National Community Energy Strategy

Appendix F

Community Energy Cost Analysis and Cost Reduction Potential

C4CE

ABOUT THE AUTHORS

The Institute for Sustainable Futures (ISF) was established by the University of Technology, Sydney in 1996 to work with industry, government and the community to develop sustainable futures through research and consultancy. Our mission is to create change toward sustainable futures that protect and enhance the environment, human wellbeing and social equity.

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EXECUTIVE SUMMARY

Introduction and approach

This research investigates the cost and income structures and cost reduction potential of six models of community renewable energy: Repower Shoalhaven, ClearSky Solar Investments (CSSI), Sydney Renewable Power Company (SRPC), Hepburn Wind, New England Wind, and Moreland Energy Foundation's (MEFL) rates-backed low income Solar Savers scheme in Darebin.

This research was undertaken to test the hypothesis that the provision of financial assistance to an emerging sector will establish a path towards community energy projects that are independent of government or philanthropic support. To test this hypothesis the research focused on questions such as:

- What is the cost reduction potential of these models?
- What strategic sector building initiatives can best contribute to the cost reduction or cost effectiveness of community energy projects?
- How sensitive are community energy projects to external factors such as the Renewable Energy Target and electricity prices?

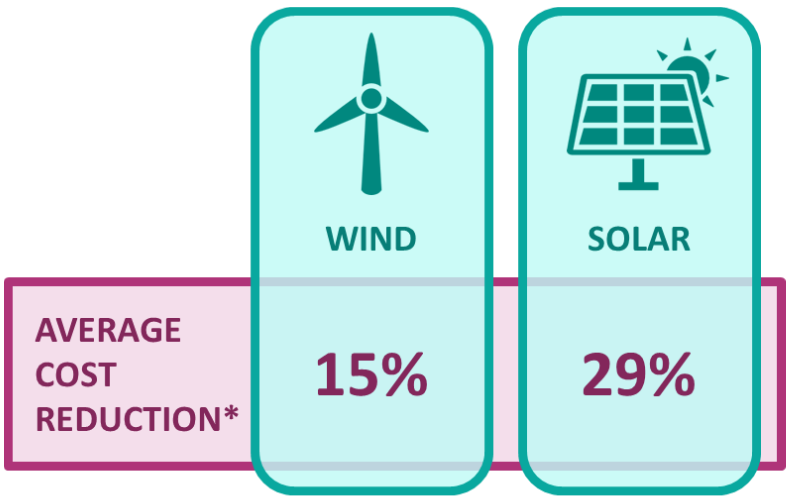
Data from the six models included costs and income for the first project of a model, the likely or actual costs when a model is replicated through a second project, and an estimate of what the minimum possible cost of the model could be if costs could be brought down based on a number of favourable preconditions. The cost reductions are estimates from the model developers, and in some cases represent firm representations of plans to streamline processes or reduce overheads, and in other cases is a looser estimate of what is achievable. In all cases the "minimum possible cost" should be treated as more speculative than the "replication" cost.

Findings and conclusions

The models were found to have very different cost and income profiles, however the one common element was that the first project application of these models is heavily reliant on in-kind contributions, particularly volunteer time. In-kind contributions constitute up to a third of total project development and operational costs for some models. This is a feature of community energy projects and demonstrates the difficulty of establishing a model for the first time.

The most important factor in reducing the costs of a model was found to be successful replication.

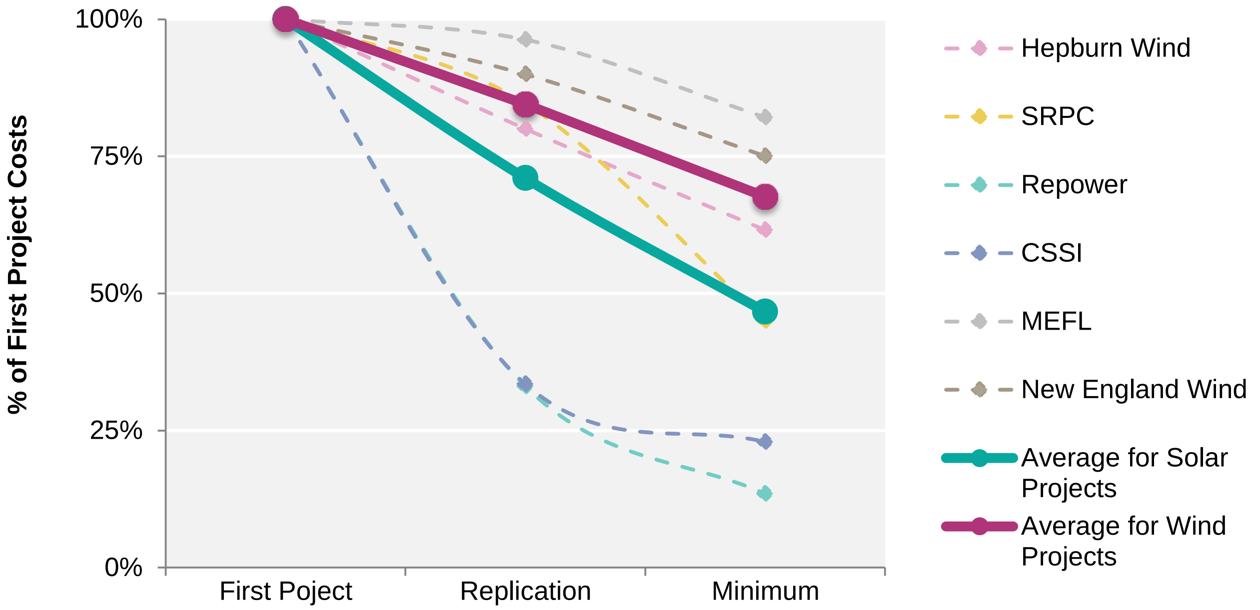
As shown in Figure 1 below, a single replication alone can reduce project development and operational costs by between 4% and 67% (combined monetary and in-kind contributions). The average cost reduction from the first model replication for wind projects is 15% and for solar projects is 29%.



** Average cost reduction from the first model replication*

When extended to the best case for each model, the cost reduction potential ranges from 18-87%. Again, solar models generally show a larger average cost reduction potential than wind models. This is broadly representative of wind models being more site specific than solar models. Where fewer elements of the model are exactly replicable between sites, less economies of scale are able to be captured through replication.

Figure 1: Project development and operational cost reductions by model



Specific cost line items in the development stage of each model were analysed for the greatest cost reduction impact. Legal costs, project management, business model development and governance (combined in-kind and monetary costs) were identified as having the biggest cost reduction potential. In some cases these cost line items almost disappear upon replication. For SRPC, replicating the model once is expected to achieve a 75% reduction in the legal costs, which represent half of the cost of project development for this model.

Funding bodies looking to assist in developing a self-sufficient community energy sector should focus on supporting new and evolving models to get up and running through new and early replication projects, as this reduces pioneering costs (such as legals) and project learning costs. Grant funding has played an important role in this process to date, and remains the most effective form of intervention to achieve cost reductions while the sector is in its infancy. The grant funding process should include support for streamlining of the processes and systems underpinning a model once a pilot project is delivered and opportunities for efficiency improvements have become clear.

Some cost reduction potential requires sector-building initiatives to be realised, such as a central repository of resources, a training program and a public awareness raising campaign. Note that these initiatives will achieve cost reductions for some but not all models, however will importantly contribute to increasing the scale and reach of the community energy sector. An initiative that helped reduce ASIC compliance cost would have the most impact on reducing the cost of community solar models.

All community energy models examined have a strong sensitivity to external factors even after cost reductions. Specifically, both solar and wind models are vulnerable to RET income fluctuations. Therefore a stable and supportive policy environment is still crucial to a flourishing community energy sector.

Furthermore, the sector needs to better understand the impact of potential structural tariff changes on the income streams, particularly behind the meter community solar models, which rely heavily on offsetting a high retail price. Further research is required to understand the cost implications of potential tariff changes on these and other models of community energy.

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

Community energy is still a relatively new concept in Australia. While the sector has expanded rapidly in recent years and is looking to continue to expand, there are currently only 19 operating projects[1] using a handful of 'models' that are financially viable in the current energy market context. Many of the operating projects to date have received some funding support from government or philanthropic sources, although the magnitude of this support differs widely. All operating community energy projects have also benefited from general renewable energy support policies, particularly the Renewable Energy Target (RET).

While there is interest from Government agencies and other funding organisations in providing financial assistance to grow the community energy sector, this funding interest would further facilitated by a better understanding of the current and prospective cost profiles of a number of community energy models. This research tests the hypothesis that the provision of financial assistance to an emerging sector will establish a path towards community energy projects being financially viable, independent of government or philanthropic support.

