the sourcing end and the retail supply end.

In 1991, when Government of India launched its macroeconomic reforms of liberalization and privatization, it had already announced that no budgetary support would be extended to its public sector enterprises anymore. Thus, GAIL had to use its internal resources to extend the pipeline network. With the establishment of PNGRB in 2007, GAIL could no longer build pipelines according to its own plan and choice, but has to compete with private players to win the license to build pipelines. Similarly, while existing CGD operators were deemed already licensed, new CGD networks would be built only by the successful bidder in licensing rounds conducted by PNGRB. Thus the baton of network infrastructure creation – both trunk pipelines and city gas distribution networks passed from the government to the regulator.

### ***3.4 Oil Shocks and Their Impact on Utility Industries Worldwide***

This situation changed around the last two decades of the last century. The 1970s were the decade of the oil shock which shook the importing countries, induced scarcity in energy supplies and resulted in long queues at the pump. The oil shock of 1973 induced a shift from liquid fuels to gas wherever feasible. This led to a surge in gas prices as well. For instance, natural gas prices

in the US jumped from 22 cents a unit in 1973 to \$1.59 in 1980 and \$ 5.59 in 1988 <sup>29</sup>.

But since crude prices rose even more steeply, consumers had already begun substituting natural gas for liquid fuels. Industrial processes, space heating and domestic use had begun to use gas, creating a demand-supply imbalance. Gas shortages were rampant. There was widespread dissatisfaction over the inability of utilities to meet burgeoning consumer needs for utilities like electricity and cooking gas, which had by then, become essential to life. Several decades of government regulation had bred inefficiencies and utilities needed urgent investments which, the municipalities were in no position to fund. Deregulation of wellhead prices in 1978 held out the promise of market-driven prices. Investors in upstream pushed for deregulation in transport and retail supply so that they could sell to multiple buyers (Joskow, 2013).

### ***3.5 Advent of Neoliberal Policies***

This was also the period when neo-liberal economic policies were gaining currency in the developed world. Ronald Reagan in the US and Margaret Thatcher in the UK championed the ideology of neoliberalism, and the increased capital mobility following the collapse of Bretton Woods fixed exchange rate system provided a fillip to the advent of neoliberalism (Kitschelt 1999). There was a quick turn of events during the period 1970s and 1980s as the world was overtaken by neoliberal movements across the US, the UK, Australia and Europe, leading to an era of total commitment

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<sup>29</sup> EIA website, respective years

to markets (Hirsh 1999, Beder 2003). The market-based economy needed a political environment that would assure its autonomous functioning. Neoliberal think-tanks played a crucial role during the times of election by providing tacit support to political parties that favoured neoliberal ideology <sup>30</sup>.

### ***3.5.1 Applying Neoliberal Policies to Utility Reforms***

Neoliberal economists began to examine the various premises on which utilities had been functioning hitherto, in particular, the premise that network utilities were wholly natural monopolies. Natural monopolies are those businesses which require upfront expenses (in this case, network infrastructure) which makes competing with an incumbent untenable as the incumbent has already incurred their 'fixed cost' while the entrant has not. They enjoy scale economies which preclude competition. For instance, it makes little sense to run two electricity lines or gas pipelines to connect the same set of parties. Traditional wisdom maintained that utilities came to be regulated because they are natural monopolies as such could abuse their market power by charging prices higher than marginal costs or limiting output to keep prices high. Regulation is meant to check such abuse.

### ***3.5.2 Questioning the Theoretical Basis for Government Regulation***

The 'natural monopoly' argument came in for close scrutiny. Harold Demsetz of the Chicago school, for instance, had argued in 1968 itself that if competition *in* the market is not feasible, there

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<sup>30</sup> Op cit Kitschelt, 1999

could always be competition *for* the market. In other words, a monopoly franchisee can be selected on the basis of competitive bids to ensure that tariffs are aligned with marginal costs (Demsetz, 1968). Even as the monopoly justification for regulation was being challenged, new theories were advanced as to how and why utilities came to be regulated in the first place – such as, as mentioned earlier, Stigler’s theory that regulation was sought and obtained by the regulated entities to stall competition. Stigler’s theory was a foil for the public interest arguments in favour of regulation, discussed earlier (Stigler, 1971). Thus neo-liberal philosophy advocated a paradigm shift, a return to markets. A second oil shock that followed in 1979 drove the already beleaguered OECD economies into further decline. As mentioned above, governments in the developed countries had already been driven to the brink by a combination of factors.

### ***3.6 Problems Faced by Utilities in the Developing World***

In the developing countries, also reeling under oil shock, there were other exacerbating factors at play. Network utilities in these countries typically clustered around urban settlements, privileging affluent communities while the large mass of rural and poor populations had to rely on kerosene for lighting and biomass or firewood for cooking needs. Developing country governments had, for decades, used utilities opportunistically for political gains, restraining them from charging economic prices for the services supplied. Populist governments encouraged a welter of cross-subsidies that crippled industrial and commercial consumers to favour households which formed their vote-bank. Over the years, such cross-subsidies had reached levels where they were

driving industries out of the region or countries because of uneconomic prices they were charged. Many developing country utilities were also run unprofessionally, leading to further decline in their performance. For instance, State Electricity Boards (SEB) were packed with political appointees way more than the number of staff required to run the utilities. SEBs piled up huge losses which eroded their ability to raise capital from the market for the new investments that were so badly needed. Theft of electricity was rampant and aggregate commercial and technical losses mounted to unsustainable levels. The situation was not dissimilar in other developing countries.

In short, in the developing world, government opportunism had already brought utilities to the brink and the oil shock exacerbated the situation, making it difficult for them to continue with the existing paradigm of governance. Most developing country governments did not have the resources to rescue their sick utilities nor extend utility infrastructure to an increasingly aspirational, but unserved populations in the hinterland.

It was clear that continuance of the existing paradigm was no longer an option in both developed and developing countries. Both were ready for a change albeit for different sets of reasons. In the absence of any other constructive and viable alternatives on offer during this phase, neo-liberal economists held out the promise of course correction through a radical overhaul. For the developed country businesses struggling to emerge from the slowdown following twin oil shocks, privatization of public utilities held out promise of new business opportunities in a sector with perennial and broad-based demand. The benefits that competition promised also seemed convincing. For the British government battling double digit inflation in the 1980s, reform

package offered a quick way to raise resources by selling off public utilities.

For similar reasons, developing economies were persuaded to adopt the reform model. Privatization of government utilities could bring in huge revenues, to bolster their budgets. Additionally, the prospect of foreign investments flowing into implement projects that they themselves could not finance was too appealing for developing country governments to ignore.

### ***3.6.1 1990s - Neoliberal Reforms and Utility Restructuring***

With the acceptance of neo-liberal reform model by both developed and developing countries, the champions of reforms – World Bank and IMF – devised ways to introduce competitive markets hitherto considered a natural monopoly. It was pointed out that utilities were an integrated value chain, which when unbundled, could be separated into monopoly and competitive segments. It was argued that both upstream and downstream links in the entire energy value chain were amenable to competition while only the network – transmission and distribution lines in electricity and trunk pipelines and local distribution networks in the case of natural gas – need remain a monopoly which could then be regulated. Gas production/import could be opened up to competing players. Similarly, consumers, at least bulk consumers, could also exercise their choice as to who they would source their electricity or gas supplies from and can directly enter into purchase contracts with them. In other words, competition is feasible in both upstream and downstream segments of the energy chain, leaving out only midstream which will continue to remain a monopoly. Competition would attract investors from

the world over to invest in upstream and downstream businesses of the utility industries.

### ***3.7 The Rationale for Independent Regulation***

But for competition in supply or among consumers to work, access to monopoly transmission networks is critical. If the upstream gas producer also owns the monopoly transport network, it is possible that it would prefer to use its network to transport own gas rather than make it available to competing suppliers. Therefore, an independent and impartial regulator was required to enforce non-discriminatory open access to networks for competition to materialise. This was the genesis of independent regulation – as distinct from government regulation – in utility industries.

The independent regulator must lay down rules of access to common carrier transmission networks or pipelines and enforce them. The regulator will also have to ascertain capacity in the monopoly pipeline network and assign it in a fair and transparent manner to other stakeholders who would like to use them to ship gas or transmit electricity. The regulator would also be called upon to determine the access charge for such transactions. Thus, the role of the independent regulator is different from the government regulator in the pre-reform era where the utilities were vertically integrated and government-owned.

### ***3.8 Distinction Between the Roles of Developed and Developing Country Regulators***

In a liberalized environment, especially in a developed country context, where utilities have been successfully privatised, the regulator's role was largely oversight of non-discriminatory open access. Since the infrastructure has already been built and most of the population already being served, the regulator in a developed country does not have a developmental role – of getting the infrastructure built. Also, in developed countries, technical assistance in the form of independent systems operators (ISO) had been put in place to schedule dispatches of gas or power. ISOs would estimate capacity available in the network, schedule dispatches and ensure delivery through the network. In the event, the job of the regulator was to develop a power market where multiple generators offer their electricity for a day-ahead trade through a newly-established power exchange. Similarly, in the natural gas industry, gas hubs like Henry Hub or National Balancing Point emerged for real-time trade in gas. Once the power exchanges and gas hubs were up and running, the regulator's role in a developing country context is to oversee the operations and to settle any disputes between the market participants. Regulators also set or revise network tariffs where necessary. On the whole, the developed country regulators use light-handed regulatory measures, letting the markets govern the industry.

On the contrary, developing country regulators are called upon to deal with an entirely different set of problems. In many developing countries, even basic utilities like electricity, urban water supply or household cooking gas, is yet to reach a substantial part of the population. In the least developed countries, network utilities typically cluster around urban centres, usually the national capital and a few other towns, while the rest of the country continues to make do with non-commercial fuel

for lighting and cooking needs. Even in the rest of the developing world, network infrastructure is far from comprehensive.

Yet, the same model of reform, restructuring and regulation has been prescribed in developing countries as well. The World Bank and IMF which have taken the lead in persuading developing country governments to undertake reforms in their utility industries, have been proposing and implementing an identical model of regulatory governance in all developing countries.

### ***3.9 Unanticipated Challenges in Developing Countries***

The challenges faced by developing country regulators is being dealt with in detail in a separate chapter. But suffice it to state that reforms introduced in developing countries have stalled, throwing up unanticipated challenges. Utilities continue to be vertically integrated or partially unbundled, competition has become infeasible in the downstream segment of the industry while in the upstream, half-hearted privatization introduced at the margin, poses different kinds of problems. The promised foreign investments failed to materialise even as governments have withdrawn all budgetary support to the utilities. Extension of infrastructure to unconnected areas has stalled, leaving the few private investors in power generation or gas production to compete in the existing utility markets to cherry pick paying customers. Many utilities in the developing world seem to be entering a downward death spiral.

What the reforms did achieve, though, is to bring in a modicum of transparency in the functioning of utilities worldwide. In the last quarter of a century, a large number of countries have introduced new, dedicated regulatory offices to monitor and

supervise the activities of their utilities, whether privatized or wholly or largely state owned. Most of these regulatory offices are supposed to have some degree of independence from day-to-day political control, although in practice, political intervention seems to occur in a number of countries (Cook, 2004).

*In this chapter, the history of economic regulation as it evolved in the developed and developing countries was traced. In the US, gas infrastructure got built during decades-long phase of gas price control. In Europe, governments took the lead in setting up gas infrastructure. Among developing countries, the evolution of natural gas industry in India, the case-study used in this research, was traced in detail. This chapter concluded with a discussion on the unanticipated challenges consequent to government withdrawal from infrastructure creation to highlight the inadequacy of the regulatory model for developing economies. The next chapter will outline the structure, powers, remit and other attributes of independent regulators.*

## Chapter 4

# Structure, Powers, Functions and Tools of Independent Regulators

*In the last chapter, the history and evolution of economic regulation worldwide were traced. In this chapter, an analysis of the structure, functions and the tools available to regulators to deal with their assigned responsibilities has been attempted. The analysis is intended to determine whether developing country regulatory institutions have relevant and appropriate tools to deliver on the mandate assigned to them.*

Economic regulation, whether supervisory, regulatory or proprietary, has a certain structure, (formal or informal) powers and functions. Regulation is conducted through a set of specific tools. In jurisdictions where the government is also the regulator, all tools available to a sovereign can be used to regulate the industry. These comprise laws, policy directives, executive orders and fiats as well as administrative tools used in day-to-day governance. Independent regulators established post-reforms, are formally and legally instituted and conferred with specific powers and functions.

## ***4.1 Context for New Regulatory Institutions***

Post reforms, the energy sector in most countries has been liberalized. The only exceptions are the national oil companies of most oil producing countries<sup>31</sup>. In many developed countries,

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<sup>31</sup> Saudi Aramco, Saudi Arabia's national oil company and the biggest in the world is currently being considered for listing on exchanges.

utilities supplying electricity or gas have either been sold outright to private bidders, or listed on exchanges for creeping privatization<sup>32</sup>. In developing countries, where wholesale privatization is not feasible for political or other reasons, governments usually opt for strategic sale of part of government equity to private investors to test the waters. In many cases, new private investors operate at the margin while government-owned firms dominate the market. Over time, depending upon the profitability of the business, the share of the private sector might expand while the public sector is expected to shrink into the margin<sup>33</sup>. Even where outright privatization has been possible and achieved, each franchise area is usually served by a single monopoly franchisee. Scale economies and wastefulness of duplication of infrastructure do not permit multiple operators to supply a utility commodity in a franchise area.

Whether it is a private monopoly utility in a franchise area or a market shared by dominant public sector utility operating alongside marginal private suppliers, the reform paradigm envisages a regulator other than the government. In a totally privatized market structure, government intervention is frowned upon because of the belief that markets can govern better. Yet, because the industry contains at least one monopoly constituent (the transmission network), a regulator is needed to ensure non-discriminatory access to the monopoly network. In a partially privatized utility model, the government which doubles as owner of the dominant utility cannot be assigned the task of regulating

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<sup>32</sup> When British Gas was listed on the London exchange the promotional campaign in 1986 featured TV adverts in which characters urged each other to "tell Sid" about the chance to buy shares at "affordable" prices. Many took up the option in an era of mass privatisation by the Conservative government led by Margaret Thatcher.

<sup>33</sup> This has happened in a few utility industries such as posts and communications where courier companies have virtually displaced national postal services although the latter continues to serve largely rural populations. In India, for instance, competitive forces operate in the courier businesses while the national postal service retains monopoly serving the less profitable segments of the business.

the industry for reasons of perceived or real conflict of interest. Regulators must appear credible and impartial and must provide level playing field to private investors<sup>34</sup>.

World over, the emergence of new regulatory institutions in last decades of the twentieth century marked a shift from the existing paradigm in as much as the new regulators are distinct from the government and crucially, independent of it. In most jurisdictions, they also enjoy a degree of financial and functional autonomy that makes such independence possible and effective. Unlike governments, independent regulators are required to function in a transparent and participatory manner. Regulators are conferred with specific powers appropriate to their mandate (Thatcher, 2004). They also devise their own set of tools to discharge the functions entrusted to them. In the following sections we will see how exactly this institution is located in the larger context of a democratic set-up and whether the powers assigned to them are sufficient for them to discharge their responsibilities.

#### ***4.1.1 Locating Independent Regulators in a Democracy***

Before a discussion on the structure and functions of the new regulatory institutions, it would be useful to locate the regulators within the existing governance paradigms across the world. Democratic governments typically rest on three pillars of governance – the legislature, the executive and the judiciary. All other institutions of governance emanate from one or the other pillar in a functioning democracy. In India, the Election Commission and the Comptroller and Auditor General of India

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<sup>34</sup> Op cit Majone (1994)

derive their origins and legitimacy directly from the Constitution of India. There are scores other statutory institutions – such as the Enforcement Directorate or the Indian Council of Cultural Research which derive their origin and legitimacy from specific laws enacted by the parliament and empowered by the executive. Occasionally, judicial orders have also given rise to institutions such as the Environmental Pollution Control Authority which monitors air pollution in the national capital of India. All institutions are protected by the judiciary which interprets the Constitution or the laws under which they have been set up and empowered. There is thus, a fine system of checks and balances operating in a parliamentary democracy.

The new regulatory mechanism – the independent and autonomous regulatory commission – must also be accommodated within this framework. Like all other institutions of democracy, a system of checks and balances will have to be devised and accountability mechanisms will have to be incorporated into this setting.

### ***Sources of Regulatory Authority***

The World Bank model stipulated that independent regulatory commissions be set up under an Act of parliament which outlined the framework within which regulators must function. Regulators then devise a set of regulations within the framework of this law, which are then approved by the parliament (Kessides, 2004). All regulations adopted by regulatory commissions set up under a legislative mandate are usually subject to parliamentary approval. It is the responsibility of the parliament to ensure that the regulations adhere to the letter and spirit of the enabling legislation. Once approved by the legislature, regulations acquire

the status of subordinate legislation and are enforceable. It is customary for the executive to retain control over overall policy for the sector, leaving the day-to-day operations to be guided by regulators through approved regulations. The executive does lay down broad policy guidelines for the sector within which regulators operate. If the government has reason to believe that the regulator is overstepping its mandate or veering off course, it can give the policy directives. These are binding on the regulator. Although regulatory institutions have been set up, it is the politician who is ultimately answerable to the citizens demanding access to utility services and as such, has retained some control over the institution although it is seldom exercised.

### ***Sources of Regulatory Independence***

At the core of effective regulation is the imperative of regulatory independence. A slew of measures has been devised to ensure regulatory independence from stakeholders. These range from the manner of selection of regulators, their tenure, the manner of their removal, rules relating to reappointment of regulators, the source of their emoluments etc.

### ***Selection & Conditions of Service of Regulators***

The selection committee may comprise representatives from the government, the opposition party and external experts. The composition of the selection committee is crucial to ensure independence of the regulator, although in the United States, regulators are appointed on the basis of their political affiliations. Once appointed, regulators serve a fixed term and cannot be removed except under exceptional circumstances prescribed in the framework legislation, the presumption being, without threat

of premature dismissal, regulators can proceed to function impartially and independently.

The pool from which regulators are drawn may vary from country to country. In the US, politicians are routinely chosen as regulators whereas, in most jurisdictions, a mix of sector experts, lawyers and generalists, or bureaucrats could make up the regulatory commission. The number of members could vary, usually 3 to 7 full-time members with some countries inviting external experts as part-time members to participate in the deliberations. Regulators are usually appointed for a specific term which may overlap so that at any given period, the Commission will not be left without any members <sup>35</sup>.

#### ***Source of Funding***

Regulators are funded from the national budget, but their funding does not require voting by the parliament. It is charged to the budget which shields the regulators from the whims of the government of the day. In most jurisdictions, they are also empowered to collect fees and penalties from the franchisees and use the same for specified purposes.

#### ***Tenure and Removal***

The tenure and mode of renewal is another measure of regulatory independence. Regulators are normally appointed for a tenure and cannot be removed except under exceptional circumstances specified in the framework law.

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<sup>35</sup> Parliamentary Standing Committee Report, India, 2004

### *Mechanisms for Regulatory Accountability*

Like all other institutions of governance, accountability mechanisms are built into the system. Regulatory independence from the executive and financial autonomy of the regulatory commission must be balanced with concomitant accountability (Scott, 2000). As mentioned earlier, all regulations must conform to the framework law and this conformity has to be verified and approved by the parliament or legislature which made the law in the first place. That is the first line of accountability. The second line of accountability comes from extensive and comprehensive stakeholder consultations at the time of drafting regulations. The third line of accountability comes from the robustness of the licensing or tariff setting processes followed by the regulator, especially in a context of glaring information asymmetry between the regulator and the regulated. Regulatory decisions are appealable in special tribunals of experts set up for the purpose as well as in civil courts. This is the last layer of regulatory accountability<sup>36</sup>.

Regulators need to maintain their distance from all stakeholders, but they cannot function in a vacuum. Stakeholder consultations are an essential part of their regulatory functions and this too forms an important line of accountability. In most countries, most stakeholders, including bulk consumers are organized and are usually represented by legal or other experts to argue their case before a commission whereas, small and domestic consumers are numerous and might be unorganized. Therefore, many regulatory institutions set up a separate consumer wing within the institution, to represent the voice of consumers in regulatory deliberations. Stakeholder consultation, even if not mandated by law, has been widely practised by all regulators. This forms an

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ibid

informal, yet vital line of accountability of regulators. Most regulators have to incorporate health, safety and environmental factors into their regulations, even without a formal mandate to do so.

#### ***4.1.2 Regulatory Tools***

Since regulatory institutions are viewed as an interim measure until markets are mature enough to take over the governance of the industry, they are expected to mimic the market until then, or act as a surrogate for the market. Economic regulators have limited devices with which they can intervene in the market. These devices, as will be shown in subsequent chapters, are not exactly appropriate when dealing with developing country challenges. The tools used by regulators address prices, profits and/or entry of firms into the market. Most regulators prefer light-handed regulation where the institution acts as an invisible hand that guides the industry.

There are broadly four main methods of regulating prices and profits in utilities, namely the use of a price cap, rate of return regulation (cost of service regulation), a sliding scale regime, which is a hybrid of the first two, and direct setting of prices. The last may be based on costs of production, equating to rate of return regulation, but is likely to be associated with more arbitrary rules for price setting reflecting each government's political, social as well as economic priorities. These are discussed later in this chapter.

#### ***Entry Regulation***

In most countries, network Infrastructure – be it roads, highways, water supply, electricity or gas pipelines, has grown organically over several decades or even centuries. In developed countries, networks providing utilities usually cover the entire population whereas in developing countries they are often clustered around urban populations, leaving a vast chunk of the rural population out of the ambit of such services.

When an independent regulatory commission takes over the task of regulation from the government, it often inherits an existing network which may or may not extend to all the potential consumers within its jurisdiction. In developed countries, comprehensive infrastructure networks might have been built already. Where comprehensive networks already exist, the regulator might be called upon to determine rules of open access to such networks, fix tariffs for use of networks and lay down standards for quality of service etc. They may also be called upon to license enhancement of capacity, upgradation to a new technology or replacement of a fully depreciated network etc. In developing countries where utility networks are rudimentary, as in urban water supply, household electric supply or piped cooking gas connections to households, the regulator is expected to incentivise construction of a new network or expansion of an existing one. This is done through a licensing power granted to the regulator.

### ***Competition for the Market***

Network utilities, as mentioned earlier are, deemed natural monopolies. It would be infructuous to have more than one set of wires, pipelines or railway tracks serving a single market. In the event, competition in networks becomes impossible. Yet, regulators are called upon to mimic market forces, yet incentivise investments and get the infrastructure built through their regulatory functions. While competition in the market may not be possible for network utilities, the regulator can always introduce competition for the market (Demsetz, 1968), especially where no prior network exists and a new one has to be built. This model has been put in practice for many fields such as cable television, railway and bus transport services, water supply, postal sector and highways. (Cambini and Filippini, 2004; Otsuka, 1997, Baldwin and Cave, 1999; Littlechild, 2002). The essential idea is to organize a bidding process to allocate an exclusive right (the franchise) to carry out certain activities (broadcasting television or radio signals, delivery of local bus passenger services, operate a distribution network). The benefits are obvious. The regulator no longer needs information on costs and demand to achieve optimal pricing. The most cost efficient firm is automatically selected in the bidding process. However, the regulator is tasked with devising an appropriate bidding process which is key to selecting the right investor for a franchise. Besides, this option is available only in jurisdictions where infrastructure is yet to be comprehensively built.

When the bidding process is expanded to include quality, it becomes complicated. Although bidding on items with multiple dimensions is possible, a number of the benefits of the simple price bidding schemes disappear. Not only is the transparency of the bidding process often diminished, resulting in for example more court cases, but also the enforcement of the franchise

contract becomes costly. Quality dimensions (frequency, reliability, security, etc.) are not easily observed and have to be defined, measured and monitored. This requires an ongoing monitoring institution. Rent-seeking efforts will increase with the increasing responsibilities of the franchising agency (Prosser, 2005).

Furthermore, difficult trade-offs with respect the duration of the contract have to be made. Short-term contracts encourage compliance with the terms of the contract, but discourages incentives to invest. And long-term contracts, which seem appropriate in the case of network investments, must allow for changes in demand and cost conditions. Not only are such contracts difficult to write, but they also require continued monitoring and they bring with them options to behave opportunistically for both the franchisee and the franchisor. And finally, competition requires a sufficient number of applicants wanting to obtain the franchise agreement.

However, the incumbent franchisee has a number of advantages that are difficult to overcome for rivals. Not only is the incumbent better informed about the market, the franchise process and the franchising agency, namely, the regulatory commission, the latter itself might prefer to continue to do business with the incumbent franchisee. There's always a risk in changing the status quo. In practice the incumbent often wins again at re-franchising (Nash and Smith, 2007; Dalen, Moen and Riis, 2006).

### ***Price Regulation***

#### ***Rate of Return or Cost Plus***

In many jurisdictions, the primary task of the regulator is to set and enforce tariffs for accessing the network infrastructure. If the regulatory commission is called upon to determine tariffs for an

already existing network, it must decide the principles that will inform its tariff-setting function. Many regulators publish their tariff philosophy so that the stakeholders know upfront, how this would be done. Under Rate of Return regulation, the regulator allows all reasonable costs of the utility for providing a particular service. Typically, it is computed in two parts, a fixed cost which is treated as the asset base on which a rate of return is allowed and a variable cost of operating the utility all of which is a pass-through in the tariff. Rate of return tariff can be depicted as

$$R = B \times s + E + d + T$$

Where R is the revenue requirement of the utility in a particular year, B is the asset base of the utility, i.e, non-depreciated total stock of capital, s is the rate of return (as distinct from the discount rate adopted by the utility), E is all operational costs including labour and fuel and d, the annual depreciation on capital, and finally, T is taxes levied by the government on the utility.

In this model, the regulator is burdened with the task of fixing the capital or asset base which will determine the profits of the utility. It must satisfy canons of “used and useful” assets, namely only those assets which are actually needed and deployed to provide a service need to be factored in. And the second canon is that these assets must have been prudently acquired at a ‘fair’ price. This alone will keep the utility from inflating the cost of its assets (Liston, 1993)

The regulator also ensures that the utility does not earn a return on its operating costs. But to the extent, the operating costs are a pass-through in the tariff paid by the consumers, the utility will have the incentive to inflate these expenses. The regulator must then admit only those operating costs which are prudent for the

level and quality of service supplied by the utility which again calls for accurate information.

Third, the process of arguing over what gets included in the rate base, the correct value for the rate of return, and how the utility's revenue requirement should be spread over different types of customers, are all settled in an administrative legal proceeding known as a "rate case." While utilities will generally go through a rate case with their regulator every few years on a regular basis, extenuating circumstances such as rapid changes in fuel prices or the need to make large capital investments on short notice may trigger irregular rate cases.

### ***Price-cap Regulation***

First conceived by Stephen Littlechild and implemented in the UK Telecom sector, this model of price regulation is considered superior to rate of return regulation because it emulates market competition better than the latter<sup>37</sup>. Price cap regulation allows the prices the regulated firm charges for its services to diverge from costs for a specified period of time. By limiting the extent to which cost increases can be passed on to consumers in the form of price increases, PCR can provide the regulated firm with strong incentives to innovate and reduce its operating costs (Stern, 2003).

Simply stated, price cap is the maximum inter-temporal price path allowed for a specific utility service. The rules of the price path are set in advance and known to the firm and deviations are allowed only to accommodate factors beyond the control of the firm. The initial price, say electricity or telecom tariff is set by the

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<sup>37</sup> Much of the analysis in this section is based on the learnings from coursework on regulatory economics taught as part of the PhD programme at UTS.

regulator and allowed to rise every year by the increase in retail price index, no more. A more sophisticated price cap regulation incorporates an X factor which is deducted from the retail price index. The objective is to incentivise the firm to improve efficiencies to keep costs down. If the firm manages to improve efficiency to such an extent that costs come down in excess of X, the firm gets to keep the difference. This is the incentive offered to the firm to continuously keep improving efficiencies so that it can keep part of the costs saved (ibid).

The value of X is meant to reflect potential cost savings by the firm due to either increased efficiency or technological progress. The X factor enables these cost savings to be shared with consumers without adversely affecting the incentives of the firm to minimise and achieve these savings, between review periods. The value of X and the absolute level of the price cap index are reviewed at set intervals.

### ***Problems with Price Cap***

However, price cap regulation has some constraints. The initial level of tariff fixed by the regulator is vulnerable to the same information asymmetries that plague the cost of service regulation. Any deficiencies in the initial tariff level will continue ad infinitum despite the X factor. Secondly, the X factor might be difficult to determine if the firm in question is a multi-service supplier like telecom (caller ID, call-waiting facility etc). Also, the efficacy of price caps will depend on the share of tariff in the final price paid by the consumer. For instance, if the transmission and distribution component of the final price of electricity to consumers is small, the incentive offered by the X factor may be too meagre for the utility to invest in efficiencies. Frequent re-setting of price caps will also have the same effect since it would

mean passing on gains from efficiency improvements to the consumers. The regulator has to strike a balance between all these factors and do a tight-rope walk to ensure that the utility's incentive to effect efficiency improvements is not compromised by the desire to pass on cost savings entirely to the consumers.

## ***4.2 Summary***

Basically, the framework law empowers the regulator to determine necessity and convenience in licensing a network, license construction of new networks, determine tariffs for existing networks, monitor implementation of regulatory orders etc., leaving the regulator to devise appropriate regulations to perform these tasks. In a few jurisdictions regulators are also required to plan for the sector and devise appropriate incentives to attract investments. In industries like telecom, regulators have been empowered to levy a cess on users to fund universal service obligation, but in electricity or gas utilities, this power is non-existent. Some regulators are empowered to settle disputes between stakeholders although these are likely to be of a class action nature rather than individual disputes.

Regulators have the onerous task of laying down the rules of open access to an existing network and enforcing those rules. For instance, in Henry Hub in the US, thousands of suppliers compete to offer their gas to competing consumers at the other end of the network. This is possible only because the transparency in the system allows suppliers and consumers to view the availability of access to the common carrier network, schedule their dispatch accordingly and conclude the transaction. The regulator must ensure that where the pipeliner is also a gas

marketer, there is no preferential access to own pipelines to supply consumers. In many jurisdictions, supplier, transporter and consumer are either unbundled or functionally separated. An affiliate code of conduct lays down rules for arms-length transactions where the transporter is also the supplier. In developing countries where a government-owned vertically-integrated utility company performed all the three functions hitherto, the independent regulator will have to ensure non-discriminatory open access to pipelines to all market participants. In electric supply industry, this function is entrusted to a specialised agency called the load dispatch centre whose task is to schedule dispatch of electricity from competing generators to multiple consumers.

To conclude, the regulator has to fashion its own tools to perform the tasks assigned to it. Among the major tasks assigned to the regulator, the licensing function, tariff determination for common carrier pipelines and the enforcement of non-discriminatory open access to all market participants are salient. The parameters that determine the winning bid, the philosophy that informs the tariff determination process, the scrutiny that goes into each item of cost, the transparency of these processes and the fairness and competence of the regulator determine regulatory credibility.

Yet, most developing country regulators lack one important tool without which they are hamstrung, namely dealing with various risks associated with a developing country utility industry. These risks will be discussed in the next chapter.

*This chapter examined the emergence of independent regulatory institutions, their structure, composition, powers, remit and the accountability mechanisms. It then went on to discuss the tools available to regulators to perform their functions and found them to be less than suitable. The next chapter will*

*examine the challenges faced by developing country regulators to highlight the inadequacy of these tools.*

## Chapter 5

# Developing Country Regulatory Challenges & Conundrums

*In the last chapter, the structure, remit, powers and tools of independent regulators were outlined. This chapter discusses regulatory challenges, risks and conundrums in developing countries and explains how these differ from the problems faced by their developed country counterparts. Then it goes on to discuss how the tools available to developing country regulators are unsuitable to deal with their challenges and highlights the need for revisiting the relevance of a regulatory paradigm in a developing country context.*

## **5.1 Regulatory Challenges in General**

### **5.1.1 Information Asymmetry**

Amongst the many challenges faced by regulators in diverse contexts worldwide, the challenge of information asymmetry is formidable. The neoclassical theory of optimal regulation of monopolies developed by Hotelling assumes that the regulator has full information about the regulated firm (Hotelling, 1938). In reality, however, regulators, whether in dedicated regulatory offices or in government departments, constantly grapple with a variety of information challenges. Difficulties arising from the inherent information asymmetries that exist in a regulated environment are almost a universal challenge for regulators across the board (Newbery, 1999; Parker, 2002). Information asymmetry refers to the unequal distribution of relevant cost information to the stakeholders. For instance, information on the actual cost of providing a utility service is exclusively available to the service provider. Consumers who pay for them or the

regulator who regulates utility prices seldom have complete information. Yet, if prices and profits are to be regulated effectively, the regulator needs access to accurate information on the forecast revenues and efficient costs of the regulated firm, the cost of raising capital and the economic value of the firm's asset base (Laffont and Tirole, 1993; Parker, 2002). Firms can and often do, raise and inflate capital investment needs and the costs of raising capital during regulatory reviews, leading to a form of 'regulatory gaming' (Armstrong et al., 1994, Alexander and Harris, 2001). They have every incentive to do so, as the following section demonstrates. Pruning unnecessary and unrelated costs and allowing only those costs commensurate with the provision of the service is at the core of regulatory responsibility.

### ***5.1.2 Overcapitalisation***

Averch and Johnson found that a monopoly firm under regulatory constraint is likely to overcapitalise because the rate of return is computed on the asset base (Averch & Johnson, 1962). Unless the investor covers all his costs and also earns a reasonable return on his investment, he is unlikely to build the infrastructure and/or engage in utility business. Being a monopoly operator, no benchmarks would be available for the regulator to determine the necessary and prudent costs of providing a utility service, leading firms to both gold plate and overstate its costs by cost-padding. Gold plating refers to the incurring of costs that are not directly related to provision of the utility service. For instance, the utility may provide premium club memberships for its senior executives or send them on expensive family holidays. Cost padding refers to overstating or falsifying costs incurred to inflate the asset base

in order to earn a higher return (Bougheas and Worrall, 2012). There could also be instances of over-invoicing with in-built kickbacks to the utility company. Effective regulatory incentives and regulatory governance regimes need to be in place to check these practices (Levy and Spiller, 1994). Both may be underdeveloped or even absent in developing economies. The regulator's burden is even more onerous in economies where the infrastructure has already been built and the regulator is tasked with determining the tariff for use of such infrastructure. In developing countries where infrastructure is yet to be built, the regulator can resort to competition for the market. This is described in detail in the subsequent part of this chapter.

### ***5.1.3 Threat of Capture***

There may also be a continuous threat from regulatory capture. Regulatory capture occurs when regulatory policies become over-influenced by the goals of the regulated firm or where the regulator is subservient to political interests and lobbying groups (Stigler, 1971; Peltzman, 1976). There are structured lobbying firms hired by utilities to influence regulatory decisions. That the utility has the incentive and the wherewithal to hire lobbyists whereas consumers are generally unorganized and hence unable to use lobbyists skews the balance in favour of capture by the regulated firm.

Political capture is a common challenge in democracies. Politicians wary of rate increases often exert pressure on the regulator to keep tariff revision at bay. This is even more pronounced in developing economies where governments still retain ownership and control of key utilities. In fact, in the Indian

electricity sector, government-owned transmission and distribution utilities are routinely restrained from approaching the regulator for tariff revision even when their balance-sheets are haemorrhaging<sup>38</sup>.

Populist regulators could be captured by consumer groups as well. Regulators are constantly assailed by pressure groups. But consumer groups often use the political space to voice their protests rather than target regulators who are not answerable to them.

## ***5.2 Challenges of Developing Country Regulators***

As has been discussed in the earlier chapters, a one-size-fits all model of reform, comprising restructuring and regulation has been prescribed for all countries irrespective of their stage of development. Typically, the reform process involved unbundling of vertically integrated utilities, privatization of competitive segments of the utility – usually upstream supply and downstream distribution and instituting independent regulators to oversee the transition to markets. However, in developing countries, implementation of reforms threw up some unforeseen challenges:

### ***5.2.1 Difficulties in Unbundling***

Vertical unbundling is the first step in the reform model, to separate the monopoly segment from the competitive segments

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<sup>38</sup> <https://www.thehindu.com/news/cities/Hyderabad/discoms-go-slow-in-filing-trueup-claims-despite-reminders/article7844349.ece>

in the integrated utility. Unbundling has come up against vehement resistance from incumbent integrated transport and marketing utilities, in Asia, Africa and Latin America (Ibarra-Yunez, 2015). Historically, marketing and retail supply were usually thrown in as an incentive to induce the utility to expand transportation infrastructure, be it electricity or gas supply. This is one of the reasons for the evolution of vertically integrated utilities. When retail supply functions are separated from transport, the transport utility has no more incentive to expand the grid/pipeline infrastructure which involves heavy upfront investments and long recovery periods, not to mention an uncertain market. Especially because transport/transmission companies are natural monopolies and their tariffs are regulated rather than market-driven, there are few private takers for a stand-alone transport business <sup>39</sup>.

Besides, unbundling poses problems of coordination. This becomes even more pronounced when competing users of a monopoly transmission/transport network need to use the grid/pipeline, necessitating a highly choreographed degree of co-ordination. Ancillary services like Independent Systems Operators and Load Dispatch Centres need to be set up to facilitate co-ordination. Setting up separate ancillaries add to the cost of service provision (Kirby and Hirst, 1997).

In many developing country jurisdictions, it has not been feasible to unbundle utilities for the reasons outlined above. In India, even after 12 years of reforms, the regulator has not been able to unbundle the integrated transportation and marketing gas monopoly Gas Authority of India, Limited (GAIL)<sup>40</sup>. Where

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<sup>39</sup> In India, for instance, even the World Bank reform model envisaged electricity transmission to remain government-owned even as upstream sourcing and downstream distribution were to be offered to private investors.

<sup>40</sup> Op cit Mahalingam and Sharma, 2017

utilities are either fully or partially integrated, or are affiliated through a holding company, the newly-established independent regulator is required to lay down affiliate codes of conduct to ensure that affiliates are not favoured over third party users of the pipeline.

### ***5.2.2 Difficulties in Privatization***

Even where structural unbundling has been achieved, privatization has not proceeded as planned, for political as well as economic reasons. Privatizing state-owned utilities has come up against quite a few hurdles (Hall et al, 2005). In many democratic regimes, privatization of public utilities is a controversial proposal, not least due to opposition from employees. Besides, many of these state-run utilities often have huge accumulated losses and as such, their balance sheets had to be cleaned up by hiving off the losses to make them attractive to prospective buyers. Yet there were not many takers, because, decades of underinvestment in these utilities meant sizeable upfront capital to be ploughed in before the private investor could hope to see returns (Kikeri et al, 1992). In many jurisdictions including India, private investors have not been enthusiastic about buying up these utilities.

The World Bank then came up with the IPP model of inserting private capital at the margin alongside incumbent public sector monopolies. In this model, for example, private generators (IPPs) will compete with state-owned incumbent generator to supply power to the transmission company. It was essentially a single buyer model where the unbundled transmission company, almost always government-owned, would enter into long-term power

purchase contracts with the IPP at prices that were way higher than what it could collect from the downstream distribution franchisee. These long term power purchase agreements were counter-guaranteed by sovereign governments which undertook to compensate the IPP, should the transmission company default on payments for power purchase <sup>41</sup>. When Enron encashed its sovereign guarantee, it almost bankrupted the Government of Maharashtra in whose jurisdiction its plant was located. The crushing debt burden imposed by the failed Enron project stalled all developmental activity in the State of Maharashtra for many years (Mehta, 2000). The Enron fiasco derailed the IPP experiment world over, and with it, the attempts to introduce competition in the generation segment of the electric power industry (Mahalingam, 2005).

### ***5.2.3 Hurdles in Competition***

The reform model envisaged competition even in the downstream retail supply segment which is typically a monopoly franchise in a geographical area. The reform model advocated opening up even retail distribution to competition. It was envisaged that bulk consumers of electricity or gas, like industries, could buy directly from producers, bypassing the franchisee, but using the latter's network for a wheeling fee. In India, bulk consumers paid steep tariffs which cross-subsidised the domestic consumers. Ceding them to the new private generators could even lead to collapse of the distribution franchisee. Fearing cherry picking of paying bulk consumers by IPPs, the distribution

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<sup>41</sup> There is a plethora of literature on the IPP model of privatization especially in the context of Indonesia and India.

franchisees appealed to the newly-established regulators. Regulators, therefore, were constrained to levy high wheeling fees and sundry charges which made the arrangement way too expensive for the bulk consumers (Khaparde, 2004). As a result, consumer choice, a key reform promise remained a non-starter in developing countries. Competition in the retail segment was less than successful even in the developed world and remained a non-starter in most of the developing countries (Defeuilley, 2008).

In developing countries, most retail distribution companies were loss making anyway, for various reasons already mentioned, such as theft of power, mismanagement etc. Consequently, privatization of retail distribution never took off even with innovative financial engineering like hiving off losses to start with a clean balance sheet.

#### ***5.2.4 Incomplete & Half-hearted Reforms***

Even in the OECD countries, reforms have not had a smooth ride, but because developed country markets had already reached maturity, reforms could be undertaken<sup>42</sup>. In developing countries, however, reforms have stalled, throwing up unforeseen and unanticipated challenges. Utilities continue to be vertically integrated or partially unbundled and in many countries, competition has become infeasible in the downstream segment of the industry while in the upstream, half-hearted privatization introduced at the margin, poses different kinds of problems. The promised foreign or even domestic private investments failed to materialise even as governments have withdrawn all budgetary support to the utilities. Extension of infrastructure to

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<sup>42</sup> Op cit Gratwick & Eberhard, 2008

unconnected areas has stalled, leaving the few private investors in power generation or gas production to compete existing utility markets to cherry pick paying customers. Many utilities in the developing world seem to be entering into downward death spiral (Costello and Hemphill, 2014).

What the reforms did achieve, though, is to corporatize the unbundled utilities and to bring in a modicum of transparency in the functioning of utilities worldwide. In the last quarter of a century, a large number of countries have introduced new, dedicated regulatory offices to monitor and supervise the activities of their utilities, whether privatized or wholly or largely state owned. Most of these regulatory offices are supposed to have some degree of independence from day-to-day political control, although in practice, political intervention seems to occur in a number of countries (Cook, 2004). They also function more transparently than under government control.

### ***5.3 Revisiting the Role of Developing Country Regulators***

Now that private investors have been introduced at the margin in the generation segment in the power sector and in the gas exploration and production segment in the natural gas sector, ways have to be devised to introduce markets somehow. This was sought to be done by facilitating direct contracting between new private generators of electricity or new private producers of natural gas and bulk consumers of electricity and gas respectively. Bulk buyers of electricity or natural gas, such as industries and commercial establishments, contract directly with the new private suppliers, but will have to use the monopoly network of the incumbent government utility to access the utility service. In the

event, the task of the regulator in developing countries is different from that of their counterparts in the developed world. The developing country regulators will have to:

- i. Provide level playing field to the new private investors in upstream segment of network utilities by ensuring that the dominant public sector transportation company does not discriminate in favour of own affiliates or other government companies in providing access to the network
- ii. Determine capacity in the network and declare it common carrier for use by competing upstream and downstream stakeholders
- iii. Devise mechanisms to ensure common carrier capacity is allocated on a fair and transparent basis laid down by regulations
- iv. Determine the tariffs to be paid to the transporter
- v. Train stakeholders in the new environment of independent regulation

Crucially, in developing countries, the main thrust of the reform process is attracting private capital to extend utility services to the entire population. In developing countries with skeletal and spotty infrastructure, premature introduction of markets, especially in retail supply has left regulators with the hapless task of incentivising investors to extend the infrastructure to hitherto unconnected regions and potential customers. Besides, the market participants who often continue to be government-owned, tend to ignore regulatory orders, hoping to be shielded by their owners. More often than not, market participants need to be trained in the new regime. Competition unleashed by reforms tends to focus on the limited markets already connected to existing infrastructure; it tends to cherry pick affluent consumers, rather than reach out to create new markets by extending

infrastructure to unconnected regions. For instance, when India's gas regulator called for expressions of interest to build trunk gas pipelines in the country, leaving the prospective investor to propose the location in which he would build, virtually all respondents offered to build pipelines in territories already supplied with pipeline infrastructure and where gas markets were already functioning <sup>43</sup>. This goes to show that investors prefer to crowd into existing markets rather than develop new markets.

#### ***5.4 Developing Country Regulatory Conundrums***

Herein lies the conundrum of developing countries. Introducing markets in utility services even before the network infrastructure has been comprehensively built, puts the developing country regulator at a huge disadvantage. The tools available to the developing country regulator to perform its regulatory tasks effectively are either absent or not adequate, as we have seen in Chapter 2.

In the circumstances, how do regulators incentivise investments in infrastructure? It is typically done through the offer of marketing exclusivity for a certain period to an investor who comes forward to build an infrastructure – such as a city gas distribution network. (i.e. the investor who comes forward to build a network can exclusively supply consumers in the network it builds for a certain number of years determined by the regulator). The irony is that marketing exclusivity is the very antithesis of competition even if only for a limited period.

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<sup>43</sup>

Interview with Member,(legal), PNGRB on 16<sup>th</sup> January, 2017 at New Delhi.

Besides, experience has shown that even after this period, the retail supply utility resists opening up its infrastructure to third party access, approaching courts and other forums in support of its claim <sup>44</sup>. The developing country regulator is ill-equipped to deal with such intransigence on the part of the incumbent utility. The following lacunae emerge:

#### ***5.4.1 Absence of Planning Mandate***

In the regulatory design envisaged by World Bank, developing country regulators do not have the mandate or the tools to undertake planning for the sector; that is left entirely to the markets<sup>45</sup>. Regulators do not have the financial muscle or power to provide any financial support to potential investors willing to risk investing in extending the infrastructure to hitherto unserved areas. Markets will decide whether and where they will take the network infrastructure. Independent regulators in developing countries have no control over the price of electricity or gas, but regulate only the transportation tariff; markets are expected to decide the price of the utility commodity. If it is unaffordable to the downstream consumers, the regulator can do little to mitigate the price risk except to recommend direct budgetary support to the needy sections, a recommendation that may or may not be heeded by the government already strapped for resources<sup>46</sup>.

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<sup>44</sup>        *ibid*

<sup>45</sup>        In telecom, regulators levy a cess on existing connections which goes towards a universal service obligation fund to be used to extend the network to unconnected regions. A similar cess in the case of gas might impose a huge burden on existing consumers of gas whose number is small compared to those awaiting connectivity. Besides, technology has enabled telecom industry to extend connectivity to far flung regions without having to take physical networks everywhere. Installing towers in the countryside is much cheaper and easier than building electricity lines or gas pipelines.

