

An Institutional Perspective on Electricity Industry Reforms

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CERTIFICATE OF AUTHORSHIP

I certify that the work in this thesis has not previously been submitted for a degree, nor has it been submitted as part of the requirements for a degree, except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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ABSTRACT

This research develops an institutional perspective on electricity reform, with specific emphasis on understanding the reasons for the disparity between expectations from reform and its actual outcomes, and (hence) for identifying ways to reduce this disparity. The backdrop for this research is as follows. There is a significant, and global, disparity between expected and actual outcomes of reform. The discussion about the reasons for this disparity and how to reduce it has primarily been confined to the economic aspects of electricity reform, particularly its structural (market design) and implementational (role of government) aspects. This perspective (*i.e.*, exclusively economic) – this research contends – is deficient because it is unappreciative of the influence of socio-economic and political factors (that define the role of electricity in wider socio-economic context of human lives) on shaping the contours of electricity reform including its direction, depth, and pace. This research is accordingly founded on the premise that real understanding of the reasons for the disparity and ways to reduce it could only be developed from an institutional perspective on electricity reform that recognises the influence of socio-political-cultural factors on shaping the reform program.

The approach employed in this research is a combination of two approaches, namely, an amended *combined institutional approach* (as proposed by North 1990 and 2005), and an approach for *analysing political power structures*. The *combined institutional approach* analyses how changes in the configuration of the electricity industry (*i.e.*, its structure, ownership, and regulation) are influenced by the underlying formal and informal institutions. It also analyses how these institutions in turn are shaped by the pursuit of interests of diverse socio-political players driven by a range of cultural, socio-economic and political considerations and beliefs. The approach for *analysing political power structures* examines the capacity of these socio-political players to influence each other, in order to pursue their interests.

The case-in-point context for this research is provided by 15 selected developed and developing countries, covering a wide spectrum of cultural, socio-economic and political characteristics. This selection constitutes a sound base for understanding the influence of institutions on shaping electricity reform, and for generalizing the insights gained from this research

The analyses in this research suggest that the configuration of the electricity industry is shaped by the underlying formal (*e.g.*, legislation, socio-economic structure, and developmental-orientation) and informal (*e.g.*, norms, ideologies, and beliefs) institutions. The contours of these institutions in turn are shaped by dominant political interests of the time. These interests are well entrenched in the underlying political power structures. These political power structures typically change slowly; they thus have a lasting grip on the shape and direction of electricity reform. This viewpoint on electricity reform therefore suggests that electricity reform is merely a process of serving dominant political interests of the time. By implication, it also suggests that these political interests translate into the overall objectives of electricity reform. Contemporary analysis of electricity reform, which tends to view reform almost exclusively from an economic perspective, may therefore be inappropriate means to achieve the overall objectives of the electricity industry, and hence incapable of preventing the ever widening disparity between expectations from reform and its actual outcomes. This research accordingly suggests that prerequisites for reducing this disparity are: i) appreciating the influence of underlying political interests on shaping the contours of reform; and ii) adopting more flexible approaches to reform that are able to accommodate conflicting interests in a balanced manner.

ABBREVIATIONS

ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
CCGT	Combined Cycle Gas Turbine
CCP	Chinese Communist Party
CDF	Comprehensive Development Framework
CEGB	Central Electricity Generating Board in England
EAP&L	East African Power and Lighting in Kenya
EBRD	European Bank for Reconstruction and Development
ECG	Electricity Company of Ghana
ECNSW	Electricity Commission of New South Wales in Australia
EDM	Electricidade de Mocambique in Mozambique
EGAT	Electricity Generating Authority of Thailand
EPIRA	Electric Power Industry Reform Act
EPU	Economic Planning Unit in Malaysia
ESCOM	Electricity Supply Commission in South Africa
EU	European Union
GHG	Greenhouse Gas
IDB	Inter-American Development Bank
IPPs	Independent Power Producers
MEPI	Ministry of Electric Power Industry in China

MERT	Mandatory Renewable Energy Target in Australia
METP	Ministry of Energy, Telecommunications and Posts
NDRC	National Development and Reform Commission in China
NEB	National Electricity Board in Malaysia
NEPAD	New Partnership for Africa's Development
NEPO	National Energy Policy Office in Thailand
OTC market	Over-the-counter market
PPAs	Power Purchase Agreements
RTOs	Regional Transmission Organisations
SAPs	Structural Adjustment Programs
SDPC	State Development Planning Commission in China
SEBs	State Electricity Boards in India
SERCs	State Electricity Regulatory Boards in India
SERCs	State Electricity Regulatory Commission in China
Solar PV	Solar Photovoltaic
SPC	State Power Corporation in China
WESM	Wholesale Electricity Spot Market in the Philippines