1.2 PROJECT DESCRIPTION

This research investigates the cost and income structures, and the cost reduction potential, of six models of community renewable energy: Repower Shoalhaven, ClearSky Solar Investments (CSSI), Sydney Renewable Power Company (SRPC), Hepburn Wind, New England Wind, and Moreland Energy Foundation's (MEFL) rates-backed low income solar scheme in Darebin.

Data for the six models is analysed to determine how much the cost of community energy projects could be brought down in future, and to identify the key factors that would contribute to this cost reduction. Where relevant, parallels with key 'priority initiatives' identified in the National Community Energy Strategy are identified. The models are also tested for sensitivity to other external factors beyond the control of community energy groups, such as renewable energy support policies or technology prices, to provide context for the potential magnitude and impact of cost reductions.

Note that the focus of this work is on understanding cost structures and potential for reduction, and as such it is solely a financial assessment of monetary and in-kind cost profiles of a range of different models. It does not capture the non-financial benefits that distinguish community energy projects from commercial projects. As such, this work should not be used for comparing the commercial and community based development of renewable energy, without bringing in these non-financial dimensions. The Collective Impact Assessment (Appendix C to the National Strategy) document gives some background to defining the non-financial indicators and providing a framework to monitor change in these parameters.

[1] Excluding solar bulk buy schemes

1.3 DESCRIPTION OF MODELS

Of the six models covered by the study, four have operating projects – Repower Shoalhaven, CSSI, Hepburn Wind and MEFL – but only CSSI has undertaken more than one project (i.e. has undergone replication) using their model. SRPC is still in project design and negotiation phases, meaning that some of the costs and income streams are commercial-in-confidence. New England Wind is not an operating project, and thus the cost and income streams for this project are more speculative than for other projects.

A short overview of each model is provided in Table 1.

Table 1: Model Descriptions

ClearSky Solar Investments (CSSI)	ClearSky Solar Investments Ltd is a not for profit company that was established by the community environmental group Clean Energy for Eternity Inc to provide opportunities for community members to invest in solar power. Clearsky is effectively a peer-to-peer lending broker. An end user is identified who wants to benefit from solar power but, for whatever reason, does not want to make a capital purchase. ClearSky investors lend the money and have their capital repaid with interest by selling the electricity generated by the system at an agreed price over an agreed term. At the end of the term the panels become the property of the end-user. ClearSky works in close and exclusive collaboration with a commercial partner.
REPower Shoalhaven	The small-scale community solarfarm model pioneered by REPower Shoalhaven and the Difference Incubator's (TDI) uses a proprietary limited company Special Purpose Vehicle (SPV) legal structure to enable up to 50 community members to co-invest in a project (though no more than 20 per year). This model is especially suited to a solarfarm that is installed on the premises of a medium-to-large electricity user. The best example of this model being utilised is REpower One - a 100kW solarfarm created in partnership between REpower Shoalhaven Inc (RSI) and Shoalhaven Heads Bowling Club.
Sydney Renewable Power Company (SRPC)	This mid-sized community solarfarm model developed by Embark through the Sydney Renewable Power Company uses an unlisted public company legal structure to enable medium-to-large numbers of community members to co-invest in a project. The most advanced project using this model is a 500kW project to be built on the Sydney International Convention, Exhibition and Entertainment Precinct at Darling Harbour.
Darebin Solar Savers	This model supports solar PV roll out across the residential sector through utilisation of Council rates scheme to support financing and community sector capacity to provide trusted brokering. The program has supported 300 pensioners in the City of Darebin to install solar PV, with no upfront cost and match repayments with savings on electricity bills. The model is similar to the Property Assessed Clean Energy (PACE) schemes that have operated successfully in USA.
Hepburn Wind	This model is a mid-scale (~2 turbine), grid-connected wind-farm model, pioneered by the internationally award winning Hepburn Wind Project in central Victoria. It applies a cooperative structure to enable thousands of people to be member investors of a community wind project. It also includes a community fund component.
New England Wind	The New England Wind model is an adaptation of the Hepburn Wind model. Currently in development, the model is for a slightly larger scale wind project (3-8 turbines), though still applying a cooperative structure.

1.4 RESEARCH QUESTIONS

This research seeks to better understand the cost and income structures of different community energy models to investigate how and the extent to which the cost effectiveness of community energy projects can be improved. It focuses on the following research questions:

- What are the different cost and income structures of community energy models?
- What are the biggest cost factors (line items) for each model?
- What is the overall cost reduction potential?
- Which models have the greatest cost reduction potential?
- Which cost factors (line items) have the greatest cost reduction potential?
- What strategic initiatives sector building can best contribute to the cost reduction or cost effectiveness of community energy projects?
- How sensitive are community energy projects to external factors such as the Renewable Energy Target and electricity prices?

1.5 CONCEPTUAL COST CATEGORIES

The analysis of cost reducing potential in Section 3.3 refers to a conceptual categorisation of costs developed as part of finance and funding component of the National Community Energy Strategy is shown in Table 2 below.

Table 2: Conceptual Cost Categories faced by Community Energy Projects

Cost Category	Description
Pioneering costs	These are costs faced by community energy projects that are developing new models. They are the costs associated with developing the first project within a model.
Learning costs	As distinct from pioneering costs, these are the learning that every new community group will have to go through even when applying an established model of community energy. This learning process may lead to task overlap and wasted volunteer effort that could be reduced through a series of capacity building initiatives.
Institutional costs	There are a number of institutional barriers to community energy projects, these include but are not limited to: securing a fair price for electricity, accessing timely and affordable grid connection services and approval, complying with ASIC and tax regulations, working through planning processes with state governments and councils on various aspects of project development and delivery. These are the costs that are associated with establishing standard institutional arrangements for community energy projects. Some of these costs could be addressed through delivering pilot projects, while others will need to be addressed by policy or regulatory reform.
Lack of economies of scale costs	There are a number of costs that are higher than they could be due to a lack of economies of scale that community scale community energy projects can face. Examples include, the cost of an annual audit, for commercial solar companies these would be spread out over 50-100+ installations, for community groups these costs might only be spread over one or two solar installations.

2 METHODOLOGY

The project involved the collation and analysis of cost data for six of the most advanced models of community energy in Australia. To achieve this goal, ISF worked in partnership with Repower Shoalhaven, ClearSky Solar Investments (CSSI), Sydney Renewable Power Company (SRPC), Hepburn Wind, New England Wind, and Moreland Energy Foundation, who provided data on cost and income structures of their projects, and cost reduction potentials of the respective models. This reflects a generous in-kind intellectual property contribution that allows the benefits of years of work in the sector to be analysed in this project.

2.1 DATA COLLATION

To collate data for this cost modelling exercise, the following steps were undertaken:

1) A spreadsheet template was developed for capturing consistent cost and income data across the six community energy models.
2) Partner feedback of the template was received, with recommended template revisions made to reflect the diversity of project types and clarify line item inclusions. The final data template is shown in Appendix A.
3) Project partners then populated the data templates with income and costs for:
    a) The first project (the first application of the model),
    b) The next project (the second application of the model, capturing the benefits of replication)[2], and
    c) The minimum possible cost (estimates of how low the costs of the model could be brought down based on a number of favourable preconditions, such as sector building activities, and continued replication at scale)
4) Project partners were then interviewed to identify cost reductions likely to be achieved for their model in the case that particular project streamlining and sector building initiatives were to take place. The combination of data in 3b, 3c and 4 informs how cost reductions are to be achieved.

Note that data for monetary costs carries a high level of certainty, as groups keep firm records of this information. In-kind costs were defined using a mix of data kept by groups at the time of the project, and retrospective reviews of the volunteer time spent throughout the project the. Some groups keep more solid records of volunteer contributions than others.

2.2 DATA ANALYSIS

The data across the six models was cross-checked and analysed for consistency of categorisation and any data anomalies. Projects were then compared according to the following category breakdowns:

- Capital costs: both project development costs and plant and capital works costs
- Fixed and variable operational costs
- Upfront income
- Annual income streams.

[2] It should be noted that there were slight differences in assumptions across the case-study models about *who* undertook the replication process. For Repower Shoalhaven, Clearsky Solar Investments, the Darebin Solar Savers and New England Wind models, the costs assume that the same organisation undertakes the second project of a model. Hepburn Wind and Sydney Renewable Power Company data assumes another organisation adapts and undertakes the second project of a specific model. This distinction reflects reality – some groups will only do one community energy project of a certain model, while others will undertake several.

When comparing upfront cost items only (such as project development costs), projects are compared on a dollars per kilowatt installed ($/kW) basis to account for the range of different project sizes, from 60 kW to 6 megawatts (MW).