<sup>46</sup>        In India, in the past, cash-strapped state governments have reneged on their commitment to provide budgetary support to subsidise poor consumers. Now they opt for the easy way out, namely, direct government-owned transmission companies not to file for tariff revision.

Nor is the developing country regulator equipped to create new markets. In countries where there is limited or no domestic production, and where imports supply utility franchises entirely, as in the case of natural gas in Japan, or substantially, as in the case of Germany, UK or India, the regulator has no control over the consumer price of the utility, subject as it is, to the vagaries of the international market. Yet, being a utility basic to human life, electric lines, cooking gas pipelines and water pipelines have to be extended to every potential consumer and supplied at prices affordable to them.

Additionally, developing country regulators are also hamstrung by problems besetting their developed country counterparts such as information asymmetry, lack of capacity and expertise, inadequate staff etc. Besides, most developing country governments have not bought into neoliberal reforms, but have been persuaded to adopt them which explains their half-hearted implementation <sup>47</sup>. In the event, turf battles between the regulator and the government seem inherent in the scheme of things.

#### ***5.4.2 Inappropriate Tools to Incentivise Infrastructure***

In the new model of independent regulation, developing country regulators are entrusted with three major functions. For the purposes of this research, we focus on natural gas utilities, the case study industry. Since many developing countries lack a comprehensive trunk pipeline grid and many cities are not connected to piped gas supply, the foremost function of the regulator is to get the infrastructure built and extended to unserved areas. The unwritten compact between a welfare state

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<sup>47</sup> Op cit Gratwick and Eberhard, 2008

and its citizen is that all residents are entitled to basic utility services and it is incumbent upon the government to enable/provide it. This compact has now been transferred to the independent regulator, but without the proper tools to deal with it. Regulators are tasked with licensing new pipelines and approving extension and upgradation of network infrastructure to unconnected populations within their geography. Since the government has withdrawn budgetary funding of utilities post reforms, all that the regulator can do is to try and incentivise construction of new networks by the market. The following are the tools available to the regulator to achieve this end:

- i. The regulator can allow the builder of a trunk pipeline to use a certain proportion of the pipeline capacity for priority use by its own affiliate
- ii. When bidding for a local area distribution franchise, the regulator can identify and prioritise those areas which have a mix of bulk and retail consumers. Utilities, by definition, serve households with commodities and services essential to human life, but merely serving a large number of small household consumers may not be profitable for a prospective investor, unless combined with lucrative bulk users like industries or as in modern times, gas based transport.
- iii. The regulator can allow cross-subsidisation in fixing tariffs so that the utility use of the commodity is priced low enough to make it affordable to the poor consumers. But this is possible only if the regulator has control over the price of the utility (as opposed to transportation tariff).
- iv. The regulator can allow the successful bidder exclusive monopoly marketing rights for supplying gas in the

franchise area for a fixed period long enough for the latter to recover his investments.

- v. The regulator can fix a generous tariff which not only covers the cost of constructing the pipelines, but also allow a reasonable return on capital; it can introduce a modicum of predictability and stability in tariffs so that the investor has the assurance of recovering his costs provided enough gas flows through the pipeline. Some regulators opt for multi-year tariff orders to provide a modicum of predictability to the investors <sup>48</sup>.

In Chapters 6 & 7, this research proposes to show how these tools have been applied by the case study regulator – India’s Petroleum and Natural Gas Regulatory Board – and to what result.

## ***5.5 Risks in a Developing Country***

### ***5.5.1 Market Risk***

The regulator has to devise incentives which will mitigate financing and market risks, but without the necessary tools to deal with them. (i) If taking the infrastructure to rural households entails substantial capital investments, but the potential beneficiaries of the scheme – the consumers in the new franchise area - are poor and unwilling to adopt gas as the cooking fuel in preference to biomass or firewood which they can probably access for free, the marketing risk would perhaps be insurmountable for any regulatory incentive to overcome. The market risk is borne entirely by the franchisee. (ii) The regulator

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<sup>48</sup> Compiled from several sources including Pollitt, 2008, PNGRB, and interviews with PNGRB Member (legal), reted.

may not be able to identify geographical areas which include an adequate number of industrial consumers to make the investment worthwhile for a new franchisee. Industries along a new gas pipeline/electricity transmission line might develop in due course of time, but ex ante, the franchisee might perceive a market risk.

In jurisdictions where the regulator controls the final consumer price of the utility, he can allow cross-subsidies, but these could spiral out of control as they did in the case of electricity sector in India where because of high cross-subsidising electricity prices charged to industrial consumers, the opted for self-generation and fled the grid. (Bose & Shukla, 1999).

If supply risk is added to these problems, as in declining domestic gas production and/or reliance on imported gas either through transnational pipelines or in the form of liquefied natural gas, the developing country regulator's task becomes extremely challenging.

This thesis, therefore, argues that the model that is now being adopted by developing countries is quite contrary to the trajectory taken by utility industries in developed countries. As has been mentioned earlier, in the US, for nearly a quarter of a century, from 1954 to 1978, the regulator controlled not only transport tariffs, but even the price of domestically produced gas, helping the spread of gas as a viable domestic fuel with more and more consumers willing to switch from alternatives. Market risk and price risk were thus mitigated, incentivising investors to extend pipelines to unconnected regions. The US gas network infrastructure got built comprehensively during this phase. But that is not the model that is being followed in developing countries where price of the utility service is kept outside the purview of the regulator who regulates only transmission tariffs.

### ***5.5.2 Price Risk***

In the new regulatory paradigm adopted by developing countries, regulators, have limited powers and tools at their disposal. They can, of course, license new pipelines or transmission networks, but they have little leeway in incentivising a private investor to extend infrastructure. This is especially significant when natural gas prices, unlike electricity prices, are no longer locally determined. Many developed countries like Germany, France, Japan etc and developing countries like India and Pakistan are substantial importers of natural gas and as such, are subject to the vagaries of global markets. With developed countries willing to pay higher prices for their imports, developing countries face substantial price risks. Even long-term contracts are often tied to crude prices with a floor and ceiling built in (Stern, 2014) With global LNG prices linked to crude prices, gas price volatility seems to be a certainty, making it risky for any investor to build gas pipeline infrastructure in the hope that markets will automatically materialise.

### ***5.5.3 Supply Risk***

Developing countries face considerable supply risks as well. Pakistan and Bangladesh both of which have substantial share of gas in their energy baskets, face depletion of domestic supply sources (Kessides, 2013, Samrina, 2004) New exploration, even if it throws up new discoveries, is likely to take a long time to come on stream and requires massive synchronised investments in

pipeline infrastructure. India too, is in a similar predicament with its domestic gas supplies dwindling. The promised abundance of supplies from Krishna-Godavari gas field never materialised, leading to stranded assets which came up when the discovery was announced (Thakurta, 2014). Even in the west, the disruption in Russian gas supplies in March 2006, following Russia's dispute with Ukraine, severely impacted the European economies (Kovacevic, 2009 <sup>49</sup>). European countries have since begun to hedge their supply risks through alternate means – storage, spot LNG etc., an option that is not feasible for resource-starved developing countries.

Import of gas requires massive upfront investments in infrastructure – like transnational gas pipelines or LNG terminals – which also have long lead times to construct and operationalise. It is also difficult for countries surrounded by problematic or conflict-ridden neighbours through whose territory the pipelines must pass. For instance, India has been planning at least three transnational pipelines to ferry Iranian, Turkmen and Myanmar gas for its domestic consumers, but all three pipelines have stalled for decades. The Turkmen and Iranian pipelines will have to pass through conflict-ridden Afghanistan and hostile Pakistan which, inter alia, make them difficult to build. Myanmar gas proved a tantalising option for India. While China has the financial muscle to make the substantial upfront investments in pipelines, India's indecisive coalition governments of the past, already cash-strapped, were dragging their feet on the proposal. Myanmar gas now flows into Yunnan province in China, leaving India to look for LNG options.

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<sup>49</sup> There is an extensive body of literature analysing the disruption of Russian gas flowing through Ukraine in the winter of 2000.

#### ***5.5.4 Access Risk***

This refers to the ability of a new investor in city gas franchise to access existing pipelines which are controlled by an incumbent integrated monopoly. The reform design often requires the regulator to unbundle the incumbent utility, to separate the transport operations from retail marketing. But it is a difficult task, especially for the developing country regulator dealing with an entrenched integrated utility.

Unbundling could be functional, legal or of ownership. The holding company model wherein the unbundled segments are legally separated, but still owned by the same company, does not take care of conflict of interest problem, without constant supervision and monitoring. The incumbent utility has all the incentive to favour its own affiliates over competitors. In such cases, the regulator has to exercise utmost vigilance to ensure fair treatment of all stakeholders. If the incumbent is a government-owned entity, as it is likely to be in most developing countries, the regulator is likely to face opposition for unbundling from the government as well. In the developed countries, not only is the transporter unbundled from other operations, it has also been privatised, making the regulator's job that much easier. In developing countries, even if the framework law empowers the regulator to unbundle the incumbent entity, it is fraught with practical difficulties. It takes away incentive from the incumbent entity to extend the existing infrastructure if it has to be opened up for competitors to use.

Dealing with an incumbent bundled entity throws up other challenges too, to the developing country regulator. The

incumbent entity has every incentive not to disclose the exact capacity available in its pipeline networks for common carrier purposes. It is up to the regulator to use its technical knowledge and skills to ferret out this information and declare its availability. It is also up to the regulator to ensure that this capacity is made available in a fair and transparent manner in accordance with the rules of access laid down in the regulations. This function requires technical skills which the regulator must be able to marshal and deploy successfully. Many developing country regulators lack such skills. They usually rely on third party consultants whose pool is limited. Worse, the same handful of consultants go around advising the regulator as well as the incumbent, creating conflict of interest and affecting the credibility of the process. Without unbundling and non-discriminatory open access to third party shippers, competitive markets remain a non-starter.

Regulators in developing countries came up against challenges that were not foreseen by the architects of the reform model and which the regulators themselves were ill-equipped to respond to. Studies of regulatory effectiveness threw up unedifying results in country after developing country, as we have seen in Chapter 1, prompting this research to investigate the appropriateness of the reform model to developing countries with incipient or lumpy markets and inadequate and patchy infrastructure.

*This chapter discussed the unanticipated challenges regulators deal with, especially in a developing country context, the risks that they have to address and the conundrums confronting them, as against the tools available to them to deal with these challenges. It found that regulators are ill-equipped to deal with developing country challenges and conundrums. The next two chapters*

*will examine whether the findings outlined above hold good in the case of the case study regulator.*

## Chapter 6

## Case Study: Assessing Regulatory Governance Through Benchmarks

*The previous chapters provided the background for the case study in this chapter. They discussed the theories of regulation, the history and evolution of regulation, the structure and functions of independent regulators and the tools available to them to perform their tasks; the last chapter also highlighted the particular problems faced by developing country regulators.*

*In order to address the main research question, namely, whether the current reform paradigm with independent regulation at its core, is an appropriate institution of governance for network utilities in developing countries, this research examines a representative case study. In this chapter, Petroleum and Natural Gas Regulatory Board, India's downstream hydrocarbon regulator is evaluated for adherence to good governance structure and processes identified by reform architects. This is followed by an evaluation of regulatory performance analysed in Chapter 7. This two stage approach has been adopted to isolate design and procedural lacunae in the case study regulator from more fundamental factors affecting regulatory performance.*

In the previous chapter, we discussed how, in a developing country context, regulators are required to incentivise private capital to invest in infrastructure, supplementing the efforts of the incumbent government utilities which, for various reasons, have failed to provide comprehensive coverage/universal supply of an essential commodity or service. We also discussed how developing country regulators are expected to devise appropriate incentives to direct private infrastructure into hitherto unserved areas.

In this and the next chapter, we attempt a case-study of India's Petroleum and Natural Gas Regulatory Board, the independent regulatory body established expressly to regulate India's reformed downstream hydrocarbon sector. This chapter evaluates PNGRB for conformity with good governance structure and processes while the next chapter attempts a scorecard on PNGRB's performance in terms of outcomes achieved. The rationale for this two-tiered approach is, while evaluating the performance of PNGRB, it is necessary to isolate those factors that relate to poor regulatory design from fundamental problems with the regulatory paradigm itself.

### ***6.1 Justifying the Case-Study Approach***

This research adopts a case-study approach of a typical developing country to study the effectiveness of regulation in delivering the promised objectives of reform. Case studies reflect real-life on the ground situations better than cross-country studies based on macro-level data and can, therefore, offer valuable insights. Case-studies also help us take a closer look at the reform processes and outcomes. This study acknowledges the limitations in the case study method in as much as the particular case chosen for investigation may not be representative enough to arrive at generic conclusions across the board. While this limitation cannot be fully addressed, care has been taken to choose a utility industry that is as close to a developing country model as possible. For instance, the utility chosen must offer a basic and essential service, like cooking gas or electricity – also termed lifeline energy - both of which welfare states have a responsibility to provide to all their citizens. Like electricity, gas also needs comprehensive physical

network infrastructure. Natural gas for cooking purposes is a far cleaner fuel than coal or bottled LPG or kerosene, both highly polluting. In a climate-constrained world, all countries, regardless of their state of development, are looking for cleaner energy alternatives. Natural gas fits this quest.

What makes natural gas industry in India an apt choice is the fact that it represents a typical developing country industry where the network infrastructure is underdeveloped, markets are incipient and immature. It is an industry where reforms could have the best possible outcomes in terms of extending the service and improving efficiencies. India's gas industry has been liberalized since 1997, allowing 100 per cent private and foreign investments in hydrocarbon exploration and production as well as in the construction of LNG and pipeline infrastructure. This holds out potential for attracting private investments. Regulatory reforms were introduced in 2007 to take advantage of abundant gas supplies that seemed imminent from a major domestic gas discovery as well as the establishment of two LNG terminals for importing gas. The circumstances seemed propitious for reforms to deliver the desired results.

PNGRB, the regulatory institution set up to oversee the development of the industry, is a fairly typical developing country regulator with all the attributes prescribed by the reform model. It has sufficient remit, powers and scope to incentivise expansion of infrastructure and reach of cooking fuel to households that use polluting fuels like biomass or kerosene. Since many developing countries have similar incipient infrastructure and markets, and have also reformed their gas industries along the model suggested by World Bank, it is believed that the results from this study would have relevance for the former.

## ***6.2 Assessing Regulatory Substance or Outcomes, Rather than Processes***

This study argues that regulation is not an end in itself, but only a means to an end. Regulators, as seen from the theories of regulation in Chapter 2, are agents of the state (as opposed to the government), and as such, must discharge the functions of the state in the spheres assigned to them. In fact, it has even been argued that regulators are agents of their principals, namely consumers and must therefore, work for the interests of the latter<sup>50</sup>.

To borrow the Rawlsian definition, the responsibility of the welfare state is to assure a basic level of survival for the citizens (Rawls, 1971). Utility Regulators as agents of the state, must, therefore, take on the responsibility to make available essential utility services like electricity and cooking gas of acceptable quality and minimum necessary quantity to everyone who needs it. As long as neoliberal economic theories do not explicitly reject the concept of the welfare state, one must assume that this is the objective of regulation. All other objectives which the regulatory literature is replete with, namely, privatization, competition, liberalization etc. sub-serve this objective. Any evaluation of regulation must therefore, assess the outcomes produced by regulation rather than the processes. This thesis argues that regulation is best evaluated for what it does rather than how it does it. The focus of any inquiry, must therefore be regulatory substance measured by the outcomes produced by the regulator.

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<sup>50</sup>

Op cit, Stern and Holder, 1999

### ***6.3 Measuring Regulatory Governance***

But before doing that, it is necessary to first examine whether the regulatory institution is designed to deliver the expected outcomes, whether it conforms to the industry best practice in terms of its legitimacy, structure, powers, remit, accountability, transparency, predictability etc. Only a legitimate and properly constituted regulator with suitable remit and powers can discharge its responsibilities to the consumers. In the regulatory literature, this is referred to as regulatory governance.

### ***6.4 Choosing the Toolkit***

There are a few studies which measure regulatory governance through a benchmark-based approach. Benchmarks have been developed by a few institutions including one by the World Bank itself which designed and implemented the reforms in many countries. For instance, the Washington-based World Resources Institute has devised an Electricity Governance Indicator Toolkit which has more than 60 indicators. It has been applied to several developing country electricity sector reforms across five continents, in partnership with civil society groups<sup>51</sup>. The scope of this toolkit is too vast for use in this research. The International Telecommunication Union, a specialized UN agency for telecommunications, also a network utility industry like electricity or gas, has developed a tracker to measure regulatory

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<sup>51</sup> <https://www.wri.org/our-work/project/electricity-governance-initiative/partners#project-tabs> accessed on 1<sup>st</sup> June, 2019

governance through 50 benchmarks <sup>52</sup>. However, this study has elected not to use this toolkit because of technological advancements in telecom industry which make it possible to bypass physical infrastructure through wireless telephony. The World Bank, in addition to the governance toolkit, has a structured Regulatory Impact Assessment toolkit which primarily measures the regulator for processes and outputs rather than the outcomes <sup>53</sup>. In other words, it measures the extent of private investments in the selected utility industry, the degree of competition, commercialisation, corporatization, etc as proxies for regulatory outcomes. This thesis seeks to look beyond regulatory processes into actual regulatory outcomes and has not used the World Bank toolkit.

While the gas industry has similarities to other network utilities like telecommunication and electricity, it is not identical to either. The Electricity Governance Toolkit Indicator and the ITU regulation tracker include attributes specific to electricity and telecommunication industries respectively. The benchmarks developed by World Bank are not used in this case study because of the potential conflicts of interest that could arise. Having designed and implemented utility restructuring and reforms in developing countries, the World Bank benchmarks focus more on processes like liberalization, competition etc rather than welfare outcomes in terms of access, availability pricing etc. Therefore, in this study, the widely-used generic regulatory indices developed by regulation economists Stern and Holder are applied to the case study regulatory institution. This is because,

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<sup>52</sup> TU (2018), "Note On methodology – ICT regulatory tracker", in *Global ICT Regulatory Outlook 2018*, ITU, Geneva, <http://handle.itu.int/11.1002/pub/81234575-3128ac01-en>.

<sup>53</sup> <https://rulemaking.worldbank.org/en/ria-documents> accessed on Nov 27, 2018

even as they look at governance features, they do concede that that the regulator has to ensure efficient provision of services to consumers at the minimum necessary price. It must be emphasized though that almost all toolkits address nearly the same governance attributes with variations for industry-specific features.

In Section I of this chapter, the regulatory governance assessment is attempted in order to decide whether the Indian gas regulator satisfies the attributes of a good governance institution. The Stern and Holder indicator toolkit is given in the annexure. (Annexure 2: Stern & Holder Toolkit) Here, only the findings are presented.

## ***6.5 Applying the Toolkit***

### ***6.5.1 Legitimacy of the Regulator***

The regulatory contract is defined as a compact between the government and the regulator. The government is expected to provide the necessary framework and support for enforcement of regulatory decisions and orders in a form that is not easily revocable. There are instances of states where a regulator giving orders unpalatable to the government have been sacked <sup>54</sup>. Therefore, according to Stern and Holder, the regulatory contract should be invulnerable to post-contractual opportunism and has to be explicit <sup>55</sup>.

From the foregoing, it is evident that the primary requirement of a good governance mechanism is to devise a regulatory contract that is invulnerable to post-contractual opportunism. In the case

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<sup>54</sup> <https://www.cnbc africa.com/news/east-africa/2017/01/02/tanzanias-president-sacks-head-of-power-firm/> accessed on 3<sup>rd</sup> March 2019

<sup>55</sup> Op cit, Stern and Holder, 1999

study under review, this has been ensured by a regulatory contract in the form of a law enacted by India's national parliament. The PNGRB Act 2006 which provides legitimacy and authority to the regulator can only be amended, diminished or repealed by the same parliament. It is concluded, therefore, that the case-study regulator is robust and invulnerable to post-contractual opportunism. A copy of PNGRB Act 2006 is enclosed in the Annexure. (Annexure 3: PNGRB Act 2006)

### ***6.5.2 Regulatory Mandate & Remit***

Stern and Holder prescribe three criteria to evaluate regulatory mandate

- i. the extent of the regulator's powers,
- ii. how clearly they are defined in the regulatory law
- iii. the obligations on government to publish and justify the use of such powers.

Applying these criteria to PNGRB, it has been found that the case-study regulator has been given the powers needed to discharge its functions effectively. PNGRB's remit and mandate begins post-production/import of natural gas and crude. Since it must then have the necessary infrastructure to reach markets, creation of network infrastructure and facilitating non-discriminatory open access to that infrastructure is a key regulatory responsibility <sup>56</sup>.

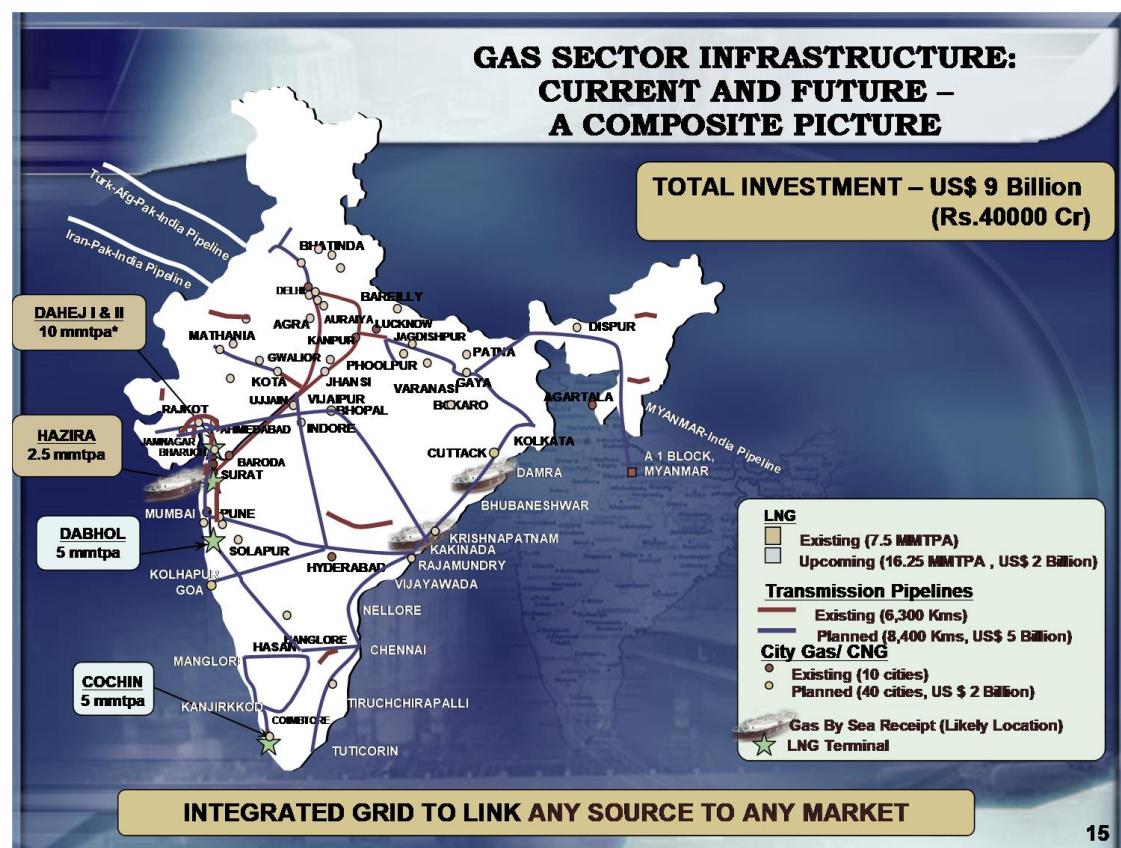
As we have seen in the earlier chapter, India's pipeline network is sketchy and is limited to the north and west of the country and is by no means comprehensive. The map below gives an overview

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<sup>56</sup> There is a separate regulator for upstream hydrocarbons, namely exploration and production. The Director-General of Hydrocarbons is an executive authority set up by the line ministry and as such does not enjoy the independence accorded to PNGRB.

of natural gas pipeline network and city gas distribution networks in India in 2007 when the regulatory institution was established. The table presents the length of natural gas pipelines in the country in 2007 when PNGRB was set up.

*Figure 6.1. Pipeline Map of India*



*Source: PNGRB, 2007*

*Table 6.1: Total Natural Gas Pipeline Network in India in 2007*

| Sl.No. | Pipeline Network | Length |
|--------|------------------|--------|
| 1      | DVPL             | 770    |
| 2      | HVJ              | 3397   |
| 3      | Assam            | 8      |

|          |                           |             |
|----------|---------------------------|-------------|
| <b>4</b> | <b>Tripura</b>            | <b>61</b>   |
| <b>5</b> | <b>Gujarat Region</b>     | <b>742</b>  |
| <b>6</b> | <b>Maharashtra Region</b> | <b>125</b>  |
| <b>7</b> | <b>AP Region</b>          | <b>834</b>  |
| <b>8</b> | <b>TN Region</b>          | <b>260</b>  |
| <b>9</b> | <b>DUPL/DPPL</b>          | <b>581</b>  |
|          | <b>Total</b>              | <b>6778</b> |

*Source: PPAC, 2007*

In 2007, GAIL had a transmission pipeline network of 6778 kms of pipelines to transport 142 mmscmd<sup>57</sup>. Around the same period, the US already had a domestic pipeline network of 305000 kms serving a fourth of households that India had <sup>58</sup>. Even the UK, a much smaller country in terms of geography, had a pipeline system of 28603 kms <sup>59</sup>. China in whose energy basket gas has a very small share, already had more than 70,000 kms of pipelines <sup>60</sup>. It is evident, therefore, that India was in urgent need of infrastructure to evacuate the new domestic discovery in KG-D6 as well as imported LNG.

This invested the regulator with the formidable task of getting the infrastructure built and extended to other parts of the country. Till then, the pipelines were built predominantly by GAIL, the integrated public sector monopoly which also supplied gas to bulk consumers. GAIL was directed by the government to take the pipelines according to political priorities of the government of the day. However, in the post-reform scenario, neither did government extend any budgetary support to GAIL, nor did it direct where the pipelines should be built. It was left entirely to

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<sup>57</sup> Annual Report of Ministry of Petroleum and Natural Gas, Government of India, 2007-8

<sup>58</sup> Energy Information Administration, USA, 2008

<sup>59</sup> Petroleum Planning and Analysis Cell, Government of India, 2008

<sup>60</sup> *ibid*

the regulator to decide how and where the infrastructure would be built. GAIL, the national public sector monopoly would henceforth compete with private investors to win contracts to build pipelines. Similarly, state governments which had encouraged investors to build city gas distribution networks in their respective jurisdictions prior to the advent of PNGRB no longer have the authority to direct their public sector enterprises to build or expand their networks. PNGRB Act unambiguously assigns this mandate to the regulator.

### **6.5.3 Extending Universal Service**

The preamble to PNGRB Act 2006 states:

*An Act to provide for the establishment of Petroleum and Natural Gas Regulatory Board to regulate the refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural gas excluding production of crude oil and natural gas so as (i) to protect the interests of consumers and entities engaged in specified activities relating to petroleum, petroleum products and natural gas and (ii) to ensure uninterrupted and adequate supply of petroleum, petroleum products and natural gas in all parts of the country and (iii) to promote competitive markets and for matters connected therewith or incidental thereto.*

While the preamble does say the regulator has to promote competitive markets, it does not expressly state that PNGRB has to incentivise extension of gas pipeline network to all parts of the country. That is inferred from subsection (iii) of the preamble which requires the regulator to ensure uninterrupted supply of petroleum and petroleum products and natural gas in all parts of the country. While petroleum and petroleum products have a wide retail distribution network covering almost the entire population, natural gas supply, ineluctably linked to network

infrastructure, is limited to those areas connected by pipelines. Thus, ensuring availability of natural gas in all parts of the country would require the regulator to first get the requisite infrastructure built.

The Act also give the power of implementation to PNGRB by the following provision:

*29. Orders passed by Board deemed to be decrees:*

*Every order made by the Board under this Act shall, on a certificate issued by an officer of the Board, shall be executable in the same manner as if it were a decree of a civil court: Provided that where an appeal lies against an order of the Board and no appeal is preferred then the order of the Board shall be deemed to be a final decree under this section on the expiry of the period allowed for preferring an appeal against such order before the Appellate Tribunal.*

## ***6.6 Extending Network Infrastructure***

Towards this end, PNGRB Act confers express powers on the regulator to authorise construction of new pipeline networks as well as CGD networks and extension of existing pipelines.

Section 11 C lists the functions of the Board. Inter alia, PNGRB shall

*(c) authorise entities to-(i) lay, build, operate or expand a common carrier or contract carrier;*

*(ii) lay, build, operate or expand city or local natural gas distribution network;*

*Section 11c, therefore, requires the regulator to license construction of pipelines and city gas distribution networks in order to extend the utility service to the hitherto unserved parts of the country.*

## ***6.7 Fostering Competition***

Section 11a requires the regulator to foster fair trade and competition among the entities to protect the interests of the consumers.

*Section 11a: PNGRB shall protect the interests of the consumers by fostering fair trade and competition among entities.*

In the earlier chapters, we have seen how in developing countries where network infrastructure is not comprehensive, the Demsetz concept of “competition for the market” is a useful tool to incentivise private investment through a competitive bidding process. (op cit, Demsetz) The bid design is intended to contain incentives for the private entrepreneur to compete for construction of networks.

## ***6.8 Regulating Monopoly***

The main objective of utility reform is to attract private foreign investments which requires the regulator to provide a conducive investment regime through regulations. To this end, the regulator has been empowered to direct and oversee non-discriminatory open access to common carrier pipelines and determine the tariff payable for monopoly common carrier networks so that competition can be encouraged in sourcing and retail supply.

PNGRB Act requires the regulator to implement open access to existing pipelines so that competing suppliers and consumers can use the monopoly infrastructure. The specific provision in this regard is given in Section 20 of PNGRB Act.

*Section 20: Declaring, laying, building, etc., of common carrier or contract carrier*

*and city or local natural gas distribution network*

*(1) If the Board is of the opinion that it is necessary or expedient, to declare an existing pipeline for transportation of petroleum, petroleum products and natural gas or an existing city or local natural gas distribution network, as a common carrier or contract carrier or to regulate or allow access to such pipeline or network, it may give wide publicity of its intention to do so and*

*invite objections and suggestions within a specified time from all persons and entities likely to be affected by such decision.*

*(2) .....*

*(3) The Board may, after following the procedure as specified by regulations under section 19 and sub sections (1) and (2), by notification,*

*-*

*(a) declare a pipeline or city or local natural gas distribution network as a common carrier or contract carrier; or*

*(b) authorise an entity to lay, build, operate or expand a pipeline as a common carrier or contract carrier; or*

*(c) allow access to common carrier or contract carrier or city or local natural gas distribution network;*

From the foregoing analysis, it is evident that India's PNGRB is fully empowered and has the necessary mandate to perform key regulatory functions required of independent regulators with a view to attracting private investments in the downstream hydrocarbon industry and promoting competition.

## ***6.9 Applying Regulatory Governance Toolkit***

Legal mandate apart, regulatory effectiveness is dependent on several other factors. Applying Stern and Holder's widely-cited test of regulatory effectiveness to PNGRB throws light on the robustness and suitability or otherwise of the Indian regulator to undertake the tasks assigned to it.

### ***6.9.1 Clarity of Roles and Objectives***

The test of regulatory roles and objectives is formulated in six questions.

***Does the primary legislation set out a clear definition of the regulator's functions and duties?***

As has been shown above, the primary legislation, namely, the PNGRB Act 2006 does set out a clear definition of the regulator's functions and duties under various sections. Section 16 empowers the regulator to license new networks and CGD, Section 20 empowers PNGRB to promote competition by mandating and overseeing open access to common carrier pipelines and Section 22 empowers the regulator to set tariffs for common carrier pipelines.

***If not, are these functions and duties formally set out in legal instruments and/or other documents?***

The Pipeline Policy document issued by the Ministry of Petroleum, Government of India, specifies that one third of the capacity of all future pipelines built under regulatory regime should be earmarked exclusively for common carrier or contract carrier purposes. (Annexure 4: Pipeline Policy of GoI)

***Is it clear where the regulator has an advisory role (e.g. to the Minister) rather than a decision making role?***

It is clear that the regulator has a decision making role. There is no provision in the PNGRB Act which envisages an advisory role for the regulator.

***Are there any functions carried out jointly, or any that are ambiguous, between the regulator and those of the relevant Minister(s)? Does the legislation establish unambiguously which entity is responsible for what regulatory functions?***

Yes, the legislation does establish unambiguously that PNGRB is the entity responsible for all regulatory functions such as licensing new infrastructure, determining tariff, declaring pipelines as common carrier or contract carrier and resolve disputes between stakeholders. For instance,

Section 16 of PNGRB Act states

*No entity shall-*

*(a) lay, build, operate or expand any pipeline as a common carrier or contract carrier,*

*(b) lay, build, operate or expand any city or local natural gas distribution network, without obtaining authorisation under this Act.*

***Does the regulator have any responsibility for commercial activities?***

No, the regulator does not have any responsibility for commercial activities.

### ***6.9.2 Autonomy***

***What is the relationship between the regulatory body and the government (e.g. a separate division of a Ministry, a body independent of any Ministries, a body independent of government, etc.)?***

PNGRB is an independent regulatory body outside the government deriving its powers from a law passed by the Parliament. It does not report to the government. There is no provision in PNGRB Act which requires the regulator to do so.

***How are members of the regulatory body appointed and dismissed?***

The five members including the Chairman are selected by a panel of bureaucrats and experts appointed by the President of India. They serve a fixed tenure of five years or till they attain 65 years whichever is earlier. Members and Chairman cannot be dismissed except for extreme reasons like proven misconduct, mental disability etc.

***How is the regulatory body financed? Who has to approve the funding?***

PNGRB is financed by direct subventions from the annual budget which is charged to the Consolidated Fund of India and not voted by the parliament.

*39. Fund:-*

*(1) There shall be constituted a Fund to be called the Petroleum and Natural Gas Regulatory Board Fund and there shall be credited thereto-*

*(i) all grants, fees, penalties and charges received by the Board under this Act;*

*(ii) all sums received by the Board from such other sources as may be approved by the Central Government.*

*(2) The Fund shall be applied for making payments towards -*

*(i) the salaries and allowances payable to the Chairperson and other members and the administrative expenses including the salaries, allowances and pensions payable to the officers and employees of the Board;*

*(ii) the expenses incurred or to be incurred in carrying out the provisions of this Act.*

***In what cases does the regulator have only an advisory role (rather than a decision making role)?***

A reading of PNGRB Act shows that the law does not envisage an advisory role for the regulator although the law does not preclude the regulator from advising the government.

### ***6.9.3 Participation***

***Does the regulator formally involve regulated firms, other industry firms, consumers and others on:***

- major decisions?***
- the proposed approach to taking major decisions?***

Yes, PNGRB invariably involves regulated firms, related industry firms and consumers on major decisions. Even while regulations are being drawn up, these stakeholders are consulted through drafts posted on the regulator's website, inviting comments within a reasonable time-frame. A sample consultation paper issued by PNGRB can be accessed here:

<https://www.pngrb.gov.in/pdf/public-notice/PCD04052018.pdf>

***Are consultation responses made public (either in full or in a summary of responses)?***

Yes. PNGRB website contains summaries of consultation response received from stakeholders.

***Does the regulator comment publicly on points made in consultation responses, and how (if at all) these have affected the final decision?***

Yes, all regulatory orders are reasoned “speaking” orders.

***Are there any other indications of whether or not consultation responses influence the final decision?***

All regulatory decisions and orders are reasoned ‘speaking’ orders and as such, do give an indication as to how the consultation responses influence the decision.

***What other ways are industry participants (including firms and consumers) involved in regulatory decision making and processes?***

All concerned stakeholders are invited to public hearings to make their case before the regulator before the latter arrives at a decision.

#### ***6.9.4 Accountability***

***Is there a formal mechanism for regulated firms (or other parties) to challenge regulatory decisions?***

Yes, there is an appeals body called Appellate Tribunal for Electricity which has a retired judge as chairperson and members

one of whom is a technical member with expert knowledge of gas industry. Chapter VI of PNGRB Act states

*APPEALS TO APPELLATE TRIBUNAL*

*30. Appellate Tribunal :-*

*(1) Subject to the provisions of this Act, the Appellate Tribunal established under section 110 of the Electricity Act, 2003 (36 of 2003) shall be the Appellate Tribunal for the purposes of this Act and the said Appellate Tribunal shall exercise the jurisdiction, powers and authority conferred on it by or under this Act : Provided that the Technical Member of the Appellate Tribunal for the purposes of this Act shall be called the Technical Member (Petroleum and Natural Gas) and shall have the qualifications specified in subsection (2) of section 31.*

*(2) Notwithstanding anything contained in the Electricity Act, 2003 (36 of 2003), the Central Government may, for the purposes of this Act, appoint one or more Technical Members (Petroleum and Natural Gas) on the Appellate Tribunal for Electricity or designate a Technical Member of the said Tribunal having the qualifications specified in sub-section (2) of section 31 and when a Technical Member (Petroleum and Natural Gas) is appointed, he shall be in addition to the three other members appointed under the said Act.*

***If so, how does it work? And has it been used?***

It works like a quasi-judicial forum where formal appeals are listed and the parties heard, before a decision is given. And it is being used extensively by stakeholders aggrieved by the decisions of PNGRB.

***Is there also a legal right of redress?***

Yes, to the Supreme Court of India. Section 37 of PNGRB Act states

***37. Appeal to Supreme Court:-***

*(1) Notwithstanding anything contained in the Code of Civil Procedure, 1908 (5 of 1908) or in any other law, an appeal shall lie against any order, not being an interlocutory order, of the Appellate Tribunal to the Supreme Court on one or more of the grounds specified in section 100 of that Code.*

*(2) No appeal shall lie against any decision or order made by the Appellate Tribunal with the consent of the parties.*

*(3) Every appeal under this section shall be preferred within a period of ninety days from the date of the decision or order appealed against: Provided that the Supreme Court may entertain the appeal after the expiry of the said period of ninety days, if it is satisfied that the appellant was prevented by sufficient cause from preferring the appeal in time.*

***Do firms or other parties comment (or even challenge) decisions through informal channels (such as direct representations to Ministers, or through the media)?***

If public sector companies complain to the government about regulatory decisions, the regulator is not formally aware of such complaints. There is no evidence of regulatory decisions being disputed or challenged through the media.

***To whom is the regulatory body accountable (government, parliament, courts)?***

There are several layers of accountability: to the parliament which must approve the regulations as conforming to the Act passed by it.

*62. Rules and regulations to be laid before Parliament:-*

*Every rule made by the Central Government and every regulation made by the Board under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or regulation or both Houses agree that the rule or regulation should not be made, the rule or regulation shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule or regulation.*

Accountability to the government to comply with any policy directives that may be issued by the latter and to the appellate tribunal and the judiciary, to comply with orders that may be issued by the latter in the course of petitions and appeals.

**CHAPTER VIII**

POWER OF CENTRAL GOVERNMENT

*42. Power of Central Government to issue directions*

*(1) The Central Government may, from time to time, by writing issue to the Board such directions as it may think necessary in the interest of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States or public order.*

*(2) Without prejudice to the foregoing provision, the Central Government may, if it finds necessary or expedient so to do in*

*public interest or for maintaining or increasing supplies of petroleum, petroleum products or natural gas or all or any of them or for securing their equitable distribution and ensuring adequate availability, issue policy directives to the Board in writing and such policy directives shall be binding upon the Board : Provided that no such directive shall relate to any day-to-day affairs of the Board : Provided further that the Board shall, as far as practicable, be given an opportunity of expressing its views before any directive is issued under this sub-section.*

*(3) The decision of the Central Government whether a question is one of policy or not shall be final.*

***Does the regulator have to answer questions before parliament?***

Yes, when called upon to do so.

***Can the regulator be dismissed for failing to fulfil his duties?***

No, only for gross misconduct or when he becomes medically unfit etc., not for failing to fulfil duties.

***Is there under primary law a facility for judicial review?***

Yes, but only on appeal by an affected stakeholder.

#### ***6.9.5 Transparency***

***Are major regulatory documents (e.g. licences) in the public domain?***

Yes. At [www.pngrb.gov.in](http://www.pngrb.gov.in).

*Does the regulator publish major decisions (or advice)?*

Yes. At [www.pngrb.gov.in](http://www.pngrb.gov.in).

*Does the regulator publish the reasoning behind major decisions?*

Yes. At [www.pngrb.gov.in](http://www.pngrb.gov.in).

*If decisions/reasons are published, is this voluntary or compulsory (e.g. a legal requirement to justify decisions)?*

Voluntary. But speaking orders are useful when challenged.

*If decisions/reasons are not published, are any participants (such as the firms themselves) told of the reasons for major decisions?*

Not Applicable

#### *6.9.6 Predictability*

*How easily can the regulator's functions and duties be changed and what is involved?*

Not easy at all. Needs parliamentary amendment

*How easily can key regulatory documents (e.g. licences, authorisations, franchise contracts, etc.) be changed and what is involved?*

Once issued, regulatory documents, licences, contracts etc. cannot be changed except through the same process by which the original document, authorisations, contracts etc. were issued.

***To what extent are regulatory principles (e.g. on the procedural approach to tariff reviews, the definition of the rate base or the rate of return which a firm should be allowed to earn) set out formally?***

There is a formal tariff hearing process in which these decisions are discussed by concerned stakeholders before a tariff is arrived at. Tariff proposals are also put up on the regulator's website seeking comments from stakeholders and the public.

[www.pngrb.gov.in](http://www.pngrb.gov.in)

***Have the regulator's decisions demonstrated a consistent approach?***

Yes.

***Is there a published timetable of regulatory events every year?***

No, regulatory hearings and decisions are taken up as they come up before the regulator.

***To what extent are regulatory arrangements in the sector part of a coherent approach (i.e. echoed in other infrastructure sectors) and to what extent are they ad hoc (i.e. different in institutional structure from other infrastructure sectors in the country)?***

Regulatory arrangements in the downstream natural gas sector are consistent with arrangements in the electricity sector and mostly

consistent with unrelated infrastructure industries like highways or telecom.

### ***6.10 Summary of Findings***

From the foregoing analysis, it is evident that PNGRB, India's downstream hydrocarbon regulator satisfy the criteria specified for taking on an effective regulatory role, namely, making available clean cooking fuel to households at reasonable prices, incentivising extension of pipeline and city gas distribution networks through private participation, enabling non-discriminatory open access to common carrier networks and promoting competition in the sector. The regulator derives its authority from an Act of Parliament which lists all the necessary powers to undertake the tasks listed above. PNGRB further satisfies almost all canons of good governance such as clarity of roles, transparency, accountability, autonomy, participation and predictability.

The only governance indicator to which PNGRB does not conform is that the regulator cannot be dismissed or punished for failing to fulfil its duties. Whether the failure to attract investments or introduce competition in the sector can be termed regulatory failure is a moot question.

*This chapter, a case study of India's downstream hydrocarbon regulator, evaluated PNGRB in terms of best practices in utility regulation designed by reform architects. It was found that in terms of every good governance parameter - legitimacy, structure, remit, powers and accountability, PNGRB does conform to the best practices for effective regulation.*

*Having found that there are no serious lacunae in PNGRB's design, authority, remit and powers, the next chapter seeks to investigate whether PNGRB has been effective in delivering on its mandate. This exercise is undertaken with a view to examining where adherence to good governance structure and processes alone can deliver good regulatory performance. The results from the next chapter are expected to further one's understanding of the relevance of regulatory paradigm in a developing country context.*

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## Chapter 7

## Case Study II – Performance of PNGRB

*In the previous chapter, PNGRB, the case study regulator was assessed for its conformity to good governance practices and found to be compliant in every respect. In this chapter, an evaluation of PNGRB's performance is attempted in terms of the outcomes achieved in extending trunk pipelines and household cooking gas connections. This is done by analysing the data on network infrastructure and city gas distribution available from public documents. The processes followed by the regulator to incentivise new investments in infrastructure creation, encourage private sector participation, introduce competition and enable access to common carrier infrastructure, are also examined, to see if regulation has delivered in a typical developing country context.*

### **7.1 PNGRB's Reform Scorecard – Outcomes vs Outputs**

In this section, we evaluate PNGRB's performance in terms of outcomes it has achieved in relation to the objectives for which it was set up. A hundred years after natural gas made its entry into the Indian energy basket, thirty five years after a public sector national gas transport and marketing company GAIL was set up to develop a domestic gas market, and more than two decades after the industry was liberalized and opened up for foreign investors to explore for, produce hydrocarbons and/or set up LNG terminals and import natural gas into India, the penetration of natural gas as a utility service was dismal <sup>61</sup>. It was expected that with the reforms in downstream hydrocarbon industry and

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<sup>61</sup> GAIL, however, was not a utility in as much as its business focused on bulk supplies to industrial and commercial consumers. Yet, as a transporter, GAIL's role was critical to reaching utility services to households because the distribution of gas reserves in India was scattered in the west and northeast of the country with the rest of her vast geography dependent on pipelines to bring gas to their jurisdictions. Thus, GAIL's monopoly pipeline network is a key link in the gas value chain that would enable household supplies.

the establishment of an independent regulator in 2007, there would be a turnaround in the industry, a rapid expansion of pipeline networks to reach the clean cooking fuel to households that use biomass or kerosene.

This study does not assume that natural gas pipelines and piped cooking gas would reach every one of the more than 240 million households in 4000 Indian cities and towns in a decade after an independent regulator was put in charge of the sector. However, it does assume that the new governance paradigm would be effective enough to see evidence of substantial growth in infrastructure, reaching at least some of the 300 cities with a population of more than 100,000. This would necessitate expansion of trunk pipelines to hitherto unconnected regions, another measure of regulatory effectiveness.

Most of the extant transmission infrastructure is installed in the north west of India for transportation of gas to shore from the western offshore fields whence it would reach end users. By far, India's largest of the transmission systems is the HBJ (Hazira-Vijaipur-Jagdishpur) line. This pipeline system (about 2,700 km) traverses the states of Gujarat, Madhya Pradesh, Rajasthan, and Uttar Pradesh, Haryana and Delhi. In addition to the HVJ pipeline, there also existed regional gas grids of varying sizes, in the states of Gujarat (Cambay Basin), Andhra Pradesh (KG Basin), Assam (Assam-Arakan Basin), Maharashtra (Ex-Uran Terminal), Rajasthan (Jaisalmer Basin), Tamil Nadu (Cauvery Basin) and Tripura (Arakan Basin)<sup>62</sup>.