When comparing a combination of upfront and ongoing cost items (e.g. total project costs), projects are compared on a **annualised** dollars per kilowatt installed ($/kW/a) basis to account for the range of different project sizes and the different investment lifespans of the projects. Upfront costs are annualised over the investment time horizon (e.g. 10 years for Repower Shoalhaven, or 25 years for Hepburn Wind). This ignores the fact that some projects use technology that lasts for longer than the investment period for investors, as this is generally a 'bonus' with a solar PV system gifted to the host site after the investment period ends. Costs would look quite different if annualised over the full technology lifespan. For upfront *monetary* costs, the effective "Cost of Capital" (the cost of money) is also taken into account. For example:

- in the Darebin model debt is carried by the local government, and as such the cost of capital is the relatively low to medium borrowing rate (~5%) that councils would generally face.
- In the Repower Shoalhaven model, the project funded by community investors, who are all sign up to receive a return of 7.86%.

The investment term used for each of the models are shown in Table 3 below. Note that these figures are not necessarily fixed for all project using this model. For example, the CSSI business model adapts to fluctuations to the value of input variables by adjusting the investment term and potentially rate of return. This will depend on the preferences of the host site and the risk profile and economics of the project.

Table 3: Cost of capital and investment term for annualising costs

Model	Financed by	Cost of Capital (%)	Investment Term (years)
ClearSky Solar (CSSI)	Community investors	9.0	7
Repower Shoalhaven	Community investors	7.9	10
MEFL (Darebin)	Council	5.0	10
SRPC	Community investors	4.5	25
Hepburn Wind	Community investors	6.0	25
New England Wind	Community investors	6.0	25

However, for upfront *in-kind* costs no cost of capital is included (in-kind costs are merely by the investment period), as no return on this investment is required. In-kind costs are costed at a standard 'community rate' of $50 per hour for all models. As professional services rates are generally much higher than this, there are many more embedded hours of volunteer time in the in-kind cost figures. In some models this requires unskilled labour for some tasks, skilled labour in others, and semi-professional labour in others where volunteers bring years of relevant experience to a particular role. Upfront project development income (e.g. grants and fundraising) is also annualised using a simple annualisation, dividing the in-kind cost by the investment period, as no return on this investment is required.

A final process of sensitivity testing model cost-effectiveness in response to a number of external factors is conducted. A range of plausible low and high figures were estimated for RET-related credits, wholesale energy price (for large projects), electricity sale price (for small behind the meter projects), and technology costs, which may be influenced positively or negatively by exchange rates, or positively by falling technology costs. The range of these plausible figures was generally +/- 30%, and as such sensitivity of each model to a standardised 30% variance in these variables was tested. The results assessed the impact of this variance on *total income* (for electricity sale price, wholesale price and RET value) or *total costs* (for technology costs). These sensitivities are then compared to relative magnitude of cost reductions discussed in the analysis.

3 RESULTS AND ANALYSIS

3.1 OVERVIEW OF COST AND INCOME STRUCTURES

The costs and incomes analysed and presented in this section are for the **first** project application of a community energy model, so represent the research and development costs, or costs associated with the business model innovation process. Cost reductions associated with later replication and discussed in Section 3.3 below.

Average cost and income categories

Figure 2 shows the average monetary cost breakdowns for solar and wind community energy models, based on the first project application. This gives a picture of where hard costs are spent, and ignores all in-kind kind contributions.

Capital costs make up a similar proportion of total monetary costs for both model types, while other categories differ markedly.

Project development costs constitute a larger *proportion* of solar project costs than wind project costs. This is primarily due to project scale, as while professional services such as legal and accounting advice may be more expensive in absolute terms for larger wind projects, these are dwarfed by much larger capital and operating costs.

Operation and maintenance costs are significantly higher for wind power projects compared to solar. This is due to more moving parts and greater requirement of specialised expertise, and the longer average investment time horizon of 25 years for wind models, relative to 13 year average for solar models (refer to Table 3 for investment time horizons used for each model). The implication is that for solar projects, a greater proportion of the total monetary costs are known or 'locked in' at the time of investor commitment.

Figure 2: Annualised monetary cost breakdown by technology type

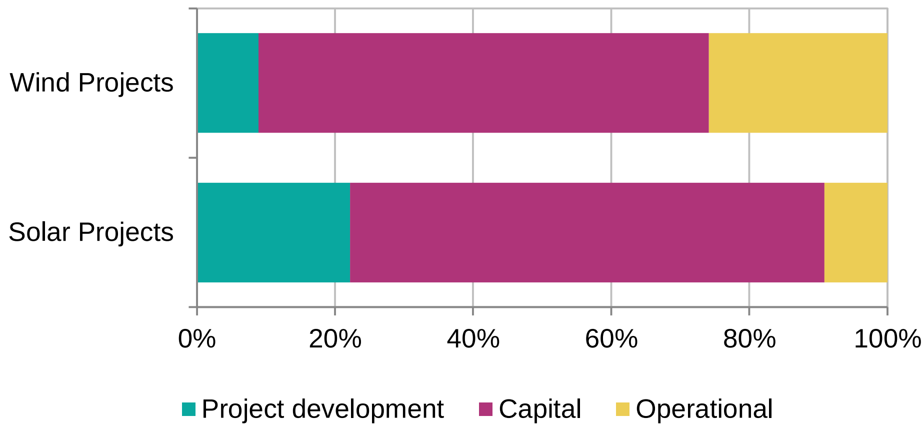


Figure 3 below shows average first project in-kind cost breakdowns for solar and wind models. In-kind costs are split relatively evenly between up front project development phase, and operational phase for both solar and wind projects. This suggests that at least in the first project application, in-kind contributions do not disappear after the model has been agreed and investors secured, but continue over the life of the project. While this varies by model, this may be reflective of the marginal economic conditions for the models in the current energy market context, and that groups chosen to favour in-kind contributions to manage accounts or governance over time to maintain a reasonable return for community investors. More detailed analysis of in-kind costs follows.

Figure 3: Annualised in-kind cost breakdown by technology type

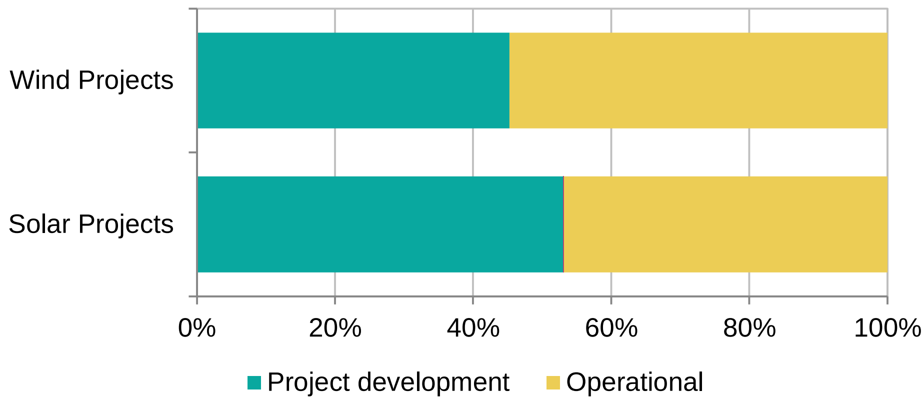
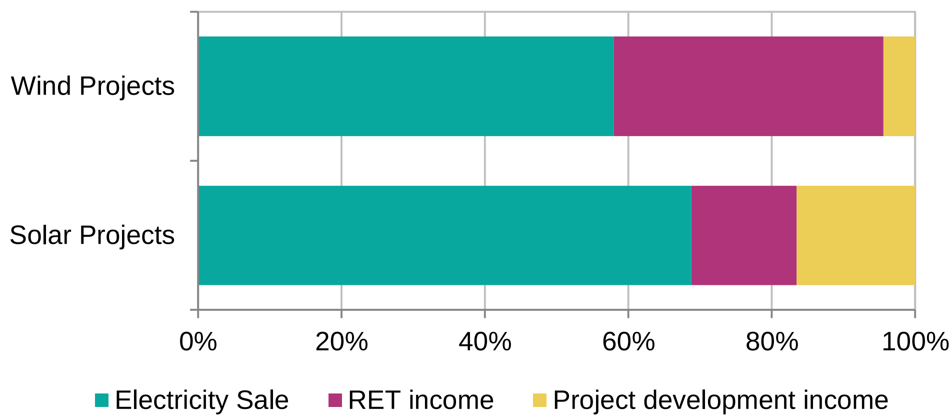


Figure 4 shows breakdowns of average annual income by income stream for wind and solar community energy models. Project development income is highly variable between models and is much less significant income proportion for larger wind projects. It represents a combination of grants, group fundraising efforts, sponsorship and membership fees. As expected, for both solar and wind projects electricity sale contributes the greatest proportion of annual income. As solar projects are behind-the-meter and attract closer to a retail electricity sale price (15-25c/kWh), rather than a wholesale electricity price (3-6c/kWh), these projects are more heavily weighted on the electricity sales. Wind projects, which compete in the wholesale electricity market are notably more reliant on the RET for income compared to behind-the-meter solar projects, with a 38% RET share of income compared to 15% for solar projects. Nevertheless, a considerable portion of income for both project types comes from the RET, showing that RET income is still a substantial contributor to the viability of all community energy projects. (Note that the sub-100kW solar projects receive RET benefit as a reduced point of sale cost, however this is been presented below as income for consistency.) This will be discussed further in the sensitivity analysis in Section 3.6.