The parliamentary standing committee in 2007 had remarked in its report that in view of the substantial discoveries made on the Eastern Coast in the recent years, the eastern and southern parts

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<sup>62</sup> [https://ppac.gov.in/content/154\\_1\\_PipelineandCGDStructure.aspx](https://ppac.gov.in/content/154_1_PipelineandCGDStructure.aspx) accessed on 18th August 2019

of the country should also be urgently equipped with adequate transmission infrastructure. “In order to expedite the transmission infrastructure, the Government should quickly decide on the pipeline projects pending before it for approval” it had remarked <sup>63</sup>.

There are presently three major pipeline entities engaged in natural gas transportation across India namely GAIL, RGTIL/RGPL and GSPL. GAIL is operating about 11410 km of trunk pipelines in India comprising 68% of the pan-India pipeline network. In addition, GAIL also operates regional gas pipeline networks in Maharashtra, K.G Basin, Cauvery Basin and Gujarat. RGTIL and RGPL are operating 1784 km of pipelines (about 11% of pan India network), namely the East-West Pipeline (EWPL) to evacuate gas from KG-D6 field in Andhra Pradesh and the Shadol-Phulpur Pipeline respectively. GSPL is mainly focused in the state of Gujarat consisting of about 2618 km gas pipelines (about 16% of total)<sup>64</sup>. The scope and potential for expanding this infrastructure was substantial. The previous chapter confirmed that PNGRB conformed to all good governance benchmarks, and hence it would be reasonable to expect that the regulator would be able to fulfil the expectations of parliamentarians when they set up the regulatory body.

This section, examines two outcomes:

- i. The extent of trunk pipeline network creation after PNGRB was set up, viz. during the years 2007 to 2018
- ii. The number of domestic households connected to cooking gas supplies by franchisees authorised by PNGRB

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<sup>63</sup> Lok Sabha Standing Committee Report, 2007

<sup>64</sup> Op cit: [https://ppac.gov.in/content/154\\_1\\_PipelineandCGDStructure.aspx](https://ppac.gov.in/content/154_1_PipelineandCGDStructure.aspx)

The next part of this chapter goes on to examine the processes followed by PNGRB to achieve these outcomes, namely:

- i. Expanding the role of private investments
- ii. Introducing competition in the industry
- iii. Enabling access to common carrier pipelines.
- iv. Evaluating Regulatory Outcomes
- v. Expanding Infrastructure

### ***7.1.1 Regulator's Role in Expanding Trunk Pipeline Network***

Table 7.1 lists the length of natural gas pipeline network in India from the year 2007 to 2018, as well as gas production and consumption for the same period. The pipeline network expanded from 6232 kms in 2007 to 16770 kms in 2018, nearly 2.5 times over a period of 12 years. Modest as this expansion is, it does not tell us the whole story. Absolutely all the expansion took place in pipelines that were already licensed by MoPNG prior to the establishment of PNGRB.

Table 7.2 lists the pipelines already in existence as on 31<sup>st</sup> March 2018, 12 years after the regulator came into existence. Table 7.3, lists the pipelines licensed by PNGRB between 2007 and 2015, assuming a three-year time lag for construction and commissioning of licensed pipelines. It is instructive to note that there is no overlap in the two lists, indicating that zero kilometres of pipelines licensed by the regulator have actually been built and commissioned in these 12 years of regulatory regime. Pipelines licensed by PNGRB after 2015 could not be expected to be operational yet since it takes at least 3 years for construction and commissioning. But even leaving those aside, the rest are still to

be commissioned. Some are under construction while others are at various stages of conception and development, including obtaining the necessary right of way from local authorities.

*Table 7.1 Trunk Pipeline Infrastructure, Production, Consumption of Natural Gas & Import of LNG*

| <b>Year</b> | <b>Gas Pipelines in Km</b> | <b>Production BCM</b> | <b>Consumption BCM</b> | <b>LNG Imports MMT</b> |
|-------------|----------------------------|-----------------------|------------------------|------------------------|
| 2007        | 6232                       | 32.41                 | 37.90                  | 10.93                  |
| 2008        | 7042                       | 32.85                 | 37.61                  | 10.54                  |
| 2009        | 8606                       | 47.50                 | 52.65                  | 11.82                  |
| 2010        | 9907                       | 52.22                 | 58.93                  | 12.89                  |
| 2011        | 10448                      | 47.56                 | 58.75                  | 17.58                  |
| 2012        | 11751                      | 40.68                 | 51.68                  | 17.20                  |
| 2013        | 13111                      | 35.41                 | 46.19                  | 17.33                  |
| 2014        | 15772                      | 33.66                 | 45.33                  | 18.55                  |
| 2015        | 16240                      | 32.25                 | 46.68                  | 21.30                  |
| 2016        | 16693                      | 31.90                 | 49.68                  | 24.69                  |
| 2017        | 16765                      | 32.65                 | 52.26                  | 26.33                  |
| 2018        | 16770                      | 32.87                 | 53.05                  | 20.4                   |

*Source: Compiled from PPAC and PNG statistics of MoPNG for various years*

*Table 7.2 Operational Gas Pipelines in 2018*

| <b>Sl.No</b> | <b>Name of Pipeline</b>                     | <b>Operator</b> |
|--------------|---------------------------------------------|-----------------|
| 1            | Assam Regional Pipeline                     | GAIL            |
| 2            | Assam regional network GAIL (India) Limited | GAIL            |

|    |                                            |                    |
|----|--------------------------------------------|--------------------|
| 3  | Cauvery Basin network GAIL (India) Limited | GAIL               |
| 4  | Hazira-Vijaipur-Jagdishpur -GREP HVJ/VDPL  | GAIL               |
| 5  | Dahej-Uran-Panvel-Dhabhol                  | GAIL               |
| 6  | K.G. Basin network                         | GAIL               |
| 7  | Gujarat regional network                   | GAIL               |
| 8  | Agartala regional network                  | GAIL               |
| 9  | Chainsa-Jhajjar-Hissar                     | GAIL               |
| 10 | DVPL                                       | GAIL               |
| 11 | Dadri Bawana Nangal                        | GAIL               |
| 12 | Mumbai Regional Network                    | GAIL               |
| 13 | Kochi Kootanad Bangalore Mangalore         | GAIL               |
| 14 | Dabhol Bangalore                           | GAIL               |
| 15 | Dukli Maharajganj                          | GAIL               |
| 16 | Uran Trombay                               | ONGC               |
| 17 | EWPL                                       | RGTEL              |
| 18 | Gujarat Grid High pressure                 | GSPL               |
| 19 | Gujarat Grid Low Pressure                  | GSPL               |
| 20 | Hazira, - Ankleshwar                       | GGL                |
| 21 | Dadri – Panipat                            | IOCL               |
| 22 | Uran Tajola                                | Deepak Fertilizers |
| 23 | North Penugonda                            | GAIL & others      |

Source: [http://www.pngrb.gov.in/NG-pipeline-govt\\_authorization.html](http://www.pngrb.gov.in/NG-pipeline-govt_authorization.html) accessed on 7th June 2019

None of the above pipelines were licensed by PNGRB, but predate it. In the 12 years PNGRB has been in existence, the regulator has, through competitive bids, has licensed 14 trunk pipelines of which only 3 were licensed after 2014. Yet, not one

of these pipelines has been completed or commissioned. Clearly, incentivising infrastructure creation, a key regulatory responsibility does not appear to have been a strong point with PNGRB.

*Table 7.3: List of Natural Gas Pipelines Licensed by PNGRB after 2007*

| Sl.No | Licenses Issued by PNGRB                                                                      | Name of Pipeline licensed  | Licensee                                           |
|-------|-----------------------------------------------------------------------------------------------|----------------------------|----------------------------------------------------|
| 1     | Letter of Authorization for Kakinada-Vijaywada-Nellore Natural Gas Pipeline. Dated:19-02-2018 | Kakinada-Vijaywada-Nellore | <u>M/s IMC Ltd.</u><br><u>L</u>                    |
| 2     | Letter of Authorization for Jaigarh-Mangalore Natural Gas Pipeline. Dated:28-06-2016          | Jaigarh-Mangalore          | <u>M/s H-</u><br><u>Energy Pvt.</u><br><u>Ltd.</u> |
| 3     | Letter of Authorization for Ennore-Tuticorin Natural Gas Pipeline. Dated:10-12-2015           | Ennore-Tuticorin           | <u>M/s IOCL</u>                                    |
| 4     | Letter of Authorization for Ennore-Nellore Natural Gas Pipeline. Dated:10-12-2015             | Ennore-Nellore             | <u>M/s KEI-</u><br><u>RSOS</u>                     |

|   |                                                                                                                                                |                                                                 |                                                             |
|---|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------|
|   | Gas Pipeline. Dated:03-12-2014                                                                                                                 |                                                                 | <u>Petroleum and Energy Pvt Ltd</u>                         |
| 5 | Amendment of Letter of Authorization for Mehsana-Bhatinda Natural Gas Pipeline & Bhatinda-Jammu-Srinagar Natural Gas Pipeline.Dated:17-09-2014 | Mehsana-Bhatinda Natural Gas Pipeline & Bhatinda-Jammu-Srinagar | <u>M/s GSPL India Gasnet Ltd.</u>                           |
| 6 | Amendment of Letter of Authorization for Mallavaram-Bhopal-Bhilwara-Vijaipur Natural Gas Pipeline.Dated:17-09-2014                             | Mallavaram-Bhopal-Bhilwara-Vijaipur                             | <u>M/s GSPL India Transco Ltd.</u>                          |
| 7 | Letters to M/s APGDCL regarding Grant of Authorization for Natural Gas Pipeline.Dated:06-08-2014                                               | Kakinada-Srikakulam                                             | <u>M/s Andhra Pradesh gas Distribution Corporation Ltd.</u> |
| 8 | Letter: Mallavaram-Bhopal-Bhilwara-Vijaipur pipeline (MBBVPL)-Dahod Connectivity with GSPL's Gas Grid.Dated:28-01-2014                         | Mallavaram-Bhopal-Bhilwara-Vijaipur                             | <u>M/s GITL</u>                                             |

|    |                                                                                                                      |                                     |                                           |
|----|----------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------|
| 9  | Letters to M/s RGPL regarding Grant of Authorization for Natural Gas Pipeline.Dated:12-07-2013                       | Shahdol-Phulpur                     | <u>M/s Reliance Gas Pipelines Limited</u> |
| 10 | "Amendment of Letter of Authorization for Mallavaram-Bhopal-Bhilwara-Vijaipur Natural Gas Pipeline".Dated:27-07-2012 | Mallavaram-Bhopal-Bhilwara-Vijaipur | <u>M/s GITL</u>                           |
| 11 | Letters to M/s GAIL regarding Grant of Authorization for Natural Gas Pipelines.Dated:26-04-2012                      | Surat-Paradip                       | <u>M/s GAIL (India) Limited</u>           |
| 12 | Letters to M/s GSPL regarding Grant of Authorization for Natural Gas Pipelines.Dated:06-07-2011                      | Mallavaram-Bhopal-Bhilwara-Vijaipur | <u>M/s Gujarat State Petronet Limited</u> |
| 13 | Letters to M/s GSPL regarding Grant of Authorization for Natural Gas Pipelines.Dated:06-07-2011                      | Mehsana-Bhatinda                    | <u>M/s Gujarat State Petronet Limited</u> |
|    | Amendment of Letters to M/s GSPL regarding                                                                           |                                     | <u>M/s GIGL</u>                           |

|    |                                                                                                 |                         |                                           |
|----|-------------------------------------------------------------------------------------------------|-------------------------|-------------------------------------------|
|    | Grant of Authorization for Natural Gas Pipelines.Dated:01-06-2012                               |                         |                                           |
| 14 | Letters to M/s GSPL regarding Grant of Authorization for Natural Gas Pipelines.Dated:06-07-2011 | Bhatinda-Jammu-Srinagar | <u>M/s Gujarat State Petronet Limited</u> |

*Source: PNGRB Website.*

If the entries in Tables 7.2 and 7.3 are compared, it is obvious that there are no overlaps indicating that none of the pipelines licensed by PNGRB are as yet operational. Those that are operational in 2018 are those pipelines already in existence and those authorised by MoPNG prior to the advent of the regulator. While there could be and are extraneous factors outside the control of the regulator, the fact that even an inch of pipeline licensed by PNGRB has not been built yet does lay the blame also at the door of PNGRB. It can therefore, be concluded that PNGRB failed to extend the pipeline infrastructure by even a single kilometre during the 12 years of its existence. *This is an important finding that will form the basis of our conclusions and recommendations in the following chapters.*

### **7.1.2 City Gas Distribution Networks (CGD)**

### *Climate Commitments & Role of Gas*

Indian policymakers have stressed the role and relevance of natural gas in India's overall energy mix in the 21st century. The Hydrocarbon Vision 2025 (Annexure 5: India Hydrocarbon Vision 2025), released in 1999, projected the share of gas would reach 20 percent of the primary energy mix by 2025, while India's current vision document for northeast India scales down this target to 15 percent by 2030 <sup>65</sup>. However, India's climate change pledge at the United Nations Conference of Parties 21 is set to increase this share with policies to promote gas in industry and transportation. In fact, if India is to move away from its heavily coal-reliant growth paradigm, it will have to increase the share of gas in its energy basket substantially until renewables can play a salient role. Gas is expected to play the role of a bridge fuel in the 21<sup>st</sup> century, helping the transition from fossil fuels to renewables.

### *External Triggers*

Even prior to the advent of the regulator, India's Supreme Court took the initiative to promote natural gas as automotive fuel in the cities to reduce urban pollution. The court ordered, in a public interest litigation filed by a prominent activist, that starting with the national capital region, cities should eventually move to the use of cleaner transportation fuels, especially, compressed natural gas to battle burgeoning pollution levels <sup>66</sup>. CNG stations (ones that supply CNG can only be set up through a city gas distribution network.

Until the turn of the millennium, natural gas was primarily used as feedstock in fertilizer industry and fuel for generating power.

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<sup>65</sup> Annual Report of MoPNG for 2016-17

<sup>66</sup> <http://transport.delhi.gov.in/content/directions-hon%E2%80%9999ble-supreme-court-control-pollution-delhi> accessed on 13<sup>th</sup> Aug 2019

Some process industries were also run on gas. States in which natural gas reserves were found – Gujarat, Maharashtra, Assam, small isolated gas fields in Tamil Nadu and Andhra Pradesh had their own city gas distribution businesses, but the growth was slow, haphazard and organic. There was no formal regulation of CGD business although some state governments realised the political value of reaching cooking gas to households and encouraged expansion of city gas distribution networks in their jurisdictions. Gujarat Gas, British gas subsidiary had rolled out a fairly large CGD network in Gujarat and Maharashtra to supply piped gas to households. It was an organic growth of the utility industry without direction or regulation as in the case of municipal utilities of the early days in the US.

Natural gas as a public utility came into its own only in 1998 following the Supreme Court order referred to above. IGL, a subsidiary of GAIL in joint venture with Government of Delhi had already begun an incipient distribution network in the national capital in 1997<sup>67</sup>. Its focus was on small industrial clusters around the national capital. Along the way, IGL also supplied cooking gas to households in the relatively affluent localities. After the Supreme Court order, IGL rapidly expanded its network to set up CNG stations in Delhi to fuel automobiles and public transport buses. Household connections were a collateral effort, driven partly by the government which realised the political value of providing piped cooking gas to households. Other CGD operators, of which there were 36 in number, also began setting up CNG stations in their respective CGDs<sup>68</sup>.

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<sup>67</sup>

<https://iglonline.net/english/Default.aspx?option=article&type=single&id=10&mnuuid=89&prvtyp=site>  
accessed on 18<sup>th</sup> Aug 2019

<sup>68</sup>        ibid

In 2007 Government of India announced its intention to expand cooking gas connections to 10 million households over the next five years. Yet, in 2019, after 12 years of independent regulation, only 3.1 million households in 11 states have domestic piped gas connections<sup>69</sup>. Of these, 1.6 million household connections are in Mumbai and Delhi National Capital Region and 1.57 million in the state of Gujarat, all existing prior to the coming of the regulator. CGD licensed by PNGRB account for less than 100,000 household connections<sup>70</sup>.

The reforms in the hydrocarbon sector – both upstream and downstream – held out hopes of increased supplies of gas from new discoveries and a rapid roll-out of infrastructure to reach gas to households. The Hydrocarbon Vision 2025, a policy document of the Ministry of Petroleum and Natural Gas, sought to assure energy security and to enhance quality of life in a cleaner and greener India. This would necessitate construction of infrastructure and connectivity to households which, it was hoped, could be done through private investors.

Table 7.4 below gives the number of household PNG connections in 2007 when PNGRB was first set up, the number of connections in 2018, the latest year for which data is available and the total number of households, state-wise.

*Table 7.4: Domestic Cooking Gas Connections pre and post Regulation*

| Sl.No. | States/Union Territories | Number of PNG | Number of PNG | Number of PNG | Total Numl |
|--------|--------------------------|---------------|---------------|---------------|------------|
|--------|--------------------------|---------------|---------------|---------------|------------|

<sup>69</sup> Ibid pp61

<sup>70</sup> Snapshot of India's Oil and Gas Data 2016 by Petroleum Planning & Analysis Cell, Government of India at [http://ppac.org.in/WriteReadData/Reports/201611191042427662597SnapshotofIndia'sOil&Gasdata\\_October2016.pdf](http://ppac.org.in/WriteReadData/Reports/201611191042427662597SnapshotofIndia'sOil&Gasdata_October2016.pdf) accessed on 27 Nov 2016.

|    |                         | <b>connections<br/>in 2007</b> | <b>connection<br/>in 2017</b> | <b>connections<br/>in<br/>2018</b> | <b>House<br/>(Census<br/>2011)</b> |
|----|-------------------------|--------------------------------|-------------------------------|------------------------------------|------------------------------------|
| 1  | Mumbai & Greater Mumbai | 271355                         | 999868*                       | 1211826*                           | 311050                             |
| 2  | Delhi & NCR             | 57101                          | 742205*                       | 891106*                            | 340750                             |
| 3  | Tripura                 | 6100                           | 29669*                        | 34741*                             | 852000                             |
| 4  | Gujarat                 | NA                             | 1653663*                      | 1837701*                           | 121930                             |
| 5  | Andhra Pradesh          | NA                             | 6608*                         | 21678*                             | 209270                             |
| 6  | Madhya Pradesh          | NA                             | 13888                         | 39539                              | 150190                             |
| 7  | Rajasthan               | NA                             | 157                           | 307                                | 126510                             |
| 8  | Karnataka               | NA                             | 2446                          | 5355                               | 133000                             |
| 9  | Uttar Pradesh           | NA                             | 51195*                        | 101804*                            | 332320                             |
| 10 | Chandigarh              | NA                             | 2350                          | 11792                              | 239650                             |
| 11 | Kerala                  | NA                             | 102                           | 3126                               | 783550                             |
| 12 | Daman & Diu             | NA                             | 58                            | 2140                               | 607340                             |
|    | All India               | NA                             | 3585646                       | 4265284                            | 2484000                            |

\* Indicates that CGD in these states existed prior to the establishment of PNGRB.

*State-wise and all-India data on domestic PNG connections is not available for all states for all the years.*

*Source: Compiled from PPAC documents, Annual Reports of MoPNG & Parliamentary Standing Committee Reports.*

Table 7.4 lists the number of PNG connections that were in existence in 2007 when the regulatory board came into existence and the number of PNG connections in 2017 & 2018 as against

the number of households in each jurisdiction as per the 2011 census <sup>71</sup>. The data reveals that:

- i. City gas distribution has reached only 9 out of 25 states and 2 union territories, leaving out a majority of states from the benefit of piped cooking gas
- ii. Even in the states that have CGD infrastructure, the number of households connected is a tiny fraction of the total number of households.
- iii. In cities like Mumbai and Delhi and in states like Gujarat and Tripura, CGD networks existed prior to the establishment of the regulator. They were not licensed by the regulator. The increase in PNG connections over the 12 years of independent regulation given in the third column of Table 7.4 is not due to regulatory intervention, but due to extraneous factors like availability of domestic APM gas whose price is fixed by the government.

Household piped gas connection is the barometer of successful utility reforms. Other uses of natural gas, including its use as automotive fuel cannot be termed as utility. Therefore, in this evaluation of PNGRB's performance, we focus on four parameters, namely, creation of pipeline infrastructure, domestic piped natural gas connections, private investments in infrastructure creation and competition.

It is noteworthy that PNGRB has so far concluded ten licensing rounds for CGD. It has issued 187 licenses to successful bidders to build and operate city gas distribution networks across several states and geographical areas of which 97 licenses have been

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<sup>71</sup> The data on domestic cooking gas connections pertain to 2018, whereas the total number of households in the last column have been taken from 2011 census. Extrapolating 2011 census data to 2018 will reveal an even poorer performance by PNGRB in terms of extending connections to households.

issued prior to 2015<sup>72</sup>. Yet, infrastructure on the ground is virtually non-existent. Yet, the regulator has conducted four more rounds of bids and awarded more licenses. The inevitable conclusion that one can draw from this data is that PNGRB's performance in terms of extension of network utility connections to hitherto unconnected regions of the country is far from satisfactory. Even after 12 years of regulatory regime, most states of the country remain unserved. Even where licenses have been issued many years ago, infrastructure is incipient and enforcement of license conditions, weak or non-existent.

## ***7.2 Regulatory Processes***

### ***7.2.1 Attracting Private Capital***

As for attracting private investments in network infrastructure, most of the bids for construction of trunk pipelines have been won by GAIL, GSPL, or other government companies. Among CGD entities, there is a larger presence of private entities among the winners, but considering that infrastructure creation on the ground is far from satisfactory, one can conclude that investment commitments do not necessarily translate into infrastructure. No foreign investor has participated in the bidding rounds to set up either pipeline networks or CGD companies, even in joint venture with local companies.

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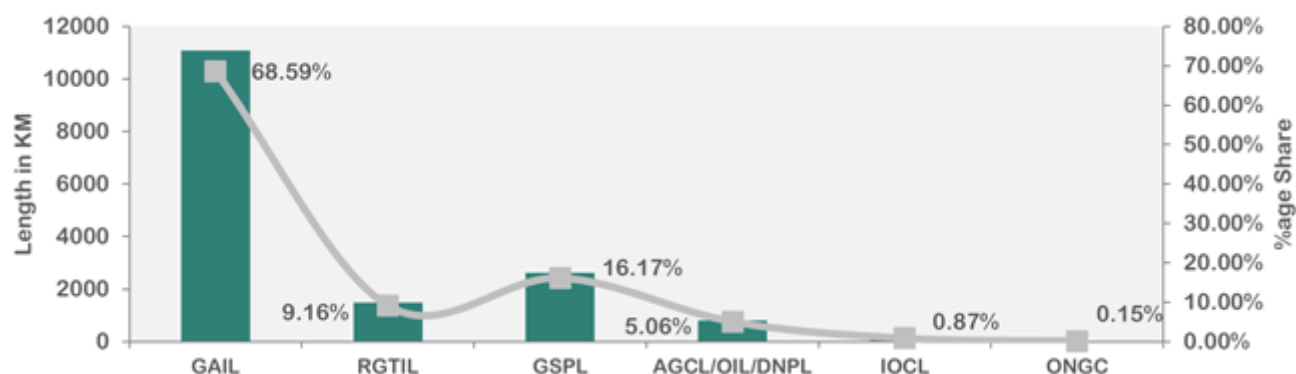
<sup>72</sup>

<http://pngrb.gov.in/CGD-network.html> accessed on 18th Aug 2019

### 7.2.2 Extent of Private Investments in Pipelines

The graph below shows the dominance of GAIL in the infrastructure segment, indicating concentration and lack of competition.

Figure 7.2. Pipeline Network in India (KM) & Percentage Share for Different Transporters -2018



Source: Compiled from PPAC data

From the graph it is seen that nearly 70 per cent of the pipelines are owned and operated by public sector monopoly transport-cum-marketing company GAIL. In fact, apart from RGTIL, there is no private investment in pipeline construction. GSPL is also a government company set up by the Government of Gujarat. RGTIL itself was licensed by the MoPNG, prior to 2007 and hence its commissioning cannot be considered a regulatory outcome.

Therefore, it can be concluded that PNGRB not only failed to expand network infrastructure so necessary to reaching utility services to unconnected regions, but also failed to attract private investments in infrastructure creation.

Table 7.5. Infrastructure Market Concentration

| Transporter | Length in Km | Percentage Share |
|-------------|--------------|------------------|
|-------------|--------------|------------------|

|       |       |       |
|-------|-------|-------|
| GAIL  | 11410 | 68.04 |
| RGTEL | 1784  | 10.64 |
| GSPL  | 2618  | 15.61 |
| AGCL  | 817   | 4.87  |
| IOCL  | 140   | 0.84  |
|       |       |       |
| Total | 16770 | 100   |

*Source: PPAC*

### ***7.3 Encouraging Competition***

PNGRB has awarded all licenses on the basis of competitive bids, but many of these awards have been facing legal challenges. The bidding rounds threw up perverse responses such as quoting zero tariff to build and operate a CGD network. This is because, the regulator does not control the gas price itself and the successful bidders could have hoped to recover the cost of infrastructure creation from the gas prices. Since each CGD is a monopoly franchisee, this option is technically available to the successful bidder.

#### ***7.3.1 Providing Access***

As we have seen in Section 1 of this chapter, PNGRB Act requires the regulator to unbundle GAIL and mandate open access to common carrier pipelines. But this has not been accomplished yet owing to several complexities including stout resistance from GAIL. Like all regulators, PNGRB is also prey to information asymmetry and lack of skilled manpower. As such, confronted with an incumbent government monopoly transporter, the regulator has little option but to accept GAIL's

version of capacity availability. This is evident from the numerous complaints filed with PNGRB on GAIL's failure to provide access to third party shippers.

To cite an instance, GAIL sued the regulator for levying penalty on it for restrictive trade practices in not allowing its common carrier pipelines to be used by third party shippers at tariffs fixed by the regulator. The appeal went up to the Supreme Court of India where the regulator's stand was upheld<sup>73</sup>. There are several other similar cases which are listed chronologically on PNGRB's website<sup>74</sup>.

Analysis of the data furnished above and the inferences drawn from it, show that the performance of PNGRB has not measured up to the expectations raised by reforms, despite adhering to good governance benchmarks laid down by reform economists. The regulator has not been able to incentivise private investment or introduce competition in a sector dominated by government companies, or even ensure satisfactory open access to common carrier pipelines. Whatever infrastructure or household connections did come up in the last 12 years of independent regulation have been predominantly by companies which were already operating before PNGRB was set up. By all indications, the case-study regulator seems to have failed.

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<sup>73</sup>

<http://www.indiaenvironmentportal.org.in/files/common%20carrier%20capacity%20pipelines%20Supreme%20Court.pdf> accessed on 10<sup>th</sup> June 2019

<sup>74</sup> <http://www.pngrb.gov.in/causelist.html>, accessed on 10<sup>th</sup> June 2019

*In this chapter, the performance of PNGRB in terms of delivering expansion of pipeline infrastructure and domestic cooking gas connections was examined with empirical data. This chapter also evaluated the processes put in place by PNGRB to further other reform objectives such as encouraging competition and ensuring open access. The results reveal that the regulator signally failed in achieving desirable outcomes, despite conforming to all good governance norms, leading this research into its main question: is independent regulation then the appropriate governance mechanism for a developing country? In the next chapter, the reasons for poor performance of PNGRB are analysed.*



## Chapter 8

## Case Study Analysis -III – Formidable Challenges and Inadequate Tools

*The previous two chapters examined the case study regulator for good governance as well as effectiveness in delivering reform mandates. This chapter explores the reasons for regulatory failure in developing countries, based on the wisdom gleaned from the case-study. It discusses the complexities faced by developing country regulators, examines the tools available to deal with them and finds they are both inappropriate and inadequate to deal with challenges faced by developing countries. The findings are expected to lead to the main research question, namely, whether the institution of independent regulation itself is relevant and appropriate for developing countries.*

### ***The Context***

The previous chapter examined whether the case-study regulator – PNGRB – conformed to canons of good governance by applying a benchmark toolkit developed expressly for regulatory institutions. The legitimacy, remit, powers, functions, independence, transparency and accountability of PNGRB with reference to best practices benchmarked for utility regulators worldwide, revealed that PNGRB conformed to every best practice benchmark laid down by regulation pundits.

Chapter 7 then went on to evaluate the performance of PNGRB with respect to the objectives for which it was set up. Regulatory performance was measured in terms of outcomes like increased access to piped cooking gas connections to a significant segment of the population currently depending on polluting fuels like kerosene, LPG or even biomass. PNGRB was also evaluated for its success in extending trunk pipelines throughout the country

without which, cooking gas cannot be reached to households. Apart from these two outcomes, other processes which are used as proxy for regulatory effectiveness such as the extent of private investments in the case study industry, the degree of competition among stakeholders, the ability of the regulator to ensure non-discriminatory open access to monopoly networks etc. were also examined to see if the regulator succeeded in setting up robust processes for reforms to succeed. The empirical results from the analysis show that PNGRB, despite following best practices and establishing good processes, was unable to deliver the desired outcomes.

As pointed out in Chapter 1, in the literature on regulation, regulatory failures are often attributed to lack of good governance, flawed regulatory design and/or undue government interference in regulatory functioning. This research has already established that PNGRB's design and powers conform to good governance prescriptions. In this chapter, we examine if there are any lapses on the part of the regulator that are not captured by good governance benchmarks.

## ***8.1 Reform Context, Regulatory Lapses, Flawed Tools***

### ***8.1.1 The Context and Triggers for Setting up PNGRB***

At the risk of repetition, it would be useful to place India's regulatory reforms in context. India's hydrocarbon industry was dominated by six PSUs – ONGC and OIL in upstream, Indian Oil Corporation, BPCL and HPCL in refining and marketing and Gas Authority of India Limited (GAIL) engaged in the integrated

business of gas transportation and marketing. There were a few private players in states like Gujarat and Maharashtra, serving gas consumers within a localised geographic region.

In 1991, Government of India began a phased disinvestment programme wherein minority stakes in many PSUs including national oil companies (NOC) were sold to the public and to strategic investors, ushering in private capital at the margin. In 1997, the Indian government invited private investors to invest 100% in green-field projects in each segment of the value stream, namely, exploration and production, refining and marketing and establishment of LNG terminals. Several rounds of international competitive bids were launched and exploration licenses were awarded. In 2000, one of these exploration licenses operated by Reliance Industries Limited, discovered a major gas field off the east coast. KG D-6 as it was called, was said to contain 8 trillion cubic feet of gas, enough to significantly enhance the share of gas in India's energy basket<sup>75</sup>. Two major private refineries – RIL and Essar were set up on the back of huge incentives offered by the Indian government and two LNG terminals were also set up, both on the west coast, one by Shell and the other, by a consortium of public and private sector companies. It was expected that eventually, competitive markets would emerge in the supply of both petroleum products and natural gas. The Government of India was also negotiating at least three transnational pipelines to bring neighbourhood gas. All these developments foretold plentiful gas supply. There was urgent need of infrastructure to take advantage of these supplies. Meanwhile, Government of India announced a national pipeline policy that would ensure that all future pipelines would earmark a third of their capacity for open access by third party shippers. Eventually, the public sector

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<sup>75</sup>

Compiled from MoPNG, PPAC, Parliamentary Standing Committee Reports

integrated gas transport and supply monopoly GAIL would be unbundled and its existing pipeline network opened up for third party access in order to create competitive domestic market for natural gas.

The transition from state control to market would, however, be conducted in a phased manner and the transition will have to be overseen by an impartial and empowered regulator. The institution of independent regulation in vogue elsewhere in the developed world and in some developing economies, was considered the appropriate mechanism for the purpose. In any case, independent regulation was already a familiar concept in India, regulatory bodies having been established in electricity and telecom sectors a decade earlier. The new petroleum regulator would primarily ensure level playing field for new private entrants at the margin, since the government as owner of the dominant NOCs cannot be expected to regulate the sector objectively. PNGRB Act was passed in 2006 and the regulatory body was set up in July 2007.

While PNGRB Act envisages limited regulatory oversight for liquid hydrocarbons, natural gas infrastructure has been its main focus area, thanks to the discovery of KG- D-6 gas fields. The 8 trillion cubic feet of KG D-6 gas deposit was expected to be monetised in the next four to five years. A new pipeline would have to be built to connect the well to markets and it would have to be synchronised with the production schedule of the field. All existing gas wells were either on the west coast or offshore and in the north-eastern part of the country. The new gas field was off the east coast of India, and hence offered potential opportunity to extend gas markets to new geographic regions which had hitherto been un-served by gas infrastructure or supply. Government of India did not seize this opportunity, leaving it to

the discoverer of gas to decide where to transport and market it. RIL decided to build a cross-country pipeline to connect the gas field to its refinery on the west coast<sup>76</sup>. To do that, RIL would have to connect to GAIL's existing pipeline network. The regulator would have to set and enforce the rules of open access to the existing gas pipelines operated by GAIL as well as to the proposed new pipeline from KG-D6. Crucially, PNGRB had to determine the tariffs to be paid for use of common carrier pipelines.

India was and still is, negotiating the construction of two transnational pipelines to bring neighbourhood gas into the country – the Iran-Pakistan-India pipeline would bring South Pars gas into the country while Turkmen gas would flow into India through the TAPI pipeline, both still on the drawing board then as they indeed are even now<sup>77</sup>. While transnational pipelines would be outside the purview of the proposed regulatory body, the anticipated gas flows from multiple sources was expected to expand and deepen the domestic market holding out potential for the new regulator to dramatically expand and deepen the market for gas.

In the event, the primary task of the proposed PNGRB would be to license new domestic gas pipelines and expansion of existing pipelines in order to extend the rudimentary gas grid that served only the north and west of the country. This would enable cities and towns to be served by city gas distribution networks. Households using LPG, Kerosene or even firewood or biomass could now look forward to cooking gas on tap in their kitchens.

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<sup>76</sup>       ibid  
<sup>77</sup>       ibid

Here was an opportunity for gas to become an energy utility like electricity.

### ***8.1.2 Inappropriate Tools for Introducing Competition***

Earlier in this study, it was pointed out that PNGRB has unambiguous licensing powers enshrined in Sections 16 to 19 of PNGRB Act 2006. This being virgin ground for natural gas, the regulator could seize the concept of competition for the market, aka Harold Demsetz, award licences to build pipelines and CGD through an international competitive bidding process<sup>78</sup>. Since many trunk pipelines already licensed by the government were still under construction, the regulator accorded priority to CGD networks to be built along the existing pipeline network.

Accordingly, PNGRB set out to frame appropriate licensing regulations and draft bid documents. The thrust of the bid document was to incentivise the successful bidder to connect as many households as feasible and to charge as low a tariff for cooking gas without jeopardising the economic viability of the project. There were other parameters as well, such the tariff to be charged for transporting gas through the network, the length of pipelines to be built etc.

The bid document was designed with the purpose of incentivising the market to come up with its own estimates of how many households would be connected by the successful licensee and what tariff would be charged to the consumers. However, the regulator announced upfront, the weights attached to each parameter – number of households, tariff, length of pipelines and

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<sup>78</sup>

Op cit; Harold Demsetz, 1976

number of CNG stations - for evaluation. PNGRB followed due process and conducted the bidding rounds for CGD licenses in a transparent manner. The bid was conducted in two phases – the technical bids specifying minimum qualification to obtain a CGD license was opened first. The final bid was limited to those who qualified in the technical bid round. Thus non-serious bidders were eliminated. The model bid document is given in the Annexure. (Annexure 6: Model bid document)

Despite following due process, the results have been disappointing as we have seen in the last chapter. In the first three rounds of bidding, 13 cities and towns were offered for CGD licenses<sup>79</sup>. First of all, there were not many bidders in the initial rounds because the knowledge, expertise and financial muscle to build gas infrastructure was limited to the incumbent public sector companies. While in the first two bids, investors quoted very high number of household connections (it had the highest weightage) and very low tariff (the second highest weightage) in order to win the license<sup>80</sup>. It would have been unrealistic for them to invest in constructing the necessary infrastructure to so many households and yet charge very low tariffs. Yet, they went ahead and quoted zero or negligible tariffs because the final price of gas was not regulated. It was not even monitored by the regulator, allowing the successful franchisee to transfer the cost of construction of the CGD network to the retail gas price. Yet, having launched the bidding round, the regulator went ahead and issued the licenses to the successful bidders who had gamed the entire bidding process<sup>81</sup>.

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<sup>79</sup> <http://pngrb.gov.in/CGD-network.html> accessed on 18th August, 2019

<sup>80</sup> Based on interview with former Member(legal), PNGRB at New Delhi on several occasions in 2016 & 2017.

<sup>81</sup> *ibid*

However, the third bidding round for 9 CGD areas threw up several irrational bids that quoted zero tariff<sup>82</sup>. This round had to be cancelled and no licenses were issued because of the irrationality of the entire process. It was also mired in legal challenges by bidders who did not quote irrational figures<sup>83</sup>. The fourth round of bids was kept in abeyance till these teething problems were taken care of.

This unforeseen stalling of licensing can be laid at the door of the regulator for setting ambitious bidding criteria by giving maximum weightage to household connections and announcing it transparently ex-ante. But the regulator's core remit is to extend utility services to new households and hence the bid parameters and the weights attached to them cannot be termed uncalled for or unreasonable. In fact, this was the only tool available to the regulator to coax the investors to build new networks in unserved areas.

What prompted the irrational bids, however, was a loophole in the design of reforms. PNGRB has no control over gas prices, but only the tariff. In fact, gas prices are not controlled by any agency except a small proportion of domestic production which came under Administered Pricing Mechanism<sup>84</sup>. The winner of the CGD license, a monopoly franchisee in his CGD area, could charge higher retail price to the domestic consumers to recover the cost of building and operating the network for which it quoted zero tariff. This is possible because the successful bidder is a monopoly franchisee with exclusive marketing rights for gas for five years. This anomaly was not foreseen in the bid design where “competition for the market” was expected to take care of any

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<sup>82</sup>       ibid

<sup>83</sup>       <http://business.rediff.com/column/2009/sep/10/guest-why-city-gas-distribution-is-in-a-mess.htm>  
accessed on June 25, 2016

<sup>84</sup>       Annual Reports of MoPNG, Government of India, various years.

abuse of market power by the monopoly franchisee. We have seen in Chapter 3, how in the US and elsewhere, during the development of their gas infrastructure, the regulators controlled both well-head price of gas and the transportation tariff whereas, in the new model advocated and implemented in developing countries, the regulator has no control over gas prices.

Considering the political value of piped cooking gas, the government woke up to the fact that the newly-licensed CGD entities were charging steep retail prices. This was contrary to the reform objective as well, but the regulator was in no position to control this. It was a serious flaw in the design of regulatory remit which was not captured by the governance benchmarks this study had applied to PNGRB in Chapter 6. The MoPNG then went ahead and issued an order earmarking adequate APM (price-controlled) gas to all CGD licensees in 2014 and also ordered them to pass on the benefit of price control to the final consumers. (Annexure 7: MoPNG orders)

Subsequently, the bid parameters were amended to preclude zero tariff bids <sup>85</sup>. Till date, PNGRB has held 10 licensing rounds, the last one for as many as 50 cities and has awarded nearly 200 CGD licenses.

While the lacunae in the bid documents have been addressed by the amendments, on the ground, very few CGD networks are operating even today. The expansion in household connections in the post-regulatory decade that we did see in the last chapter, came largely from CGD players existing prior to the advent of PNGRB such as IGL in Delhi and Mahanagar Gas in Mumbai.

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<sup>85</sup> <https://www.thehindubusinessline.com/economy/pngrb-changes-bid-norms-for-cng-png-retail-licence/article23432697.ece> accessed on 18th Aug 2019

The regulator's own contribution to extension of CGD in India is insignificant.

From the foregoing observations, the following reasons emerge for the tardy progress of CGD implementation by the regulator:

- i. Non-serious bidders gamed the bidding process
- ii. The marketing exclusivity period of 5 years offered to CGD licensees was perhaps inadequate to recoup the investment in infrastructure.
- iii. While licensing CGD construction has been left to the regulator, the task of obtaining several approvals – from the state governments for right of way, municipalities for digging permissions, environmental clearances and land acquisition, have been left to the licensee. In the absence of a structured co-ordination mechanism, many licensees, especially if they are new to the business, find the task daunting. There are huge delays in securing these clearances and approvals which also stalled CGD expansion.
- iv. The promised gas supplies from KG D-6 failed to materialise <sup>86</sup>. Realising the political value of expanding household cooking gas connections, the government announced it would earmark a certain proportion of domestic APM gas production exclusively for cooking gas supplies to households. It further ordered that this benefit should be passed on to consumers. (Annexure 7). Licensees who won the CGD bid by quoting near-zero tariffs could not transfer their infrastructure cost to gas prices. They had no incentive to extend networks to households. Government intervened in the regulatory process to make

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<sup>86</sup> <https://www.businesstoday.in/current/corporate/kg-d6-woes-behind-ril-push-for-growth/story/185254.html> accessed on 18th August 2019

available cheap gas supplies only because it realised the political value of affordable cooking gas supplies.

- v. The government's order to supply APM gas for domestic use relieved the problem to the limited extent of cooking gas supplies. However, CGD viability is determined by a mix of consumers, domestic, commercial and industrial. With domestic production declining rapidly, expensive imported LNG has to compensate for the shortage, pushing up prices for non-domestic consumers and impacting demand from them.
- vi. LPG in urban areas and kerosene in rural areas are substitutes for piped cooking gas. Both these products were heavily subsidised for a large segment of the population. This segment was wary of switching to piped gas (they had to surrender their LPG connections to get a PNG connection) whose prices may rise in the future. Thus, there was a market risk<sup>87</sup>. CGD entities also did not market domestic connections aggressively because it was a high-volume, low-revenue business for them.
- vii. The monitoring and enforcement of license conditions by the regulator is weak. Besides, locating licensing, enforcing and monitoring responsibilities in the same regulator creates conflict of interest.

Thus, there were many risks associated with setting up CGD infrastructure, risks which were not apparent at the bidding stage. There is supply risk even as domestic reserves are dwindling and the country is increasingly dependent on LNG imports, there is price risk since APM gas allocation for cooking gas could not

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<sup>87</sup> Op cit, interview with former Member(legal), PNGRB

keep pace with demand from the newly-licensed CGD entities who had to pool gas from domestic sources with costly imports to supply non-domestic consumers. There was market risk because of the availability of cheaper substitutes. And finally, there was regulatory risk too, since many investors realised that the marketing exclusivity of five years offered to them was too short for them to recover their costs. It is instructive to note that all these risks have been discussed in Chapter 5.

## ***8.2 Inappropriate Tools for Aligning Social Objectives with Private Incentives***

Having identified the factors that led to poor regulatory performance by the case study regulator, it becomes necessary to examine whether this is a one-off problem faced by PNGRB or has applicability across the board to other regulatory institutions. Institutional economics and the theory of transaction costs tell us that private incentives can be aligned with social objectives. Similarly, contract theory will have us believe that ownership does not matter when contracts are fully specified. Yet, in practice, it is virtually impossible to design, measure, monitor and enforce contracts. Williamson's 'bounded rationality', discussed in Chapter 2, acknowledges this impossibility especially when dealing with contracts for a long period where multiple externalities can determine the regulatory outcome. Contract theory suggests that perverse incentives arising from information problems embedded in a particular type of good can be mitigated depending on the design and enforcement of the contract. In the world of boundedly rational individuals, contracts are limited and enforcement costs non-trivial and thus incomplete contracts are more likely to be the general case.

When contracts are incomplete or difficult to specify – this being the general case – ownership of assets become important as this would give the owner control and bargaining power in situations where contracts do not specify what has to be done (Laffont and Tirole, 1993). *In unforeseen contingencies, public ownership is beneficial when it can impose socially desirable adjustments while it must have to bargain with a private firm under the same circumstances.*

### ***8.3 Inevitability of Turf Battles in the Regulatory Paradigm***

In 2007, when PNGRB Act had already been passed the previous year and the regulator was on the anvil, MoPNG went ahead and licensed as many as ten major trunk pipelines to both GAIL and a lone private investor, Reliance, on MoU basis, ignoring the benefits of competitive bidding (Mahalingam and Sharma, 2017). The MoU document did not specify either the cost of construction of the pipeline or the tariff to be charged, which left the licensee free to gold plate the project or at best not exercise due diligence in procurement of materials and construction<sup>88</sup>. When RGTIL which built the Kakinada-Mehsana pipeline to carry gas from KG-D6, its own upstream affiliate to markets in Western India, the company approached PNGRB for fixing the tariff of their pipelines, the latter had no way of knowing whether the costs incurred by them were prudent and reasonable. Here was a classic case of information asymmetry where the inexperienced regulator had to accept the costs quoted by the entity and allow a rate of return on these costs. Gas consumers – mostly industrial consumers as well as monopoly CGD

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ibid

companies had to bear these non-competitive tariffs. Thus competition, a key regulatory objective was defeated because the government chose to pre-empt PNGRB in the award of licenses to key pipelines for its own reasons.

While other pipelines licensed by the government were under construction, PNGRB invited “Expressions of Interest” from pipeliners to propose trunk pipelines on routes not already covered by the government licenses referred to above. Advertisements were issued in major newspapers calling interested parties to express an interest in constructing a pipeline at a location of their choice<sup>89</sup>. These EoIs would then be put to public consultation to test market interest. Once sufficient investor interest emerged in the route suggested by the EoI, it would be put through a competitive bidding process to ensure fairness. It is instructive to note that the responses to EoI contained proposals to build pipelines in areas already connected and where gas already had a market. No respondent wanted to take the market risk and propose a pipeline to a new unconnected area<sup>90</sup>.

Here is a classic case of markets turning out to be risk averse when called upon to invest in infrastructure. It has important lessons for the regulatory paradigm. Markets tend to favour areas where infrastructure is already available. If the investor who has no control over supplies, traffic or downstream market is asked to build a pipeline, he might find the risks too high to make that investment. He has to recover his investment only through tariffs for which there must be gas flow or traffic through his pipeline. With the promised gas supplies not materialising, and imported LNG prices determined by global markets, the prospective

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<sup>89</sup> Based on interview with former PNGRB Member YPC Dangay at New Delhi )  
<sup>90</sup> *ibid*

pipeline builder faces twin risks of supply and price. For infrastructure to reach rural areas as well as the urban poor, not only a guiding hand required is, but also a degree of risk mitigation for the investor. Regulators seldom have planning mandate to guide the infrastructure to hitherto unserved areas. Nor do they have the financial powers to compensate for unprofitable investments. It is evident that developing country regulators lack the necessary tools to devise appropriate incentives. This study therefore, argues that infrastructure construction is a highly risky activity in a developing country with immature markets. Independent regulation is not the appropriate institution to deal with this risk.

#### ***8.4 Ineffective Tools to Regulate Open Access***

A decade would be considered a long-enough time for PNGRB to initiate market-opening measures and introduce competition in the natural gas supply business. This can happen only if shippers can obtain open access to the pipeline system owned and operated exclusively by GAIL. Besides, the blatant conflict of interest in having a combined transportation and marketing monopoly can be countered only through unbundling so that shippers other than GAIL are not blocked by the incumbent monopoly supplying its own customers.

In this context, it might be instructive to point out that unbundling of integrated electric utilities, equally complex, was accomplished in record time whereas, unbundling of integrated gas utility has remained a non-starter. During the ten years of its existence, PNGRB never initiated any steps in this direction. It has still not drafted any unbundling regulations although it has

framed regulations laying down the rules of access to GAIL's pipelines already declared as common carrier by the government. Even here, PNGRB has had only limited success in enforcing rules of access because GAIL, being the single buyer of gas produced from all sources – domestic as well as imported LNG - has frequently denied access to competitors citing technical obstacles. This is evident from the number of complaints filed with PNGRB by frustrated shippers<sup>91</sup>. *Market-making, a key regulatory objective, has been a casualty in the process.*

PNGRB has not been taken seriously by the stakeholders in the public sector who have repeatedly challenged most orders of the regulator in the appellate tribunal or in the high courts and Supreme Court of India. These challenges have frequently led to regulatory impasse, because of interim stay orders issued by courts on regulatory decisions during the pendency of the appeals. PSUs like GAIL, Gujarat State Petronet Limited (GSPL) and Indraprastha Gas Limited, the CGD in Delhi and parts of the National Capital Region are at the forefront, leading legal challenges to regulatory authority, something which PSUs would not do unless they have the approval of the government <sup>92</sup>.

### ***8.5 Interference by government***

The role played by governments is crucial in the success or failure of independent regulation. Many observers have pointed out the reluctance of governments to cede control over so crucial a

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<sup>91</sup> <http://aptel.gov.in/judgementnew6.html> lists the cases filed by shippers against GAIL for abuse of monopoly position.

<sup>92</sup> PSUs in India require their principal's (Government of India) approval for launching litigation.

business as a utility to apolitical regulators. There are many ways in which governments can and do interfere in regulatory functioning. This research looks at some of the hidden tools that the Indian government wielded to stymie regulators.

### ***8.5.1 Hidden Tools Available to Governments***

The Indian government through its many acts of omission and commission, frustrated the regulator ab initio, although to the world at large, it could present a façade of being forward-looking, aligning the industry with global trends and satisfying the expectations of potential investors from the private sector by putting in place independent regulators to provide level playing field to private investors. We conclude that the reluctance of the Indian government to share turf with an independent regulator is essentially due to the political economy character of the commodity, namely, cooking fuel.

#### ***Non-notification of PNGRB Act and Section 16***

One egregious act of omission by Government of India was to legally empower the regulator, even after PNGRB was formally constituted. While the PNGRB Act received Presidential assent on March 31, 2006 and the board was formally constituted on June, 25, 2007 and began functioning from its offices from that date, the Act itself had not been notified by the government. PNGRB Act was formally notified only on October 1, 2007, three months after the Board started functioning and that too, after PNGRB wrote to the government pointing out this lapse<sup>93</sup>. The

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<sup>93</sup> <http://www.prsindia.org/administrator/uploads/general/1265278737~NOTIFICATION%20NOTE-complete.pdf> (accessed on 27<sup>th</sup> November 2016)

government could not have been unaware that non-notification of PNGRB Act rendered the body illegitimate. This leads us to surmise that because of the political nature of the commodities/infrastructure to be regulated by the independent body, the government was reluctant to cede control to the regulator. Despite its power to lay down the policy framework within which the regulator would have to function, an independent regulatory body implied loss of control over certain crucial business decisions in this sector. The reluctance on the part of the government to share turf with the regulator can be directly traced to the political economy character of this sector.

This observation is further corroborated by the fact that the government withheld another key power from the regulator, namely, the power to authorise entities to build and operate pipelines or CGD networks for three years after PNGRB was set up. Section 16 of PNGRB Act states that no entity shall lay build or operate a common carrier or contract carrier pipeline or a CGD network unless authorised by PNGRB. If the objective of independent regulation is to attract private investors to build new pipelines or CGD networks, it could be accomplished only if the regulator exercised this key power. However, by not notifying this crucial section of the Act for over three years even after the Board had begun functioning, the Indian government prevented the regulator from performing this crucial function. Section 16 was notified only in July 2010, when the government was censured by the Delhi High Court in a ruling on a petition by a consumer organization<sup>94</sup>. During the period Section 16 was in abeyance, GAIL went ahead with the construction of new pipelines. Whether it was by design to promote GAIL as a national

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<sup>94</sup> <http://www.thehindu.com/business/Economy/government-gives-power-to-oil-regulator-to-issue-gas-distribution-licences/article515466.ece> (accessed on 30th Sep, 2016)

champion or merely to stifle the regulator, the conclusion one can draw is that the government considered this industry too political to be left to the control of an apolitical regulatory body.

### ***Ambiguous Regulatory Remit***

There are other ways in which the government managed to stifle PNGRB right from the start, inadvertently or by design. The Act omitted to mention that existing entities already operating gas pipelines, CGD etc. would also come under regulatory purview, a serious lacuna which weakened the authority of the regulator. This ambiguity over PNGRB's authority to regulate existing monopolies led to legal challenges to the regulator's jurisdiction. While it is obvious to everyone that there cannot be two regulatory regimes – one for already existing companies and another for those licensed by the regulator – the government made no effort to rectify the situation through an order confirming the jurisdiction of the regulator over all pipelines, existing as well as new. In fact, this must have been done ab initio when the board was set up so that simultaneously all entities in the industry would come under a single regulatory authority. Instead, the government waited for several months before issuing “Deemed Authorisation” to those licensed by it prior to the advent of PNGRB. This brought all central government licensed companies already in existence within the ambit of the regulator, but there were many others already operating CGD networks in various states without central government authorisation. These are being brought under regulatory jurisdiction piecemeal and selectively and till date, not all entities operating CGD networks in the country are under PNGRB's remit, leading to an anomalous situation.

### ***Jeopardising Financial Independence of the Regulator***

Financial autonomy is crucial to regulatory effectiveness. In order to attract competent professionals, the regulator must be prepared to pay market-based compensation. Yet, Indian regulators are saddled with government-sanctioned posts pegged to government emoluments. Consequently, during its first five years of its existence, PNGRB has had to rely almost entirely on professionals borrowed from the regulated industry to perform its functions, a blatant conflict of interest. Not only was the staff borrowed from the public sector oil and gas companies which PNGRB would regulate, but even their emoluments were paid by their parent companies, in gross violation of the tenets of regulatory independence. Even when the regulator is empowered to hire its own staff, it is constrained by the government-mandated ceilings on emoluments paid to its staff. Of course, the regulator could always hire consultants which also advised the regulated firms, again raising concerns over conflict of interest. If the government had been serious about the ‘independence’ of the regulator, it could have eased such constraints and avoided conflict of interest.

### ***Government as Adversary***

The Indian government’s ambivalent attitude to independent regulation is manifest in other instances as well. The government counsel consistently took an anti-regulator stand in court cases filed by regulated entities or other stakeholders. Two egregious instances stand out. When Voice of India, a non-profit organization moved Delhi High Court challenging PNGRB’s authority to perform licensing functions citing non-notification

of Section 16 of PNGRB Act, the government counsel sided with the petitioner. To quote the relevant judgment<sup>95</sup>,

*“Mr. A.S. Chandhiok, learned ASG appearing for Union of India submitted that in view of non-notification of Section 16, the Board was not empowered to issue authorisations for laying, building, operating or extending any pipeline as a city or local natural gas distribution networks.”*

The affidavit submitted to the court by the government counsel in August 2009 also affirmed the ASG’s statement. The affidavit states:

*In view of non-notification of Section 16, it is most respectfully submitted that the view of the Central Govt. is that the Board is not currently empowered to issue authorizations for laying, building, operating or expanding any pipeline as a common carrier or contract carrier or city or local natural gas distribution network, as clause (d) (B) of Section 2 of the Act defines an — authorized entity<sup>96</sup> inter alia is an entity authorized by the board under Section 16 of the Act.*

The court based its order on the government’s affidavit and submission and decreed

*In view of non-notification of Section 16 of PNGRB Act, it is held that the Board has no power to grant authorisation to entities which applied to it for Laying, Building, Operating or Expanding City or Local Natural Gas Distribution Networks. We may mention that this finding is in consonance with the Central Government’s stand in the counter affidavit filed before this Court<sup>96</sup>.*

This leads us to conclude that non-notification of Section 16 by the government was a deliberate act of omission arising from its unwillingness to empower the regulator.

The second case is a recent one in which IGL, the company operating city gas network in the National Capital Region of India approached the Delhi High Court questioning the authority of the

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<sup>95</sup> Delhi High Court Voice Of India vs Union Of India & Ors. on 21 January, 2010 Author: Manmohan \* IN THE HIGH COURT OF DELHI AT NEW DELHI W.P.(C) 8415/2009 & CM 5295/2009

<sup>96</sup> Delhi High Court Voice Of India vs Union Of India & Ors. on 21 January, 2010 Author: Manmohan \* IN THE HIGH COURT OF DELHI AT NEW DELHI W.P.(C) 8415/2009 & CM 5295/2009

regulator to fix transportation tariff for gas supplied through its networks. The court ruled in IGL's favour, dismissing PNGRB's power to fix transportation tariffs for gas supplied through CGD networks citing inconsistencies in the wording of the act, which denies the regulator the authority to fix network tariffs. PNGRB appealed to the Supreme Court through a Special Leave Petition, challenging the lower court's verdict. The Supreme Court confirmed the Delhi High Court ruling, based on the submission made by the central government counsel. In other words, the Government of India once again took the stand that PNGRB Act did not confer on the regulator, the power to fix network tariff and compression charges for CNG, denying the regulator, its core regulatory function. Coming from the highest judicial authority of the country, this leaves PNGRB with no scope for appeal or redressal of this grievous negation of its core regulatory authority. The perverse stand of the Indian government which resulted in the court order is testament to the attitude of the government to independent regulation in India's natural gas industry.

### *Expropriation by the Government*

But the biggest setback to independent regulation in India's natural gas industry comes from a recent decision of the Indian cabinet to authorise public sector gas transportation company GAIL to build certain major trunk pipelines and to develop city gas networks in major towns along this pipeline<sup>97</sup>. The cabinet committee on economic affairs even decided to fund 40 per cent of the cost of JHBDPL from the exchequer to take care of the

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<sup>97</sup> The 2539 km long Jagdishpur-Haldia and Bokaro-Dhamra Gas Pipeline (JHBDPL) connecting the eastern states of Bihar, Jharkhand, Odisha and West Bengal awarded by the Indian government to GAIL in 2016 under a special scheme formulated in the name of the prime minister and hence has not been challenged by any stakeholders.

viability gap in the project<sup>98</sup>. The government has gone ahead with the award of licenses without reference to the regulator which, under PNGRB Act is the sole authority to issue such licenses<sup>99</sup>. After years of checkmating the regulator through various measures, the government brazenly decided to exercise the power it had relinquished to the regulator a decade ago through a clever instrument – it was done under the prime minister’s Pradhan Mantri Urja Ganga scheme, pre-empting any challenge to the award. While this is blatantly illegal since the law passed by parliament confers the power of licensing exclusively on the regulator, but no stakeholder has so far challenged this move of the government. India’s dalliance with independent regulation in the downstream hydrocarbon industry seems to have effectively ended.

## ***8.6 Lessons from the Case Study***

This chapter analysed the reasons for the poor performance of the case study regulator, some specific to the case study, others, generic. Based on these findings, this study seeks to apply inductive reasoning to draw broader lessons for other developing countries:

- (i) In the specific case of PNGRB, despite being a ‘model’ regulator in terms of design and processes adopted, regulatory lapses of a serious nature occurred due to inexperience/incapacity of the regulator. It is not

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<sup>98</sup> Since this region has never consumed gas, there is uncertainty over finding enough consumers to warrant the investment. Hence viability gap funding would minimise demand risk.

<sup>99</sup> [https://www.business-standard.com/article/companies/phase-1-of-pm-s-urja-ganga-project-to-be-commissioned-by-jan-gail-chief-118110600645\\_1.html](https://www.business-standard.com/article/companies/phase-1-of-pm-s-urja-ganga-project-to-be-commissioned-by-jan-gail-chief-118110600645_1.html)

inconceivable that other developing countries too will face similar challenges; some of them may also have less than ideal structure and/or adopt less than optimal processes, exacerbating the scope for regulatory lapses. Developing country regulators everywhere will have to move up a steep and time-consuming learning curve which their citizens can ill-afford considering the indispensability of basic utilities to a life of dignity.

- (ii) In a market-mimicking paradigm of regulation, it is infeasible to include a planning mandate for the regulator. Without planning, utility markets will favour urban and affluent consumers, leaving the poor and rural population out of access to utilities. This defeats the very purpose of reforms.
- (iii) As has been seen in the case study, it is very difficult, if not infeasible, to devise appropriate incentives to coax the potential investor to build infrastructure in hitherto unconnected geographies. The tools available to independent regulators are simply not appropriate for this crucial task. In fact, the independent regulator is not even the appropriate institution for the task at hand.
- (iv) In developing countries with incomplete or patchy utility network infrastructure, competition (Demsetz model) for the market is likely to throw up perverse outcomes as it did in the case study. This is because, all developing countries are likely to face market risk and most of them, supply and price risks as well.

- (v) Weak regulatory enforcement and monitoring of compliance with license conditions were major factors impacting the effectiveness of the case-study regulator. In the absence of genuine government buy-in into the reforms imposed on developing countries by the Washington Consensus, it is inevitable that most, if not all developing country regulators will be saddled with weak enforcement of their decisions.

### ***8.7 Contextual Factors Determining Regulatory Performance***

In the literature on regulation, poor regulatory performance, especially in developing countries, is generally attributed to poor reform design, regulatory incapacity and/or lack of credible commitment on the part of the government which, according to experts, manifests in intervention in regulatory functioning.

None of the above perspectives are without merit. There could be lacunae in regulatory design as well as remit, flaws in regulatory selection processes, deficiency in the competence and capacity of the regulators etc. There could also external factors contributing to poor regulatory record as was shown in the case study.

While conceding the contribution of all of the above factors acting individually and/or in concert, in frustrating regulatory performance, it is outside the scope of this research to examine each in detail or to assign them relative weights. However, it is worth pointing out that the regulator, especially a developing country regulator, does not function in a vacuum, but in a certain

politico-economic context and therefore, some of the blame for poor regulatory performance lies elsewhere.

This research points to a fundamental problem in the regulatory construct specific to developing country contexts where the fruits of development are unevenly distributed.

### **8.7.1 *Political Economy of Independent Regulation***

In developing countries with underdeveloped infrastructure and immature markets, absence of political will to cede control to independent regulators is inherent in the scheme of things. Regulatory failure in network infrastructure in the developing world is well-documented in several case studies, and these have focused, inter alia, on lack of political will to let the regulator succeed<sup>100</sup>. One study pointed out how developing country governments even ask their newly-established regulators to submit an undated but signed resignation letter before assuming office<sup>101</sup>. This is an effective sword to bring down a recalcitrant regulator.

This paper argues that lack of political will is not a mere caprice of governments, but is inherent in the flawed construct of independent regulation in immature markets. All governments seek to stay in power and any measure – such as ceding control to non-political regulators - that could impact votes in the ensuing election is bound to be a non-starter. The electorate itself seldom holds the regulator responsible for unsatisfactory outcomes, preferring to place the onus squarely on the political dispensation

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<sup>100</sup> See inter alia, Cetin Tamar: Transition to the regulatory state in Turkey, Lessons from Energy: Journal of Economics, June 2000 pp 393-402

<sup>101</sup> Op cit

which it can control through the ballot box. Whether governments actually deploy their power to make basic goods available to the entire population or not, they certainly would like to be seen as attempting to do so.

This study further argues that much of the flaws in regulatory design or remit are merely symptoms of a much more fundamental and systemic weakness in the construct of economic regulation in a developing country context. It puts forth the premise that regulatory failure can be traced to the political economy nature of the industry that is being regulated by a non-political regulator functioning outside the system of checks and balances in a democracy. This is particularly evident in the fact that the regulator is accountable for its acts of commission, not omission whereas an elected government is equally responsible for its acts of commission as well as omission.

Energy and the infrastructure required to deliver it, satisfy fundamental human needs. It has economy-wide applications with serious political implications. The availability, pricing, supply, reach and coverage (requiring infrastructure), are not just economic issues, but have immense political import especially in a developing country context where not everyone has access to energy or even the means to afford it, but every adult has a vote; this places energy (and its infrastructure) squarely in the realm of political economy rather than in the purely economic sphere. Therefore, energy is vulnerable to manipulation by governments, especially in a democracy where governments are accountable to their citizens<sup>102</sup>. While most other lacunae impeding a regulator

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<sup>102</sup> There is a plethora of literature on the relationship between politics and economics. For a comprehensive survey of the various theories of political economy, see Caporaso & Levine, 1992, Charles Hyneman 1959 (pp26-27), Harry Eckstein, (1979) pp2

can be fixed, without political will, independent regulation can never really succeed.

Political will to make independent regulation work might obtain where the regulatory institution has been set up by the government out of conviction or in response to a ground-felt need from the grassroots. However, in most developing countries including India, the advent of independent regulation has been prompted by external push from multilateral funding institutions like the World Bank and IMF, or lack of resources on the part of the government to expand utility services. While that may work in a developed country context where all citizens have the means to access a certain minimum of goods and services fundamental to human life and the state has already built or ensured comprehensive infrastructure. In a developing country context where large parts of the citizenry have limited or no access to goods like energy, water etc., and/or cannot afford to access them, these acquire a political economy character, rendering them vulnerable to intervention by governments.

This is most pronounced in democracies where, to stay in power, governments must at least be seen to sub-serve the larger public interest through policy interventions to reach these basic goods and services to all the citizens. Which is why the public interest justification for introducing regulation so appealed to government worldwide in the 20<sup>th</sup> century. Such compulsions do not bind an independent regulator who is a ‘constitutional anomaly’<sup>103</sup>.

Even as the regulatory design conforms to all canons of good governance, it fails to capture some hidden tools governments world over can and do wield to check and control the regulator.

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<sup>103</sup> Op cit Majone, 1994

Since it is the government which drafts the regulatory statute in parliamentary democracies, governments, could, if they so choose, leave enough loopholes in the legislation to claw back power formally ceded to the regulator.

Typically, governments reserve the right to notify the law when they choose. In fact, several statutes adopted by Indian parliament have never been notified and hence remain only on paper. Worse, most statutes contain the provision that the government can notify different provisions of the law on different dates without assigning any reasons for doing so. It is important that toolkits that measure regulatory governance include the proviso that the law setting up a regulatory commission must be fully in force.

As has been shown in Chapter 8, there are several ways in which governments can checkmate the regulator through acts of commission as well as omission. One of the fundamental premises of political economy is that the actions of governments can be understood only as consequences of the political forces that enable governments to acquire and retain power. It follows, therefore, in order to retain power, governments will invoke this prerogative which includes exercising control over politically sensitive businesses.

## ***8.8 Inferences***

The foregoing analyses point to the following inferences and conclusions:

- (i) The current standardised utility reform model applied across the board at the behest of Fund-Bank is neither

relevant nor appropriate for developing countries where basic utilities are yet to reach most of the population and where even the physical infrastructure for universal coverage is grossly inadequate.

- (ii) Markets, by definition, will serve only those with capacity to pay – the urban affluent consumers – whereas utilities are so basic to human life and dignity that need to be supplied to everyone regardless of their ability to pay. In that sense, utilities are services that are more political than economic. States – democratic or otherwise – can ignore this reality at their own peril.
- (iii) Governments accountable to their people, not independent regulators, have an abiding interest in extending infrastructure to unserved populations.
- (iv) In view of the many risks involved in extending utility network infrastructure, taxpayer funds will have to be deployed to create the necessary physical networks.
- (v) Developing country governments can follow either the European model where infrastructure networks were built by state-owned national champions or the US model where infrastructure got built under a regime of decades of price control. The third option is to provide viability gap funding to private investors coming forward to set up the networks.
- (vi) Government regulation, rather than independent regulation, is needed in developing countries until the physical infrastructure of basic utilities reach comprehensive coverage.

*Based on the case study analyses in the previous three chapters, this chapter sought to draw the right lessons for developing countries. It infers that in developing countries where sizeable populations do not yet have access to basic human needs like electricity, water and cooking fuel, these utilities are too political to be left to apolitical economic regulators. As such, government interference is inherent in the extant model of regulation. This research concludes that the context and timing do not favour independent regulation in developing countries. Government involvement and oversight needs to continue in the interest of equity and development.*

## Chapter 9

# Summary, Conclusions and Recommendations for Future Research

## *9.1 Summary*

*This concluding chapter summarises the main findings of this thesis, the conclusions that arise from them and offers some recommendations for future research*

Thirty years ago, most countries of the world were persuaded by neoliberal economists to effect a paradigm shift in the way their economies were being governed. The shift involved, inter alia, a slew of macroeconomic measures that pushed back the state and expanded the role of markets in economic activities hitherto managed and governed by the state. The new paradigm was a uniform set of reform measures across the world, designed and implemented by IMF and World Bank.

This research focused on one set of such reforms chosen for their far-reaching consequences for the well-being of the human population and constitutes a major plank of the larger reform rubric. It trains the spotlight on reforms in network utilities that supply basic and daily necessities such as water, sewerage, electricity, cooking fuel, etc. so indispensable to modern life that all states – whether democratic or otherwise – can ill afford not to arrange universal provision.

Developing countries worldwide have been struggling to provide universal supply of these basic utilities, not least because they require extensive network infrastructure. Infrastructure often clusters around urban affluent populations leaving the urban poor as well as those living in far flung rural areas out of

their ambit. Governments, both central and municipal had been gradually extending the infrastructure networks to hitherto unconnected regions, driven, primarily by political imperatives, until reforms were introduced in the 1990s. After all, every citizen has a vote and every citizen expects to be provided with basic utilities.

What the reforms have done is to replace that political imperative by profit imperatives. By handing utilities over to competitive markets and installing an independent (and depoliticised) regulator to oversee their functioning, reforms have stalled infrastructure expansion. Without the political imperative, markets continue to serve already connected affluent consumers rather than risk expanding infrastructure to develop new, uncertain markets.

This observation led to the main research question of this thesis, namely, is it possible to depoliticise governance in an activity that is fundamental to human life and dignity? Can a truly independent regulator marry social objectives with private incentives? If this is not possible, then, is independent regulation the relevant and appropriate institution to govern utilities in developing countries with sketchy infrastructure and partial reach? Should there not be planning for providing network infrastructure comprehensively to everyone in society? If markets cannot be persuaded to extend infrastructure to unconnected populations, should the state not step in?

The choice of utility for this research was determined by a concert of factors. Energy was the first choice, but since electricity networks have already been built almost comprehensively even in developing countries, it decided to look at cooking fuel. With climate change already at our

doorstep, as evidenced by unusual flood and drought patterns, nations are scurrying to revamp their energy industries, moving from polluting fuels to cleaner ones. Natural gas, although a hydrocarbon, is by far, the cleanest fossil fuel, is abundantly available and is expected to displace coal, kerosene, biomass and even LPG for a few decades until renewable resources can take over. Many developing countries are building national gas grids and local distribution networks to reach this cooking fuel to their citizens. After all, eating cooked food is what makes us human. While electricity has been around for over a hundred years and therefore, its infrastructure has already reached substantial populations in most geographies, natural gas infrastructure is still at a rudimentary stage in developing countries. Therefore, utility reforms promising greater efficiencies – optimal prices, comprehensive reach, service quality – have a great potential in delivering cooking fuel to developing country citizens.

This research used a case study approach, despite its limitations, to apply its main research question. India's Petroleum and Natural Gas Regulatory Board, set up to oversee the transition of gas utility from state control to markets, provided a pointer. The Indian government had made reaching clean cooking fuel to the masses a priority political agenda when reforms took over and handed the role to markets overseen by an independent regulator.

It would be pertinent to point out the salience of the independent regulator in the reform paradigm. Utility reforms prescribed by World Bank required vertically integrated monopoly utilities to be unbundled into its monopoly and competitive segments. Transmission infrastructure would remain a monopoly to be regulated by the independent regulator

while both upstream supply and downstream distribution would be thrown open to private market participants. Government would withdraw all budgetary support leaving all entities along the gas value chain to raise their own resources, build infrastructure and expand the market. Competitive markets in both upstream and downstream would improve efficiencies.

The role of the depoliticised regulator, working at arms-length from all stakeholders is at the core of the new reform paradigm in utility industries. It is the regulator's responsibility to guide the investors in the direction of unserved geographies with appropriate incentives, to promote competition in the contested segments and ensure open access to monopoly transmission networks.

The case study first established that the independent regulator satisfied all canons of good governance prescribed by reform architects and then went on to evaluate the performance of the regulator in terms of extending provisioning of utilities to hitherto unserved citizens. The empirical results revealed the unedifying performance of the case study regulator, which then was followed by an analysis of the possible reasons thereof. Inferential and deductive reasoning and logic has been used to distil some conclusions.

## ***9.2 Major Findings and Conclusions of the Study***

***Chapter 2*** examined the theoretical underpinnings of economic regulation and found that

- Utilities are considered natural monopolies prone to exercise of market power and hence had to be regulated by

governments in order to ensure universal supply at optimal prices.

- Government opportunism led to poor service provision/high prices. This prompted restructuring and privatization of utilities under depoliticised regulatory oversight.

**Chapter 3** traced the history of economic regulation worldwide leading up to the reforms and learnt that

- Comprehensive utility network infrastructure developed in the US during a phase when gas price was also regulated whereas in Europe, infrastructure was built under government ownership, price control and direction.
- In developing countries, colonial legacy ensured that government ownership model was followed, but it was tardy owing to resource-constraints and other dynamics of developing economies.
- Reforms abruptly terminated government involvement and support even before infrastructure reached comprehensive coverage in developing countries.

**Chapter 4** discussed the structure, remit, powers and functions of utility regulators and the tools available to them to perform their regulatory functions.

- Autonomy and independence are at the core of the new regulatory paradigm. The structure, sanctioned by statute is designed to ensure both. Accountability, however, is diffuse and vague
- Regulatory remit, powers and functions flow from the statute but are inadequate to deal with the tasks facing developing country regulators.

- The tools available to developing country regulators – price and entry regulation – do not support a developmental role for the regulator despite that being the egregious need in countries with sketchy infrastructure and immature markets.

***Chapter 5*** analysed the unanticipated challenges that arose in developing country reform processes leading to divergent contexts in which the developed and developing country regulators function.

- Unbundling vertically integrated utilities is fraught with challenges in developing countries for various reasons.
- Privatizing the contested segments of utility businesses turned out to be a non-starter in most developing countries for various reasons, leading reform architects to improvise and induct private capital at the margin.
- This changed the role of the developing country regulator into one of an umpire providing level playing field to private investors in a business dominated by incumbent government monopolies.
- Developing country governments did not buy into the reforms, but were persuaded by the World Bank wielding a carrot and stick approach. Therefore, reform implementation was half-hearted and government interference, inherent in the scheme of things.

***Chapter 6*** examined the case study regulator for conformity with best governance practices and adherence to sound processes and found it to be compliant on both counts.

- Petroleum and Natural Gas Regulatory Board, India's downstream hydrocarbon regulator draws its legitimacy

from an Act of parliament with powers and lines of accountability clearly defined.

- It conforms to best-practice canons of transparency, predictability, autonomy, participatory governance etc.

*Chapter 7* analysed the performance of PNGRB in the 12 years of its existence in terms of outcomes achieved – expansion of networks and extension of cooking gas connections to unconnected households by analysing empirical data.

- PNGRB signally failed to add a single kilometre of trunk pipeline though its regulatory intervention.
- Although PNGRB licensed many city gas distribution licensees, it failed to ensure extension of cooking gas connections to households in any significant manner.
- Its efforts to open up existing networks for open access to competing consumers has been less than successful.

*Chapter 8* explored the reasons for the failure of PNGRB, the case study regulator to see if these were specific to the case study or could have wider applications for other developing countries with similar contexts. The inferences that emerge are:

- In developing countries, markets have been introduced prematurely even before utility infrastructure reached all citizens, making the timing unpropitious for favourable outcomes.
- Private investors would be unwilling to undertake multiple risks which developing countries face – market risk, price risk, supply risk and regulatory risk.

- Reforms based on Washington Consensus never formally repudiated the concept of welfare state even as they pushed markets in to spheres governed by the state.
- Besides, utilities are too basic and fundamental to human life that no state can afford not to provide them to every last citizen; this requires comprehensive network infrastructure that is unlikely to be built by markets.
- It is safe to conclude that utility infrastructure is too political to be left to markets and hence governments interference is inherent in the regulatory paradigm.
- Therefore, the institution of independent regulation is both inappropriate and irrelevant to the current stage of developing countries; that there is a role for governments in utility infrastructure – that of planning, funding and building.

### ***9.3 Recommendations for Future Research***

This study makes an important contribution to the literature on utility reforms, a major plank of macroeconomic reforms launched in the 1990s. It documents, based on empirical evidence, the challenges and difficulties faced by developing country regulators and concludes that a one-size-fits-all reform paradigm is unlikely to produce desired outcomes. It emphasizes that developing country governments still have a vital role to play in ensuring provision of basic utilities to their citizens and therefore, premature introduction of markets is bound to fail.

While this research fully acknowledges the limitations of basing general conclusions on a case study, it has made every effort to choose a utility regulator that is fairly representative of the conundrums faced by developing country utility regulators across the board. Besides, the kind of in-depth analysis

undertaken by this research is only possible through a case-study approach rather than macro-level cross-country data which may not capture nuances so essential to arrive at the conclusions that this research has reached.

Of course, with more time and resources, this research could have been extended to a few more representative regulators across the developing world to corroborate the findings.

Perhaps, that can form the subject matter of further research. A few similar studies undertaken for other country regulators could also provide the template for an econometric analysis of the cross-country results to arrive at more robust conclusions based on which recommendations could emerge for course correction.

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# Bibliography

- Acemoglu Daron, Simon AU - A. Robinson, James: Institutions as the fundamental cause of long-run growth, CEPR Discussion Papers, 2004
- Alchian, Armen A. "Some Economics of Property, Rand Corporation, No." *P-2316* (1961).
- Alterman, Sofya. *Natural gas price volatility in the UK and North America*. Oxford Institute for Energy Studies, 2012.
- Andres, Luis, Jose Luis Guasch, and Sebastian Lopez Azumendi. *Regulatory governance and sector performance: methodology and evaluation for electricity distribution in Latin America*. The World Bank, 2008.
- Araral, Eduardo, The failure of water utilities privatization: Synthesis of evidence, analysis and implications, Policy and Society, 27:3, 221-228, DOI: [10.1016/j.polsoc.2008.10.006](https://doi.org/10.1016/j.polsoc.2008.10.006) rmstrong, Mark, Simon Cowan, and John Vickers. *Regulatory reform: economic analysis and British experience*. Vol. 20. MIT press, 19
- Averch, Harvey & Johnson, Leland L, "Behavior of the firm under regulatory constraint." *The American Economic Review* (1962): 1052-1069.
- Baldwin, Robert, and Martin Cave. "Franchising and its Limitations." *Understanding regulation—theory, strategy and practice* (1999): 257-285.
- Baumol William & Alvin K.Klevorick, 1970 Input Choices and Rate-of-Return Regulation – An overview of the discussion in Bell Journal of Economics, 1970, vol. 1, issue 2, 162-190
- Baumol, W.J., Panzar, J.C. and Willig, R. (1982) Contestable Markets and the Theory of Industry Structure. Harcourt Brace Jovanovich, Inc., New York.
- Becker, Gary S. 'A Theory of Competition among Pressure Groups for Political Influence', XCVIII Quarterly Journal of Economics, 1986, 371-400.
- Berg, Sanford. "Infrastructure regulation: risk, return, and performance." *Global Utilities* 1.May (2001): 3-10.
- Bougheas, Spiros, and Tim Worrall. "Cost padding in regulated monopolies." *International Journal of Industrial Organization* 30.4 (2012): 331-341.
- Bonbright James, C, Principle of Public Utility Rates, Public Utility Reports, Arlington, Virginia, 1961
- Bose, Ranjan Kumar, and Megha Shukla. "Elasticities of electricity demand in India." *Energy Policy* 27.3 (1999): 137-146.
- Bouille Daniel, et al, Reform of the electric power sector in developing countries: A case study of Argentina, World Resources Institute
- Braadbaart, Okke. "Privatizing water and wastewater in developing countries: assessing the 1990s' experiments." *Water Policy* 7.4 (2005): 329-344.
- Breyer, Stephen, Regulation and its reform Harvard University Press, 1984

- Cambini, Carlo, and Massimo Filippini. "Competitive tendering and optimal size in the regional bus transportation industry: an example from Italy." *Annals of public and cooperative economics* 74.1 (2003): 163-182.
- Caporaso, James A., and David P. Levine. *Theories of political economy*. Cambridge University Press, 1992.
- Cheung Steven N.S. (1978), *The Myth of Social Costs: A Critique of Welfare Economics and Public Policy*, London, The Institute of Economic Affairs.
- Coase, Ronald H. "The Problem of Social Cost", 3 *Journal of Law and Economics*, 1960, 1- 44.
- Colin Scott "Accountability in the regulatory state." *Journal of law and society* 27.1 (2000): 38-60
- Correa, Paulo. "What it takes to lower regulatory risk in infrastructure industries: An assessment and benchmarking of Brazilian regulators." (2007)..
- Costello, Kenneth W., and Ross C. Hemphill. "Electric utilities' 'death spiral': Hyperbole or reality?." *The Electricity Journal* 27.10 (2014): 7-26
- Cowan Tyler (ed.) *The Theory of Market Failure*, Fairfax, George Mason University Press 1988.
- Craig J, Gerabi F, Macaulay F, Sorkhabi R (Ed) *History of European Oil and Gas industry*, The Geological Society, London 2018,
- Crandall, Robert W. "Controlling industrial pollution: The economics and politics of clean air." (1983).
- Dahlman Carl J. "The Problem of Externality", 22 *Journal of Law and Economics*, 1979, 141-162.
- Dalen, Dag Morten, Espen R. Moen, and Christian Riis. "Contract renewal and incentives in public procurement." *International Journal of Industrial Organization* 24.2 (2006): 269-285.
- Defeuilley, Christophe. "Retail competition in electricity markets." *Energy Policy* 37.2 (2009): 377-386.
- Dempsey, Paul Stephen, *Market failure and regulatory failure as catalysts for political change; The choice between imperfect regulation and imperfect competition in Washington and Lee Law Review*, Volume 46, Issue 1, 1989 pp 2-39.
- Demsetz, Harold , *Economics as a guide to anti-trust regulation*, *Journal of Law and Economics*, 1976, Vol 19, Issue 2, pp 371-84
- Demsetz, Harold , *Why Regulate Utilities?*, *Journal of Law and Economics*, 1968 55-65..
- Dixit, Avinash K. *The Making of Economic Policy. A Transaction-Cost Perspective*, Cambridge, Massachusetts, The MIT Press 1996
- Dubash, Navroz, Kale, Sunila S. Bharvirkar, Ranjit, *Mapping Power: The Political Economy of Electricity in India's States*, Oxford University Press, 2018
- Dubash, Navroz K., and Bronwen Morgan, eds. *The rise of the regulatory state of the south: Infrastructure and development in emerging economies*. oup Oxford, 2013.
- Feintuck, Mike, *The Public interest in Regulation*, OUP 2010

- Foss, Michelle Michot: Worldwide energy transitions, Energy sector reform and market development in *Natural Resources & Environment*, Vol. 12, No. 4 (Spring 1998), pp. 261-268,
- Foster Vivien, Tiongson Erwin R, and Laderchi, C.R Utility Reforms in *Analysing the Distributional Impact of Reforms* in : pp-74-145
- Gales Ben: A Dutch revolution natural gas in the Netherlands, *Energy transitions in history*, RCC Perspectives No.2 pp 83-90
- Geddes, Barbara. "The politics of economic liberalization." (1995): 195-214.
- Giraldi, Fabrizio (2004) *Delegation in Regulatory State: Origins and Diffusion of Independent Regulatory Agencies in Western Europe*, unpublished Ph. D. Dissertation, Université de Lausanne, Switzerland
- Goldberg Victor , *Protecting the Right to be Served by Public Utilities*, *Research in Law and Economics*, 1979 145-156.
- Gordon, Robert J. *The rise and fall of American growth: The US standard of living since the civil war*. Vol. 70. Princeton University Press, 2017.
- Gratwick, Katharine Nawaal, and Anton Eberhard. "Demise of the standard model for power sector reform and the emergence of hybrid power markets." *Energy Policy* 36.10 (2008): 3948-3960.
- Groenewegen, John, and Jack J. Vromen. "A case for theoretical pluralism." *Transaction cost economics and beyond*. Springer, Dordrecht, 1996. 365-380.
- Haggard and Kaufman, – *The political economy of democratic transitions*, Princeton University press 1995
- Hall, David, Emanuele Lobina, and Robin de la Motte. "Public resistance to privatisation in water and energy." *Development in practice* 15.3-4 (2005): 286-301.
- Helm, Dieter, *Regulatory Reform, Capture, and the Regulatory Burden*, *Oxford Review of Economic Policy*, Volume 22, Issue 2, Summer , Pages 169–185, <https://doi.org/10.1093/oxrep/grj011>
- Hertog Van der, *Review of Economic Theories of Regulation* Djalling T.Koopmans Research Institute, Discussion Paper, 2000 10-18
- Hotelling, Harold. "The general welfare in relation to problems of taxation and of railway and utility rates." *Econometrica: Journal of the Econometric Society* (1938): 242-269.
- Hotelling, H. (1938). *The general welfare in rel*
- Hyneman, Charles S. *The study of politics: the present state of American political science*. University of Illinois Press, 1959.
- Hood, Christopher, et al. *Regulation inside government: Waste watchers, quality police, and sleaze-busters*. Oxford University Press, 1999.
- Ibarra-Yunez, Alejandro. "Energy reform in Mexico: Imperfect unbundling in the electricity sector." *Utilities Policy* 35 (2015): 19-27.

- Jenkins Andrew: Government intervention in the British gas industry, 1948 to 1970, *Business History*, 46:1, 57-78, 2004 DOI: [10.1080/00076790412331270119](https://doi.org/10.1080/00076790412331270119)
- Jordan William A. 'Producer Protection, Prior Market Structure and the Effects of Government Regulation', 15 *Journal of Law and Economics*, 1972, 151-176.
- Joseph, Sarah, Neoliberal Reforms and Democracy in India, *Economic and Political Weekly* Vol 42, No.31 (Aug 4-10, 2007) (pp 3213-3218)
- Joskow, Paul: Natural Gas: From Shortages to Abundance in the United States, *The American Economic Review*, Vol. 103, No. 3, May 2013 pp 338-343)
- Kessides, Ioannis. *Reforming infrastructure: Privatization, regulation, and competition*. The World Bank, 2004.
- Kessides, Ioannis N. "Chaos in power: Pakistan's electricity crisis." *Energy policy* 55 (2013): 271-285.
- Khaparde, S. A. "Power sector reforms and restructuring in India." *IEEE Power Engineering Society General Meeting, 2004.. IEEE*, 2004.
- Kikeri, Sunita, John Nellis, and Mary Shirley. *Privatization: the lessons of experience*. The World Bank, 1992.
- Kirby, Brendan, and Eric Hirst. "Unbundling electricity: ancillary services." *IEEE Power Engineering Review* 16.6 (1996).
- Kitschelt, Z Mansfeldova, R Markowski, G Toka – Post Communist Party Systems. Cambridge University Press 1999
- Kovacevic, Aleksandar. *The impact of the Russia–Ukraine gas crisis in South Eastern Europe*. Oxford Institute for Energy Studies, 2009.
- Laffont Jean-Jacques and Tirole, Jean (1993), *A Theory of Incentives in Procurement and Regulation*, Cambridge, Massachusetts, The MIT Press.
- Levi, Spiller, Prado Jordana, Jacint and David Levi-Faur, *The Politics of Regulation*, Edward Elgar, Cheltenham. 2004
- Liston, Catherine. "Price-cap versus rate-of-return regulation." *Journal of Regulatory Economics* 5.1 (1993): 25-48.
- Littlechild, Stephen. "Competitive bidding for a long-term electricity distribution contract." *Review of Network Economics* 1.1 (2002).
- Loughlin & Scott "The regulatory state." *Developments in British politics* 5. Palgrave, London, 1997. 205-219.
- Mahalingam, Sudha. "Regulatory Experiments in the Indian Power Sector Missing the Wood for the Trees." *A. Singh, Administrative reforms: towards sustainable practices* (2005): 169-188.
- Mahalingam & Sharma, *The Political Economy of Independent Regulation in India's Downstream Hydrocarbon Industry*, *Economic & Political Weekly*, May 2017
- Majone G. Cross national sources of regulatory policy making in Europe and the US, *Journal of Public Policy*, 1991 Vol.11 Issue 1 79-106

- Majone, G., Giandomenico Majone 'The rise of the regulatory state in Europe, West European Politics, 17:3, 1994, 77-101, DOI: [10.1080/01402389408425031](https://doi.org/10.1080/01402389408425031)
- Makhaya, Gertrude. *The determinants of regulatory effectiveness in liberalised markets: Developing country experiences*. Trade and Industrial Policy Strategies, 2002.
- Manibog et al., Power for Development, pp. 39-40.
- McGowan & Wallace 'Towards a European Regulatory State, Journal of European Public Policy 3 (4), 1996 560-576
- Mehta, Abhay. *Power play: a study of the enron project*. Orient Blackswan, 2000.
- Milward, Robert & Singleton J, (Ed) *The Political Economy of Nationalisation in Britain, 1920-50*, Cambridge University Press, 1995
- Nash, Chris, and Andrew SJ Smith. "Passenger rail franchising—British experience." (2007): 7-34.
- Nelson 1974 Nelson, Philip (1970), 'Information and Consumer Behavior', 78 Journal of Political Economy, 311-329.
- Newbery, David M. "Privatization, restructuring, and regulation of network industries." *Cambridge, Mass./London* (1999).
- Noll, Roger.G 'Economic Perspectives on the Politics of Regulation', in Schmalensee, Richard and Willig, Robert D. (eds.), *Handbook of Industrial Organization II*, Amsterdam, North Holland, 1989a1253-1287.
- North D. *Institutions, Institutional Change and Economic Performance*, Cambridge: Cambridge University Press, 1990
- Olson, Mancur. "The rise and fall of nations." *New Haven* (1982).
- Otsuka, Yasuji. "A welfare analysis of local franchise and other types of regulation: Evidence from the cable TV industry." *Journal of Regulatory Economics* 11.2 (1997): 157-180.
- Parker, Christine. *The open corporation: Effective self-regulation and democracy*. Cambridge University Press, 2002.
- Peltzman, Sam 'Towards a More General Theory of Regulation', 19 Journal of Law and Economics, 1976 211-240
- Pollitt, Michael. "The arguments for and against ownership unbundling of energy transmission networks." *Energy policy* 36.2 (2008): 704-713.
- Posner Richard A. 'Theories of Economic Regulation', 5 Bell Journal of Economics and Management Science, 1974 335-358. .
- Prosser, Tony *The Regulatory Enterprise*, OUP 1999
- Prosser, Tony. "Regulatory contracts and stakeholder regulation." *Annals of Public and Cooperative Economics* 76.1 (2005): 35-57.
- Rawls, John. "Atheory of justice." *USA: BELKNAP HARVARD* (1971).

Ross-Ackerman Rose-Ackerman, Susan (1988), 'Progressive Law and Economics - and the New Administrative Law', 98 Yale Law Journal, 341-368. Rose-Ackerman, Susan (1992), Rethinking the Progressive Agenda: The Reform of the American Regulatory State, New York, NY, Free Press. Samrina, Nawrin. "Energy security for Bangladesh: prospects and strategic implications of natural gas." *ACDIS Occasional Paper* (2004).

Samuelson Samuelson, Paul A. "Spatial price equilibrium and linear programming." *The American economic review* 42.3 (1952): 283-303.

Sappington & Stiglitz David E.M. and Stiglitz, Joseph E. (1987a), 'Information and Regulation', in Bailey, Elizabeth E. (ed.), Public Regulation: New Perspectives on Institutions and Policies, Cambridge, MA, MIT Press, 3-43. Sappington, David E.M. and Stiglitz, Joseph E. (1987b), Privatization, Information and Incentives, *Journal of Policy Analysis and Management*, 567-582.

Scott, Colin. "Accountability in the regulatory state." *Journal of law and society* 27.1 (2000): 38-60.

Sen, Amartya, 'Personal Utilities and Public Judgements: or What's Wrong with Welfare Economics', 89 *Economic Journal*, 1979a 537-558.

Sosay, Gül, and Unal Zenginobuz. "Independent regulatory agencies in emerging economies." (2005).

Sovacool, Benjamin K., et al. "Evaluating energy security performance from 1990 to 2010 for eighteen countries." *Energy* 36.10 (2011): 5846-5853.

Spiller & Tommasi, The Institutions of Regulation – An Application to Utilities in *Handbook of New Institutional Economics*, Springer, 2003

Stern, Jon. "What the Littlechild Report actually said." *PROCEEDINGS-CRI*. 2003.

Stern, Jonathan. "International gas pricing in Europe and Asia: A crisis of fundamentals." *Energy Policy* 64 (2014): 43-48.

Stern, Jon and Holder Stuart: Regulatory Governance: criteria for assessing the performance of regulatory systems –An application to infrastructure industries in the developing countries of Asia, *Utilities Policy* 8, 1999 pp 33-50

Stigler George J. , 'The Theory of Economic Regulation', 2 *Bell Journal of Economics and Management Science*, 1971 3-21.

Stiglitz Josef, : *Globalization and its discontents*, Norton, New York, 2002

Sweeney George, Adoption of cost-saving innovations in a regulated firm in *The American Economic Review* Vol. 71, No. 3 (Jun., 1981), pp. 437-447

Thatcher, Mark. "Delegation to independent regulatory agencies: Pressures, functions and contextual mediation." *The politics of delegation*. Routledge, 2004. 133-180.