Figure 4: Average annual income breakdown by technology type



Monetary vs in-kind costs

Monetary and in-kind costs that are 'controllable' by community energy groups tend to fall into upfront 'project development costs' and ongoing 'operational costs' (plant and capital works costs are not considered here as they tend to be controlled by the broader market). Across the models in-kind contributions vary substantially as a proportion, but are in all cases substantial, at up to a third of total project development and operational costs. As the distribution of in-kind contributions varies greatly by project stage, we will interrogate 'project development costs' and 'operational costs' separately.

Figure 5: Monetary vs in-kind project development costs by model

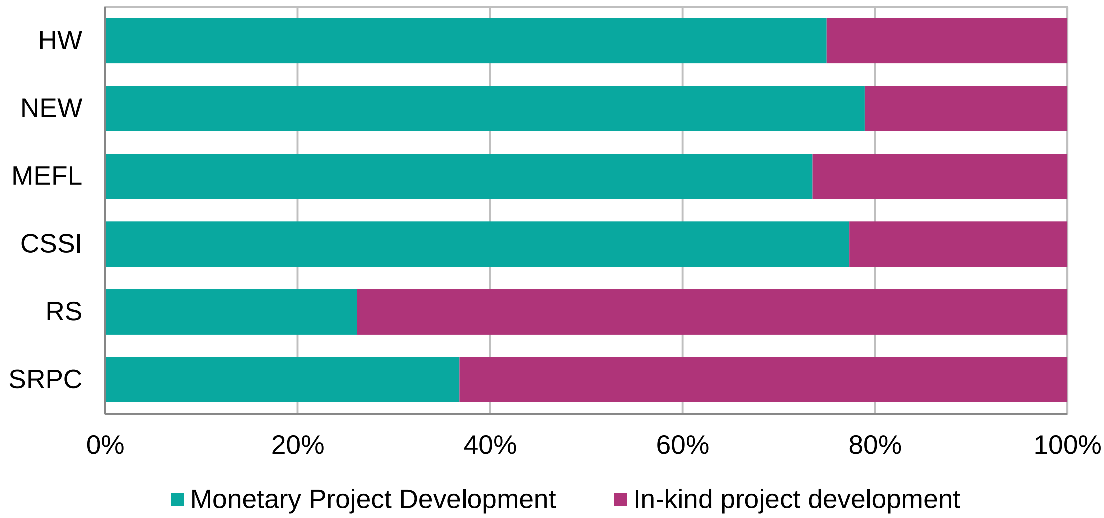


Figure 5 compares the monetary vs in-kind **project development costs** for each model. The wind projects show in-kind costs as a smaller proportion, however this is obscured by project scale. For example, while New England Wind has only around 20% of project development costs as in-kind, this equates to approximately $725,000 in in-kind work. Community energy groups pursuing larger scale wind projects are not necessarily drawing on a larger volunteer base, and as such these values are very substantial for such groups. (Note also that New England Wind is not a completed project, and is likely to continue to accrue in-kind contributions the longer the project takes to be developed.)

The MEFL model has a relatively low in-kind component as this project was developed by a professional project team that has been developing community approaches to energy for many years.

The Repower Shoalhaven and SRPC models in particular demonstrate how vitally reliant the sector is on substantial in–kind contributions from dedicated community energy groups to pave the way for first project model applications. This is also likely a key limiting factor of why many community energy projects take a long time to develop, as raising the skills and volunteer time to get a model operating is a very challenging task.

It follows that there appears to be a trade-off whereby projects with a larger amount of government assistance tend to require lower proportional in-kind contributions. For example, ClearSky (CSSI) received some NSW government grant funding support, and so while project development costs were similar on a $/kW/a basis to Repower Shoalhaven, the grant funding allowed more tasks to be contracted as professional services, reducing upfront in-kind.

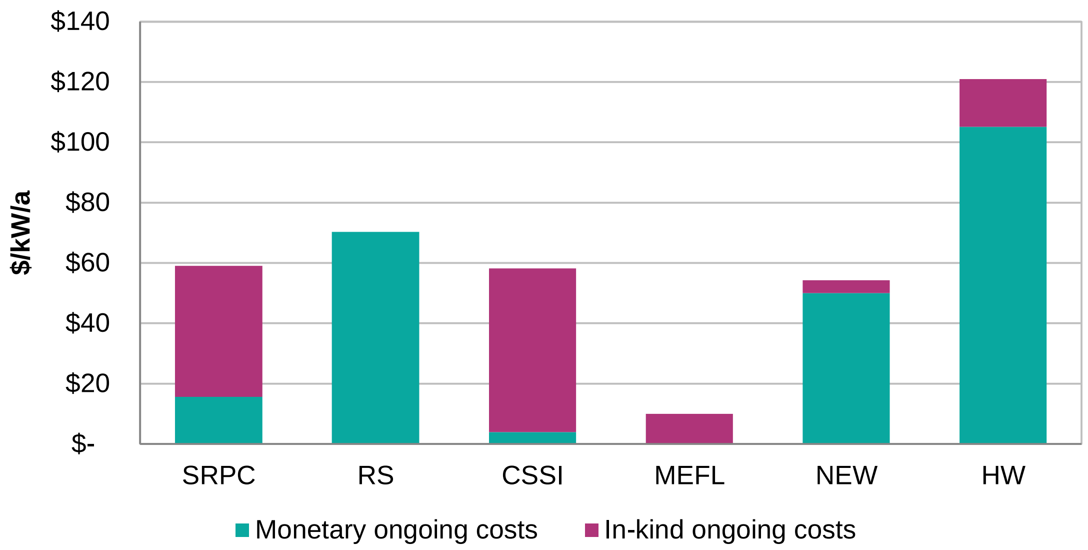
Thus grant funding to the sector may be used to pay for monetary costs, but also may be traded off for reduced in-kind effort. It is anticipated that for the sector this would substantially increase the project development speed, uptake and likelihood of project success.

Figure 6 below compares monetary and in-kind annual ongoing operational costs per model. This is presented as $/kW/a rather than a proportion to highlight the differences between not only the ratio of paid and unpaid contributions, but also the relative magnitude of ongoing costs.

Interestingly, Figure 6 reveals very different approaches of each of the groups developing the models. Three models rely significantly on paid staff for their ongoing operations – New England Wind, Hepburn Wind, and Repower Shoalhaven. The wind projects involve professional services and labour and have high maintenance costs relative to solar. However, Repower Shoalhaven is of interest, as they believe that while very substantial in-kind was invested in developing the proof of concept, the model will only be sustainable and replicable if all ongoing operations and funded, and not entirely vulnerable to volunteer interest.

The MEFL model is almost solely reliant on ongoing in-kind contributions, but these are small in magnitude, which are generally reflective of the very lean nature of the model. CSSI and SRPC are very heavily reliant on ongoing in-kind, which may be a limitation to broad uptake. However, these figures are for the first project, and streamlining activities as part of the replication process have either taken place (CSSI) or could be implemented to automate processes and achieve economies of scale.

Figure 6: Monetary vs in-kind annualised operational costs by model



Project income

The overview in Section 3.1 showed that the wind models are more reliant on RET income, while solar models are more heavily reliant on electricity sales. Figure 7 below shows more detail, comparing project income sources on a $/kW/a basis for each model, showing a breakdown by income line item. Note that SRPC could not be included in this graph to due some commercial-in-confidence income data.

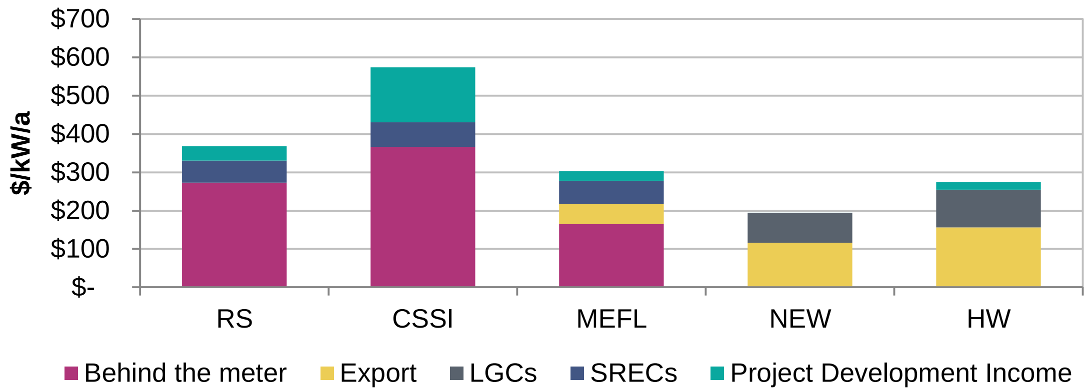
There are two key points to note from this graph:

1. As an annualised cost, project development income (for example, grants and sponsorship) represents a relatively minor proportion of project income.
2. Most of the solar projects focus on maximising behind the meter electricity sales to increase revenues (to reduce 'exports' to the grid in yellow). MEFL is a partial exception as this installs solar on residential premises, where daytime loads are lower than the commercial sites used for the other solar models. If some value for exports to the grid was able to be obtained[3] such as

[3] Currently the network value obtained is zero, and project may at best attract a wholesale rate for grid exports

through a Local Network Charging or Virtual Net Metering arrangement, this would temper the need to for models to focus as heavily on reducing grid exports. In turn, this would open up a larger number of sites as community energy hosts, overcoming a key barrier for community energy groups (refer to barriers found in Collective Impact Assessment in Appendix C to the National Community Energy Strategy). This will be further discussed in the sensitivity analysis in Section 3.6.

Figure 7: Project income breakdown by income line item



3.2 DOMINANT COST LINE ITEMS

This section shows a more detailed view of cost line items for both project development costs and ongoing operational costs, to give a greater feel what is driving these broader cost categories.

Figure 8 below compares different cost line items within the project development cost category for each model. Coordination, business model development, community engagement and capital raising, legals, and governance are key cost areas in the project development of most models.

Figure 8: Project development costs by line item

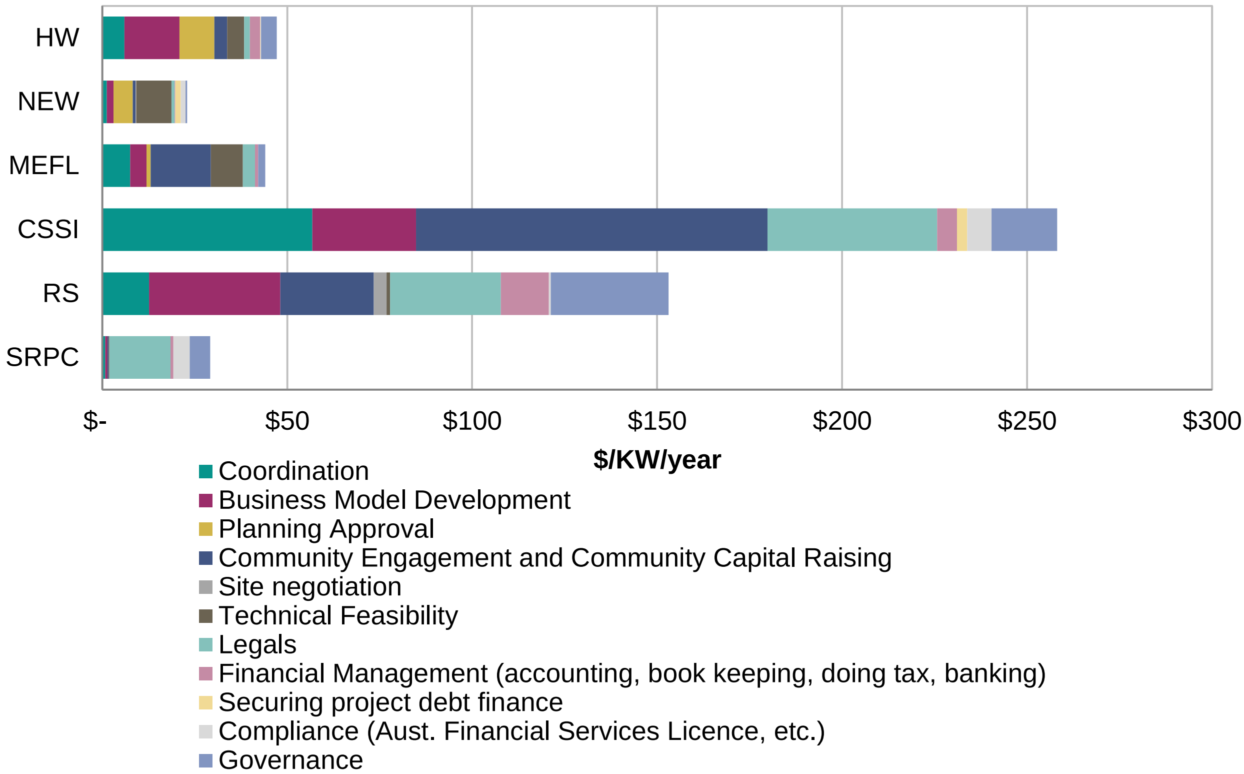
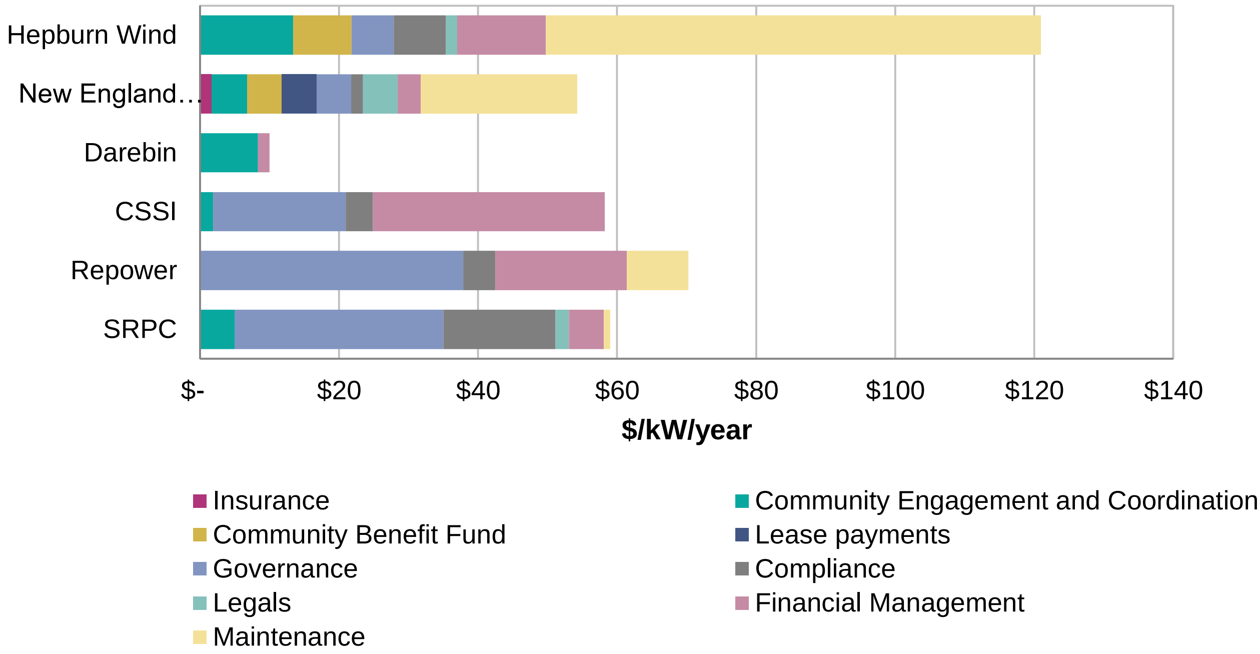


Figure 9 below compares different cost line items within the operational cost category for each model. Maintenance (especially for wind), financial management, and governance are key ongoing cost factors.

Figure 9: Operational costs by line item



3.3 COST REDUCTION POTENTIAL

Overall cost reduction potential

Figure 10 below shows the cost reduction potential for each of the six models, from the first project (the first application of the model) to:

- The next project – the second application of the model, capturing the benefits of replication; and
- The minimum possible cost of the model – estimates of how low the costs of the model could be brought down based on a number of favourable preconditions, such as sector building activities, and continued replication at scale.

Estimations for next project costs (for all models apart from CSSI) and for minimum possible cost of model are based on the model developer's experience and best guess based on a number of years of experience in the field and a deep understanding of their model.

These cost reductions are shown as a reductions in total "project development and operational costs", which excludes plant and capital equipment, as this is largely out of the community group's control and makes up around two thirds of total costs. Hepburn Wind is the only project for which technology costs may have a substantial impact, as turbines were bought at a time when the exchange rate was very poor. Sensitivity to technology cost changes is discussed in Section 3.6.

These cost reductions are estimates from the model developers, and in some cases represent firm representations of plans to streamline processes or reduce overheads, and in other cases is a looser estimate of what is achievable. In all cases the "minimum possible cost" should be treated as significantly more speculative than the "replication" cost. This minimum possible cost serves to illustrate a boundary for the best case outcome for the model, and inform how far a single replication can reduce costs relative to the best possible outcome.