Tamar, Cetin, (Ed) *The Political economy of regulation in Turkey*, Springer 2011

Thakurta, Paranjoy Guha, Subir Ghosh, and Jyotirmoy Chaudhuri. *Gas wars: Crony capitalism and the Ambanis*. Paranjoy Guha Thakurta, 2014.

Thiruvengadam, Arun K & Joshi, Piyush *Judiciaries as crucial actors in Southern regulatory systems: A case study of Indian telecom regulation in Regulation and Governance*, <https://doi.org/10.1111/j.1748-5991.2012.01143.x> 2012

- Toumanoff, Peter G., 'A Positive Analysis of the Theory of Market Failure', 37 *Kyklos*, 1984, 529-541.
- Troesken, Werner: Why regulate utilities?: The new institutional economics and the Chicago gas industry, 1849–1924. Ann Arbor: University of Michigan Press, 1997. 132 pages
- Troesken, Werner. "The institutional antecedents of state utility regulation: the Chicago gas industry, 1860 to 1913." *The Regulated Economy: A Historical Approach to Political Economy*. University of Chicago Press, 1994. 55-80.
- Troesken, Werner. "The sources of public ownership: Historical evidence from the gas industry." *The Journal of Law, Economics, and Organization* 13.1 (1997): 1-25.
- Tullock, Seldon & Brady, Tullock, Gordon, Seldon, Arthur, and Brady, Gordon L. (2002), *Government Failure*, Washington, Cato Institute.
- Tully, Stephen, The Human Right to Access Electricity, *The Electricity Journal*, Vol 19, Issue 3 Apr 2006 pp 30-39.
- Utton Michael A. *The economics of regulating industry*. Oxford: Blackwell, 1986.
- Veljanowsky, Veljanovski, Cento G. 'The Coase Theorems and the Economic Theory of Markets and law', 35 *Kyklos*, 1982a 53-74.
- Viscusi & Zeckhauser, Viscusi, W. Kip and Zeckhauser, Richard J. (1979), Optimal Standards with Incomplete Enforcement Public Policy, 437-456.
- Viscusi, W. Kip 'Market Incentives for Safety', 63 *Harvard Business Review*, 1985 133- 138.
- Vivien Foster Tjongson Erwin R, and Laderchi, C.R Utility Reforms in Analysing the Distributional Impact of Reforms in : pp-74-145
- Williams, James H., and Rebecca Ghanadan. "Electricity reform in developing and transition countries: A reappraisal." *Energy* 31.6-7 (2006): 815-844.
- Williams, Trevor Illtyd: *History of the British Gas Industry*, Oxford University Press, 1981
- Williamson, Oliver *The economics of organization: the transaction cost approach*". *American Journal of Sociology*. 87 (3): 548–577
- Wolf Charles, Jr. 'A Theory of Nonmarket Failure: Framework for Implementation Analysis', 22 *Journal of Law and Economics*, 107-139. Wolf, Charles, Jr (1993), *Markets or Governments, Choosing between Imperfect Alternatives*, Cambridge, MA, MIT Press.
- Zerbe & McCurdy Richard O. and H. McCurdy, The Failure of Market Failure, *Journal of Policy Analysis and Management*, 558-578. Zerbe, Richard O. and H. McCurdy (2000), *The End of Market*

## Annexures

# **Annexure 1. The Washington Consensus**

These are the ten specific principles originally set out by John Williamson in 1989:

1. Low government borrowing. The idea was to discourage developing economies from having high fiscal deficits relative to their GDP.
2. Diversion of public spending from subsidies to important long-term growth supporting sectors like primary education, primary healthcare, and infrastructure.
3. Implementing tax reform policies to broaden the tax base and adopt moderate marginal tax rates.
4. Selecting interest rates that are determined by the market. These interest rates should be positive after taking inflation into account (real interest rate).
5. Encouraging competitive exchange rates through freely-floating currency exchange.
6. Adoption of free trade policies. This would result in the liberalization of imports, removing trade barriers such as tariffs and quotas.
7. Relaxing rules on foreign direct investment.
8. The privatization of state enterprises. Typically, in developing countries, these industries include railway, oil, and gas.
9. The eradication of regulations and policies that restrict competition or add unnecessary barriers to entry.
10. Development of property rights.

## **Annexure 2: Toolkit for Assessing Regulatory Governance**

(Source: Stern, Jon and Holder Stuart: Regulatory Governance: criteria for assessing the performance of regulatory systems –An application to infrastructure industries in the developing countries of Asia, Utilities Policy 8, 1999 pp 33-50)

### **Clarity of Roles & Objectives**

Does the primary legislation set out a clear definition of the regulator's functions and duties?

If not, are these functions and duties formally set out in legal instruments and/or other documents?

Is it clear where the regulator has an advisory role (e.g. to the Minister) rather than a decision making role?

Are there any functions carried out jointly, or any that are ambiguous, between the regulator and those of the relevant Minister(s)?

Does the legislation establish unambiguously which entity is responsible for what regulatory functions?

Does the regulator have any responsibility for commercial activities?

### **Autonomy**

What is the relationship between the regulatory body and the government (e.g. a separate division of a Min-

istry, a body independent of any Ministries, a body independent of government, etc.)?

How are members of the regulatory body appointed and dismissed?

How is the regulatory body financed? Who has to approve the funding?

In what cases does the regulator have only an advisory role (rather than a decision making role)?

Participation

Does the regulator formally involve regulated firms, other industry firms, consumers and others on:

—major decisions?

—the proposed approach to taking major decisions?

Are consultation responses made public (either in full or in a summary of responses)?

Does the regulator comment publicly on points made in consultation responses, and how (if at all) these have affected the final decision?

Are there any other indications of whether or not consultation responses influence the final decision?

What other ways are industry participants (including firms and consumers) involved in regulatory decision making and processes?

## **Accountability**

Is there a formal mechanism for regulated firms (or

other parties) to challenge regulatory decisions?

If so, how does it work? And has it been used?

Is there also a legal right of redress?

Do firms or other parties comment (or even challenge) decisions through informal channels (such as direct representations to Ministers, or through the media)?

To whom is the regulatory body accountable (government, parliament, courts)?

Does the regulator have to answer questions before parliament?

Can the regulator be dismissed for failing to fulfil his duties?

Is there under primary law a facility for judicial review?

## **Transparency**

Are major regulatory documents (e.g. licences) in the public domain?

Does the regulator publish major decisions (or advice)?

Does the regulator publish the reasoning behind major decisions?

If decisions/reasons are published, is this voluntary or compulsory (e.g. a legal requirement to justify

decisions)?

If decisions/reasons are not published, are any participants (such as the firms themselves) told of the reasons for major decisions?

## **Predictability**

How easily can the regulator's functions and duties be changed and what is involved?

How easily can key regulatory documents (e.g. licences, authorisations, franchise contracts, etc.) be changed and what is involved?

To what extent are regulatory principles (e.g. on the procedural approach to tariff reviews, the definition of the rate base or the rate of return which a firm should be allowed to earn) set out formally?

Have the regulator's decisions demonstrated a consistent approach?

Is there a published timetable of regulatory events every year?

To what extent are regulatory arrangements in the sector part of a coherent approach (i.e. echoed in other infrastructure sectors) and to what extent are they ad hoc (i.e. different in institutional structure from other infrastructure sectors in the country)?



## **Annexure 3: PNGRB Act 2006**

### **THE PETROLEUM AND NATURAL GAS REGULATORY BOARD ACT, 2006 NO. 19 OF 2006**

**[31st March, 2006]**

#### **PNGRB Act :-**

An Act to provide for the establishment of Petroleum and Natural Gas Regulatory Board to regulate the refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural gas excluding production of crude oil and natural gas so as to protect the interests of consumers and entities engaged in specified activities relating to petroleum, petroleum products and natural gas and to ensure uninterrupted and adequate supply of petroleum, petroleum products and natural gas in all parts of the country and to promote competitive markets and for matters connected therewith or incidental thereto. BE it enacted by Parliament in the Fifty-seventh Year of the Republic of India as follows:-

#### **CHAPTER I**

#### **PRELIMINARY**

##### **1. Short title, extent, commencement and application :-**

(1) This Act may be called the Petroleum and Natural Gas Regulatory Board Act, 2006.

(2) It extends to the whole of India.

(3) It shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint: Provided that different dates may be appointed for different provisions of this Act and any reference in any such provision to the commencement of this Act shall be construed as a reference to the coming into force of that provision.

(4) It applies to refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural gas excluding production of crude oil and natural gas.

##### **2. Definitions :-**

In this Act, unless the context otherwise requires :-

(a) "affiliate code of conduct" means the code of conduct governing entities engaged in storage, transmission, distribution, marketing and sale of natural gas under sub-section (1) of section 21;

(b) "Appellate Tribunal" means the Appellate Tribunal referred to in section 30;

(c) "appointed day" means the date on which the Board is established under sub-section (1) of section 3;

(d) "authorised entity" means an entity-

(A) registered by the Board under section 15 -

(i) to market any notified petroleum, petroleum products or natural gas, or

(ii) to establish and operate liquefied natural gas terminals, or

(B) authorised by the Board under section 16 -

(i) to lay, build, operate or expand a common carrier or contract carrier, or

(ii) to lay, build, operate or expand a city or local natural gas distribution network;

(e) "auto liquefied petroleum gas" means a mixture of certain light hydrocarbons derived from petroleum, which are gaseous at normal ambient temperature and atmospheric pressure but may be condensed to the liquid state at normal ambient temperature by the application of moderate pressure, and which conform to such specifications for use as fuel in vehicles, as the Central Government may, in consultation with the Bureau of Indian Standards, notify from time to time;

(f) "Board" means the Petroleum and Natural Gas Regulatory Board established under sub-section (1) of section 3;

(g) "Bureau of Indian Standards" means the Bureau of Indian Standards established under section 3 of the Bureau of Indian Standards Act, 1986 (63 of 1986);

(h) "Chairperson" means the Chairperson of the Board appointed under sub-section (1) of section 4;

(i) "city or local natural gas distribution network" means an interconnected network of gas pipelines and the associated equipment used for transporting natural gas from a bulk supply high pressure transmission main to the medium pressure distribution grid and subsequently to the service pipes supplying natural gas to domestic, industrial or commercial premises and CNG stations situated in a specified geographical area.

**Explanation :-** For the purposes of this clause, the expressions "high pressure" and "medium pressure" shall mean such pressure as the Central Government may, by notification, specify to be high pressure or, as the case may be, medium pressure;

(j) "common carrier" means such pipelines for transportation of petroleum, petroleum products and natural gas by more than one entity as the Board may declare or authorise from time to time on a nondiscriminatory open access basis under sub-section (3) of section 20, but does not include pipelines laid to supply-

(i) petroleum products or natural gas to a specific consumer; or

(ii) crude oil;

**Explanation.-** For the purposes of this clause, a contract carrier shall be treated as a common carrier, if -

(a) such contract carrier has surplus capacity over and above the firm contracts entered into;  
or

(b) the firm contract period has expired.

(k) "CNG station" means filling station where one or more dispensing units are provided for sale of compressed natural gas;

(l) "compressed natural gas or CNG" means natural gas used as fuel for vehicles, typically compressed to the pressure ranging from 200 to 250 bars in the gaseous state;

(m) "contract carrier" means such pipelines for transportation of petroleum, petroleum products and natural gas by more than one entity pursuant to firm contracts for at least one year as may be declared or authorised by the Board from time to time under sub-section (3) of section 20;

(n) "dealer" means a person, association of persons, firm, company or co-operative society, by whatsoever name called or referred to, and appointed by an oil company to purchase, receive, store and sell motor spirit, high speed diesel, superior kerosene oil, auto liquefied petroleum gas or natural gas;

(o) "distributor" means a person, association of persons, firm, company or co-operative society, by whatsoever name called or referred to, and appointed by an oil company to purchase, receive, store and sell to consumers liquefied petroleum gas in cylinders;

(p) "entity" means a person, association of persons, firm, company or co-operative society, by whatsoever name called or referred to, other than a dealer or distributor, and engaged or intending to be engaged in refining, processing, storage, transportation, distribution, marketing, import and export of petroleum, petroleum products and natural gas including laying of pipelines for transportation of petroleum, petroleum products and natural gas, or laying, building, operating or expanding city or local natural gas distribution network or establishing and operating a liquefied natural gas terminal;

(q) "exchange of products" shall mean giving and receiving of a petroleum product in accordance with an agreement entered into by the concerned entities;

(r) "high speed diesel" means any hydrocarbon oil (excluding mineral colza oil and turpentine substitute), which conforms to such specifications for use as fuel in compression ignition engines, as the Central Government may, in consultation with the Bureau of Indian Standards, notify from time to time;

(s) "kerosene or superior kerosene oil" means a middle distillate mixture of hydrocarbons which conforms to such specifications, as the Central Government may, in consultation with the Bureau of Indian Standards, notify from time to time;

(t) "liquefied natural gas terminal" means the facilities and infrastructure required to-

(i) receive liquefied natural gas;

(ii) store liquefied natural gas;

(iii) enable degasification of liquefied natural gas; and

(iv) transport degasified liquefied natural gas till the outside boundaries of the facility;

(u) "liquefied petroleum gas" means a mixture of light hydrocarbons containing propane, isobutene, normal butane, butylenes, or such other substance which is gaseous at normal ambient temperature and atmospheric pressure but may be condensed to liquid state at normal ambient temperature by the application of pressure and conforms to such specifications, as the Central Government may, in consultation with the Bureau of Indian Standards, notify from time to time;

(v) "local distribution entity" means an entity authorised by the Board under section 20 to lay, build, operate or expand a city or local natural gas distribution network;

(w) "marketing service obligations" means obligations-

(i) to set up marketing infrastructure and retail outlets in remote areas in respect of notified petroleum and petroleum products;

(ii) to maintain minimum stock of notified petroleum and petroleum products;

(iii) of a local distribution entity to supply natural gas to consumers; and

(iv) such other obligations as may be specified by regulations;

(x) "maximum retail price" means the maximum price fixed by an entity at which the petroleum, petroleum products and natural gas may be sold to the retail consumers and includes all taxes, cess and levies, local or otherwise and freight or commission payable to the dealers;

(y) "member" means a member of the Board appointed under sub-section (1) of section 4 and includes the Member (Legal) and the Chairperson;

(z) "motor spirit" means any hydrocarbon oil (excluding crude mineral oil) used as fuel in spark ignition engines which conforms to such specifications, as the Central Government may, in consultation with the Bureau of Indian Standards, notify from time to time;

(za) "natural gas" means gas obtained from bore-holes and consisting primarily of hydrocarbons and includes-

(i) gas in liquid state, namely, liquefied natural gas and degasified liquefied natural gas,

(ii) compressed natural gas,

(iii) gas imported through transnational pipe lines, including CNG or liquefied natural gas,

(iv) gas recovered from gas hydrates as natural gas,

(v) methane obtained from coal seams, namely, coal bed methane, but does not include helium occurring in association with such hydrocarbons;

(zb) "notification" means a notification published in the Official Gazette and the expression "notified" with its cognate meanings and grammatical variations, shall be construed accordingly;

(zc) "notified petroleum, petroleum products and natural gas" means such petroleum, petroleum products and natural gas as the Central Government may notify from time to time, after being satisfied that it is necessary or expedient so to do for maintaining or increasing their supplies or for securing their equitable distribution or ensuring adequate availability;

(zd) "oil company" means a company registered under the Companies Act, 1956 and includes an association of persons, society or firm, by whatsoever name called or referred to, for carrying out an activity relating to petroleum, petroleum products and natural gas;

(ze) "petroleum" means any liquid hydrocarbon or mixture of hydrocarbons, and any inflammable mixture (liquid, viscous or solid) containing any liquid hydrocarbon, including crude oil and liquefied petroleum gas, and the expression 'petroleum product' shall mean any product manufactured from petroleum;

(zf) "pipeline access code" means the code to establish a framework for third party access to pipelines under sub-clause (i) of clause (ze) of section 11;

(zg) "prescribed" means prescribed by rules made by the Central Government under this Act;

(zh) "regulations" means regulations made by the Board under this Act;

(zi) "restrictive trade practice" means a trade practice which has, or may have, the effect of preventing, distorting or restricting competition in any manner and in particular,-

(i) which tends to obstruct the flow of capital or resources into the stream of production, or

(ii) which tends to bring about manipulation of prices, or conditions of delivery or to affect the flow of supplies in the market relating to petroleum, petroleum products or natural gas or services in such manner as to impose on the consumers unjustified costs or restrictions;

(zj) "retail outlet" means filling station where one or more dispensing pumps have been provided for sale of motor spirit, high speed diesel, auto-liquefied petroleum gas or natural gas and includes distributorship for liquefied petroleum gas or dealership for superior kerosene oil or CNG stations;

(zk) "retail service obligations" means obligations of dealers and distributors for maintaining supplies to consumers throughout the specified working hours and of specified quality,

quantity and display of maximum retail price of notified petroleum, petroleum products and natural gas including CNG and such other obligations, as may be specified by regulations;

(zl) "rules" means rules made by the Central Government under this Act;

(zm) "Secretary" means the Secretary of the Board;

(zn) "transportation rate", in relation to common carrier or contract carrier or a city or local natural gas distribution network, means such rate for moving each unit of petroleum, petroleum products or natural gas as may be fixed by regulations.

[Top](#)

## **CHAPTER II**

### **PETROLEUM AND NATURAL GAS REGULATORY BOARD**

#### **3. Establishment and incorporation of the Board :-**

(1) With effect from such date as the Central Government may, by notification, appoint, there shall be established, for the purposes of this Act, a Board to be called the Petroleum and Natural Gas Regulatory Board.

(2) The Board shall be a body corporate by the name aforesaid, having perpetual succession and a common seal, with power, subject to the provisions of this Act, to acquire, hold and dispose of property, both movable and immovable, and to contract, and shall, by the said name, issue or be issued.

(3) The Board shall consist of a Chairperson, a Member (Legal) and three other members to be appointed by the Central Government.

(4) The head office of the Board shall be at New Delhi and regional offices at such places as the Board may deem necessary having regard to public interest and magnitude of the work.

#### **4. Qualifications for appointment of Chairperson and other members :-**

(1) The Central Government shall appoint the Chairperson and other members of the Board from amongst persons of eminence in the fields of petroleum and natural gas industry, management, finance, law, administration or consumer affairs : Provided that no person shall be appointed as Member (Legal) unless he-

(a) is qualified to be a Judge of a High Court; or

(b) has been a member of the Indian Legal Service and has held a post in Grade I of that Service for at least three years.

(2) The Central Government shall, for the purposes of selecting the Chairperson and after members of the Board and for preparing a panel of persons to be considered for appointment

as the Technical Member (Petroleum and Natural Gas) of the Appellate Tribunal, constitute a Search Committee consisting of-

- (i) Member, Planning Commission in charge of the energy sector - Chairperson;
- (ii) Secretary to the Government of India, Ministry of Petroleum and Natural Gas - Member;
- (iii) Secretary to the Government of India, Ministry of Finance, Department of Economic Affairs - Member;
- (iv) Secretary to the Government of India in charge of Commerce, Ministry of Commerce and Industry - Member; and
- (v) Secretary to the Government of India, Department of Legal Affairs, Ministry of Law and Justice - Member.

**5. Term of office, conditions of service, etc. of Chairperson and other members :-**

(1) Before appointing any person as the Chairperson or other member, the Central Government shall satisfy itself that such person does not have any financial or other interest which is likely to affect prejudicially his functions as Chairperson or such other member.

(2) The Chairperson and other members shall hold office for a term of five years from the date on which they enter upon their offices or until they attain the age of sixty-five years, whichever is earlier: Provided that the Chairperson and other members shall not be eligible for re-appointment.

**Explanation :-** For the purposes of this section, appointment of a member as Chairperson shall not be deemed to be re-appointment.

(3) A person in the service of the Central Government, a State Government or an undertaking, corporation or company owned or controlled by the Central Government or a State Government or from any other non-Governmental or corporate body shall resign or retire from such service before joining as the Chairperson or other member, as the case may be.

(4) The salaries and allowances payable to and the other terms and conditions of service of the Chairperson and the other members shall be such as may be prescribed: Provided that neither the salary and allowances nor the other terms and conditions of service of the Chairperson or any other member shall be varied to his disadvantage after appointment.

(5) The Chairperson or other member may resign his office by giving notice thereof in writing to the Central Government and on such resignation being accepted, the Chairperson or such other member shall be deemed to have vacated his office.

(6) The Chairperson or any other member, upon ceasing to hold office as such, shall-

(a) be ineligible for further employment under the Central Government or any State Government; and

(b) not accept any commercial employment for a period of two years from the date he ceases to hold such office.

Explanation.-For the purposes of this section, "commercial employment" means employment in any capacity under, or agency of, a person engaged in trading, commercial, industrial or financial business in any field and includes also a director of a company or partner of a firm or setting up practice either independently or as partner of a firm or as an advisor or a consultant.

## **6. Powers of Chairperson :-**

The Chairperson shall have the powers of general superintendence and directions in the conduct of the affairs of the Board and shall, in addition to presiding over the meetings of the Board, exercise and discharge such other powers and functions of the Board, as may be assigned to him by the Board.

## **7. Removal of Chairperson or any other member from office :-**

The Central Government may remove from office the Chairperson or any other member, who-

(a) has been adjudged as insolvent; or

(b) has been convicted of an offence which, in the opinion of the Central Government, involves moral turpitude; or

(c) has become physically or mentally incapable of acting as a member; or

(d) has acquired such financial or other interest as is likely to affect prejudicially his functions as a member; or

(e) has so abused his position as to render his continuance in office prejudicial to the public interest: Provided that no Chairperson or other member shall be removed from office under clause (d) or clause (e) unless the Central Government, after holding an inquiry by any person appointed or authority constituted for the purpose and in accordance with such procedure as may be prescribed in this behalf, is satisfied that such person ought on such ground or grounds to be removed.

## **8. Meetings of the Board :-**

(1) The Board shall meet at such times and places, and shall observe such procedure in regard to the transaction of business at its meetings (including the quorum at such meetings) as may be provided by regulations.

(2) The Chairperson or, if he is unable to attend a meeting of the Board, the senior-most member present, reckoned from the date of appointment to the Board, shall preside at the meeting: Provided that in case of common date of appointment of members, the member senior in age shall be considered as senior to the other members.

(3) All questions which come up before any meeting of the Board shall be decided by a majority of the members present and voting, and in the event of an equality of votes, the Chairperson or in his absence, the person presiding shall have a second or casting vote.

(4) All orders and decisions of the Board shall be authenticated by the Secretary or any other officer of the Board duly authorised by the Chairperson in this behalf.

#### **9. Vacancies, etc., not to invalidate proceedings of the Board :-**

No act or proceeding of the Board shall be invalid merely by reason of -

- (a) any vacancy in, or any defect in the constitution of, the Board; or
- (b) any defect in the appointment of a person acting as a member of the Board; or
- (c) any irregularity in the procedure of the Board not affecting the merits of the case.

#### **10. Officers and other employees of the Board :-**

(1) The Central Government may, in consultation with the Board, appoint a Secretary to exercise and perform such powers and duties, under the control of the Chairperson as may be specified by regulations: Provided that no such consultation shall be necessary for appointment of the first Secretary of the Board.

(2) The Board may, with the approval of the Central Government, determine the number, nature and categories of other officers and employees required to assist the Board in the efficient discharge of its functions.

(3) The salaries and allowances payable to and the other terms and conditions of service of the Secretary, the other officers and employees of the Board shall be such as may be prescribed.

(4) The Board may appoint consultants required to assist in the discharge of its functions on such terms and conditions as may be determined by regulations.

[Top](#)

### **CHAPTER III**

#### **FUNCTIONS AND POWERS OF THE BOARD**

##### **11. Functions of the Board :-**

The Board shall-

- (a) protect the interest of consumers by fostering fair trade and competition amongst the entities;
- (b) register entities to-

- (i) market notified petroleum and petroleum products and, subject to the contractual obligations of the Central Government, natural gas;
- (ii) establish and operate liquefied natural gas terminals;
- (iii) establish storage facilities for petroleum, petroleum products or natural gas exceeding such capacity as may be specified by regulations;
- (c) authorise entities to-
  - (i) lay, build, operate or expand a common carrier or contract carrier;
  - (ii) lay, build, operate or expand city or local natural gas distribution network;
  - (d) declare pipelines as common carrier or contract carrier;
  - (e) regulate, by regulations,-
    - (i) access to common carrier or contract carrier so as to ensure fair trade and competition amongst entities and for that purpose specify pipeline access code;
    - (ii) transportation rates for common carrier or contract carrier;
    - (iii) access to city or local natural gas distribution network so as to ensure fair trade and competition amongst entities as per pipeline access code;
  - (f) in respect of notified petroleum, petroleum products and natural gas-
    - (i) ensure adequate availability;
    - (ii) ensure display of information about the maximum retail prices fixed by the entity for consumers at retail outlets;
    - (iii) monitor prices and take corrective measures to prevent restrictive trade practice by the entities;
    - (iv) secure equitable distribution for petroleum and petroleum products;
    - (v) provide, by regulations, and enforce, retail service obligations for retail outlets and marketing service obligations for entities;
    - (vi) monitor transportation rates and take corrective action to prevent restrictive trade practice by the entities;
  - (g) levy fees and other charges as determined by regulations;
  - (h) maintain a data bank of information on activities relating to petroleum, petroleum products and natural gas;

(i) lay down, by regulations, the technical standards and specifications including safety standards in activities relating to petroleum, petroleum products and natural gas, including the construction and operation of pipeline and infrastructure projects related to downstream petroleum and natural gas sector;

(j) perform such other functions as may be entrusted to it by the Central Government to carry out the provisions of this Act.

## **12. Powers regarding complaints and resolutions of disputes by the Board :-**

(1) The Board shall have jurisdiction to-

(a) adjudicate upon and decide any dispute or matter arising amongst entities or between an entity and any other person on issues relating to refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural gas according to the provisions of Chapter V, unless the parties have agreed for arbitration;

(b) receive any complaint from any person and conduct any inquiry and investigation connected with the activities relating to petroleum, petroleum products and natural gas on contravention of-

(i) retail service obligations;

(ii) marketing service obligations;

(iii) display of retail price at retail outlets;

(iv) terms and conditions subject to which a pipeline has been declared as common carrier or contract carrier or access for other entities was allowed to a city or local natural gas distribution network, or authorisation has been granted to an entity for laying, building, expanding or operating a pipeline as common carrier or contract carrier or authorisation has been granted to an entity for laying, building, expanding or operating a city or local natural gas distribution network;

(v) any other provision of this Act or the rules or the regulations or orders made there under.

(2) While deciding a complaint under sub-section (1), the Board may pass such orders and issue such directions as it deems fit or refer the matter for investigation according to the provisions of Chapter V.

## **13. Procedure of the Board :-**

(1) The Board shall have, for the purposes of discharging its functions under this Act, the same powers as are vested in a civil court under the Code of Civil Procedure, 1908 (5 of 1908), while trying a suit, in respect of the following matters, namely:-

(a) summoning and enforcing the attendance of any person and examining him on oath;

- (b) subject to the provisions of sections 123 and 124 of the Indian Evidence Act, 1872 (1 of 1872), requisitioning any public record or document or a copy of such record or document, from any office and production of such documents;
- (c) receiving evidence on affidavits;
- (d) issuing commissions for the examination of witnesses or documents;
- (e) dismissing an application for default or deciding it, ex parte;
- (f) setting aside any order of dismissal of any application for default or any order passed by it, ex parte;
- (g) granting interim relief;
- (h) reviewing its decision; and
- (i) any other matter which may be prescribed.

(2) Every proceeding before the Board shall be deemed to be a judicial proceeding within the meaning of sections 193 and 228, and for the purposes of section 196, of the Indian Penal Code (45 of 1860) and the Board shall be deemed to be a civil court for the purposes of section 195 and Chapter XXVI of the Code of Criminal Procedure, 1973 (2 of 1974).

(3) The Board shall be guided by the principles of natural justice and subject to other provisions of this Act and of any rules made there under, shall have powers to regulate its own procedure including the places at which it shall conduct its business.

[Top](#)

## **CHAPTER IV**

### **REGISTRATION AND AUTHORISATION**

#### **14. Register :-**

(1) For the purposes of this Act, a register to be called the Petroleum and Natural Gas Register shall be kept at the head office of the Board containing such details of entities-

(a) registered for-

(i) marketing notified petroleum, petroleum products or natural gas, or

(ii) establishing and operating liquefied natural gas terminals, or

(iii) establishing storage facilities for petroleum, petroleum products or natural gas exceeding such capacity as may be specified by regulations.

(b) authorised for -

- (i) laying, building, operating or expanding a common carrier, or
  - (ii) laying, building, operating or expanding a city or local natural gas distribution network, as may be provided by the Board by regulations.
- (2) A copy of any entry in the register purporting to be maintained by the Board and certified as such by an officer authorised by the Board, shall be admitted in evidence in all courts and in all proceedings without further proof or production of the original.
- (3) The register shall be open to public inspection at the head office of the Board.
- (4) Any person may, on application to the Board, and on payment of such fee as may be determined by the Board, by regulations, obtain a certified copy of any entry in the register.

### **15. Registration of entities :-**

- (1) Every entity desirous of-
- (a) marketing any notified petroleum or petroleum products or natural gas; or
  - (b) establishing or operating a liquefied natural gas terminal; or
  - (c) establishing storage facilities for petroleum, petroleum products or natural gas exceeding such capacity as may be specified by regulations, and fulfilling the eligibility conditions as may be prescribed shall make an application to the Board for its registration under this Act: Provided that no registration under this Act shall be required for any entity carrying on any activity referred to in clause (a) or clause (b) or clause (c) immediately before the appointed day but shall inform the Board about such activity within six months from the appointed day.
- (2) Every application for registration under sub-section (1) shall be made in such form and in such manner and shall be accompanied by such fee as may be determined by the Board by regulations.
- (3) The Board may, after making such enquiry and subject to such terms and conditions as it may specify, grant a certificate of registration to the entity allowing to commence and carry on the activity referred to in clause (a) or clause (b) or clause (c), as the case may be, of sub-section (1).
- (4) The Board may, by order, suspend or cancel a certificate of registration granted under sub-section (3) in such manner as may be determined by regulations : Provided that no order under this sub-section shall be made unless the entity concerned has been given a reasonable opportunity of being heard.

### **16. Authorisation :-**

No entity shall-

- (a) lay, build, operate or expand any pipeline as a common carrier or contract carrier,

(b) lay, build, operate or expand any city or local natural gas distribution network, without obtaining authorisation under this Act : Provided that an entity :-

(i) laying, building, operating or expanding any pipeline as common carrier or contract carrier; or

(ii) laying, building, operating or expanding any city or local natural gas distribution network, immediately before the appointed day shall be deemed to have such authorisation subject to the provisions of this Chapter, but any change in the purpose or usage shall require separate authorisation granted by the Board.

#### **17. Application for authorisation :-**

(1) An entity which is laying, building, operating or expanding, or which proposes to lay, build, operate or expand, a pipeline as a common carrier or contract carrier shall apply in writing to the Board for obtaining an authorisation under this Act : Provided that an entity laying, building, operating or expanding any pipeline as common carrier or contract carrier authorised by the Central Government at any time before the appointed day shall furnish the particulars of such activities to the Board within six months from the appointed day.

(2) An entity which is laying, building, operating or expanding, or which proposes to lay, build, operate or expand, a city or local natural gas distribution network shall apply in writing for obtaining an authorisation under this Act : Provided that an entity laying, building, operating or expanding any city or local natural gas distribution network authorised by the Central Government at any time before the appointed day shall furnish the particulars of such activities to the Board within six months from the appointed day.

(3) Every application under sub-section (1) or sub-section (2) shall be made in such form and in such manner and shall be accompanied with such fee as the Board may, by regulations, specify.

(4) Subject to the provisions of this Act and consistent with the norms and policy guidelines laid down by the Central Government, the Board may either reject or accept an application made to it, subject to such amendments or conditions, if any, as it may think fit.

(5) In the case of refusal or conditional acceptance of an application, the Board shall record in writing the grounds for such rejection or conditional acceptance, as the case may be.

#### **18. Publicity of applications :-**

When an application for registration for marketing notified petroleum, petroleum products and natural gas, or for establishing and operating a liquefied natural gas terminal, or for establishing storage facilities for petroleum, petroleum products or natural gas exceeding such capacity as may be specified by regulations, is accepted whether absolutely or subject to conditions or limitations, the Board shall, as soon as may be, cause such acceptance to be known to the public in such form and manner as may be provided by regulations.

#### **19. Grant of authorisation :-**

(1) When, either on the basis of an application for authorisation for laying, building, operating or expanding a common carrier or contract carrier or for laying, building, operating or expanding a city or local natural gas distribution network is received or on sue motto basis, the Board forms an opinion that it is necessary or expedient to lay, build, operate or expand a common carrier or contract carrier between two specified points, or to lay, build, operate or expand a city or local natural gas distribution network in a specified geographic area, the Board may give wide publicity of its intention to do so and may invite applications from interested parties to lay, build, operate or expand such pipelines or city or local natural gas distribution network.

(2) The Board may select an entity in an objective and transparent manner as specified by regulations for such activities.

## **20. Declaring, laying, building, etc., of common carrier or contract carrier and city or local natural gas distribution network :-**

(1) If the Board is of the opinion that it is necessary or expedient, to declare an existing pipeline for transportation of petroleum, petroleum products and natural gas or an existing city or local natural gas distribution network, as a common carrier or contract carrier or to regulate or allow access to such pipeline or network, it may give wide publicity of its intention to do so and invite objections and suggestions within a specified time from all persons and entities likely to be affected by such decision.

(2) For the purposes of sub-section (1), the Board shall provide the entity owning, the pipeline or network an opportunity of being heard and fix the terms and conditions subject to which the pipeline or network may be declared as a common carrier or contract carrier and pass such orders as it deems fit having regard to the public interest, competitive transportation rates and right of first use.

(3) The Board may, after following the procedure as specified by regulations under section 19 and sub-sections (1) and (2), by notification,-

(a) declare a pipeline or city or local natural gas distribution network as a common carrier or contract carrier; or

(b) authorise an entity to lay, build, operate or expand a pipeline as a common carrier or contract carrier; or

(c) allow access to common carrier or contract carrier or city or local natural gas distribution network; or

(d) authorise an entity to lay, build, operate or expand a city or local natural gas distribution network.

(4) The Board may decide on the period of exclusivity to lay, build, operate or expand a city or local natural gas distribution network for such number of years as it may by order, determine in accordance with the principles laid down by the regulations made by it, in a transparent manner while fully protecting the consumer interests.

(5) For the purposes of this section, the Board shall be guided by the objectives of promoting competition among entities, avoiding in fructuous investment, maintaining or increasing supplies or for securing equitable distribution or ensuring adequate availability of petroleum, petroleum products and natural gas throughout the country and follow such principles as the Board may, by regulations, determine in carrying out its functions under this section.

## **21. Right of first use, etc :-**

(1) The entity laying, building, operating or expanding a pipeline for transportation of petroleum and petroleum products or laying, building, operating or expanding a city or local natural gas distribution network shall have right of first use for its own requirement and the remaining capacity shall be used amongst entities as the Board may, after issuing a declaration under section 20, determine having regard to the needs of fair competition in marketing and availability of petroleum and petroleum products throughout the country: Provided that in case of an entity engaged in both marketing of natural gas and laying, building, operating or expanding a pipeline for transportation of natural gas on common carrier or contract carrier basis, the Board shall require such entities to comply with the affiliate code of conduct as may be specified by regulations and may require such entity to separate the activities of marketing of natural gas and the transportation including ownership of the pipeline within such period as may be allowed by the Board and only within the said period, such entity shall have right of first use.

(2) An entity other than an entity authorised to operate shall pay transportation rate for use of common carrier or contract carrier to the entity operating it as an authorised entity.

(3) An entity authorised to lay, build, operate or expand a pipeline as common carrier or contract carrier or to lay, build, operate or expand a city or local natural gas distribution network shall be entitled to institute proceedings before the Board to prevent, or to recover damages for, the infringement of any right relating to authorisation.

**Explanation :-** For the purposes of this sub-section, "infringement of any right" means doing of any act by any person which interferes with common carrier or contract carrier or causes prejudice to the authorised entity.

## **22. Transportation tariff :-**

(1) Subject to the provisions of this Act, the Board shall lay down, by regulations, the transportation tariffs for common carriers or contract carriers or city or local natural gas distribution network and the manner of determining such tariffs.

(2) For the purposes of sub-section (1), the Board shall be guided by the following, namely:-

(a) the factors which may encourage competition, efficiency, economic use of the resources, good performance and optimum investments;

(b) safeguard the consumer interest and at the same time recovery of cost of transportation in a reasonable manner;

(c) the principles rewarding efficiency in performance;

- (d) the connected infrastructure such as compressors, pumps, metering units, storage and the like connected to the common carriers or contract carriers;
- (e) benchmarking against a reference tariff calculated based on cost of service, internal rate of return, net present value or alternate mode of transport;
- (f) policy of the Central Government applicable to common carrier, contract carrier and city or local distribution natural gas network.

### **23. Suspension or cancellation of authorisation :-**

If the Board, on an application of an affected party or on its own motion, is satisfied that the entity in favour of which authorisation has been granted under section 19 has failed to comply with any conditions of authorisation, it may, after giving an opportunity to such entity of being heard, either suspend the authorisation for such period as the Board may think fit or cancel the authorisation: Provided that where the Board is of the opinion that an authorised entity persistently acts in a manner prejudicial to the interests of consumers, it may take action for the suspension of the authorisation immediately subject to the opportunity of hearing being given subsequently, after which action so taken may be confirmed or revoked.

[Top](#)

## **CHAPTER V**

### **SETTLEMENT OF DISPUTES**

#### **24.Board to settle disputes :-**

(1) Save as otherwise provided for arbitration in the relevant agreements between entities or between an entity or any other person, as the case may be, if any dispute arises, in respect of matters referred to in sub-section(2) among entities or between an entity and any other person, such dispute shall be decided by a Bench consisting of the Member (Legal) and one or more members nominated by the Chairperson: Provided that if the members of the Bench differ on any point or points, they shall state the point or points on which they differ and refer the same to a member other than a member of the Bench for hearing on such point or points and such point or points shall be decided according to the opinion of that member.

(2) The Bench constituted under sub-section (1) shall exercise, on and from the appointed day, all such jurisdiction, powers and authority as were exercisable by a civil court on any matter relating to -

- (a) refining, processing, storage, transportation and distribution of petroleum, petroleum products and natural gas by the entities;
- (b) marketing and sale of petroleum, petroleum products and natural gas including the quality of service and security of supply to the consumers by the entities; and
- (c) registration or authorisation issued by the Board under section 15 or section 19.

(3) Notwithstanding anything contained in the Code of Civil Procedure, 1908 (5 of 1908), the Board shall have the power to decide matters referred to in sub-section (2) on or after the appointed day.

## **25. Filing of complaints :-**

(1) A complaint may be filed before the Board by any person in respect of matters relating to entities or between entities on any matter arising out of the provisions of this Act: Provided that the complaints of individual consumers maintainable before a consumer disputes redress forum under the Consumer Protection Act, 1986 (68 of 1986) shall not be taken up by the Board but shall be heard and disposed of by such forum. Explanation.-For the purposes of this sub-section, the expression "consumer disputes redress forum" shall mean the district forum, State Commission or, the National Commission, as the case may be, constituted under the provisions of the Consumer Protection Act, 1986 (68 of 1986).

(2) Every complaint made under sub-section (1) shall be filed within sixty days from the date on which any act or conduct constituting a contravention took place and shall be in such form and shall be accompanied by such fee as may be provided by regulations : Provided that the Board may entertain a complaint after the expiry of the said period if it is satisfied that there was sufficient cause for not filing the complaint within that period.

(3) On receipt of a complaint under sub-section (1), the Board shall decide within thirty days whether there is a prima facie case against the entity or entities concerned and may either conduct enquiry on its own or refer the matter for investigation under this Chapter, to an Investigating Officer having jurisdiction; and, where the matter is referred to such Investigating Officer, on receipt of a report from such Investigating Officer, the Board may, hear and dispose of the complaint as a dispute if it falls under sub-section (2) of section 27 and in any other case, it may pass such orders and issue such directions as it deems fit.

(4) Where the Central Government considers that a matter arising out of the provisions of this Act is required to be investigated, it shall make a reference to the Board and the provisions of this Act shall apply as if such reference were a complaint made to the Board.

## **26. Power to investigate (Settle Dispute):-**

(1) For the purposes of provisions of section 25, the Board shall, subject to the provisions of sub-section (3), appoint by general or special order, an officer of the Board as an Investigating Officer for holding an investigation in the manner provided by regulations : Provided that where the Board considers it necessary that the matter should be investigated by any investigating agency of the State or Central Government including the special police force constituted under section 2 of the Delhi Special Police Establishment Act, 1946, the Board may request the concerned Government for directing or authorizing such agency to investigate and the agency so directed or authorised shall, then, be competent to exercise the powers and to discharge the duties of an Investigating Officer under this Act.

(2) No person shall be appointed as an Investigating Officer unless he possesses such qualifications and experience as may be determined by the Board by regulations.

(3) Where more than one Investigating Officer is appointed, the Board shall specify, by order, the matters and the local limits of jurisdiction with respect to which each such officer shall exercise his jurisdiction.

#### **27. Factors to be taken into account by the Board :-**

The Board shall, while deciding a dispute under this Chapter, have due regard to the provisions of this Act and to the following factors, namely:-

- (a) the amount of disproportionate gain made or unfair advantage derived, wherever quantifiable, as a result of the default;
- (b) the amount of loss caused to an entity as a result of the default;
- (c) the repetitive nature of the default.

#### **28. Civil penalty for contravention of directions given by the Board :-**

In case any complaint is filed before the Board by any person or if the Board is satisfied that any person has contravened a direction issued by the Board under this Act to provide access to, or to adhere to the transportation rate in respect of a common carrier,

or to display maximum retail price at retail outlets, or violates the terms and conditions subject to which registration or authorisation has been granted under section 15 or section 19 or the retail service obligations or marketing service obligations, or does not furnish information, document, return of report required by the Board, it may, after giving such person an opportunity of being heard in the matter, by order in writing, direct that, without prejudice to any other penalty to which he may be liable under this Act, such person shall pay, by way of civil penalty an amount which shall not exceed one crore rupees for each contravention and in case of a continuing failure with additional penalty which may extend to ten lakh rupees for every day during which the failure continues after contravention of the first such direction : Provided that in the case of a complaint on restrictive trade practice, the amount of civil penalty may extend to five times the unfair gains made by the entity or ten crore rupees, whichever is higher.

#### **29. Orders passed by Board deemed to be decrees :-**

Every order made by the Board under this Act shall, on a certificate issued by an officer of the Board, shall be executable in the same manner as if it were a decree of a civil court : Provided that where an appeal lies against an order of the Board and no appeal is preferred then the order of the Board shall be deemed to be a final decree under this section on the expiry of the period allowed for preferring an appeal against such order before the Appellate Tribunal.

[Top](#)

## **CHAPTER VI**

### **APPEALS TO APPELLATE TRIBUNAL**

### **30.Appellate Tribunal :-**

(1) Subject to the provisions of this Act, the Appellate Tribunal established under section 110 of the Electricity Act, 2003 (36 of 2003) shall be the Appellate Tribunal for the purposes of this Act and the said Appellate Tribunal shall exercise the jurisdiction, powers and authority conferred on it by or under this Act : Provided that the Technical Member of the Appellate Tribunal for the purposes of this Act shall be called the Technical Member (Petroleum and Natural Gas) and shall have the qualifications specified in subsection (2) of section 31.

(2) Notwithstanding anything contained in the Electricity Act, 2003 (36 of 2003), the Central Government may, for the purposes of this Act, appoint one or more Technical Members (Petroleum and Natural Gas) on the Appellate Tribunal for Electricity or designate a Technical Member of the said Tribunal having the qualifications specified in sub-section (2) of section 31 and when a Technical Member (Petroleum and Natural Gas) is appointed, he shall be in addition to the three other members appointed under the said Act.

### **31. Technical Member (Petroleum and Natural Gas) :-**

(1) The Technical Member (Petroleum and Natural Gas) shall be appointed from the panel prepared by the Search Committee constituted under sub-section (2) of section 4.

(2) A person shall not be qualified for appointment as a Technical Member (Petroleum and Natural Gas) of the Appellate Tribunal unless he-

(i) is, or has been, a Secretary for at least one year in the Ministry or Department of the Central Government having adequate experience in energy sector, especially in matters relating to Petroleum and Natural Gas sector; or

(ii) is, or has been, a person of ability and standing, having adequate knowledge or experience in dealing with matters relating to exploration, production, transmission pipelines, marketing or regulation of petroleum, petroleum products or natural gas, economics, commerce, law or management.

### **32. Terms and conditions of service of Technical Member (Petroleum and Natural Gas) :-**

The term of office, the salaries and allowances payable to and the other terms and conditions of service of the Technical Member (Petroleum and Natural Gas) shall be the same as applicable to the other members of the Appellate Tribunal.

### **33. Appeals to Appellate Tribunal :-**

(1) Any person aggrieved by an order or decision made by the Board under this Act may prefer an appeal to the Appellate Tribunal : Provided that any person preferring an appeal against an order or decision of the Board levying any penalty shall, while filing the appeal, deposit the amount of such penalty : Provided further that where in any particular case, the Appellate Tribunal is of the opinion that deposit of such penalty would cause undue hardship to such person, it may dispense with such deposit subject to such conditions as it may deem fit to impose so as to safeguard the realisation of penalty.

(2) Every appeal under sub-section (1) shall be filed within a period of thirty days from the date on which a copy of the direction or order of decision made by the Board is received by the aggrieved person and it shall be in such form, verified in such manner and be accompanied by such fee as may be prescribed : Provided that the Appellate Tribunal may entertain an appeal after the expiry of the said period of thirty days if it is satisfied that there was sufficient cause for not filing it within that period.

(3) On receipt of an appeal under sub-section (1), the Appellate Tribunal may, after giving the parties an opportunity of being heard, pass such orders thereon as it thinks fit.

(4) The Appellate Tribunal shall send a copy of every order made by it to the parties to the appeal and to the Board.

(5) The appeal filed under sub-section (1) shall be dealt with by the Appellate Tribunal as expeditiously as possible and endeavor shall be made by it to dispose of the appeal finally within ninety days from the date of receipt of appeal: Provided that where any such appeal could not be disposed of within the said period of ninety days, the Appellate Tribunal shall record its reasons in writing for not disposing of the appeal within the said period.

(6) The Appellate Tribunal may, for the purpose of examining the legality or propriety or correctness of any order or decision of the Board referred to in the appeal filed under sub-section (1), either on its own motion or otherwise, call for the records relevant to disposing of such appeal and make such orders as it thinks fit.

#### **34. Procedure and powers of the Appellate Tribunal :-**

The provisions of sections 120 to 124 (both inclusive) of the Electricity Act, 2003 (36 of 2003) shall mutatis mutandis apply to the Appellate Tribunal in the discharge of its functions under this Act as they apply to it in the discharge of its functions under the Electricity Act, 2003.

#### **35. Power of Appellate Tribunal to make rules :-**

The Appellate Tribunal may, by notification, make rules consistent with the provisions of this Act as to the conduct and procedure in respect of all proceedings before it under this Act.

#### **36. Orders passed by Appellate Tribunal to be executable as a decree :-**

(1) Every order made by the Appellate Tribunal under this Act shall be executable by the Appellate Tribunal as a decree of a civil court, and for this purpose, the Appellate Tribunal shall have all the powers of a civil court.

(2) Notwithstanding anything contained in sub-section (1), the Appellate Tribunal may transmit any order made by it to a civil court having jurisdiction and such civil court shall execute the order as if it were a decree made by that court.

#### **37. Appeal to Supreme Court :-**

(1) Notwithstanding anything contained in the Code of Civil Procedure, 1908 (5 of 1908) or in any other law, an appeal shall lie against any order, not being an interlocutory order, of the

Appellate Tribunal to the Supreme Court on one or more of the grounds specified in section 100 of that Code.

(2) No appeal shall lie against any decision or order made by the Appellate Tribunal with the consent of the parties.

(3) Every appeal under this section shall be preferred within a period of ninety days from the date of the decision or order appealed against : Provided that the Supreme Court may entertain the appeal after the expiry of the said period of ninety days, if it is satisfied that the appellant was prevented by sufficient cause from preferring the appeal in time.

[Top](#)

## **CHAPTER VII**

### **FINANCE, ACCOUNTS AND AUDIT**

#### **38. Grants by Central Government :-**

The Central Government may, after due appropriation made by Parliament by law in this behalf, make to the Board grants of such sums of money as are required to pay salaries and allowances payable to the Chairperson and the other members and the administrative expenses including the salaries, allowances and pensions payable to the officers and employees of the Board.

#### **39. Fund :-**

(1) There shall be constituted a Fund to be called the Petroleum and Natural Gas Regulatory Board Fund and there shall be credited thereto-

- (i) all grants, fees, penalties and charges received by the Board under this Act;
- (ii) all sums received by the Board from such other sources as may be approved by the Central Government.

(2) The Fund shall be applied for making payments towards -

- (i) the salaries and allowances payable to the Chairperson and other members and the administrative expenses including the salaries, allowances and pensions payable to the officers and employees of the Board;
- (ii) the expenses incurred or to be incurred in carrying out the provisions of this Act.

(3) The Central Government shall-

- (i) constitute a committee consisting of such persons as it thinks fit to recommend to that Government the budgetary requirements of the Board for salaries, allowances and all other expenses; and

(ii) fix the budgetary ceiling of the Board on the basis of the recommendations of the committee.

#### **40. Accounts and audit :-**

(1) The Board shall maintain proper accounts and other relevant records and prepare an annual statement of accounts in such form as may be prescribed by the Central Government in consultation with the Comptroller and Auditor-General of India.

(2) The accounts of the Board shall be audited by the Comptroller and Auditor-General of India at such intervals as may be specified by him and any expenditure incurred in connection with such audit shall be payable by the Board to the Comptroller and Auditor-General of India. Explanation.-For the removal of doubts, it is hereby declared that the decisions of the Board taken in the discharge of its functions under this Act, being matters appealable to the Appellate Tribunal, shall not be subject to audit under this section.

(3) The Comptroller and Auditor-General of India or any other person appointed by him in connection with the audit of the accounts of the Board shall have the same rights and privileges and authority in connection with the audit of the Government accounts and, in particular, shall have the right to demand the production of books, accounts, connected vouchers and other documents and papers and inspection of offices of the Board.

(4) The accounts of the Board as certified by the Comptroller and Auditor-General of India or any other person appointed by him in this behalf together with the audit report thereon shall be forwarded annually to the Central Government and that Government shall cause the same to be laid before each House of Parliament.

#### **41. Annual report and its laying before Parliament :-**

(1) The Board shall prepare once every year in such form and at such time as may be prescribed, an annual report giving a summary of its activities including information relating to the proceedings and policies during the previous years and such report shall also contain statements of annual accounts of the Board.

(2) A copy of the report shall be forwarded to the Central Government and the Central Government shall cause such report to be laid, as soon as may be after it is received, before each House of Parliament.

[Top](#)

### **CHAPTER VIII**

#### **POWER OF CENTRAL GOVERNMENT**

#### **42. Power of Central Government to issue directions :-**

(1) The Central Government may, from time to time, by writing issue to the Board such directions as it may think necessary in the interest of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States or public order.

(2) Without prejudice to the foregoing provision, the Central Government may, if it finds necessary or expedient so to do in public interest or for maintaining or increasing supplies of petroleum, petroleum products or natural gas or all or any of them or for securing their equitable distribution and ensuring adequate availability, issue policy directives to the Board in writing and such policy directives shall be binding upon the Board : Provided that no such directive shall relate to any day-to-day affairs of the Board : Provided further that the Board shall, as far as practicable, be given an opportunity of expressing its views before any directive is issued under this sub-section.

(3) The decision of the Central Government whether a question is one of policy or not shall be final.

#### **43. Taking over control and management of facilities and business premises of any entity and retail outlets in public interest :-**

(1) In the event of war or natural calamity or such other similar circumstances leading to disruption of supply of petroleum, petroleum products or natural gas, the Central Government may, for ensuring the continuous supply of petroleum, petroleum products or natural gas, by notification, either take over the control and management of any storage site, facilities and business premises of any entity and retail outlets or suspend its operations or entrust, to any agency of the Central or State Government for such time and manage it in such manner, as may be specified in that notification : Provided that the affected entities shall be given an opportunity of being heard before issuing orders to take over the control and management of retail outlets and other business premises: Provided further that in case of any urgency or in cases where the circumstances do not permit serving of notice for want of sufficient time or otherwise upon the entity against whom the order is directed, the opportunity of hearing may be dispensed with in public interest in order to maintain the uninterrupted supply of petroleum, petroleum products or natural gas for a specified period.

(2) The collector of the revenue district in which the property referred to in the notification issued under sub-section (1) is situated shall determine the amount of compensation payable for taking over of the property.

(3) The form and manner in which an application for claiming compensation under this section shall be made, the procedure for determining the compensation and the time within which such compensation shall be payable, shall be such as may be prescribed.

[Top](#)

## **CHAPTER IX**

### **OFFENCES AND PUNISHMENT**

#### **44. Punishment for contravention of directions of the Board :-**

If a person contravenes the directions of the Board, such person shall be punishable with fine which may extend to twenty-five crore rupees and in case of continuing contravention with additional fine which may extend to ten lakh rupees for every day during which the contravention continues.

#### **45. Penalty for willful failure to comply with orders of Appellate Tribunal :**

If any person willfully fails to comply with the order of the Appellate Tribunal, he shall be punishable with fine which may extend to one crore rupees and in case of a second or subsequent offence with fine which may extend to two crore rupees and in the case of continuing contravention with additional fine which may extend to twenty lakh rupees for every day during which such default continues.

#### **46. Punishment for unauthorized activities :-**

If any person, being an entity, markets any notified petroleum, petroleum products or natural gas without a valid registration, or authorisation such person shall be punishable with imprisonment which may extend to three years or with fine which may extend to twenty-five crore rupees or with both, and in case of continuing contravention with additional fine which may extend to ten lakh rupees for every day during which the contravention continues.

#### **47. Punishment for establishing or operating a liquefied natural gas terminal without registration :-**

If a person establishes or operates a liquefied natural gas terminal without registration as required under section 15, such person shall be liable for punishment with an imprisonment for a term which may extend to three years or penalty of twenty-five crore rupees or with both, and in case of continuing contravention with additional fine which may extend to ten lakh rupees for every day during which the contravention continues.

#### **48. Punishment for laying, building, operating or expanding a common carrier or contract carrier without authorisation :-**

If a person lays, builds, operates or expands a common carrier or contract carrier or a city or local natural gas distribution network without obtaining authorisation required under section 19, such person shall be liable for punishment with an imprisonment for a term which may extend to three years or penalty of twenty-five crore rupees or with both, and in case of continuing contravention with additional fine which may extend to ten lakh rupees for every day during which the contravention continues.

#### **49. Punishment for willful damages to common carrier or contract carrier**

Every person who willfully removes, destroys or damages any pipeline or city or local natural gas distribution network or other work of the common carrier or contract carrier for supplying petroleum, petroleum products or natural gas shall for each such offence be punishable with imprisonment which may extend to three years or with fine which may extend to twenty-five crore rupees or with both, and, in case of continuing contravention with additional fine which may extend to ten lakh rupees for every day during which such contravention continues.

## **50. Offences by companies :-**

(1) Where an offence under this Act has been committed by a company, every person who at the time the offence was committed was in charge of, and was responsible to, the company for the conduct of the business of the company, as well as the company, shall be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly: Provided that nothing contained in this sub-section shall render any such person liable to any punishment provided in this Act, if he proves that the offence was committed without his knowledge or that he has exercised all due diligence to prevent the commission of such offence.

(2) Notwithstanding anything contained in sub-section (1), where an offence under this Act has been committed by a company and it is proved that the offence has been committed with the consent or connivance of, or is attributable to, any neglect on the part of any director, manager, secretary or other officer of the company, such director, manager, secretary or other officer shall also be deemed to be guilty of the offence and shall be liable to be proceeded against and punished accordingly.

**Explanation :-** For the purpose of this section,-

(a) "company" means any body corporate and includes a firm or other association of individuals; and

(b) "director", in relation to a firm, means a partner in the firm.

[Top](#)

## **CHAPTER X**

### **MISCELLANEOUS**

#### **51. Maintenance of data bank and information :-**

(1) The Board shall maintain a data bank and information system relating to activities of entities dealing with petroleum, petroleum products and natural gas in such form and manner as may be provided by regulations.

(2) The Board shall have power to verify the data supplied by the entities and appoint any person or persons for the purpose and take such measures as it may consider necessary.

#### **52. Obligations of entities :-**

(1) Every entity shall-

(a) maintain such documentary records as may be specified by the Board by regulations;

(b) allow inspection of such facilities and documentary records, as may be specified by the Board, by any person authorised by the Board;

(c) commence operation of activities for which authorisation has been granted within such period as may be specified by the Board in the document of authorisation;

(d) register-

(i) agreements with the Board relating to use of pipelines for supply of petroleum, petroleum products and natural gas; or

(ii) any other document which the Board may determine by regulations;

(e) comply with marketing service obligations and retail service obligations.

(2) The Board may call for any information from any entity including information which is considered necessary for ensuring transparency or ascertaining true ownership of the entity.

(3) The Board or any officer authorised by the Board shall have the power to inspect and obtain information, wherever necessary, from the entities.

(4) For the effective enforcement of the terms and conditions of authorisation, the Board or any officer authorised by it for that purpose, shall have all the powers of an inspecting officer as provided under section 209A of the Companies Act, 1956 (1 of 1956).

(5) It shall be the duty of every entity to carry out the directions of the Board given under this section.

(6) The Board shall maintain confidentiality in respect of any information and record received by it from the entities and shall not disclose information contained therein to any person or authority except on the grounds of public interest.

### **53. Furnishing of returns, etc., to Central Government :-**

The Board shall furnish to the Central Government at such time and in such form and manner as may be prescribed or as the Central Government may direct, such returns and statements and such particulars in regard to any matter in connection with proposed or existing activities under this Act, as the Central Government may, from time to time, require.

### **54. Chairperson, members, etc., to be public servants :-**

The Chairperson, Members, Officers and other employees of the Board and Technical Member (Petroleum and Natural Gas) of the Appellate Tribunal shall be deemed, when acting or purporting to act in pursuance of any of the provisions of this Act, to be public servants within the meaning of section 21 of the Indian Penal Code (45 of 1860).

### **55. Protection of action taken in good faith :-**

No suit, prosecution or other legal proceeding shall lie against the Central Government, Board, Technical Authority or Appellate Tribunal or any officer of the Central Government or any Chairperson, Member, officer or other employee of the Board or Technical Member

(Petroleum and Natural Gas) of the Appellate Tribunal for anything which is in good faith done or intended to be done under this Act or the rules or regulations made there under.

#### **56. Civil courts not to have jurisdiction :-**

No civil court shall have jurisdiction to entertain any suit or proceeding in respect of any matter which the Board or the Appellate Tribunal is empowered by or under this Act to determine, and no injunction shall be granted by any court or other authority in respect of any action taken or to be taken in pursuance of any power conferred by or under this Act.

#### **57. Cognizance of certain offences :-**

(1) No court shall take cognizance of any offence punishable under Chapter IX save on a complaint made by the Board or by any investigating agency directed by the Central Government.

(2) No court inferior to that of a Chief Metropolitan Magistrate or of a Chief Judicial Magistrate shall try any offence punishable under

(3) Every offence punishable under sections 44, 45, 46 and 47 shall be cognizable.

#### **58. Delegation :-**

The Board may, by general or special order in writing, delegate to any member or officer of the Board subject to such conditions, if any, as may be specified in the order, such of its powers and functions under this Act (except the power to settle a dispute under Chapter VI and to make regulations under section 61), as it may deem necessary.

#### **59. Power to remove difficulties :-**

(1) If any difficulty arises in giving effect to the provisions of this Act, the Central Government may, by order, published in the Official Gazette, make such provisions not inconsistent with the provisions of this Act as it may deem necessary for removing the difficulty: Provided that no order shall be made under this section after the expiry of two years from the date of commencement of this Act.

(2) Every order made under this section shall be laid, as soon as may be after it is made, before each House of Parliament.

#### **60. Power of Central Government to make rules :-**

(1) The Central Government may, by notification, make rules for carrying out the provisions of this Act.

(2) In particular, and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters, namely:-

(a) the salaries and allowances payable to and the other conditions of service of the Chairperson and the other members under subsection (4) of section 5;

- (b) the procedure for appointment of any person or constitution of any authority and conducting inquiry under section 7;
- (c) the salaries and allowances payable to and the other terms and conditions of service of the Secretary, officers and other employees of the Board, under sub-section (3) of section 10;
- (d) any other matter in respect of which the Board may exercise the powers of a civil court under clause (i) of sub-section (1) of section 13;
- (e) the eligibility conditions which an entity shall fulfill for registration under sub-section (1) of section 15;
- (f) the form of appeal and the manner of verifying such form, and the fee which shall accompany such form, under sub-section (2) of section 33;
- (g) the manner in which the accounts of the Board shall be maintained under sub-section (1) of section 40;
- (h) the time and manner in which the annual report of the Board shall be prepared under sub-section (1) of section 41;
- (i) the form and manner in which applications for claiming compensation shall be made, the procedure for determining the compensation and the time within which such compensation shall be payable, under sub-section (3) of section 43;
- (j) the time and manner in which returns and statements are to be furnished by the Board to the Central Government under section 53;
- (k) any other matter which is to be, or may be, prescribed, or in respect of which provision is to be made, by rules.

#### **61. Power of Board to make Regulations :-**

- (1) The Board may, by notification, make regulations consistent with this Act and the rules made there under to carry out the provisions of this Act.
- (2) In particular, and without prejudice to the generality of the foregoing power, such regulations may provide for all or any of the following matters, namely:-
  - (a) the time and places of meetings of the Board and the procedure (including quorum necessary for the transaction of business) to be followed at such meetings under sub-section (1) of section 8;
  - (b) the powers and duties of the Secretary under sub-section (1) of section 10;
  - (c) the terms and conditions of the consultants appointed under subsection (4) of section 10;
  - (d) the capacity of storage facilities for petroleum, petroleum products or natural gas requiring registration under sub-clause(iii) of clause (b) of section 11;

(e) regulating open access to and transportation rate for the common carrier or contract carrier or city or local natural gas distribution network and other matters referred to in clause (e) of section 11;

(f) marketing service obligations for entities and retail service obligations for retail outlets under sub-clause(v) of clause(f) of section 11;

(g) levy of fees and other charges under clause (g) of section 11;

(h) the technical standards and specifications including safety standards in activities relating to petroleum, petroleum products and natural gas under clause (i) of section 11;

(i) the procedure to be followed by the Board including the places at which it shall conduct its business under sub-section (3) of section 13;

(j) the manner of maintaining the Petroleum and Natural Gas Register under sub-section (1) of section 14;

(k) the form and manner of making application for obtaining certified copy of any entry in the register and the fee which shall accompany such application, under sub-section (4) of section 14;

(l) the form and manner in which an application under sub-section(1) of section 15 shall be made and the fee which shall accompany such application under sub-section (2) of section 15;

(m) the manner by which a certificate of registration granted under sub-section (3) of section 15 may be suspended or cancelled under sub-section (4) of section 15;

(n) the form and manner in which an application under sub-section(1) or sub-section (2) of section 17 shall be made and the fee which shall accompany such application under sub-section (3) of section 17;

(o) the form and manner in which publicity of acceptance of applications for registration shall be made under section 18;

(p) the manner of selection of an entity under sub-section (2) of section 19;

(q) the principles for determining the number of years for which a city or local natural gas distribution network shall be excluded from the purview of a common carrier or contract carrier under sub-section (4) of section 20;

(r) the guiding principles to be followed by the Board and the objectives for declaring, or authorising to lay, build, operate or expand a common carrier or contract carrier for declaring, or authorising to lay, build, operate or expand a city or local natural gas distribution network, under sub-section (5) of section 20;

(s) the affiliate code of conduct under which the entities are required to comply with under the proviso to sub-section (1) of section 21;

- (t) the transportation tariffs for common carriers or contract carriers or city or local natural gas distribution network and the manner of determining such tariffs under sub-section (1) of section 22;
- (u) the form in which a complaint may be made and the fee which shall accompany such complaint, under sub-section (2) of section 25;
- (v) the manner of holding an investigation by an Investigating Officer under sub-Section (1) of section 26;
- (w) the qualifications and experience which any person for appointment as an Investigating Officer shall possess, under subsection (2) of section 26;
- (x) the form and manner of maintaining data bank and information system by the Board under sub-section (1) of section 51;
- (y) maintenance of documentary records by an entity, under clause (a) of sub-section (1) of section 52;
- (z) any other type of documents which are to be registered with the Board under sub-clause (ii) of clause (d) of sub-section (1) of section 52;
- (za) any other matter which is required to be, or may be, specified by regulations or in respect of which provision is to be or may be made by regulations.

## **62. Rules and regulations to be laid before Parliament :-**

Every rule made by the Central Government and every regulation made by the Board under this Act shall be laid, as soon as may be after it is made, before each House of Parliament, while it is in session, for a total period of thirty days which may be comprised in one session or in two or more successive sessions, and if, before the expiry of the session immediately following the session or the successive sessions aforesaid, both Houses agree in making any modification in the rule or regulation or both Houses agree that the rule or regulation should not be made, the rule or regulation shall thereafter have effect only in such modified form or be of no effect, as the case may be; so, however, that any such modification or annulment shall be without prejudice to the validity of anything previously done under that rule or regulation.

## **63. Transitional arrangements :-**

- (1) Where, before the commencement of this Act, an agreement or agreements have been entered into between one oil company and another for the purpose of sharing of petroleum products or sharing of infrastructure facilities among the oil companies and such agreements have been approved by the Central Government, the Board may monitor the implementation of such agreements for the transition period.
- (2) The Board shall monitor setting up of dealerships and distributorships of motor spirit, high speed diesel, superior kerosene oil, liquefied petroleum gas and CNG stations for natural

gas during transition period by the entities without encroaching on the retail network of the existing entities.

**Explanation I :-** For the purposes of this section, the expression "transition period" shall mean a period of three years from the date of commencement of this Act.

**Explanation II :-** For the purposes of this section, "infrastructure facilities" shall mean facilities at ports, refineries, terminals, depots and aviation fuelling stations including hydrant lines and shall include loading and unloading facilities.

**Explanation III :-** For the purposes of this section "encroaching" includes taking over of retail outlet of one entity by another.

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**K. N. CHATURVEDI,**

**Secy. to the Govt. of India.**



# **Annexure 4 - Pipeline Policy**

PUBLISHED BY AUTHORITY

GOVERNMENT OF INDIA

MINISTRY OF PETROLEUM AND NATURAL GAS

EXTRAORDINARY

NOTIFICATION

New Delhi, The 20 th December, 2006

Policy for Development of Natural Gas Pipelines and City or Local Natural Gas

Distribution Networks

F.No.L-12022/1/03-GP (Pt.II):- The Government of India is pleased to issue, in public interest, the following Policy for Development of Natural Gas Pipelines and City or Local Natural Gas Distribution Networks. This policy will come into effect from the date of publication of this notification in the official Gazette.

## **1. OBJECTIVE**

1.1 Regulatory reforms permit and encourage market forces to enhance competition and produce a more competitive and efficient industry structure. While there is growing recognition that competition can reduce the need for regulation, in many areas there exist some areas of monopoly where the benefits of regulation potentially outweigh the cost. Natural gas pipelines infrastructure and city or local natural gas distribution networks fall under this category.

1.2 The natural gas sector is at the threshold of rapid growth in the country. With increased exploration efforts under NELP, large scale discoveries of gas in the East Coast, commissioning of the LNG import terminals in the West Coast, projected upcoming LNG terminals and the Government's initiatives in natural gas through transnational pipelines, there is an imminent need to provide a policy framework for the future growth of the pipeline infrastructure in the country with a view to facilitating the evolvement of a nation-wide gas grid and the growth of city or local gas distribution networks.

1.3 The objective of the policy is to promote investment from public as well as private sector in natural gas pipelines and city or local natural gas distribution networks, to facilitate

open access for all players to the pipeline network on a non-discriminatory basis, promote competition among entities thereby avoiding any abuse of the dominant position by any entity, and secure the consumer interest in terms of gas availability and reasonable tariff for natural gas pipelines and city or local natural gas distribution networks.

1.4 The Petroleum & Natural Gas Regulatory Board Act, 2006 (hereinafter referred to as the Act) provides the legal framework for the development of the natural gas pipelines and city or local gas distribution networks. This policy may be read in conjunction with the provisions in the Act and the rules and regulations framed thereunder. Unless otherwise stated, the various terms and phrases used in this policy will have the same meaning as stated in the Act and the rules and regulations framed thereunder.

## 2. APPLICABILITY

2.1 This policy will apply to natural gas pipelines and city or natural gas distribution networks except for dedicated pipelines laid to supply gas to specific consumers originating from regulated pipelines provided the same are for their own use and not for resale.

2.2 The Petroleum & Natural Gas Regulatory Board established under the Petroleum & Natural Gas Regulatory Board Act, 2006 (hereinafter referred to as the Board) shall ensure selection of an entity to lay, build, operate or expand a natural gas pipeline or a city or local natural gas distribution network in a transparent and objective manner with a view to facilitating investments in the sector and protecting the interests of the consumers. However, in respect of dedicated pipelines, the entity owning such pipelines, will need to furnish necessary details to the Board every six months. In case any of such pipelines ceases to be a dedicated pipeline in future, the same may be brought to the notice of the Board, and will require authorization to be granted by the Board under the provisions of the Act.

## 3. GRANT OF AUTHORIZATION

3.1 No gas pipeline or the city or local gas distribution network will be laid, built, operated or expanded without the authorization by the Board.

Provided that such an authorization for gas pipeline shall be granted to any entity only if the design pipeline capacity is at least 33% more than the capacity requirements of the concerned entity plus the firmed up contracted capacity (termed as total capacity) and this extra capacity is available for use on common carrier basis by any third party on open access and non-discriminatory basis at transportation rates laid down by the Board. The capacity available

under “open access” common carrier basis will be allocated in a transparent and objective manner in line with the regulations to be drafted by the Board in this regard.

3.2 If any issue arises relating to the gas pipeline access, capacity booking or the transportation tariff, the entities may approach the Board who may pass such orders as deemed appropriate and fair on the facts of the case based on the provisions of the Act and the regulations.

3.3 The entity authorized to lay, build, operate or expand a city or local natural gas distribution network will need to follow the marketing service obligations as may be prescribed by the Board in accordance with the provisions of the Act. The Board may decide on the period of exclusivity to lay, build, operate or expand a city or local natural gas distribution network in accordance with its regulations in a transparent manner while protecting the consumer interest. The Board may through regulations, decide on the principles for determining the number of years for which the city or local natural gas distribution network shall be excluded from the purview of a common carrier or contract carrier being guided by various objectives in the Act and by following the principles that should be transparently and objectively stated by the Board in its regulations.

3.4 Keeping in view the long term plan for the development of the natural gas sector and in public interest, the Central Government may, suo motu, form an opinion about the need for building a gas pipeline or a city or local distribution network on/in a particular route/geographical area. In that case, the Central Government may suggest to the Board to invite applications from the interested parties in a transparent and objective manner in accordance with the provisions under the Act and as per the procedure prescribed under the regulations.

#### 4. BID BOND AND PERFORMANCE BOND

4.1 The entity proposing to lay, build, operate or expand a gas pipeline or city or local natural gas distribution network will be required to furnish to the Board a bid bond for an amount as may be decided by the Board with a view to ensuring that only serious bidders participate in the bidding process. It will be en-cashed if a bidder wins a bid but then walks away from the bid. The successful bidder will have to furnish a performance bond for an amount as may be decided by the Board for ensuring timely construction as per the design / offer and for meeting performance undertakings during the operating phase. The Board will review the progress of projects periodically with the authorized entities to satisfy itself that the

conditions of authorization and milestones given in the project report are being fully complied with. If the project is delayed beyond the stipulated period or the milestones and/or any other condition of authorization are not adhered to, the bond amount of the authorized entity may be forfeited and the authorization cancelled. However, if the Board is of the opinion that the reasons for delay are beyond the control of the entity implementing the project, the Board may take an appropriate view in a fair and transparent manner, and may also allow certain extension period, which it may deem fit for the commissioning of the project. Once the authorization of the entity is cancelled, the Central Government may withdraw the ROU from such an entity and make the same available to any other entity authorized by the Board.

4.2 Once the project is commissioned, the performance bond would provide the guarantee for the satisfactory compliance of the conditions stated in the authorization during the life of the project.

## 5. CONDITIONS UNDER ROU ACQUISITION

The ROU acquisition for any transmission pipeline/city or local gas distribution project under the Petroleum Pipeline (Acquisition of Right of User in Land) Act, 1962 will only be considered by the Central Government after authorization for the same has been granted by the Board. The ROU acquisition may be subject to such conditions as may be deemed fit by the Central Government in the public interest. Such conditions may, inter alia, include the following:

- (i) Sharing of portions of acquired ROU falling in forest areas, wild-life/marine sanctuaries/parks, prohibited/restricted areas, etc., with other parties.
- (ii) In case the route/alignment of the pipeline crosses another pipeline route/alignment, the points of crossing would be decided by mutual agreement between the parties, failing which the matter will be referred to the Board whose decision will be final.

## 6. UNBUNDLING OF OPERATIONS

6.1 Any entity desirous of applying for building, operating or expanding common or contract carrier gas pipelines will have to give an undertaking that if such an entity has business interests in related areas of gas marketing or city or local gas distribution network or has a related entity (e.g., a parent company, group company, company under the same management, JV company, subsidiary or affiliated in any way to create a pecuniary interest) with business interests in such areas, it will ensure an arm's length relationship between gas

pipeline activity and these activities or between itself and the related entity as the case may be. Under such conditions, an Affiliate Code of Conduct between the authorized and related entities or between the gas pipeline activity and other activities of the authorized entity, as formulated by the Board under the regulations will have to be followed. Any existing entity engaged in gas pipeline activity, which has business interests in related areas of gas marketing or city or local gas distribution network, will follow a similar Affiliate Code of Conduct. The Board will have the right to enquire about the managerial structure/ownership pattern and accounts of the authorized entity and its related entities to determine that such a relationship is actually at arms length. For this purpose, the Authorized entity shall produce relevant records/documents in respect of itself as well as the related entities for examination by the Board, as and when called for.

6.2 In the long run and with the maturing of gas markets, it is envisaged that the authorized entities will have transportation of natural gas as their sole business activity and will not have any business interests in the gas marketing or city or local gas distribution networks. Thus, the Board may intervene at an appropriate stage to ensure unbundling of transportation activity from other activities of the entity.

6.3. The purpose of this policy is to ensure that pipeline ownership does not provide any competitive advantage to any gas seller and abuse of market power while establishing an efficient gas grid with open access for all the players on a non discriminatory basis.

## 7. GAS GRID CONNECTIVITY

7.1 Gas Grid connectivity is with a view to harmonizing the operations and providing inter-connectivity to different gas pipelines. For the development of the gas sector in India, including the establishment of Gas Grid with open market access for all players on a non-discriminatory basis, a comprehensive set of technical requirements and safety standards as well as a code for gas grid connectivity, to be developed by the Board, is necessary to ensure operational compatibility. Adherence to such standards and codes will be an integral condition of Authorization for gas pipelines as well as city or local natural gas distribution networks. The Board may refuse access to the gas grid on technical considerations.

7.2 Whenever the Board deems it necessary or expedient, it may set up a Committee of transporters of gas to advise on the managerial and operational aspects of the transmission pipelines. However, such advice will not be binding on the Board.

## 8. TRANSPORTATION TARIFF

The transportation tariffs of the common or contract carrier transmission pipelines or city or local natural gas distribution network as also the manner of determining such tariffs will be laid down by the Board as per the provisions under the Act and the regulations.

## 9. TECHNICAL & HSE STANDARDS

The Central Government/Board, in consultation with the Oil Industry Safety Directorate (OISD), shall review the existing rules & standards, their applicability and develop a comprehensive set of technical & HSE standards in respect of natural gas transmission & distribution pipelines and city or local natural gas distribution network. These standards shall cover technical & HSE parameters in design, laying, operation & maintenance of natural gas pipelines and city or local natural gas distribution networks including associated facilities & equipment considering, inter alia gas grid connectivity issues. The Board shall lay down the standards as per Section 11 (i) of the Act to ensure seamless development of natural gas pipeline & distribution infrastructure in the country.

## 10. STATUTORY CLEARANCES

The authorized entities will be required to obtain various statutory clearances including the environmental clearance for laying, building, operating or expanding a gas pipeline or a city or local gas distribution network.

## 11. ROLE OF STATE GOVERNMENTS

11.1 The State Governments have a paramount role in facilitating speedy and timely completion and operation of gas pipeline and city or local natural gas distribution network projects by ensuring various statutory and other clearances on a fast track basis. The Central Government shall take up the matter with the State Governments accordingly.

11.2 The State Governments shall prepare their plans for developing the city or local gas distribution networks wherein they shall prioritize the cities or local areas to be taken up for setting up gas distribution networks. While prioritizing such cities or local areas, they may be guided by environmental concerns, domestic & industrial fuel requirements, etc.

## 12. FOREIGN DIRECT INVESTMENT POLICY

The need for attracting the Foreign Direct Investment (FDI) in the infrastructure sector has been recognized as one of the important drivers of the economic growth of our country. The Central Government has been making all efforts to invite and facilitate FDI to complement and

supplement the domestic investment. FDI upto 100% is permitted in the laying of natural gas pipelines under the automatic approval route.

### 13. GAS ADVISORY BODY (GAB)

To promote and develop the gas pipeline network and the city or local gas distribution networks in the country, there shall be a “Gas Advisory Body” (GAB) for giving advice to the Central Government on the subject. The Secretary, Ministry of Petroleum and Natural Gas (MOP&NG) shall be the Chairman of GAB and it will comprise representatives from the major gas consuming Ministries/Departments, State Governments, oil and gas industry, consumer organizations and industrial chambers/associations/expert bodies. The MOP&NG may notify the constitution of the GAB from time to time. The advice of the GAB shall not be binding on the Central Government.

### 14. LONG TERM PLAN

With a view to facilitating the creation of a National Gas Grid and growth in the development of the city or local natural gas distribution networks, the Central Government may prepare a long-term perspective plan for creating gas pipeline network in consultation with the Board, State Governments, oil & gas industry, gas consuming industries and other stakeholders. The perspective plan will take into account the projected availability of gas/LNG from different sources, the demand centres and the need for Central Government intervention, if any, in making gas available to the consumers in different locations in the country. The long-term Plan will be kept in view by the Board, while authorizing/approving new gas pipelines or city or local natural gas distribution networks. The Central Government may review the perspective plan from time to time and modify the same appropriately.

### 15. MISCELLANEOUS

15.1 The Central Government/Board would make all efforts for achieving the aims and objectives of this policy for coordinated development of Pipeline and city or local natural gas distribution networks/infrastructure across the country.

15.2 This policy will supercede any other policy prevailing on the subject.

15.3 The Central Government reserves the right for issuing clarifications on various issue covered in this policy and such clarifications will have the same effect as the policy itself.

( Manu Srivastava )

Director



## Annexure 5 – Hydrocarbon Vision 2025



# INDIA HYDROCARBON VISION -2025



## INTRODUCTION

The hydrocarbons sector plays vital role in the economic growth of the country. It is necessary to have a long-term policy for the hydrocarbons sector, which would facilitate meeting the future needs of the country. The Hydrocarbons Vision - 2025 lays down the framework which would guide the policies relating to the hydrocarbons sector for the next 25 years. Issues such as energy security, use of alternative fuels, interchangeability of technology are vital to ensure that the mix of energy sources used in the economy is optimal and sustainable and that adequate quantities of economically priced clean and green fuels are made available to the Indian consumers. The estimated energy supply mix in India for a period up to 2025 is given at Annexure-I. Oil and gas continue to play a pre-eminent role in meeting the energy requirements of the country 45% of the total energy needs would be met by the oil and gas sector, though some amount of interchange between oil and gas is foreseen.

1.1 The current levels of per capita energy consumption in India are extremely low as compare to the rest of the world. In terms of comparison with the developed countries, the differentials are even more marked. The comparative figures of per capita energy consumption for India and rest of the world are in Annexure-II. Growth of the economy would lead automatically to growth in energy consumption, as there is a direct correlation between the GDP and energy consumption. The per capita consumption of primary energy and hydrocarbons (Annexure-III) reveals that India is amongst the lowest in consumption of hydrocarbon in terms of kilograms of oil equivalent. Viewed from all angles, therefore, the hydrocarbon sector is most crucial for determining the energy, security for the country.

1.2 The presence of the Public Sector Undertakings (PSUs) in exploration, production and marketing of petroleum products has been pre-dominant in the last four decades. The oil sector PSUs stand out in performance both in terms of operational efficiencies and profitability amongst all the PSUs in India. This pre-eminence of the PSUs in the oil sector is a matter of pride.

1.3 The Vision. 2025 for the hydrocarbon sector has been prepared taking into account the above background. The action required to be taken in the medium term (3 to 5 years) and in the long term (beyond 5 years) to realise the Vision has also been brought out in this Report.

## 2. Hydrocarbons Vision - 2025

\*To assure *energy* security by achieving self-reliance through increased indigenous production and investment in equity oil abroad.

\*To enhance *quality* of life *by* progressively improving product standards to ensure a cleaner and greener India. .

\*. To develop hydrocarbon sector as a globally competitive industry which could be benchmarked against the best in the world through technology upgradation and capacity building in all facets of the industry.

\* To have a free market and promote healthy competition among players and improve the customer service.

\* To. ensure oil security for the country keeping in view strategic and defence considerations. .

### **3. Exploration and Production Sector**

The gap between supply and availability of crude oil, petroleum products as well as gas from indigenous sources is likely to increase over the years (**Annexure-IV**). The growing demand and supply gap would require increasing emphasis to be given to the exploration and production sector. The objectives of the exploration policy would be as follows:-

#### **3.1 Objectives**

a) To undertake a total appraisal of Indian sedimentary basins for tapping the hydrocarbon potential and to optimise production of crude oil and natural gas in the most efficient manner so as to have Reserve Replacement Ratio of more than 1.

b) To keep pace with technological advancement and application and be at the technological forefront in the global exploration and production industry.

c) To achieve as near as zero impact, as possible, on environment.

3.2 To achieve the above objectives the following actions are required to be taken.

### **3.3 Medium term**

- i) Continue exploration in producing basins.
- ii) Aggressively pursue extensive exploration in non-producing and frontier basins for knowledge building' and new discoveries, including in deep-sea offshore areas.
- iii) Finalise a programme for appraisal of the Indian sedimentary basins to the extent of 25% by 2005, 50% by 2010, 75% by 2015 and 100% by 2025. Sufficient resources to be made available for appraising the unexplored/party explored acreages through Oil industry Development Board (OIDB) cess and other innovative resource mobilisation approaches including disinvestment and privatisation.
- iv) Provide internationally competitive fiscal terms, keeping in view the relative prospectivity perception of Indian basins, in order to attract major oil and gas companies and through expeditious evaluation of bids and award of contracts on a time bound basis.
- v) Optimise recovery from discovered/ future fields.
- vi) Improve archival practices for data management .
- vii) Continue technology acquisition and absorption along with development of indigenous Research & Development (R&D).
- viii) Ensure adequacy of finances for R&D required for building knowledge infrastructure.
- ix) Make Exploration and Production. (E&P) operations compatible with the environment and reduce discharges and emissions.
- x) Support R&D efforts to reduce adverse impact on environment.
- xi) Acquire acreages abroad for exploration as well as production.

### **3.4 Long term**

- i) 100% exploration coverage of the Indian sedimentary basins by 2025.
- ii) Leapfrog to technological superiority.
- iii) Put in place abandonment practices to restore the original base line.
- iv) Conserve resources and adopt clean technologies.

## **4. External policy & Oil Security**

## **4.1 Objectives**

Supplement domestic availability of oil with a view to provide adequate, stable, assured and cost effective hydrocarbon energy to the Indian economy.

4.2 To achieve the above objective the following actions are required to be taken.

## **4.3 Medium term**

- i) Put in place a comprehensive policy to include total deregulation of overseas E&P business and empowering them to compete with international oil companies with provision of fiscal and tax benefits.
- ii) Evolve a mechanism to leverage India's "Buyer Power" to obtain quality E&P projects abroad.
- iii) Have focussed approach for E&P projects and build strong relations in focus countries with high attractiveness like Russia, Iraq, Iran and North African countries.

## **5. Natural Gas.**

Natural gas is emerging as the preferred fuel of the future in view of it being an environmental friendly economically attractive fuel and also a desirable feedstock. Increased focus needs to be given to this potential sector.

## **5.1 Objectives**

- a) To encourage use of natural gas, which is relatively a clean fuel.
- b) To ensure adequate availability by a mix of domestic gas imports through pipelines and import of LNG.
- c) To tap unconventional sources of natural gas like coal bed methane, natural gas hydrates, underground coal gassification etc.

5.2 To achieve the above objectives the following actions are required to be taken.

### **5.3 Medium term**

- i) Timely and continuous review of gas demand and supply options to facilitate policy interventions.
- ii) Pursuing diplomatic and political initiatives for import of gas from neighbouring and other countries with emphasis on transnational gas pipelines.
- iii) Expediting setting up of a regulatory framework.
- iv) Import LNG to supplement the domestic gas availability and encourage domestic companies to participate in the LNG chain.
- v) Provide a level playing field for all the gas players and ensure reasonable transportation tariffs. .
- vi) Rationalise customs duty on LNG and LNG projects.
- vii) Put in place an effective organisational structure, which would facilitate progress in the National Gas Hydrates Programme.
- viii) Operationalise the Coal Bed Methane Policy with a time bound programme.
- ix) Formulate National Policy on Underground Coal Gassification in a time bound manner.
- x) Increase R&D efforts on conversion of gas to liquids.

### **5.4 Long term**

- i) Review of LNG option in the light of economic, political and energy security considerations.
- ii) Exploit the gas hydrates reserves.
- iii) Produce gas from Coal Bed Methane and through Underground Coal Gassification.
- iv) Commercialize the production and use of alternate fuels like Di-Methyl Ether and use of Fuel Cells through increased R&P efforts.

## **6. Refining & Marketing**

This is another important sector and its development is crucial for having self-sufficiency in petroleum products and in moving towards a consumer oriented competitive market.

## **6.1 Objectives**

- a) To maintain around 90% self-sufficiency of middle distillates in the sector with an appropriate mix of national oil companies, foreign players and private Indian players.
- b) To develop a globally competitive industry.
- c) To have a free market and healthy competition amongst players. .
- d) To develop appropriate infrastructure such as ports, pipelines etc. for an efficient hydrocarbons industry.
- e) To improve customer services through better retailing practices.
- f) To make available un-adulterated quality products at reasonable prices.
- g) To achieve free pricing for products while continuing subsidized prices for some products in certain remote areas, Which are to be identified and reviewed from time to time.

6.2 To achieve the above objectives, the following action is required to be taken:-

## **6.3 Medium term**

- i) Grant operational flexibility to refineries in crude sourcing and in respect of risk management through hedging.
- ii) Set out a timetable for achieving product quality norms to conform to cleaner environmental standards and to global standards by 2010.
- iii) Formulate a clear stable long-term fiscal policy to facilitate investment in refining, pipeline and marketing infrastructure.
- iv) Grant full operational freedom to existing PSUs to establish and maintain marketing networks and allowing entry of new players into the marketing sector through a transparent and clear entry criteria and provide a level playing field for new entrants.
- v) Make marketing rights for transportation fuels conditional to a company investing or proposing to invest Rs.2000 crores in E&P, refining, pipelines or terminals. Such investment should be towards additionality of assets and in the form of equity, equity like instruments or debt with recourse to the company.

- vi) Set up mechanisms to enable new entrants to establish own distribution networks for marketing without encroaching on the retail networks of existing marketing companies.
- vii) Set up a common regulatory mechanism for downstream sector and natural gas.
- Viii) To take up with the States for a uniform State level taxation on petroleum products.
- ix) Provide for level tax rates for domestic products vis-a-vis imported products.
- x) Increase the ceiling of Foreign Direct Investment (FDI) in refining sector from the present level of 49% to 100%.
- xi) Provide a level playing field among all market participants.

## **6.4 Long term**

- i) Develop an optimal transportation mix keeping in view the existing rail and port - infrastructure.
- ii) Develop a policy for encouragement of transportation of crude through Indian flag vessels.
- iii) Develop a policy for transportation of LNG preferably through Indian flag vessels.
- iv) Provide for massive capacity expansion of the refining and marketing infrastructure to be taken up. The total investment in refining sector upto 2025 is estimated at Rs.2, 50,000 crores while the same for the marketing infrastructure is estimated at Rs.1, 35,000 crores.

## **7. Tariff and Pricing**

A rational tariff and pricing policy is vital to ensure healthy growth of the hydrocarbon sector and to protect the consumers as well.

### **7.1 Objectives**

- a) To provide incentives for cleaner, greener and quality fuels to promote environment friendly Hydrocarbon sector.
- b) To balance the need to boost Government revenue with need to align duties with Asia - Pacific countries and moving the prices to international levels.
- c) To promote new investments, by ensuring adequate protection to domestic producers.

d) To remove subsidies and cross subsidies to promote efficient and optimal utilisation of scarce resources and also to eliminate adulteration.

7.2 To achieve the above objectives the following actions are required to be taken.

### **7.3 Medium term**

- i) Phase out existing subsidies as early as possible.
- ii) Set up a Group of Experts to determine appropriate levels of tariffs and duties for introduction in a phased manner as early as possible.
- iii) Transfer freight subsidy on supplies to far flung areas and subsidies on products to fiscal Budget. Necessity for concession is to maintain the supply line to hilly and remote areas, after decontrol of marketing.
- iv) Increase linkage of consumer price of natural gas from current level of 75% fuel oil (FO) import parity to near 100%.

## **8. Restructuring and Disinvestment**

### **8.1 Objective**

The core objective of industrial restructuring is to maintain long-term profitability and strengthen competitive edge of the concerned companies in the context of changes in market forces and also to ensure that the consumers benefit by the restructuring.

8.2 To achieve the above objectives the following actions are required to be taken.

### **8.3 Medium term**

The following sequence needs to be followed:-

- i) Announce policy in regard to specific public sector enterprises in alignment with the overall disinvestment policy of the Government.
- ii) Complete the internal restructuring of oil PSUs, making full use of information technology.

- iii) Implement proposals of mergers and alliances of oil PSUs with the objective of enhancing shareholder value.
- iv) Disinvest in a phased manner in oil PSUs down to appropriate level to realise best shareholder value.

## **9. Conclusion**

The Hydrocarbon Vision articulated in this report has to be converted into prioritized action agenda for implementation in the medium and long term. In brief, the main thrust of the activities would be:-

- a) Focus on oil security through intensification of, exploration efforts and achievement of 100% coverage of unexplored basins in a time bound manner to enhance domestic availability of oil and gas.
- b) Secure acreages in identified countries having high attractiveness for ensuring sustainable long term supplies.
- c) Pursue projects to meet the deficit in demand and supply of natural gas, and facilitate availability of LNG.
- d) Maintain adequate levels of self-sufficiency in refining (90% of consumption of middle distillates).
- e) Establish adequate strategic storage of crude and petroleum products in different locations.
- f) Create additional infrastructure for distribution and marketing of oil and gas.
- g) Open up the hydrocarbon market so that there is free and fair competition, between public sector enterprises, private companies and other international players.
- h) Create a policy framework for cleaner and greener fuels.
- i) Have a rational tariff and pricing policy, which would ensure the consumer getting the petroleum products at the most reasonable prices and requisite quality, eliminating adulteration.
- j) Announce a long-term fiscal policy to attract required investments in the hydrocarbon sector.
- k) Restructure the oil sector PSUs with the objective of enhancing shareholder value and disinvest in a phased manner in all the oil sector PSUs.

l) To develop regulatory and legislative framework for providing oil/gas security 'for the country.

## Annexure-I

### Share of future energy supply in India (%)

| Year    | Coal | Oil | Gas | Hydel | Nuclear |
|---------|------|-----|-----|-------|---------|
| 1997-98 | 55   | 35  | 7   | 2     | 1       |
| 2001-02 | 50   | 32  | 15  | 2     | 1       |
| 2006-07 | 50   | 32  | 15  | 2     | 1       |
| 2010-11 | 53   | 30  | 14  | 2     | 1       |
| 2024-25 | 50   | 25  | 20  | 2     | 3       |

Source: Upto 2011 from Technical Note on Energy, Planning Commission, Govt. of India (1998-99). Beyond this period the figures have been extrapolated.

Share of hydel energy remains constant considering the planned capacity addition upto 2012 and projected at the same level upto 2025.