Figure 10 shows that the cost reduction just through replicating a model once ranges massively, varying from 5% to 75%. The general magnitude of these cost reductions is large as they also include not only reduction in monetary costs, but also substantial reductions in in-kind contributions. The average for wind projects is 15% and solar is 29%.

When extended to the best case for each model, the cost reduction potential ranges from 20-90%. Again, solar models show a larger average cost reduction potential than wind models, at 53% compared to 32%. This is broadly representative of wind models being more site specific than solar models. Where fewer elements of the model are exactly replicable between sites, less economies of scale are able to be captured through replication.

The main exception to large reductions in the soar models is Darebin solar savers, which is already very lean, and capitalises on a mature residential solar sector and an experienced and professional community energy development organisation.

Figure 10: Project development and operational cost reductions by model

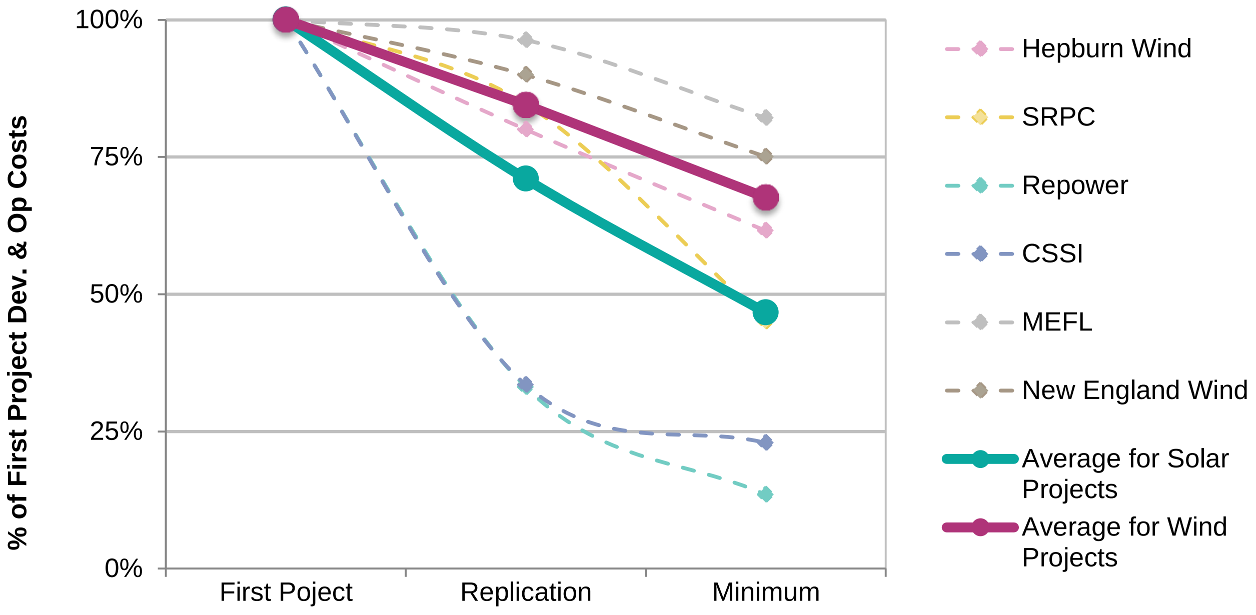
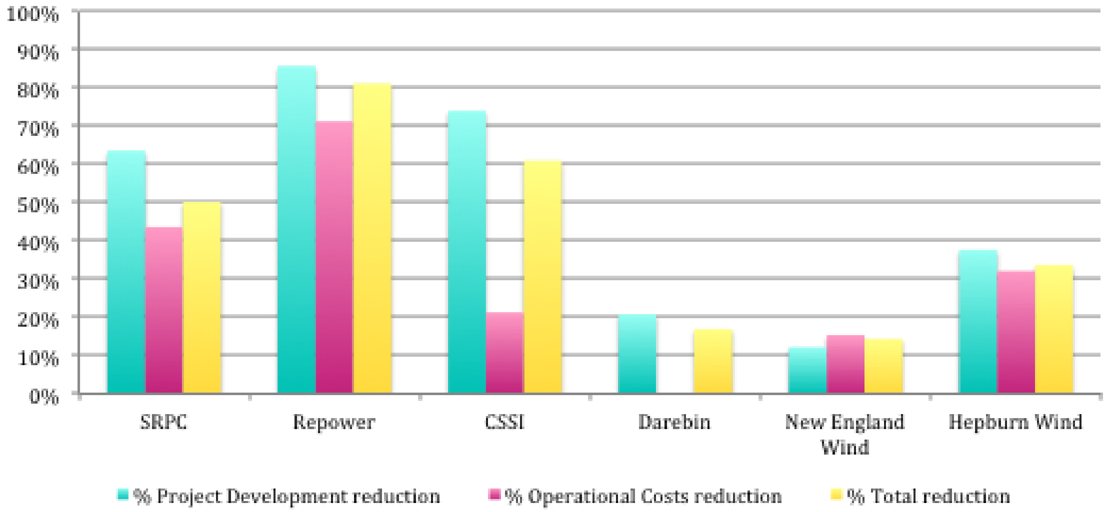


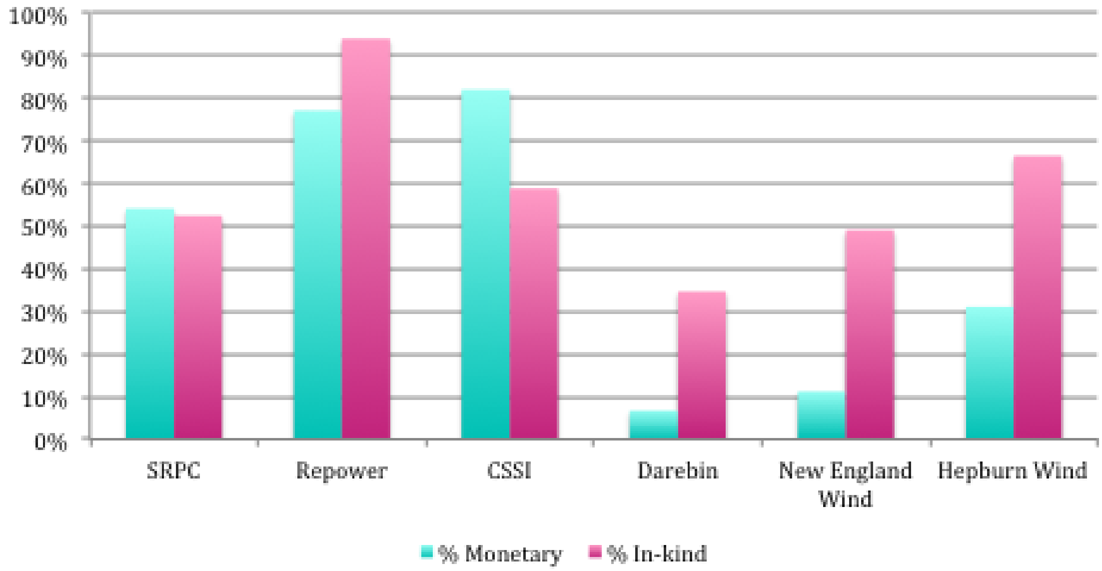
Figure 11 below breaks down the “minimum possible cost” reductions shown in Figure 10 into ‘project development’ and ‘operational’ phases. It shows that the majority of cost reductions come in the project development phase, where pioneering and learning costs dominate. Nonetheless, cost reductions are also possible in the operation phase for all except the Darebin model, which survives on a small in-kind contribution (as shown earlier in Figure 6).

Figure 11: Project development and operational cost reductions (first project to minimum possible cost)



When the same data is viewed from the perspective of monetary vs in-kind, on average more than half (59%) of the 'minimum possible' case cost reductions come from reducing in-kind contributions (shown for each model in Figure 12 below). This is vital if the community energy sector is to achieve greater reach and scale, as in-kind contributions represent a barrier to greater involvement in the sector, as found in the survey for the Collective Impact Assessment (Appendix C to the National Strategy).

Figure 12: Monetary vs in-kind project development & operational cost reductions (first project to minimum possible cost)



Testing cost reduction initiatives

In trying to better understand the cost reduction potential, participating groups were asked to quantify the likely effect of a range of potential sector building initiatives (taken from the National Community Energy Strategy). While this was a worthwhile undertaking, the quantification process proved challenging for groups, as impacts of initiatives often were indirect rather than direct, making estimates of resulting cost reduction speculative. Many of these sector building initiatives increase the scale of participation in the sector, which in turn has a replication benefit for the costs of a given model, but this generally occurs after the pioneering and early replication phases have taken place and the strongest cost reductions have been delivered. Nonetheless, the process proved useful to crystallise these distinctions, and there are some useful points to be drawn from the analysis.