## Annexure-II

### Per capita Energy consumption in million tonnes of oil equivalent (MTOE)

| Country/Region      | 1987 | 1997 |
|---------------------|------|------|
| World               | 1.5  | 1.5  |
| India               | 0.2  | 0.3  |
| China               | 0.6  | 0.7  |
| North America       | 5.8  | 6.3  |
| Europe              | 3.1  | 3.1  |
| Former Soviet Union | 4.7  | 3.2  |
| Rest of the World   | 0.6  | 0.7  |

Source: British Petroleum Statistics-1998

### Annexure-III

#### Per capita consumption of Energy vis-à-vis Hydrocarbons

(in Kg of oil equivalent)

| Country/Region | Primary Energy | Hvdro-Carbons |
|----------------|----------------|---------------|
| World          | 1454           | 927           |
| India          | 285            | 113           |
| China          | 688            | 169           |
| Pakistan       | 264            | 231           |
| Bangladesh     | 81             | 80            |
| Japan          | 3962           | 2520          |
| U.K.           | 3856           | 2719          |
| Germany        | 4102           | 2539          |

Source: British Petroleum. Statistics - 1998

## **Annexure 6 - Model Bid Document**

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018/GA --\_\_\_\_\_**

**APPLICATION-CUM-BID DOCUMENT**

**FOR**

**GRANT OF AUTHORIZATION FOR LAYING, BUILDING, OPERATING**

**OR EXPANDING CITY OR LOCAL**

**NATURAL GAS DISTRIBUTION NETWORK IN THE**

**GEOGRAPHICAL AREA OF \_\_\_\_\_**

**PETROLEUM AND NATURAL GAS REGULATORY BOARD**

**1st Floor, World Trade Centre, Babar Road,**

**New Delhi – 110 001, India**

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 2**

**PETROLEUM AND NATURAL GAS REGULATORY BOARD (PNGRB)**

**1st Floor, World Trade Centre,**

**Babar Road, New Delhi – 110 001, India**

**INVITATION FOR APPLICATION-CUM-BID**

**FOR**

**GRANT OF AUTHORIZATION FOR LAYING, BUILDING, OPERATING OR  
EXPANDING CITY**

**OR LOCAL NATURAL GAS DISTRIBUTION NETWORK IN THE  
GEOGRAPHICAL AREA OF**

**\_\_\_\_\_  
Bid No. PNGRB/CGD/BID/9/2018/GA --\_\_\_\_\_**

**DISTRICT(S)**

**Price of Bid Document Nil**

**E-participation Charges Rs. 5,000 (Rupees Five Thousand only) to be paid to**

**TELECOMMUNICATIONS CONSULTANTS INDIA LIMITED in**

**the form of RTGS/NEFT/Payment Gateway**

**Date of Issue \_\_\_\_ April, 2018**

**Type of Bid E-Tender: Single Stage and Two Envelope and**

**Public Tender Opening events**

**Last Date of Bid Issuance**

**Please refer Part B – Annexure I for details**

**Application Fee (Non-refundable)**

**Pre-Bid conference date and time**

**Bid Closing Date & Time**

**Part I (Technical Bid) : Opening Date**

**& Time**

**Part II (Financial Bid) : Opening Date**

**& Time**

**Shall be intimated later**

**Venue of Bid Opening PNGRB,**

**1 st Floor, World Trade Centre,**

**Babar Road, New Delhi – 110 001, India**

**Bid Bond**

**Rs \_\_\_\_ Crore**

**1. PETROLEUM AND NATURAL GAS REGULATORY BOARD invites e-Application-cum-Bids**

**from interested parties for the above mentioned purpose.**

**2. The tariff applicability will be as per Section 21 (2) of the PNGRB Act, 2006 and the Judgement**

**of Hon'ble Supreme Court of India in the SLP No. 22273 of 2012 i.e. Civil Appeal No. 4910 of**

**2015.**

**3. The 'Application-cum-Bid document' available on the web site of PNGRB is for reference only.**

**The tender document available at PNGRB's e-tender site (<https://www.tcil-india-electronictender.com/>) shall be final and binding.**

4. The above Bid Number must appear on all correspondences and documents. For preparation

and submission of bids, kindly refer 'Application-cum-Bid document' and the regulations as

notified by the Petroleum and Natural Gas Regulatory Board (PNGRB) in the Gazette of India

which are also available on website of PNGRB <http://www.pngrb.gov.in>. The reference of

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 3

PNGRB Act and Regulations appearing in the 'Application-cum-Bid document' is to aid better

understanding of the bidders of the relevant regulations.

5. The bidder should read the conditions of 'Application-cum-Bid-document' carefully and submit

the same to PNGRB in Part I (Technical Bid) duly signed and stamped on each page by them

in token of having read, understood and accepted the conditions.

6. Please note that this is a 'zero deviation' Application-cum-Bid. Entities are advised to strictly

conform to 'Application-cum-Bid document' and not to stipulate any deviation / condition in

their Application-cum-Bid. Entities are requested to submit the documents / confirmations

strictly as per the check list enclosed with the 'Application-cum-Bid document'. Any deviation

shall make the bid liable for rejection.

7. The Application-cum-Bid document is not transferable in any other name at any stage.

Application-cum-Bid document purchased by an entity can be used by the consortium as long

as the entity that purchased the bid document remains the lead equity partner; none of the

stakeholders would own equity more than that of lead partner and the lead partner shall have

to be declared upfront. In case of a Consortium, the bid shall be submitted by the lead partner

Similarly, bid document purchased by a consortium can be used by the consortium with additional partners, as long as the lead partner of the consortium declared at the time of bid

purchase remains the same. Further, any entity (as a partner in an un-incorporated consortium

or otherwise) can submit only one bid.

8. The date, time and venue of the Financial Bid opening shall be communicated to the bidders

who qualify in Technical Bid.

9. The entity shall certify that:

(i) Its Application-cum-Bid is genuine and is not made in the interest of or on the behalf of any

undisclosed person, association of persons, firm, company, or co-operative society, and is not

submitted in conformity with and agreement of any undisclosed person, association of persons,

firm, company, or co-operative society.

(ii) It has not solicited or induced any undisclosed person, association of persons, firm, company,

or co-operative society to refrain from submitting Application-cum-Bid.

10. PNGRB reserves the right to accept / reject any or all Application-cum-Bids without assigning

any reason(s) whatsoever.

11. In case bid submission day is declared holiday by Govt. of India, the next working day shall be

treated as day for submission of Application-cum-Bids. Accordingly, the Part I - Technical Bid

opening date shall also be changed. There shall not be any change in the timings.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 4

12. For any clarifications on this 'Application-cum-Bid document', please contact:

Secretary,

Petroleum and Natural Gas Regulatory Board,

1st Floor, World Trade Centre, Babar Road, New Delhi – 110 001, India.

Email: ninthround.cgdbid@pngrb.gov.in Telephone No: (+91) 11-23457729

Please acknowledge receipt and submit Application-cum-Bid to the undersigned before the

stipulated bid closing.

Thanking You

Secretary

For & on behalf of

**PETROLEUM AND NATURAL GAS REGULATORY BOARD**

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 5

**APPLICATION - CUM – BID DOCUMENT**

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 6

**INDEX**

**SR.NO. DESCRIPTION (PART A) PAGE**

**NO.**

**1.0 INTRODUCTION**

**1.1 GEOGRAPHICAL AREA AND RELATED INFORMATION 10**

**1.2 SCOPE OF WORK 10**

**1.3 DESIGN OF CGD NETWORK 11**

**1.4 APPLICATION FEE, BIDDERS' MINIMUM ELIGIBILITY CRITERIA  
AND BID BOND**

**11-14**

**2.0 BIDDING DOCUMENT**

**2.1 DOCUMENTATION 14-17**

**2.2 CLARIFICATIONS OF APPLICATION-CUM-BID DOCUMENT 17**

|                                                                                  |              |
|----------------------------------------------------------------------------------|--------------|
| <b>2.3 AMENDMENT OF BIDDING DOCUMENTS</b>                                        | <b>17</b>    |
| <b>2.4 LANGUAGE OF APPLICATION-CUM-BID</b>                                       | <b>18</b>    |
| <b>2.5 FINANCIAL BID</b>                                                         | <b>18</b>    |
| <b>2.6 BID CURRENCIES</b>                                                        | <b>19</b>    |
| <b>2.7 PERIOD OF VALIDITY OF APPLICATION-CUM-BIDS</b>                            | <b>19</b>    |
| <b>2.8 FORMAT AND SIGNING OF APPLICATION-CUM-BID</b>                             | <b>19</b>    |
| <b>3.0 SPECIAL INSTRUCTIONS TO BIDDER FOR E-TENDERING</b>                        |              |
| <b>3.1 GENERAL</b>                                                               | <b>19</b>    |
| <b>3.2 INSTRUCTIONS</b>                                                          | <b>20</b>    |
| <b>3.3 DIGITAL CERTIFICATE</b>                                                   | <b>21</b>    |
| <b>3.4 REGISTRATION</b>                                                          | <b>21-22</b> |
| <b>3.5 OFFLINE SUBMISSIONS</b>                                                   | <b>22</b>    |
| <b>3.6 SPECIAL NOTE ON SECURITY AND TRANSPERANCY OF THE<br/>BID</b>              | <b>22-24</b> |
| <b>3.7 PUBLIC ONLINE TENDER OPENING EVENT</b>                                    | <b>24</b>    |
| <b>3.8 OTHER INSTRUCTIONS</b>                                                    | <b>25</b>    |
| <b>3.9 KEY'S INSTRUCTIONS FOR BIDDERS</b>                                        | <b>25-26</b> |
| <b>3.10 MINIMUM REQUIREMENTS AT BIDDER'S END</b>                                 | <b>26</b>    |
| <b>3.11 BIDDER'S TRAINING PROGRAM</b>                                            | <b>26-27</b> |
| <b>3.12 ONLINE PAYMENTS</b>                                                      | <b>27</b>    |
| <b>4.0 OPENING AND EVALUATION OF APPLICATION-CUM-BIDS</b>                        |              |
| <b>4.1 OPENING OF APPLICATION-CUM-BIDS</b>                                       | <b>27</b>    |
| <b>4.2 EVALUATION AND COMPARISON OF APPLICATION-CUM-<br/>BIDS</b>                | <b>27-28</b> |
| <b>4.3 PROCESS TO BE CONFIDENTIAL</b>                                            | <b>28-29</b> |
| <b>4.4 PNGRB'S RIGHT TO ACCEPT OR REJECT ANY OR ALL<br/>APPLICATION-CUM-BIDS</b> | <b>29</b>    |

**4.5 PERFORMANCE BOND 29-30**

**4.6 GRANT OF AUTHORIZATION. 30**

**4.7 ACCEPTANCE TO GRANT OF AUTHORIZATION 30**

**5.0 SERVICE OBLIGATIONS AND QUALITY OF SERVICE**

**STANDARDS**

**30**

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 7**

**6.0 INDEMNITY 30**

**7.0 FORCE MAJEURE 30-31**

**8.0 RESTRUCTURING OF AUTHORISED ENTITY 31**

**9.0 MISCELLANEOUS 31**

**10.0 DISCLAIMER 31**

**11.0 ANNEXURES**

**Annexure-1 MAP DEPICTING THE GEOGRAPHICAL AREA AND CHARGE AREAS 33**

**Annexure-2 BID FORWARDING LETTER 34**

**Annexure-3 CHECK-LIST 35**

**Annexure-4 INFORMATION TO BE GIVEN BY BIDDER 36**

**Annexure-5 BIDDER'S PARTICULARS WITH RESPECT TO MINIMUM ELIGIBILITY**

**CRITERIA**

**37-38**

**Annexure-6 UNDERTAKING 39-40**

**Annexure-7 NO DEVIATION CONFIRMATION 41**

**Annexure-8 PROFORMA OF BANK GUARANTEE FOR BID BOND/EMD 42-44**

**Annexure-9 FORM OF CHARTERED ACCOUNTANTS CERTIFICATE FOR NET WORTH**

**45**

**Annexure-10 FORMAT OF LETTER OF COMFORT FROM THE PROMOTERS 46-49**

**Annexure-11 PROFORMA OF PERFORMANCE BANK GUARANTEE 50-51**

**Annexure-12 DECLARATION ABOUT TECHNICAL & OPERATIONAL MANPOWER**

**ON PERMANENT ROLL**

**52**

**Annexure-13 DECLARATION ABOUT CONFORMITY WITH REGULATIONS 53**

**12.0 FINANCIAL BID FORM 54-55**

**DESCRIPTION (PART B)**

**13.0 Basic Bid Details 57**

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 8**

**PART A**

**INSTRUCTIONS TO BIDDERS**

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 9**

**INTRODUCTION**

**Petroleum and Natural Gas Regulatory Board (PNGRB) was established by an Act of Parliament. The objective of PNGRB is to regulate the refining, processing, storage, transportation, distribution, marketing and sale of petroleum, petroleum products and natural**

**gas excluding production of crude oil and natural gas so as to protect the interests of consumers and entities engaged in specified activities relating to petroleum, petroleum products and natural gas and to ensure uninterrupted and adequate supply of petroleum, petroleum products and natural gas in all parts of the country and to promote competitive**

**markets and for matters connected therewith or incidental thereto.**

**So far, PNGRB has notified the following regulations related to CGD in the Gazette of India**

which shall be applicable to all the bidding entities and are available on website

<http://www.pngrb.gov.in> for ready reference:

1. GSR 196 (E) - Petroleum and Natural Gas Regulatory Board (Authorizing Entities to Lay,

Build, Operate or Expand City or Local Natural Gas Distribution Networks) Regulations, 2008

(PNGRB CGD Authorization Regulation) and amendments thereto;

Note: - The Subject Regulations has been amended recently, which has been web hosted on

our web site <http://www.pngrb.gov.in>. Please study the same before proceeding.

2. GSR 198 (E) - Petroleum and Natural Gas Regulatory Board (Exclusivity for City or Local

Natural Gas Distribution Networks) Regulations, 2008 and amendments thereto;

3. GSR 540(E); Petroleum and Natural Gas Regulatory Board (Affiliate Code of Conduct for

Entities Engaged in Marketing of Natural Gas and Laying, Building, Operating, or Expanding

Natural Gas Pipeline) Regulations, 2008

4. GSR 612 (E) - Petroleum and Natural Gas Regulatory Board (Technical Standards and Specifications including Safety Standards for City or Local Natural Gas Distribution Networks)

Regulations, 2008 and amendments thereto;

5. GSR 720 (E) - Petroleum and Natural Gas Regulatory Board (Code of Practice for Quality of

Service for City or Local Natural Gas Distribution Networks) Regulations, 2010;

6. F.No.S-A-Admn./II/8/2010- Petroleum and Natural Gas Regulatory Board (Access Code for

City or Local Natural Gas Distribution Networks) Regulations, 2011;

7. F.No.INFRA/IMP/CGD/1/2013-Petroleum and Natural Gas Regulatory Board (Integrity

Management System for City or Local Natural Gas Distribution Networks) Regulations, 2013;

8. F.No.Infra/PNGRB/Capdet/CGD/02/2015- Petroleum and Natural Gas Regulatory Board

**(Determining Capacity of City or Local Natural Gas Distribution Network) Regulations, 2015**

and

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 10**

**9. GSR INFRA/T4S/LNG/05- PNGRB (Technical Standards and Specifications including Safety**

**Standards for Liquefied Natural Gas Facilities) Regulation, 2018**

Besides, other relevant regulations as shall be applicable and notified by PNGRB from time

to time.

### **1.1 GEOGRAPHICAL AREA AND RELATED INFORMATION**

**1.1.1 PNGRB has identified this geographical area (GA) considering availability of Natural Gas**

**and pipeline connectivity in the GA or in its vicinity for development of CGD network.**

**PNGRB is accordingly inviting applications-cum-bids for grant of authorization for developing**

**City Gas Distribution (CGD) network in the aforesaid geographical area as depicted in the**

**map at Annexure-1.**

**1.1.2 Charge areas are also depicted in the map. If the bidding entity is finally granted authorization,**

**the entity shall be required to reach charge areas as stipulated in the CGD authorization regulations.**

**1.1.3 It is the bidder's responsibility to obtain all information related to the present gas supply**

**availability and pipeline connectivity and also existing customers, if any, in the specified geographical area. The bidder can also refer to list of NOCs/Permissions granted by PNGRB**

**to various entities under the provisions of the Internal Guidelines for grant of NOC/Permission**

**for (i) supply/distribution of CBM/natural gas through cascades; and (ii) setting up of**

CNG/LNG Daughter Booster Stations (DBS), in the areas where Board has not yet authorised

any entity for developing or operating CGD networks at <http://www.pngrb.gov.in/CGD->

NOCs.html. These NOCs/Permissions are subject to conditions contained in the Internal

Guidelines and include the condition that in case the area in which supply/distribution of

CBM/natural gas through cascades and/or setting up of CNG/LNG DBS are allowed is covered under any authorized GA in future, then such entity to whom NOC/Permission has

been granted shall obtain a prior approval from the authorized entity for continuation of such

activities or shall cease its activities immediately.

Further, CNG stations being an integral part of the CGD network is under Judicial scrutiny of

High Court of Punjab and Haryana at Chandigarh in the matter of Jitender Moudgil & Others

Vs State of Punjab & Others (CWP No.13490 of 2008).

## 1.2 SCOPE OF WORK

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 11

The entities bidding for this work shall be required to lay, build, operate or expand the CGD

networks to meet requirement of natural gas in domestic, commercial and industrial segments including Natural Gas in the vehicular segment in the said geographical area to be

authorized and also comply with the relevant regulations notified from time to time.

The entities shall be required to carry out the development of CGD project in line with the

regulations laid down by the PNGRB.

## 1.3 DESIGN OF CGD NETWORK

A CGD network shall be designed to operate at a pressure as specified in the PNGRB's

relevant regulations for technical standards and specifications, including Safety Standards

for maintaining the volumes of supply of natural gas on a sustained basis to meet the following requirements, namely:

(a) Customers having requirement of natural gas up to 50,000 SCMD shall be supplied through

the CGD network;

Provided that until CGD Network is ready to supply natural gas to a customer (other than

domestic PNG and CNG), such customers shall have right to get the supply of natural gas

from any other alternate source or supplier, with prior permission of the Board, and if, once

CGD Network is ready to supply natural gas to such customer, then, such customer shall cease to get supply of natural gas from such alternate source or supplier after 30 days of receipt of notice of readiness from the CGD network.

(b) Customers having requirement of natural gas more than 50,000 SCMD and up to 100,000

SCMD shall be supplied, at the discretion of customer: -

(i). through the CGD network; or

(ii). through a pipeline not forming part of the CGD network

(c) Customers having requirement of natural gas more than 100,000 SCMD shall not be supplied

through CGD network.

#### **1.4 APPLICATION FEE, BIDDERS' MINIMUM ELIGIBILITY CRITERIA AND BID BOND**

1.4.1 Bidder shall furnish non-refundable application fee by RTGS/NEFT/Demand Draft/ Pay Order

of value as mentioned in 'Invitation for Application-cum-Bid', favouring "Petroleum and Natural Gas Regulatory Board" and payable at New Delhi, issued by Scheduled commercial

Banks (except Cooperative and Gramin Bank) or any branch of foreign bank in India. The

For Reference Only

application fee shall be submitted to PNGRB before the due date and time of submission of

bid. However, in case the bidder has already paid the application fee at the time of submission

of Expression of Interest, the bidder shall not be required to pay the application fee, unless

there is a requirement to pay additional application fee as required under relevant regulations.

The Application-cum-Bid without application fee shall be summarily rejected.

1.4.2 The PNGRB shall scrutinize the Application-cum-Bids received in respect of only those

bidders which fulfil the minimum eligibility criteria as specified in clauses (a) to (i) of sub-

regulation 6 of regulation 5 of the PNGRB CGD Authorization Regulation and any amendments thereto.

#### 1.4.3 Net worth of the Entity

The net worth of the entity to be considered for qualification for any bid shall be as per requirement in line with the clause (e) of the sub-regulation 6 of regulation 5 of the PNGRB

CGD Authorization Regulation.

The certified copy of the net worth of the bidding entity should not be older than the last available Financial Year (FY) (from the date of submission of the bid). This statement shall

be signed by the authorised signatory (in case the entity is a company) or CEO/

Proprietor/authorized Partner (in case the entity is other than a company) and duly certified

by a Chartered Accountant.

The Financial Bid of an entity shall be opened only if adequate net worth is available in line

with the above criteria.

#### 1.4.4 Requirement of Qualification

If applicable, qualification of at least 2 out of minimum required 3 technically qualified

personnel shall have degree in Engineering from any recognized Institution / University. The

entity shall be required to submit copies of the qualifications i.e. Certificates/Mark sheets from

University /Board etc. as well as work experience certificates for 3 technically qualified personnel. A certification from the CEO/ signatory authorized by the Board (in case the entity

is a company) or CEO/ Proprietor/ authorized Partner (in case the entity is other than a company) in Annexure 13 certifying the adequacy of their experience as required under sub-

regulation 5(6)(b)(iv) and 5(6)(c)(iv) of PNGRB CGD Authorisation Regulation shall be submitted. A chartered accountant shall certify that these personnel are on their permanent

rolls at the time of bid submission.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 13

1.4.5 In case the bidder submitting the bid does not fulfil the requirements of any criteria under

clause 1.4.1 and 1.4.4 above, the bid submitted is liable to be rejected and a communication

in this regard shall be sent and the financial bid shall not be opened for that bidder.

1.4.6 Bidder shall furnish a bid bond by RTGS or NEFT or Demand Draft or Pay Order or Bank

Guarantee (exactly as per Annexure 8) of value as mentioned in 'Invitation for Application-

cum-Bid', favouring Petroleum and Natural Gas Regulatory Board and payable at New Delhi

issued by Scheduled commercial Banks (except Cooperative and Gramin Bank) or any branch of foreign bank in India. The bid bond shall be submitted to PNGRB before the due

date and time of submission of bid. The Application-cum-Bid without bid bond shall be summarily rejected. The PNGRB shall not be liable to pay any interest on the amount of bid

bond.

1.4.7 The Bid Bond shall be encashed/ released / retained as per relevant regulations.  
For the

purpose of this clause,

(a) 'Walk out' by an entity shall mean withdrawal from the bidding process by an entity  
in the

interval between the prescribed deadline of 24 hours before the due time & date of bid  
submission and the expiration of the period of bid validity.

(b) 'successful entity' means the entity which submits bid and is granted the  
authorisation and

the remaining entities submitting the bid for development of CGD network for that  
particular

Geographical Area (GA) are referred to as 'unsuccessful entities'.

(c) In case of successful bidder, the Bid Bond may be forfeited, if the bidder:

(i). fails to accept the grant of authorization

(ii). fails to furnish Performance Guarantee/Bond within the specified time limit

(iii). fails to accept correction of errors in financial bid

(iv). has submitted forged/ incorrect documents/ information

1.5 In case of bidding by a consortium, MOU/JV agreement entered into by the parties  
of the

consortium clearly stating the lead partner as well as Authorised signatory to the  
Application

Cum Bid shall be furnished. Documents/details as required in the bid must be furnished  
by each

partner member of the consortium/joint venture, complete in all respects along with the  
bid offer.

Each qualifying criteria must be met by at least one of the partner clearly indicating so in  
the

application-cum-bid except for the net worth, which Shall be dealt as per Schedule- K of  
PNGRB

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 14

CGD Authorization Regulation. The bank guarantee for bid bond, in this case and in the  
case

of already existing JV, can be submitted by any of the partner/promoter submitting the BG

holding itself jointly and severally liable for any default of the consortium or the JV which may

lead to encashment of the Bank Guarantee.

1.6 In case of bidding by a wholly owned subsidiary, each qualifying criteria have to be met by the

subsidiary or the parent company and documents/details furnished accordingly. In this case the

Bank Guarantee for bid bond is to be furnished either by the subsidiary or the parent company.

1.7 In case a bidder entity bids for more than one GA, then the minimum net-worth requirement

shall be calculated by considering 100% of minimum net-worth required for the bidden GA

having the highest population, plus 20% of minimum net-worth required for each of the other

GAs. For example, if a bidder has bidden for 4 GAs namely A, B, C and D and out of these four

GAs, C has the highest population, then minimum net-worth requirement shall be calculated as

minimum net-worth requirement of C plus 20% of minimum net-worth requirements for A, B and

D each.

## **2.0 BIDDING DOCUMENT**

### **2.1 DOCUMENTATION**

2.1.1 The bidder is expected to examine all the contents of the 'Application-cum-Bid document',

including all instructions, forms, terms and conditions and all the regulations of PNGRB.

The 'Application-cum-Bid document' together with all its annexures thereto shall be considered to be read, understood and accepted by the bidder. Failure to furnish any information required as per the 'Application-cum-Bid document' or submission of Application-

cum-Bid not complete in every respect will be at bidder's risk and may result in the rejection

of the Application-cum-Bid.

2.1.2 This 'Application-cum-Bid document' comprises of following Annexures. The bidder shall

note the following with respect to these Annexures:

**Annexure 1**

**Map depicting the**

**Geographical Area**

**and Charge Areas**

The bidder shall carefully study the geographical area and charge areas before submitting their Application-cum-Bid.

**Annexure 2**

**Bid Forwarding Letter** The bidder shall submit the Application cum-Bid forwarded by this format in their letter-head duly signed by the bidder or

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 15**

authorized signatory along with official seal. This shall be submitted as a part of Application-cum-Bid in both technical and financial bids.

**Annexure 3**

**Check-list**

The bidder shall confirm the check-list in the given format duly signed by the bidder or authorized signatory along with official seal. This shall be submitted separately as a part of Technical Bid. This Annexure is meant to help the bidder to complete their Application-cum-Bid in all respects.

#### **Annexure 4**

**Information to be given  
by bidder**

**The bidder shall provide required  
information in the given format duly filled-in  
and signed by the bidder or authorized  
signatory along with official seal. This shall  
be submitted separately as a part of  
Technical Bid.**

#### **Annexure 5**

**Bidder's particulars  
with respect to  
minimum eligibility  
criteria**

**The bidder shall provide required  
information in the given format duly filled-in  
and signed by the bidder or authorized  
signatory along with official seal attaching  
supporting documents. This shall be  
submitted separately as a part of Technical  
Bid.**

#### **Annexure 6 Undertaking**

**The bidder shall provide required  
undertaking in the given format in their  
letterhead duly signed by the bidder or  
authorized signatory along with official seal.  
This shall be submitted separately as a part  
of Technical Bid.**

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018**

**Annexure 7 No Deviation**

**Confirmation**

The bidder shall provide required confirmation in the given format in their letter-head duly signed by the bidder or authorized signatory along with official seal. This shall be submitted separately as a part of Technical Bid.

**Annexure 8 Proforma of Bid Bond**

**Bank Guarantee**

The bidder shall provide their acceptance by signing on Proforma of Bid Bond Bank Guarantee by the bidder or authorized signatory along with official seal. This shall be submitted separately as a part of Technical Bid. Validity of the bid bond bank guarantee shall be 150 days from the bid closing date.

**Annexure 9**

**Form of Chartered**

**Accountants**

certificate in respect of Net worth

The bidder shall provide certificate from a Chartered Accountant for their Net worth, duly signed and sealed as per the format provided herein. This shall be submitted separately as a part of Technical Bid.

**Annexure 10**

**Proforma of  
Corporate Guarantee  
from Promoters**

If bidder is not meeting net worth criteria on its own, the bidder shall provide Corporate Guarantee from its promoter companies or parent company for consideration of combined/ consolidated net worth. This shall be submitted separately as part of Technical Bid

**Annexure 11**

**Proforma of  
Performance Bank  
Guarantee**

The bidder shall provide their acceptance by signing on Proforma of Performance Bank Guarantee by the bidder or authorized signatory along with official seal.

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 17**

This shall be submitted separately as a part of Technical Bid.

**Annexure 12 Declaration about**

**Technical &**

**Operational**

**Manpower on**

**Permanent Rolls**

The bidder shall provide required information in the given format on their

letter head duly signed by the bidder or authorized signatory along with official seal.

This shall be submitted separately as part of Technical Bid.

Annexure 13 Declaration about conformity with regulations

The bidder shall declare about conformity of all Regulations. This shall be submitted separately as part of Technical Bid.

Annexure 1 of Part

**B**

**Bid Schedule Detailed Bid Schedule.**

**2.1.3 The Application-cum-Bid shall contain no erasure or overwriting except as necessary to**

**correct errors made by the bidder. Erasures or other changes, if unavoidable, in the**

**Application-cum-Bid shall be done neatly by cutting the words or lines with the initials of the**

**person signing the Application-cum-Bid, else it is liable to be rejected. Application-cum-Bid**

**with overwriting or erasure by using the white ink or any other colour fluid is also liable to be**

**rejected.**

## **2.2 CLARIFICATIONS OF APPLICATION-CUM-BID DOCUMENT**

**2.2.1 Entity requiring any clarification shall obtain the same from the Secretary, PNGRB in writing**

**so as to ensure submission of Application-cum-Bid on or before bid closing date. The PNGRB**

**will respond in writing to such queries, which are received within 60 days from first day of bid**

**sale. Written copies of PNGRB's response (including explanation of the query but without**

**identifying the name of the querist) will be hosted on the web site of PNGRB.**

**2.2.2 A Pre-Bid conference shall be convened at the designated date, time and place. Only those**

**entities who have purchased the Application-cum-Bid document shall be allowed to participate in the Pre-Bid conference. A maximum of two representatives of each entity shall**

**be allowed to participate on production of authority letter from the bidder.**

## **2.3 AMENDMENT OF BIDDING DOCUMENTS**

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 18**

**2.3.1 At any time prior to the deadline for submission of bids, the PNGRB for any reason may**

**modify the ‘Application-cum-Bid document’ by amendment thereto.**

**2.3.2 The amendment shall be notified in writing and hosted on website of PNGRB and will be**

**binding on all the bidders. The same shall be part of Tender documents and bidder is required**

**to sign and submit the same along with Tender documents.**

## **2.4 LANGUAGE OF APPLICATION-CUM-BID**

**The Application-cum-Bid prepared by the bidder and all correspondence / drawings and documents relating to the Application-cum-Bid exchanged between the bidder and the PNGRB shall be in English language, provided that any printed literature furnished by the**

**bidder may be written in any other language so long as accompanied by ENGLISH translation**

**in which case, for purpose of interpretation of the Application-cum-Bid, the ENGLISH translation shall govern.**

## **2.5 FINANCIAL BID**

**2.5.1 All quotes shall be written in both words and figures. In the event of difference, the quotes**

**in words shall be valid and binding. In case any quoted figure is more than two decimal places the same shall not be considered beyond second decimal point.**

**2.5.2 Incomplete quotes shall be summarily rejected.**

**2.5.3** The entity shall be required to achieve financial closure of the project based on the numbers

quoted by them in the financial bid. Failure to achieve financial closure within the 270 days

from grant of authorization may result in the termination of the grant of authorization. The

entity shall furnish all the documents within 270 days as required to satisfy PNGRB that the

financial closure has been achieved in line with the requirements, which shall include the following:

- a) Complete Board agenda items with annexures detailing total capex, opex, capex expenditure, operational expenditure year wise financing plan and detailed feasibility Report (DFR).
- b) Copy of all documents submitted to Financial Institutions seeking financial assistance.
- c) To establish the actual date of achieving financial closure, all documents executed by the company in respect of financial assistance for the project to be provided by the lenders by way of loans, bonds, security arrangements etc.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 19

## **2.6 BID CURRENCIES**

Bidders shall submit their financial quote, wherever required in Indian Rupees only.

## **2.7 PERIOD OF VALIDITY OF APPLICATION-CUM-BIDS**

**2.7.1** Application-cum-Bids shall be kept valid for at least 120 days from the original bid closing

date. In case the entity submits bid bond in the form of a bank guarantee, its validity shall

also be 150 days from the date of original bid closing date. A bid bond/ bank guarantee valid

for a shorter period may be considered as non-responsive and liable to be rejected by the PNGRB.

2.7.2 In exceptional circumstances, the PNGRB may request the bidders' consent for an extension

of the validity period. The request and the responses thereto shall be made in writing through

a letter or by Fax / E-mail to all the bidders from whom Application-cum-Bids have been

received. The Application-cum-Bids of only those bidders, who extend the validity unconditionally, shall be opened and bids of all other bidders shall be liable to be rejected.

## **2.8 FORMAT AND SIGNING OF APPLICATION-CUM-BID**

The bidder shall submit the Application-cum-Bid through e-tender. The details are mentioned in

the subsequent paragraphs.

### **3.0 Special instructions to Bidders for e-Tendering**

#### **3.1 General**

The Special Instructions to bidders for e-Tendering are given in these Tender Documents.

Submission of Online Bids is mandatory for this Tender.

E-Tendering is a methodology for conducting Public Procurement in a transparent and secured

manner. For conducting electronic tendering, Petroleum and Natural Gas Regulatory Board has

decided to use the portal <https://www.-india-electronictender.com> through

TELECOMMUNICATIONS CONSULTANTS INDIA LIMITED, a Government of India Undertaking.

This portal is based on a secure and user friendly software from ElectronicTender® . A portal built

using ElectronicTender's software is also referred to as ElectronicTender System® (ETS).

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 20

Benefits to Bidders are outlined on the Home-page of the TCIL e-tender portal.

#### **3.2 Instructions**

Bidders are required to: -

1. Procure a Digital Signing Certificate (DSC)
2. Register on Electronic Tendering System ® (ETS)
3. Create Marketing Authorities (MAs), Users and assign roles on ETS. It is mandatory to create at least one MA.
4. View Notice Inviting Tender (NIT) on ETS
5. For this tender -- Assign Tender Search Code (TSC) to an MA
6. Download Official Copy of Tender Documents from ETS. Note: Official copy of Tender Documents is distinct from downloading 'Free Copy of Tender Documents'. To participate in a tender, it is mandatory to procure official copy of Tender Documents for that tender.
7. Clarification to Tender Documents on ETS: bidders may send
  - Query to Petroleum and Natural Gas Regulatory Board (Optional)
  - View response to queries posted by Petroleum and Natural Gas Regulatory Board
8. Bid-Submission on ETS
9. Attend Public Online Tender Opening Event (TOE) on ETS
  - Opening of relevant Bid-Part (Technical)
10. Post-TOE Clarification on ETS (Optional)
  - Respond to Petroleum and Natural Gas Regulatory Board Post-TOE queries
11. Attend Public Online Tender Opening Event (TOE) on ETS (Financial)

For participating in this tender online, the following instructions are to be read carefully. These

instructions are supplemented with more detailed guidelines on the relevant screens of the ETS.

### 3.3 Digital Certificates

For integrity of data and authenticity/ non-repudiation of electronic records, and to be compliant

with Information Technology Act 2000, it is necessary for each user to have a Digital Certificate

(DC) also referred to as Digital Signature Certificate (DSC), of Class 2 or above, issued by a

Certifying Authority (CA) licensed by Controller of Certifying Authorities (CCA) [refer <http://www.cca.gov.in>].

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 21

### 3.4 Registration

To use the ElectronicTender ® portal <https://www.tcil-india-electronictender.com>, vendors need

to register on the portal. Registration of each organization is to be done by one of its senior persons

who will be the main person coordinating for the e-tendering activities. In ETS terminology, this

person will be referred to as the Super User (SU) of that organization. For further details, please visit

the above website/portal, and click on the 'Bidder' link under 'Registration' (on the Home Page), and

follow further instructions as given on the site. Pay Annual Registration Fee of Rs. 3000.00 plus

applicable taxes.

#### Instructions for Online/ Offline Payment of Registration Fee

After successful submission of Registration details and Annual Registration Fee, please contact

TCIL/ ETS Helpdesk (as given below), to get your registration accepted/activated

**Important Note:** To minimize teething problems during the use of ETS (including the Registration

process), it is recommended that the user should peruse the instructions given under 'ETS User-

Guidance Center' available on ETS Home Page (<https://www.tcil-india-electronictender.com>),

including instructions for timely registration on ETS. The instructions relating to 'Essential Computer

Security Settings for Use of ETS' and 'Important Functionality Checks' should be especially taken

into cognizance.

Please note that even after acceptance of your registration by the  
**TELECOMMUNICATIONS**

**CONSULTANTS INDIA LIMITED**, to respond to a tender you will also require time to  
complete

activities related to your organization, such as creation of users, assigning roles to them,  
etc.

**TELECOMMUNICATIONS**

**CONSULTANTS INDIA**

**LIMITED/ ETS Helpdesk**

Telephone/ Mobile Customer Support: +91-11-26241790 (Multiple Lines)

Emergency Mobile Numbers: +91-9868393775,

9868393717, 9868393792

E-mail ID ets\_support@tcil-india.com

[Please mark CC: ninthround.cgdbid@pngrb.gov.in ]

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 22

Buyer Organization Name

Contact

Buyer Organization Name

Contact Person

Secretary, Petroleum and Natural Gas Regulatory Board

Telephone 011-23457729

[between 9:30 hours to 17:00 hours on working days]

E-mail ID E-mail Id ninthround.cgdbid@pngrb.gov.in

The entire bid-submission would be online on ETS (unless specified for Offline  
Submissions).

Broad outline of online submissions are as follows: -

- ☐ Submission of Bid-Parts/ Envelopes
- ☐ Submission of information pertaining Bid Security/ Earnest Money Deposit (EMD)
- ☐ Submission of digitally signed copy of Tender Documents/ Addendum

**3.5 Offline Submissions:**

The bidder is requested to submit the Bid Bond in form of RTGS / NEFT / Demand Draft / Bank

Guarantee and application fee in the form of Demand Draft of requisite value to the under

mentioned address before the start of Public Online Tender Opening Event in a Sealed Envelope.

Secretary, Petroleum and Natural Gas Regulatory Board, World Trade Centre, First Floor, Babar

Road, New Delhi-110001

The envelope shall bear the GA name, the Tender Search Code and the words 'DO NOT OPEN

BEFORE' (due date & time).

1. Original copy of the Bid Bond/ Bid Security/ Earnest Money Deposit (EMD) in the form of a

Demand Draft/ Bank Guarantee as mentioned at Section 1.4 of this document

2. Original copy of the letter of authorization shall be indicated by written power-of-attorney.

3. Application Fee as mentioned at Section 1.4 of this document Note: The Bidder should also

upload the scanned copies of all the above mentioned original documents as Bid-Annexures during Online Bid-Submission.

Failure to submit any of above mentioned shall result in non-opening of technical bid.

### 3.6 Special Note on Security and Transparency of Bids

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 23

Security related functionality has been rigorously implemented in ETS in a multi-dimensional

manner. Starting with 'Acceptance of Registration by the Service Provider', provision for security has

been made at various stages in ElectronicTender's software. Specifically, for Bid Submission, some

security related aspects are outlined below:

As part of the Electronic Encrypter functionality, the contents of both the 'Electronic Forms and the

'Main-Bid' are securely encrypted using a Pass-Phrase created by the Bidder himself. Unlike a

'password', a Pass-Phrase can be a multi-word sentence with spaces between words (e.g. I love this

World). A Pass-Phrase is easier to remember, and more difficult to break. It is mandatory that a

separate Pass-Phrase be created for each Bid-Part. This method of bid-encryption does not have

the security and data-integrity related vulnerabilities which are inherent in e-tendering systems which

use Public-Key of the specified officer of a PNGRB for bid-encryption. Bid-encryption in ETS is such

that the Bids cannot be decrypted before the Public Online Tender Opening Event (TOE), even if

there is connivance between the concerned tender-opening officers of the PNGRB and the personnel

of e-tendering service provider.

**CAUTION:** All bidders must fill ElectronicForms ® for each bid-part sincerely and carefully and avoid

any discrepancy between information given in the ElectronicForms ® and the corresponding Main-

Bid. For transparency, the information submitted by a bidder in the ElectronicForms ® is made

available to other bidders during the Online Public TOE. If it is found during the Online Public TOE

that a bidder has not filled in the complete information in the ElectronicForms ® , the TOE officer may

make available for downloading the corresponding Main-Bid of that bidder at the risk of the bidder.

If variation is noted between the information contained in the ElectronicForms ® and the 'Main-Bid',

the contents of the ElectronicForms ® shall prevail.

Typically, 'Pass-Phrase' of the Bid-Part to be opened during a particular Public Online Tender

Opening Event (TOE) is furnished online by each bidder during the TOE itself, when demanded by

the concerned Tender Opening Officer.

The bidder shall make sure that the Pass-Phrase to decrypt the relevant Bid-Part is submitted into

the 'Time Locked Electronic Key Box (EKB)' after the corresponding deadline of Bid Submission,

and before the commencement of the Online TOE. The process of submission of this Pass-Phrase

in the 'Time Locked Electronic Key Box' is done in a secure manner by first encrypting this Pass-

Phrase with the designated keys provided by the Petroleum and Natural Gas Regulatory Board.

Submission of pass-phrase into the 'Time Locked Electronic Key Box (EKB)' after the corresponding

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 24

deadline of Bid Submission is mandatory for this tender. Failure to submit any of the same shall

results in non-opening of technical bid and forfeiture of bid bond.

There is an additional protection with SSL Encryption during transit from the client-end computer of

a Bidder to the e-tendering server/ portal.

### 3.7 Public Online Tender Opening Event (TOE)

ETS offers a unique facility for 'Public Online Tender Opening Event (TOE)'. Tender Opening

Officers, as well as, authorized representatives of bidders can simultaneously attend the Public

Online Tender Opening Event (TOE) from the comfort of their offices. Alternatively, one duly

authorized representative of bidders are requested to carry a Laptop with Wireless Internet

Connectivity, if they wish to come to PNGRB office for the Public Online TOE.

Every legal requirement for a transparent and secure 'Public Online Tender Opening Event (TOE)',

including digital counter-signing of each opened bid by the authorized TOE-officer(s) in the

simultaneous online presence of the participating bidders' representatives, has been implemented

on ETS.

As soon as a Bid is decrypted with the corresponding 'Pass-Phrase' as submitted by the bidder

himself during the TOE itself or as per alternative methods prescribed in the Tender Documents,

salient points of the Bids (as identified by the PNGRB) are simultaneously made available for

downloading by all participating bidders. The tedium of taking notes during a manual 'Tender

Opening Event' is therefore replaced with this superior and convenient form of 'Public Online Tender

Opening Event (TOE)'.

ETS has a unique facility of 'Online Comparison Chart' which is dynamically updated as each online

bid is opened. The format of the chart is based on inputs provided by the Buyer for each Bid-Part of

a tender. The information in the Comparison Chart is based on the data submitted by the Bidders. A

detailed Technical and/ or Financial Comparison Chart enhances transparency. Detailed instructions

are given on relevant screens.

ETS has a unique facility of a detailed report titled 'Minutes of Online Tender Opening Event (TOE)'

covering all important activities of 'Online Tender Opening Event (TOE)'. This is available to all

participating bidders for 'Viewing/ Downloading'.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 25

3.8 Other Instructions

For further instructions, the vendor should visit the home-page of the portal <https://www.tcil-india-electronictender.com>, and go to the User-Guidance Center.

The help information provided through 'ETS User-Guidance Center' is available in three categories

– Users intending to Register / First-Time Users, Logged-in users of PNGRB, and Logged-in users

of Bidders. Various links (including links for User Manuals) are provided under each of the three

categories.

**Important Note:** It is strongly recommended that all authorized users of Bidders should thoroughly

peruse the information provided under the relevant links, and take appropriate action. This will

prevent hiccups, and minimize teething problems during the use of ETS.

### **3.9 KEY INSTRUCTIONS FOR BIDDERS**

Specifically, for Bidders, the following 'SEVEN KEY INSTRUCTIONS for BIDDERS' must be

assiduously adhered to:

**1. Obtain individual Digital Signing Certificate (DSC or DC) well in advance of your first tender**

submission deadline on ETS.

**2. Register your organization on ETS well in advance of the important deadlines for your first**

tender on ETS viz. 'Date and Time of Closure of Procurement of Tender Documents' and 'Last

Date and Time of Receipt of Bids'. Please note that even after acceptance of your registration by

the TCIL, to respond to a tender you will also require time to complete activities related to your

organization, such as creation of -- Marketing Authority (MA) [i.e. a department within the Supplier/

Bidder Organization responsible for responding to tenders], users for one or more such MAs,

assigning roles to them, etc. It is mandatory to create at least one MA. This unique feature of

creating an MA enhances security and accountability within the Supplier/ Bidder Organization.

3. Get your organization's concerned executives trained on ETS well in advance of your first tender

submission deadline on ETS.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 26

4. For responding to any particular tender, the tender (ie its Tender Search Code or TSC) has to be

assigned to an MA. Further, an 'Official Copy of Tender Documents' should be procured/

downloaded before the expiry of Date and Time of Closure of Procurement of Tender Documents.

Note: Official copy of Tender Documents is distinct from downloading 'Free Copy of Tender

Documents'. Official copy of Tender Documents is the equivalent of procuring physical copy of Tender Documents with official receipt in the paper-based manual tendering system.

5. Submit your bids well in advance of tender submission deadline on ETS (There could be last

minute problems due to internet timeout, breakdown, et al).

6. It is the responsibility of each bidder to remember and securely store the Pass-Phrase for each

Bid-Part submitted by that bidder. In the event of a bidder forgetting the Pass-Phrase before the

expiry of deadline for Bid-Submission, facility is provided to the bidder to 'Annul Previous

Submission' from the Bid-Submission Overview page and start afresh with new Pass-Phrase(s)

7. ETS will make your bid available for opening during the Online Public Tender Opening Event

(TOE) 'ONLY IF' your 'Status pertaining Overall Bid-Submission' is 'Complete'. For your record,

you can generate and save a copy of 'Final Submission Receipt'. This receipt can be generated

from 'Bid-Submission Overview Page' only if the 'Status pertaining overall Bid-Submission' is

'Complete'.

### **3.10 Minimum Requirements at Bidder's End**

a) Computer System having configuration with minimum Windows 7 or above, and Broadband connectivity

b) Microsoft Internet Explorer 7.0 or above

c) Digital Signature Certificate(s)

### **3.11 Bidder's Training Program**

One day training (10:00 to 17:00) would be provided by TELECOMMUNICATIONS CONSULTANTS INDIA LIMITED. Training is optional. Bidders may contact

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 27

TELECOMMUNICATIONS CONSULTANTS INDIA LIMITED directly for venue, date and charges

etc.

### **3.12 Online Payment:**

TELECOMMUNICATIONS CONSULTANTS INDIA LIMITED's e-procurement portal is currently

integrated with Indusind bank (PayU) and ICICI Bank's Online Payment Gateway for receipt of online

payments through net banking, Debit Card and Credit Card towards Portal Registration Charges

and Per-Tender Bidding Fee will be as applicable.