The sector building initiatives investigated were taken from the National Community Energy Strategy and are as follows:

1. Shared administration organisation: establish an organisation that could undertake shareholder payments, Australian Securities and Investments Commission (ASIC) compliance e.g. audits and more (Funding and Finance Sub-Strategy, Initiative 5).
2. Public/stakeholder awareness raising campaign: a campaign to increase awareness and recruit stakeholders to participate in community energy, particularly potential host site organisations (Capacity Building Sub-Strategy, Initiative 4).
3. Making compliance and tax easier: Working with organisations such as the Australian Securities and Investments Commission (ASIC) to provide exemptions or mechanisms to reduce compliance costs (see discussion below) (Policy and Regulatory Reform Sub-Strategy, Initiative 5).
4. Training program: A program that trains community energy groups in essential skills for developing community energy projects as well as in the details of specific models (Capacity Building Sub-Strategy, Initiative 2).
5. Central repository of information resources: A web repository where legal templates, business model spreadsheets, toolkits, case studies and more can be easily accessed by any group looking to do a community energy project (Capacity Building Sub-Strategy, Initiative 3).
6. Lower or more certain costs for grid connection (Policy and Regulatory Reform Sub-Strategy, Initiative 2).

In addition to these six sector building activities, a seventh factor "streamlining of internal processes and systems" underpinning the model was also discussed and quantified.

Of the above seven initiatives, two were quantified as making a more significant impact on reducing in-kind and monetary costs for community solar models: 'internal streamlining' and 'easier tax regulation and reducing the cost of ASIC compliance' (see Figure 13; tax regulation and ASIC compliance shown separately). Internal streamlining has a substantial impact on in-kind costs for both smaller and larger solar models; while tax regulation and ASIC compliance primarily reduce monetary costs for larger scale solar projects, as represented by the SRPC model.

For community wind models (Figure 14) a larger array of strategic initiatives will have an impact on cost reductions. A central repository of resources including legal templates etc., a shared administration organisation, internal streamlining, low interest loans, and training were all identified as contributing to cost reductions.

In both cases, these specific initiatives would contribute around a third to a half of the previously identified first project to minimum possible cost reductions (both first to replication and first to minimum cost reductions are shown as diamonds in Figure 13 and Figure 14).

The gap between the total identifiable reductions and the columns is primarily accounted for by capturing economies of scale and the removal or reduction of pioneering and learning costs as achieved through replication. This conceptualisation of costs is discussed further in Section 3.4 below.

These figures also indicate that the identified strategic sector building initiatives tend to reduce monetary costs to a greater extent than in-kind costs, which are more heavily influenced by replication.

Figure 13: Cost reduction measures – solar projects

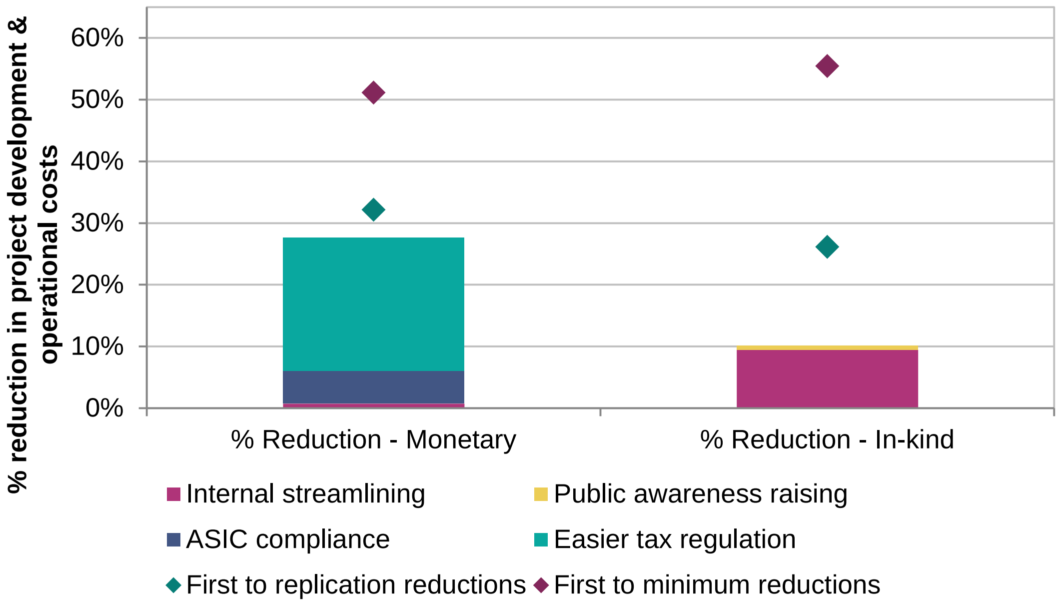
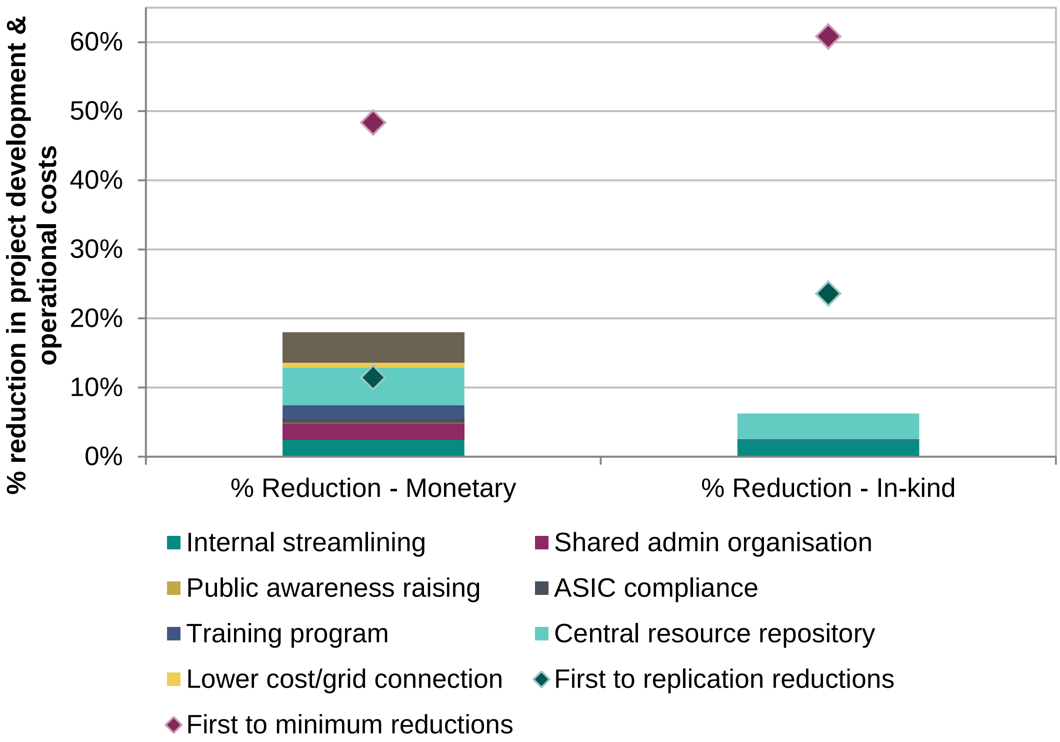


Figure 14: Cost reduction measures – wind projects



Note whether a model is intended to be replicated by the same group or by another group (or both) has bearing on what initiatives and factors will reduce costs and increase cost effectiveness. For example, a central resource repository and training programs are more useful for helping new groups to replicate a model than for an existing group to do it again. As such, the possible cost reduction impact of training and a central resource repository was not able to be quantified for solar, as these groups generally approached replication from the perspective of their own groups replicating the model. However, it is estimated that a central repository and training program could help reduce the monetary project development costs of other groups replicating Hepburn Wind's model by a third (32%). Specifically, this is estimated to result in significant reductions in the cost of business model development and project management.

3.4 ANALYSING REDUCTIONS BY COST CATEGORY

This section refers analyses the cost reductions achieved through the following four cost categories outlined in Section 1.5 of the report:

1. Pioneering Costs
2. Learning Costs
3. Lack of Economies of Scale Costs
4. Institutional Costs.

Pioneering and Learning Cost Reductions

Figure 13 and Figure 14 showed that the suite of strategic initiatives do not account for the full cost reduction potential. This is in part due to the difficulty quantifying and estimating the impact of strategic initiatives, however it primarily reflects how the benefits of replication are accrued. The vast majority of the cost reduction potential, particularly in the first replication of a model, comes from the fact that there are certain lessons learnt, collateral developed, and upfront expenses that don't need to be repeated. Many of these costs are "pioneering and learning costs" (see Section 1.5 for explanation of cost categories) and are at the heart of why getting more community energy projects operating and replicated is core to achieving cost reductions for the sector.

Table 4 below shows the percentage reduction achievable through replicating the model once in four key project development cost line items – legal costs, project management, business model development and governance (combined in-kind and monetary costs). It also shows the proportion of project development costs that that line item accounts for.