Special Note: All applicable Taxes and duties are in addition to the above charges. Presently,

Goods and Service Tax (GST) @ 18 % is applicable.

4.0 Time period as per the notice issued by PNGRB shall be allowed for submission of the

Application-cum-Bid. The bidders may note that any request for time extension shall not be entertained.

## **OPENING AND EVALUATION OF APPLICATION-CUM-BIDS**

### **4.1 OPENING OF APPLICATION-CUM-BIDS**

4.1.1 PNGRB shall open the Part I - Technical Bids in the presence of bidders' representative who

may choose to attend the opening.

4.1.2 After opening of Part I - Technical Bid, PNGRB will examine the Application-cum-Bids to

determine whether these are complete and valid in all respects as required and in conformity

with 'Application-cum-Bid document'.

4.1.3 On completion of evaluation of Part I - Technical Bid, PNGRB shall invite representatives of

bidders who have been found to meet the minimum eligibility criteria and have submitted

complete and valid Application-cum-Bids in all respects to be declared as technically qualified

to attend financial bid opening for which a minimum 24 hours' notice shall be given through

fax/e-mail. Representatives, who will be present, shall sign a register evidencing their attendance.

### **4.2 EVALUATION AND COMPARISON OF APPLICATION-CUM-BIDS**

#### **4.2.1 TECHNICAL BID**

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 28

4.2.1.1 The bidder has to submit all the forms and formats mentioned in the 'Application-cum-

Bid document' duly filled-in, failing which the Application-cum- Bid will be liable to be rejected.

4.2.1.2 Documentary evidences are to be submitted by the bidder for all the formats wherever

it is required.

4.2.1.3 If the information furnished by the bidder is found to be incorrect, the Application-cum-

Bid is liable to be rejected.

4.2.1.4 PNGRB can make any enquiry / seek clarifications from the bidders, which the bidders

must furnish within the stipulated time or else Application-cum-Bid of such defaulting bidders is likely to be rejected. The clarifications so raised shall be based on the original document submitted by the bidder at the time of bid submission and will only be for substantiation of the same. Any additional submission beyond what has been sought through clarifications shall not be entertained by PNGRB.

4.2.1.5 Steel Inch-Kilometre shall include sub-transmission pipeline (STPL) if laid through

steel pipeline post authorisation.

4.2.1.6 The number of household connections, to be considered shall mean physical connection including gas meter installation to be provided after registration notwithstanding gas supply. One household will have one domestic PNG connection for the purpose of compliance to bid numbers.

#### 4.2.2 FINANCIAL BID

All financial bids shall be tabulated and compared as per the bidding criteria specified at regulation 7 and schedule- C (1) of the PNGRB CGD Authorization Regulation.

Bidder with the highest composite score shall be declared as successful in the bid. In case of tie in the evaluated composite score, the successful bidder shall be decided based on the highness of numbers of PNG connections among the tied bidding entities. In case there is tie on number of PNG connections also, highness of inch-km steel pipeline shall be considered and thereafter in case of tie in inch-km as well, highness of numbers of Natural Gas Stations shall be considered .

#### 4.3 PROCESS TO BE CONFIDENTIAL

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 29

Information relating to the examination, evaluation and comparison of bids and recommendations shall be treated confidential and shall not be disclosed to entities or any other person.

Any effort by an entity to influence PNGRB in any manner in respect of bid evaluation or grant

of authorization will result in the rejection of its Application-cum-Bid.

#### **4.4 PNGRB'S RIGHT TO ACCEPT OR REJECT ANY OR ALL APPLICATION-CUM-BIDS**

4.4.1 PNGRB reserves the right to reject any Application-cum-Bid comprising quoted work

programme considered by it to be unreasonably high or low.

4.4.2 Notwithstanding anything to the contrary contained herein, PNGRB reserves the right to

accept or reject any Application-cum-Bid and/or to annul the bidding process and/or reject all

Application-cum-Bids, at any time prior to grant of authorization.

#### **4.5 PERFORMANCE BOND**

4.5.1 Grant of authorization shall be issued to the selected entity after it furnishes a performance

bond as specified in regulation 9 of the PNGRB CGD Authorization Regulation, within 30

days of issue of LoI by PNGRB. In case of proposed consortium/JV or existing JV or a subsidiary, the performance bond can also be submitted by any one of the partners or promoters of the entity, as the case may be. In case the performance bond is submitted through bank guarantee, the performance bond guarantee (PBG) shall be valid initially for a

period of three years and thereafter shall be renewed, at least three months before expiry of

the same, for next three years and so on until the period of authorisation. It is the responsibility of the entity to timely renew the PBG and in case the PBG is not so renewed

at least one month before expiry of the PBG, the PBG shall be encashed by the Board and

the authorisation may be terminated. PBG amount shall be reduced to the value of 40% of

the initial PBG furnished by the successful bidder after 100% achievement of the work programme or on expiry of exclusivity from purview of common carrier or contract carrier,

whichever is later.

4.5.2 The selected entity shall submit performance bond guaranteeing the timely commissioning

of the proposed CGD network as per the prescribed targets and meeting the service obligations during the operation phase of the project.

4.5.3 Performance Bond shall be submitted by way of NEFT or RTGS or Demand Draft or Pay

order or Bank Guarantee, payable at Delhi, from any scheduled bank. DD/Pay order shall be

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 30

in the name of PNGRB, payable at Delhi. Bank guarantee shall be exactly as per proforma

of Performance Bank Guarantee prescribed at Annexure 11.

#### 4.6 GRANT OF AUTHORIZATION

The authorization shall be granted to the selected entity as specified in regulation 10 (1) of

the PNGRB CGD Authorization Regulation.

#### 4.7 ACCEPTANCE TO GRANT OF AUTHORIZATION

4.7.1 Within 14 (fourteen) days from date of issue of the Grant of authorization, the entity shall

sign the Proforma for 'Acceptance of the Grant of Authorization' enclosed with Schedule-D

of the PNGRB CGD Authorization Regulation. The 'Acceptance of the grant of Authorization'

shall be signed by the selected entity or authorised signatory along with official seal.

4.7.2 After confirmation / signing, the terms and conditions contained therein take precedence

over entity's bid conditions and all previous correspondence.

**4.7.3 If, the entity does not deposit the Performance Bond within specified time period, PNGRB**

reserves the right to cancel the proposed authorization without prejudice to various rights

and remedies including forfeiting the Bid Bond of the entity and without being liable in any

manner whatsoever to the entity.

**5 SERVICE OBLIGATIONS AND QUALITY OF SERVICE STANDARDS**

Service obligations and quality of service standards of the authorized entity shall be as per

the PNGRB CGD Authorization Regulation, Petroleum and Natural Gas Regulatory Board

(Exclusivity for City or Local Natural Gas Distribution Networks) Regulations, 2008 and other

Regulations issued by PNGRB.

**6 INDEMNITY**

The authorized entity shall indemnify the PNGRB against all third party claims of any loss,

injury or damage to any person or property attributed to the negligence or failure of the service

obligations of the entity or its agents.

**7 FORCE MAJEURE**

Force Majeure shall mean and be limited to the following:

a) War / hostilities

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 31

b) Major Riots or Civil Commotion

c) Earthquake, flood, tempest, lightening or other natural physical disasters

d) Restrictions imposed by Central Government or State Government, that have arisen after

last date of submission of bid, which prevents or delays the execution of obligations

under the Regulations.

The authorized entity shall within one week of occurrence of above causes notify PNGRB

about the occurrence of the force majeure event and provide PNGRB all details of arising

and ceasing of the impediment. The time and performance of the respective obligations suspended by the force majeure shall stand extended by the period(s) for which such conditions of force majeure last. PNGRB's decision, whether such force majeure conditions

did actually exist shall be final and binding.

## **8 RESTRUCTURING/RECONSTITUTION OF THE AUTHORIZED ENTITY**

Any restructuring/ reconstitution of the authorized entity shall be governed by regulation 10

of CGD Authorization Regulation.

## **9 MISCELLANEOUS**

If any dispute arises with regards to the interpretation of any of the contents of the 'Application-cum-Bid document', the decision of PNGRB shall be final.

## **10 DISCLAIMER.**

The entities should ensure that the 'Application-cum-Bid document' is complete in all respects.

The PNGRB makes no representation or warranty, express or implied, as to the accuracy,

correctness or completeness of the information contained in the 'Application-cum-Bid document'.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 32

## **ANNEXURES**

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 33

## **ANNEXURE 1**

(1 of 1)

(The bidder shall carefully study the geographical area and charge area before submitting their Application-cum-Bid.)

**MAP DEPICITING THE GEOGRAPHICAL AREA AND CHARGE AREAS**

Attached

Map No.: PNGRB/CGD/BID/9/2018/GA -- \_\_\_\_\_

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 34

**ANNEXURE 2**

(1 of 1)

(The bidder shall submit the Application cum-Bid forwarded by this format in their letterhead duly signed by the bidder or authorized signatory along with official seal.

This shall be submitted as a part of Application-cum-Bid in all two envelopes as specified in clause 3 of Instructions to Bidders)

**BID FORWARDING LETTER**

Date:

Secretary,

Petroleum and Natural Gas Regulatory Board,

1st Floor, World Trade Centre,

Babar Road,

New Delhi – 110 001

Dear Sirs,

We enclose herewith the complete Application-cum-Bid as required. This includes application fee

and bid bond, in addition to the following:

- i. Power of Attorney issued in favor of signatory of Application-cum-Bid
- ii. Schedule – C of the PNGRB CGD Authorization Regulation: Part I – Technical Bid: General particulars of the entity and technical details of the project, duly filled-in along with supporting documents
- iii. Financial Bid covering all five bidding parameters

- iv. Full set of 'Application-cum-Bid document' along with its Addendum / Corrigendum
- v. Proforma for Performance Bank Guarantee (As format acceptance only).

Date :

Place :

Name and Signature of bidder or authorized signatory

Official Seal

Details of enclosures:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 35

ANNEXURE 3

(1 of 1)

(The bidder shall confirm the check-list in the given format duly signed by the bidder or authorized signatory along with official seal. This shall be submitted separately as a part of Technical Bid.)

CHECK-LIST

Sl.

No.

Item Check

Yes / No

1 Application Fee (RTGS/NEFT/DD/Pay Order) Yes / No

2 Bid Bond (RTGS/NEFT/DD/Pay Order/BG) Yes / No

3 All documents in support of the bidder's minimum eligibility criteria Yes / No

4 Power of Attorney issued in favor of signatory of Application-cum-

**Bid**

**Yes / No**

**5 Part I (Technical Bid) : General particulars of the entity and technical details of the project, duly filled-in along with all supporting drawings / documents as required**

**Yes / No**

**6 Full set of 'Application-cum-Bid document' along with Addendum / Corrigendum, duly signed by the bidder or authorized signatory along with official seal on all pages**

**Yes / No**

**7 Certification by Chartered Accountant about Net worth of the entity and corporate guarantee from the promoter(s), if any**

**Yes / No**

**8 Annexures, duly filled-in and signed along with official seal as indicated therein**

**Yes / No**

**9 No deviation considered and Annexure 7 submitted duly signed by the bidder or authorized signatory along with official seal, in confirmation to no deviation**

**Yes / No**

**10 All the pages signed by the bidder or authorized signatory along with official seal and sequentially number on each page of Application-cum-Bid including all enclosures**

**Yes / No**

**11 Bidder to indicate additional documents point-wise with nature of document with a proper index giving page number**

**Yes / No**

**12 Part-II (Financial Bid) Yes / No**

**Date :**

**Place :**

**Name and Signature of bidder or authorized signatory**

**Official Seal**

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 36**

**ANNEXURE 4**

**(1 of 1)**

**(The bidder shall provide required information in the given format duly filled-in and signed by the bidder or authorized signatory along with official seal. This shall be submitted separately as a part of Technical Bid.)**

**INFORMATION TO BE GIVEN BY BIDDER**

**Sl.**

**No.**

**Item Response**

**1 Whether the proprietor / partner / director/ chairperson / secretary of the bidding entity is related to any Member / Chairperson of PNGRB?**

**2**

**Details of the officer to whom all references shall be made regarding Application-cum-Bid**

**Name:**

**Designation:**

**Official Address:**

**Telephone:**

**Mobile:**

**E-mail:**

**FAX:**

**Note: “ Director” shall mean full time functional director only and also include the Chairman and**

**Managing Director. Also, the word “related” shall mean any person related by blood, marriage or**

adoption or as defined in Companies Act, 2013.

Date :

Place :

Name and Signature of bidder or authorized signatory

Official Seal

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 37

**ANNEXURE 5**

(1 of 2)

(The bidder shall provide required information in the given format duly filled-in and signed by the bidder or authorized signatory along with official seal attaching supporting documents. This shall be submitted separately as a part of Technical Bid.)

Bid No.: \_\_\_\_\_

**BIDDER'S PARTICULARS WITH RESPECT TO MINIMUM ELIGIBILITY CRITERIA**

(As per sub-regulation 6 to regulation 5 of the PNGRB CGD Authorization Regulation)

(Refer clause 1.4.2 of Section I: Instructions to Bidders)

**1. Details of Application Fee submitted**

(Amount and NEFT/RTGS/DD / Pay

Order No.)

**2. Technical capability of laying and building**

**CGD network.**

Please indicate which criteria out of regulation 5 (6) (b) (i) to (iv) the bidder is claiming qualification under.

(Please attach documentary evidence in support of the above)

**Criteria Claimed for Qualification is :**

**3.**

**Technical capability of operating and**

maintaining CGD network.

Please indicate which criteria out of regulation 5 (6) (c) (i) to (iv) the bidder is claiming qualification under.

(Please attach documentary evidence in support of the above)

Criteria Claimed for Qualification is :

4. Confirm agreement to abide by the relevant regulations for technical standards and specifications, including safety standards.

Date :

Place :

Name and Signature of bidder or authorized signatory

Official Seal

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 38

ANNEXURE 5

(2 of 2)

5. Adequate financial strength to execute the proposed CGD project, operate and maintain the same and meeting the financial criterion in terms of having a minimum combined net worth as specified under regulation 5 (6) (e).

(Separate statement of net worth of the bidding entity shall be signed by the concerned Director(s) of the bidding entity / promoters and duly certified by a Chartered

Accountant)

These statements shall not be older than the last available FY data from the date of submission of the bid, based on the latest financial position of the bidder and its promoters. The promoter's undertaking, in the form of letter of comfort as per format given must accompany the application.

6. Whether the bidder is already registered under the Companies Act, 1956 or the Companies Act, 2013 or proposes to do so in the event of grant of authorization.

7. Plan for sourcing natural gas for supply in the proposed CGD network (Please attach full details).

8. Details of Bid Bond submitted (Amount and RTGS/NEFT/DD/Pay Order No./Bank Guarantee).

9. Confirm that no penalty has been imposed under section 28 or punished under Chapter IX of the Act during the period of preceding one year from the last date for submission of the bid

Attached are copies of the supporting documents indicating that all the above minimum eligibility criteria are fulfilled.

Place :

Name and Signature of bidder or authorized Signatory

Official Seal

Enclosures :

- 1.
- 2.
- 3.
- 4.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 39

## ANNEXURE 6

(1of 2)

(The bidder shall provide required undertaking in the given format in their letterhead duly signed by the bidder or authorized signatory along with official seal. This shall be submitted separately as a part of Technical Bid.)

### UNDERTAKING

Date:

To,

The Secretary,

Petroleum and Natural Gas Regulatory Board,

1st Floor, World Trade Centre,

Babar Road,

New Delhi – 110 001

Dear Sir,

Having examined the 'Application-cum-Bid document' with Bid No.:  
PNGRB/CGD/BID9/2018/GA -

-, we, the undersigned, seek authorization for laying, building, operating or expanding a city or

natural gas distribution work in conformity with the said 'Application-cum-Bid' document for

Transportation rate for CGD and CNG / Inch – kilometer of Steel Pipeline / Number of PNG Domestic

Customers/ Number of Natural Gas Stations as may be ascertained in accordance with the clause

**2.5 Part I of ITB and Part II – Financial Bid of Schedule C (1) of PNGRB CGD Authorization**

**Regulation.**

We undertake, if our Application-cum-Bid is accepted, to develop the CGD Network, offered to us

within implementation schedule mentioned in our Technical Bid, and we shall furnish the

Performance Bond from a Scheduled commercial Bank (except Cooperative & Gramin Bank) or any

branch of Foreign Bank in India, equivalent to amount as per regulation 9 of PNGRB CGD

**Authorization Regulation.**

We certify that:

1. Our Application-cum-Bid is genuine and is not made in the interest of or on the behalf of any

undisclosed person, association of persons, firm, company, or co-operative society, and is not

submitted in conformity with and agreement of any undisclosed person, association of persons,

firm, company, or co-operative society.

2. We have not solicited or induced any undisclosed person, association of persons, firm, company,

or co-operative society to refrain from submitting Application-cum-Bid.

3. 'Application-cum-Bid document' received from PNGRB is complete in all respects.

Name and Signature of bidder or authorized signatory

Official Seal

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 40

ANNEXURE 6

(2 of 2)

4. The 'Application-cum-Bid document' along with its Annexures and Addendum / Corrigendum,

being submitted is original as obtained from PNGRB and that no changes whatsoever have been

made in same.

We also agree to abide by the validity period of 120 days from the original bid closing date and it

shall remain binding upon us and may be accepted at any time before the expiry of that period.

It is certified that the information submitted / statement made in this Application-cum-Bid are correct,

complete and truly stated and if any information given / statement made herein is found to be

incorrect, our Application-cum-Bid shall be rejected / authorization, if granted under this bid shall be

cancelled, apart from making us liable for such act as provided for in the regulations.

We understand that PNGRB reserves the right to accept or reject any Application-cum-Bid, and to

annul the bidding process and reject all Application-cum-Bids.

Date :

Place :

Name and Signature of bidder or authorized signatory

Official Seal

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 41

ANNEXURE 7

(1 of 1)

(The bidder shall provide required confirmation in the given format in their letterhead duly signed by the bidder or authorized signatory along with official seal. This shall be submitted separately as a part of Technical Bid.)

**NO DEVIATION CONFIRMATION**

(Refer clause 5 of Invitation for Application-cum-Bid)

To

The Secretary,

**Petroleum and Natural Gas Regulatory Board,**

**1st Floor, World Trade Centre,**

**Babar Road,**

**New Delhi – 110 001**

**Dear Sir/Madam,**

**We understand that any deviation / exception in any form may result in rejection of Application-cum-**

**Bid. We, therefore, certify that we have not taken any deviation / exception anywhere in the**

**Application-cum-Bid and we agree that if any deviation / exception is considered or noticed, our**

**Application-cum-Bid may be rejected.**

**Date :**

**Place :**

**Name and Signature of bidder or authorized signatory**

**Official Seal**

**For Reference Only**

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 42**

**ANNEXURE 8**

**(1 of 3)**

**Format for BANK GUARANTEE**

**(BID BOND GUARANTEE) - UNCONDITIONAL**

**(TO BE STAMPED IN ACCORDANCE WITH STAMP ACT)**

**(Refer clause 1.5 & 1.6 of Invitation for Application-cum-Bid)**

**BG No \_\_\_\_\_**

**BG Amount in Rs. \_\_\_\_\_**

**BG dated \_\_\_\_\_**

**BG Valid Up to \_\_\_\_\_**

**BG Favouring Petroleum and Natural Gas Regulatory  
Board, New Delhi**

Subject: Bid NO. \_\_\_\_\_ FOR CGD DISTRIBUTION  
NETWORK IN CITY/ GEOGRAPHIC AREA OF \_\_\_\_\_

WHEREAS PETROLEUM AND NATURAL GAS REGULATORY BOARD (PNGRB)  
having

its Office at Ist Floor, World Trade Centre, Babar Road, New Delhi -110001 (hereinafter  
called "PNGRB or Board" which expression shall include its successors and assigns)  
has

invited bids from \_\_\_\_\_ a Company registered in India  
under the Indian Companies Act, 1956 / The Companies Act 2013 and having its  
Registered

Office at \_\_\_\_\_ (hereinafter called "the BIDDER"  
which expression shall include its successors and assigns/executors, administrators and  
representatives) for the subject bid no. issued by the PNGRB to the BIDDER .

NOW THEREFORE, We \_\_\_\_\_ Bank, a Bank incorporated /  
constituted under the law of \_\_\_\_\_ and having its registered / principal office  
at

\_\_\_\_\_ and a Branch Office at \_\_\_\_\_

(hereinafter called "the Bank" which expression shall include and bind its successors  
and

assigns) in consideration of the aforesaid premises and at the request of the Bidder  
DOETH

HEREBY irrevocably and unconditionally undertakes to pay the PNGRB on first  
demand in

writing without any protest or demur or proof or condition and without reference to  
BIDDER

any and all amounts at any time and from time to time claimed by the PNGRB with  
reference

to this undertaking up to an aggregate limit of Rs. \_\_\_\_\_ (Rupees

\_\_\_\_\_ only) and credit the same in PNGRB's Current Account  
No.

497901011000245, IFSC Code UBIN0549797 MICR Code 110026046 through

NEFT/RTGS on same day, unless advised otherwise by PNGRB in writing.

AND the Bank both hereby further agree as follows:

(i) The PNGRB shall have the fullest liberty without reference to the Bank and without

affecting in anyway the liability of the Bank under this Guarantee/Undertaking, at any time

and / or from time to time to anywise vary the Contract and/or any of the terms and conditions

thereof and/or to extend time for the performance of the said Contract in whole or part or to

postpone for any time and/or from time to time any of the obligations of the BIDDER and/or

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 43

the rights, remedies or powers exercisable by the PNGRB against the BIDDER, and either

to enforce or forbear from enforcing any of the terms or conditions of or governing the said

Contract AND the Bank shall not be released from its liability under these presents and the

liability of the Bank shall remain in full force and effect notwithstanding any exercise by the

PNGRB of the liberty with reference to any or all the matters aforesaid or by reason of time

being given to the BIDDER or any forbearance, waiver, act or omission on the part of the

PNGRB or any indulgence by the PNGRB to the BIDDER or any other act, matter or thing

whatsoever which under any law could (but for the provision) would have the effect of releasing the Bank from its liability hereunder or any part hereof. AND the Bank BOTH HEREBY specifically waiver any and all rights at any time inconsistent with the terms of this

Guarantee/ Undertaking.

(ii) The Guarantee/ Undertaking herein contained shall remain in full force and effect for all

claims up to the midnight of \_\_\_\_\_.

(iii) It shall not be necessary for the PNGRB to proceed against the BIDDER before proceeding against the Bank and the Guarantee / Undertaking herein contained shall

enforceable against the Bank as principal debtor notwithstanding the existence of any security for any indebtedness of the BIDDER to the PNGRB and notwithstanding that any

such security shall at the time when claim is made against the Bank or proceeding taken against the Bank hereunder, be outstanding or unrealised.

(iv) The amount claimed by the PNGRB in any demand, claim or notice on the Bank with

reference to this Guarantee / Undertaking shall as between the Bank and the PNGRB for

the purpose of these presents be conclusive of the Bank's liability to the PNGRB hereunder.

(v) The liability of the Bank to the PNGRB under this Guarantee/ Undertaking shall remain

in full force and effect notwithstanding the existence of any difference or dispute between

the BIDDER and the PNGRB, the BIDDER and the Bank and/or the Bank and the PNGRB,

or otherwise howsoever touching or affecting these presents or the liability of the BIDDER

to the PNGRB, and notwithstanding the existence of any instructions or purported instructions by the BIDDER or any other person to the Bank not to pay or for any cause withhold or defer payment to the PNGRB, under these presents, with the intend that notwithstanding the existence of such difference, dispute or instruction, the Bank shall be

and remain liable to make payment to the PNGRB in terms hereof.

(vi) Any change in the constitution of the BIDDER or of the Bank or of the PNGRB or any

irregularity in the exercise of borrowing powers by or on behalf of the BIDDER shall not discharge the Bank's liability hereunder.

(vii) Notwithstanding anything contained hereinabove, the liability of the Bank under this

Guarantee/Undertaking is restricted to Rs. \_\_\_\_\_ (Rupees  
\_\_\_\_\_ only)

(viii) The PNGRB shall have no claim under this Guarantee/ Undertaking after midnight of

\_\_\_\_\_ (or extended date, if applicable) unless a notice of the claim under this Guarantee/ Undertaking has been served on the Bank before the expiry of the said date, in

which event the same shall be valid notwithstanding that the same is enforced after the expiry of the said date.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 44

(ix) The Bank doth hereby declare that Mr./Ms. \_\_\_\_\_ (name of the

person signing on behalf of the Bank) who is \_\_\_\_\_ (His/ Her designation) of

the Bank is authorised to sign this Guarantee/ Undertaking on behalf of the Bank and to bind

the Bank thereby.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_

(x) IN WITNESS WHEREOF the Bank has executed this deed of Bid Bond Guarantee on..... Day of ....., in the presence of:

WITNESS1:

NAME

(SIGNATURE)

WITNESS2:

NAME

(SIGNATURE)

Date:

BANK SEAL

(NAME)

STAMP

(OFFICIAL SEAL)

Designation with bank stamp

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

**ANNEXURE 9**

(1of 1)

(The bidder shall provide certificate from their Chartered Accountant for their Net worth and Net worth of their promoters separately, duly signed and sealed as per the format provided herein. This shall be submitted separately as a part of Technical Bid.)

**FORM OF CHARTERED ACCOUNTANTS CERTIFICATE FOR NET WORTH  
(SEPARATE FORMS TO BE FURNISHED BY CHARTERED ACCOUNTANT FOR THE BIDDER AND EACH OF THEIR PROMOTERS)**

This is to certify that the Net worth of  
M/s./Mr./Ms. \_\_\_\_\_ as

on \_\_\_\_\_ (specify latest available financial year end) as per the statement  
of

computation of even date annexed to this certificate is

Rupees \_\_\_\_\_ (Rupees in words)  
only.

It is further certified that the computation of Net worth based on my/ our scrutiny of the  
books of

accounts, records and documents is true and correct to the best of my/ our knowledge  
and as per

information provided to my/ our satisfaction. The detailed calculation sheet along with  
supporting

document, as per Schedule–K of the PNGRB CGD Authorization Regulation is placed at  
pages\_\_\_\_\_.

Date:

For (Name of Accounting Firm)

Place:

Name of Partner

Seal of the Firm:

Chartered Accountant

Membership Number

Note: The net worth calculation shall be based on latest audited accounts which shall  
not be more

than eighteen months old as on the bid closing date.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 46

#### ANNEXURE 10

(The bidder shall provide required promotor or holding company guarantee from the promoter. This shall be submitted separately as a part of Technical Bid.)

(On non-judicial stamp paper of appropriate value)

#### PROMOTER OR HOLDING COMPANY GUARANTEE

THIS GUARANTEE ("Guarantee") is issued on the \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_ by \_\_\_\_\_, a Company organised and existing under the laws of \_\_\_\_\_

having its Registered Office at \_\_\_\_\_ \*(and by \_\_\_\_\_ a Company

organised and existing under the laws of \_\_\_\_\_ having its Registered Office at \_\_\_\_\_ singly and/or jointly)\* hereinafter referred to as "Guarantor", at the

request and/or behest of \_\_\_\_\_, a Company organised and existing under

the laws of \_\_\_\_\_ having its Registered Office at \_\_\_\_\_

(hereinafter referred to as "Bidding Entity"), in favour of Petroleum and Natural Gas Regulatory

Board, constituted under The Petroleum and Natural Gas Regulatory Board Act, 2006 having its

Registered Office at 1 st Floor, World Trade Center, Babar Road, New Delhi-110001 (hereinafter

referred to as "Beneficiary" or "PNGRB").

#### WHEREAS

The Beneficiary has floated an Application cum-Bid document dated \_\_\_\_\_ inviting offers

from Bidders for \_\_\_\_\_ (purpose). The Bidding Entity has submitted their Application

cum Bid document dated \_\_\_\_\_ and advised the Beneficiary that the Bidding entity is the

Joint Venture/Subsidiary Company of the Guarantor. The Guarantor vide its letter dated \_\_\_\_\_ informed the Beneficiary that Bidding Entity, will participate in the Application cum-Bid

document and desired that the Application cum-Bid document be considered by the Beneficiary

based on the technical and financial strength of the Guarantor. For this reason, the Guarantor is

ready and willing to give a Promoter Guarantee or Parent Company Guarantee (PCG) inter alia for

the performance of the Bidding Entity to the terms and conditions of the Application cum-Bid

document and on failure of Bidding Entity to assume the said obligations.

Having examined the 'Application-cum-Bid document' with reference to Bid No..... we.....,

being the Promoter or Holding Company of .....(Bidding Entity), certify that we possess the

financial net worth as required by the Petroleum and Natural Gas Regulatory Board (Authorising

Entities to Lay, Build, Operate or Expand City or Local Natural Gas Distribution Networks)

Regulations, 2008.

Our net worth (calculated in accordance with provisions of the above regulations) and as certified

by Chartered Accountant for the last financial year i.e..... is Rs..... Million. Certificate and

documents in support of calculations are enclosed as Annexure.....

We, the Guarantor hereby record the terms and conditions governing our obligations under this

Guarantee with the intent of being legally bound by the same and hereby agree, covenant and bind

ourselves as follows: -

1. We.....as promoter/holding company of..... (Bidding Entity) undertake that

our financial contribution to Lay, Build, Operate or Expand City or Local Natural Gas

Distribution Networks in the authorised geographical area of .....shall be infused in a

phased manner as per the project financing schedule approved at the time of achieving financial closure.

2. The Guarantor hereby irrevocably and unconditionally guarantees to Beneficiary that Bidding Entity will perform its obligations as per the terms and conditions of the Application

cum-Bid document, if the Bid is awarded to them in future for \_\_\_\_\_ and agrees to

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 47

provide further Guarantee, if so desired by Beneficiary, in terms of the Application cum-Bid

document.

3. The Guarantor further unconditionally and irrevocably guarantees to the Beneficiary the due

and punctual compliance by the Bidding Entity of any obligations under the Application cum-Bid document.

4. The Guarantor unconditionally and irrevocably guarantees to the Beneficiary that it will

make available or cause to be made available to the Bidding Entity all financial, technical

and other resources required to ensure that the Bidding Entity can carry out its obligations

as per the Application cum-Bid documents terms and conditions and that the Bidding Entity

at all times fully and effectively discharge its obligations under the terms and conditions of

Application cum-Bid document.

5. The Guarantor hereby agrees that if the Bidding Entity shall in any respect commit any

breach or fails to fulfill any of the terms of the Application cum-Bid document or complete it

in all respects or if there is a failure to meet any obligations then the Guarantor will forthwith

perform the same and fulfill all the obligations required under Application cum-Bid

document terms & conditions on behalf of the Bidding Entity.

6. The Guarantor further undertakes to indemnify all losses, damages, expenses, claims, costs and proceedings which may be suffered or incurred by Beneficiary due to the failure

or breach on the part of Bidding Entity.

7. The Guarantor assures and undertakes that during the term of the completion of the Work

Program or performance as per the Application cum-Bid document, the Bidding Entity shall

continue to be the Joint Venture/ Subsidiary Company of the Guarantor and the

Guarantor's liability shall not be affected due to any incapacity or lack of power or legal personality or change in the status of the Bidding Entity or the Guarantor.

8. The Guarantor's liabilities under this Guarantee shall not exceed the liability of the Bidding

Entity under the Application cum-Bid document terms and conditions but this shall in any

manner not affect the Guarantor's own responsibilities and liabilities under the Guarantee.

9. The obligation of the Guarantor shall take effect from the date of this Guarantee and shall

remain in full force until all the obligations of the Bidding Entity have been fully performed

and discharged. The Guarantor further undertakes to perform forthwith without insisting on

any proof of breach of Application cum- Bid document by its Bidding Entity and purely relying on Beneficiary's written demand.

10. The liabilities of the Guarantor shall not be discharged, diminished or otherwise affected by:

-

a. Any change in the Articles of Association or Bye-Laws or constitution of the Bidding Entity or the Guarantor.

b. Any time, indulgence, waiver or consent given to Bidding Entity by the Beneficiary.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

c. Any amendment to the Authorisation or any security or other guarantee or indemnity to which Bidding Entity has agreed.

d. The dissolution, amalgamation, reconstruction or reorganisation of Bidding Entity or Guarantor.

#### 11. NOTICES:

Any notice, demand, declaration or other communication to be given by the Beneficiary or the

Guarantor to the other shall be in writing, in English language and delivered in person or by Air

Mail or by Courier Services or by Facsimile or by E-Mail to the address given below: -

For Guarantor

Attention of

Mailing Address

Email Address

Fax No.

For Beneficiary

Attention of Secretary,

Mailing Address Petroleum and Natural Gas Regulatory

Board,

1st Floor, World Trade Centre,

Babar Road, New Delhi 110001.

Email Address [ninthround.cgdbid@pngrb.gov.in](mailto:ninthround.cgdbid@pngrb.gov.in)

Fax No. 011-23709151

#### 12. GOVERNING LAW AND JURISDICTION:

This Guarantee shall be exclusively governed by and construed in accordance with the laws of India without giving effect to the principles of conflict of laws therein. No party shall

take a plea that any forum is inconvenient. It may be enforced in terms of the Indian laws.

13. This Guarantee may be executed in one or more counterparts, all of which shall be read

and construed as one document and any fax copy or scanned copy or print of a scanned copy of a signed Guarantee shall be deemed to be an original signature.

14. No modification, alteration or amendment of this Guarantee or any of its terms or provisions

shall be valid or legally binding unless the Beneficiary consents to the same in writing.

15. No failure to take any action with respect to a breach of this Guarantee or a default by any

other party shall constitute a waiver of the Beneficiary's right to enforce any provision of this

Guarantee or to take action with respect to such breach or default or any subsequent breach or default.

16. Waiver of any breach or failure to comply with any provisions of this Guarantee shall not be

construed as, or constitute, a continuing waiver of such provision, or a waiver of any other

breach of or failure to comply with any other provision of this Guarantee, unless any such waiver has been consented to by the concerned party in writing.

17. This document has been executed by a duly authorised signatory on behalf of the Guarantor having the requisite power to do so.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 49

IN WITNESS WHEREOF the Guarantor has duly executed this Guarantee as at the date first

above written.

For and on behalf of Guarantor \*For and on behalf of Guarantor

Name and Signature of Authorised signatory

along with official seal

Name and Signature of Authorised signatory

along with official seal

For and on behalf of Bidder Witness:

Signature:

Name:

Designation

Name and Signature of Authorised signatory  
along with official seal

Date:

Witness:

Signature:

Name:

Designation

Date:

\* to be added in case of multiple Guarantors

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 50

ANNEXURE 11

(1 of 2)

(The bidder shall provide their acceptance by signing on Proforma of Performance Bank Guarantee by the bidder or authorized signatory along with official seal. This shall be submitted separately as a part of Technical Bid.)

#### PROFORMA FOR PERFORMANCE BANK GUARANTEE

(Refer clause 4.5 of Section I: Instructions to Bidders)

In respect of City Gas Distribution Network in \_\_\_\_\_ (Geographical Area)

In consideration of the Petroleum and Natural Gas Regulatory Board (hereinafter referred to

as 'PNGRB') having agreed to grant authorization to M/s

\_\_\_\_\_ of

\_\_\_\_\_ (hereinafter called 'the authorized entity') to

lay, built, operate, or expand CGD network (hereinafter called 'the service') as per Letter of

Intent for Grant of Authorization/Letter of Authorization No. \_\_\_\_\_ dated

\_\_\_\_\_ (hereinafter called ‘the said Authorization’) on the terms and conditions contained in the said Authorization, which inter-alia provides for production of a Bank Guarantee to the extent of Rs. \_\_\_\_\_ (in words \_\_\_\_\_) for the service by way of security for the due observance and performance of the terms and conditions of the said Authorization. We \_\_\_\_\_ (indicate the name and address and other particulars of the Bank) (hereinafter referred to as ‘the Bank’) at the request of the Authorized Entity hereby irrevocably and unconditionally guarantee to PNGRB that the Authorized Entity shall render all necessary and efficient services which may be required to be rendered by the Authorized Entity in connection with and / or for the performance of the said Authorized Entity and further guarantees that the service which shall be provided by the Authorized Entity under the said Authorization, shall be actually performed in accordance with the terms & conditions of the Authorization to the satisfaction of PNGRB.

2. We, the Bank, hereby undertake to pay PNGRB an amount not exceeding Rs. .... (Rupees.....only) against any breach with respect to timely commissioning of the proposed CGD network as per prescribed targets and also meeting service obligations by the authorized entity during the operating phase of the project, \_\_\_\_\_ including failure to extend the validity of this guarantee or to give a fresh guarantee in lieu of the existing one.

3. We, the Bank hereby, in pursuance of the terms of the said Authorization, absolutely, irrevocably and unconditionally guarantee as primary obligor and not merely as surety the payment of an amount of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only) to PNGRB to secure due and faithful performance by the Authorized Entity of all its/their obligations under the said Authorization.

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

ANNEXURE 11

(2 of 2)

4. We, the Bank, hereby agree that the decision of PNGRB as to whether the Authorized Entity

has failed to or neglected to perform or discharge his duties and obligations under the said

authorization and / or whether the service is free from deficiencies and defects and is in accordance with or not of the terms & conditions of the said Authorization and as to the amount payable to PNGRB by the Bank hereunder shall be final and binding on the Bank.

5. WE, THE BANK, DO HEREBY DECLARE AND AGREE that:

(a) the Guarantee herein contained shall remain in full force initially for three years from date of issue and will be extendable three months before expiry of the same, for next three years and so on until the period of authorization of the CGD network in terms of authorisation letter.

(b) the PNGRB shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Authorization or to extend time of performance of any obligations by the said Authorization from time to time or to postpone for any time or from time to time any of the powers exercisable by the PNGRB against the said Authorized Entity and to forbear or to enforce any of the terms and conditions relating to the said Authorization and we shall not be relieved from our liability by reason of any variation or extension being granted to the said Authorized Entity or forbearance act or omission on the part of PNGRB or any indulgence by the Board to the said Authorized Entity or to give such matter or thing whatsoever which under the law relating to sureties would but for this provision, have effect of so relieving us.

(c) any claim which we have against the Authorized Entity shall be subject and subordinate to the prior payment and performance in full of all the obligations of us hereunder and we will not without prior written consent of PNGRB exercise any legal right or remedy of any kind in respect of any such payment or performance so long

as the obligations of us hereunder remains owing and outstanding.

(d) This Guarantee shall be irrevocable and the obligations of us herein shall not be conditional of any prior notice by us or by the Authorized Entity.

6. We the BANK undertake not to revoke this Guarantee during its currency except with the

previous consent of PNGRB in writing and all claims under this guarantee shall be payable

at (Branch Name and Address) New Delhi.

7. Notwithstanding anything contained above, our liability, under the Guarantee shall be restricted to Rs..... and our Guarantee shall remain in force until.... year from the date hereof. Unless a demand or claim under this Guarantee is made on us in writing within this

date i.e. .... all your rights under the Guarantee shall be forfeited and we shall be released

and discharged from all liabilities there under.

Dated \_\_\_\_\_ day \_\_\_\_\_ for \_\_\_\_\_

(Name of the Bank)

Witness:

1.....

.....

.....

2.....

.....

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 52

ANNEXURE – 12

(1 of 1)

(The bidder shall provide required information in the given format in their letter head duly signed by the bidder or authorized signatory along with official seal. This shall be submitted separately as a part of Technical Bid.)

Bid No.:

## **DECLARATION ABOUT TECHNICAL & OPERATIONAL MANPOWER ON PERMANENT ROLL**

(at the time of bid submission)

(Refer clause No. 1.4.4 of Section I: Instructions to Bidders)

The Secretary, Date:

Petroleum and Natural Gas Regulatory Board,

1 st Floor, World Trade Centre,

Babar Road,

New Delhi – 110 001

Following personnel who are on our permanent roll have adequate experience as required under

sub-regulation 5 (6)(b)(iv) and 5 (6)(c)(iv) of PNGRB CGD Authorization Regulation:

Sr.

No.

Name

Design

ation

Qualification

(degree in

engineering)

No. of years of relevant

experience under sub-

regulation 5 (6)(b)(iv)

(  $\geq 3$  years in the fields of right

of way acquisition or clearance

securing, design and execution

of a hydrocarbon steel, pipeline

project, pre-commissioning

including hydro-testing and

restoration and safety of

hydrocarbon steel pipeline and

installations )

No. of years of relevant experience

under sub-regulation 5 (6)(c)(iv)

(  $\geq 3$  years in the fields of

commissioning of a hydrocarbon

pipeline, operation and

maintenance of natural gas

pipelines and natural gas

installations including gas

compressors, commercial issues

including gas pricing, gas

measurement, accounting, billing

and collection and safety of natural

gas infrastructure)

Remarks

(Technical/

Operation)

1.

2.

3.

4.

Date : Certified by CEO/Full-time Director of

the bidder or authorized signatory

Place : (Signature & Stamp)

Enclosed: Copies of Qualification certificate/s

Certified that the above named personnel are on the permanent rolls of the company.

Counter-signed by Firms' Chartered Accountant

Name and Signature of bidder or authorized signatory

Official Seal

For Reference Only

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 53**

**ANNEXURE – 13**

**(1 of 1)**

(The bidder shall provide required information in the given format in their letter head duly signed by the bidder or authorized signatory along with official seal. This shall be submitted separately as a part of Technical Bid).

**DECLARATION ABOUT CONFORMITY WITH REGULATIONS**

(Refer clause no. 2 of Schedule-D of the PNGRB CGD Authorization Regulation

To

The Secretary, Date:

Petroleum and Natural Gas Regulatory Board,

1 st Floor, World Trade Centre,

Babar Road,

New Delhi – 110 001

It is certified that:

1) . The entity shall comply with all PNGRB's Regulations and their amendments.

Date:

Place: Name and Signature of bidder or authorized signatory

For Reference Only

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 54**

**FINANCIAL BID FORM**

For Reference Only

**Bid No.: PNGRB/CGD/BID/9/2018**

**Page | 55**

(The bidder shall provide required information in the given format duly signed by the bidder or authorized signatory along with official seal. This shall be submitted separately in sealed envelope earmarked as Financial Bid).

**AUTHORIZATION FOR LAYING, BUILDING, OPERATING OR EXPANDING CITY OR**

**LOCAL NATURAL GAS DISTRIBUTION NETWORK IN THE GEOGRAPHICAL AREA**

**DEPICTED IN THE MAP**

**PART-II: FINANCIAL BID**

**Bidding Parameter Quote in figures Quote in words**

**A Transportation rate for CGD for laying, building, operating or expanding the CGD network for first year.**

**Note: The value should not be less than Rs 30 per MMBTU.**

**Rs.< \_\_\_\_\_ >**

**per MMBTU**

**Rs.< \_\_\_\_\_ >**

**per MMBTU**

**B Transportation rate for CNG for the first year**

**Note: The value should not be less than Rs 2 per kilogram**

**Rs.< \_\_\_\_\_ > per**

**kilogram**

**Rs.< \_\_\_\_\_ > per**

**kilogram**

**C No. of Natural Gas Stations to be installed in CGD network within first 8 years**

**< \_\_\_\_\_ >**

**Numbers**

**< \_\_\_\_\_ >**

**Numbers**

**D No. of PNG domestic Connections to be achieved within first 8 years**

**< \_\_\_\_\_ >**

**Numbers**

**< \_\_\_\_\_ >**

## Numbers

E Inch-kilometer of steel pipeline to be laid within first 8 years

< \_\_\_\_\_ >

Inch-kilometer

< \_\_\_\_\_ >

Inch-kilometer

## Notes:

1. All quotes should be both in figures as well as words in the space as provided.
2. All tariff quoted above shall be up to two decimal places only.
3. All quoted figures should be positive numbers, i.e. exceeding zero.
4. Transportation rate for CGD is with reference to gross calorific value (GCV) of natural gas.

Date: Name and Signature of Bidder / Authorized Signatory

Place: Official Seal

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 56

## PART B

For Reference Only

Bid No.: PNGRB/CGD/BID/9/2018

Page | 57

## ANNEXURE – 1

(1 of 1)

(The bidder shall be submitted this Annexure duly stamped and signed by the Authorised Signatory as a part of Technical Bid as a token of acceptance).

Basic Bid Schedule

To,

Bid No.

PNGRB/CGD/BID/9/2018/GA -- \_\_\_\_\_

DISTRICT(S)

**Price of Bid Document**

**Nil**

**E-Participation charges**

**Rs. 5,000 (Rupees Five Thousand only) to be paid to**

**TELECOMMUNICATIONS CONSULTANTS INDIA LIMITED in the  
form of RTGS/NEFT/Payment Gateway**

**Date of Issue**

**\***

**Type of Bid**

**E-Tender: Single Stage and Two Envelope and**

**Public Tender Opening events**

**Last Date of Bid Issuance**

**Application Fee**

**(Non - refundable)**

**Rs. \_\_\_\_\_ Lakhs**

**Pre - Bid conference date**

**and time**

**30 days from date of issuance at 1130 Hrs.**

**Bid Closing Date & Time 90 days from date of issuance 1730 Hrs.**

**Part I (Technical Bid) :**

**Opening Date & Time**

**\_\_\_\_\_ at 1100 Hrs**

**Part II (Financial Bid) :**

**Opening Date & Time**

**Shall be intimated later**

**Venue of Bid Opening**

**Secretary Office, PNGRB, 1 st Floor, World Trade Centre, Babar  
Road, New Delhi – 110 001**

**Bid Bond Rs. \_\_\_\_\_ Crore**

**\* CGD Authorization Amendment 2018 Regulation is under Gazette notification. The**

date of issuance of Bid document shall be informed subsequently.

# Annexure 7 – MoPNG Orders



Government of India  
Ministry of Petroleum and Natural Gas  
Shastri Bhawan, New Delhi-110001 (Fax: 23389985)

Ref No. L-16013/3/2012-GP-II

Dated: August 20, 2014

To,

1. CMD  
GAIL (India) Ltd.  
New Delhi
2. Director General,  
PPAC,  
New Delhi.

Subject: Revised Guidelines for allocation/supply of domestic natural gas to CGD entities for CNG (transport) and PNG (domestic) segments.

Sir,

This Ministry has revised the Guidelines dated 3.2.2014 on allocation/supply of domestic natural gas to CGD entities [CNG (transport) and PNG (domestic)]. A copy of the revised Guidelines dated 20.8.2014 is enclosed herewith for strict compliance.

Yours faithfully,

 20.08  
(Prashant Lokhande)  
Deputy Secretary  
☎: 23073069

Copy to:

1. Secretary, PNGRB for information
2. All CGD entities for information
3. Technical Director (NIC) for hosting on the website