In the case of CSSI legals the cost reduction is as great as 99%, where the existence legal contract templates almost eliminates the need for legal input on future projects. For SRPC by replicating the model once, there is likely to be a 75% reduction in the legal costs, which represent half of the original project development cost. Business model development costs naturally come down after the model has been tested, proven and no longer needs to be reworked. Cost reductions from project management and governance are primarily driven by group members having undertaken the tasks and processes before and can do so more efficiently.

This cost analysis indicates that it is the process of getting more projects operating and replicated, which will deliver some of the most significant cost reductions for the sector. As such, we conclude that project development grant funding for new models of community energy is one of the most effective mechanisms to support cost reduction of community energy models. Project development income (grants and sponsorship) has accounted for approximately 4% of the total income of wind projects and 17% of total income of solar projects (Figure 4) and typically covers only a small portion of the full project development costs of a new community energy model. The project development income has ranged from 1% to 25% of the income of the first project of a model.

Table 4: Percentage reduction and proportion of key project development line items

Model	Pioneering and Learning Costs							
	Legals		Project Management		Business Model Development		Governance	
	Reduction Potential*	Proportion of Development costs	Reduction Potential*	Proportion of Development costs	Reduction Potential*	Proportion of Development costs	Reduction Potential*	Proportion of Development costs
SRPC	75%	50%	50%	3%	90%	2%	0%	22%
RS	95%	15%	52%	9%	91%	23%	83%	23%
HW	34%	3%	30%	15%	56%	29%	47%	11%
NEW	19%	4%	50%	9%	68%	9%	20%	3%
CSSI	99%	17%	87%	21%	97%	11%	92%	9%
Darebin	N/A	0%	0%	16%	40%	11%	0%	5%

☐ = *Reduction Potential x Proportion of Development costs > 10%*

** Reduction potential = First project to Replication*

Lack of Economies of Scale Cost Reductions

The other primary cost category in which replication-driven cost reductions manifest is “lack of economies of scale” costs (see Section 1.5 for explanation of cost categories). Through the replication process, streamlining of internal processes and systems underpinning a model can occur, once a pilot project is delivered and opportunities for efficiency improvements have become clear. In an interview, CSSI identified that 20% of their ongoing monetary and in-kind costs could be reduced through internal streamlining of their billing, investor payments, member communications and reporting processes. However, streamlining of processes does take time and sometimes monetary investment, as such we suggest that the any pioneering grants for project development costs of new models include a milestone payment that would cover setting a model up for replication.

One suggested initiative that was hypothesised to reduce economies of scale costs is the idea of developing shared administration infrastructure for the whole community energy sector. However, this is likely only to be useful for larger community energy projects such as New England Wind and Hepburn Wind models. Hepburn Wind estimates that shared infrastructure tailored to the community energy sector could reduce ongoing administration costs by 10%.

Smaller behind-the-meter community solar models are generally lean, in particular the Darebin model, and as such, shared infrastructure is likely to be more expensive than what a group can deliver themselves. This is in part because groups can provide these services in-kind, whereas a centralised community administration service (e.g. that would manage dividend payment etc.) would have to be paid for by groups.

Institutional Cost Reductions

With respect to institutional costs, ASIC compliance and tax issues have been identified as significant cost factors for the smaller behind the meter community solar models. Compliance accounts for 100% of SRPC’s and 13-15% of Repower Shoalhaven and CSSI’s ongoing administrative monetary costs after a project has been proven in a pilot project. Compliance also accounts for 31% of CSSI’s monetary project development costs in project replication. Compliance can thus be considered a significant operational cost and one of the key constraint factors for the viability of new models.

While we are aware of the importance of doing due diligence and the threat of swindlers entering community energy, we contend that ASIC and similar regulations were not established with community-based social enterprises in mind. As such work needs to be done to find a workable solution that ensures a high degree of accountability without such large costs imposed on community energy groups.

Grid connection issues are also an example of an institutional cost that are not tailored to medium-size generation. The fact that Hepburn Wind was the first wind-farm to connect to the distribution network, led to an additional unforseen $300,000 in extra technology costs and $600,000 in lost revenue due to being constrained for the first months of operation.

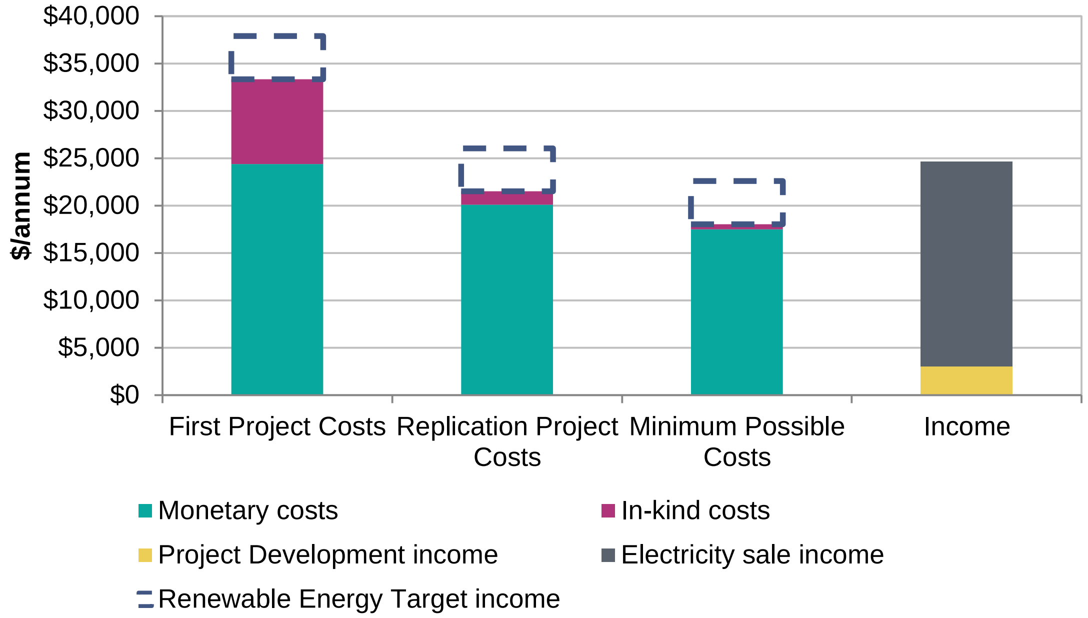
3.5 COST REDUCTIONS IN CONTEXT: REPOWER SHOALHAVEN CASE STUDY

We have seen from Section 3.3 that Repower Shoalhaven has one of the highest cost reduction potentials from first project costs relative to other models. This section focuses on the potential impact that these cost reductions could have on the relative balance of costs and income for the model.

Figure 15 compares the total annualised first project costs (including the advertised return to community investors) to project income for Repower Shoalhaven (i.e. the left most and right most columns), it is clear that the business case is tight, and rests on both a point-of-sale RET discount for the technology (shown in dotted purple), and on the in-kind contributions invested by the group itself. Without these two factors, and some help from a small NSW State government grant, philanthropic donation and other sources, the project may not have been viable at a sufficiently attractive rate of return for community investors.

When the cost reduction potential is compared to this cost/income equation (the two middle columns in Figure 15 below), the situation changes significantly. This moves the model from being heavily reliant on RET, in-kind and development funding, to being largely independent of in-kind, and positively influenced but potentially not reliant on the RET. This is not to say the model does not carry vulnerability. The removal of the RET in concert with structural tariff shifts could still substantially affect the viability of the model, as is explored in more detail in the sensitivity analysis in Section 3.6 below.

Figure 15: Repower Shoalhaven Annual Costs vs Income



3.6 SPEED OF COST REDUCTIONS

One of the factors of interest to funding agencies is the potential speed of cost reductions. The key finding of this cost modelling exercise is that the main factor driving cost reductions is achieving successful project replication. As such, the speed of cost reductions will critically depend on how quickly the same or new groups are able to get new projects up and running. We have found that in many cases, given the current market context, government support is crucial to first projects and early replication.

The broader policy environment and uncertainty surrounding the RET is another critical factor that is impeding investment in the renewable energy industry more broadly, and which is a particular impediment to the community wind models. In the case of community solar projects, which are relatively similar irrespective of the host site location, the total project development time is relatively short, and depending on the model, projects can be delivered in a matter of months. Streamlining activities take further time after implementation, and are again influenced by the level of financial support available to expedite the process of capturing lessons and improving process efficiencies.

In the case of the Repower Shoalhaven model analysed above, the first project replication costs are well known and have in large part already been achieved in the six months post launch of the pilot project. The group has a pipeline of several potential sites, which could be operational within the next 12 months, meaning the new cost benchmark for this model is the “replication project costs” column in Figure 15 above.

The replication of this model by other groups will take longer than replications by Repower Shoalhaven itself. However, if sector building activities are undertaken that effectively facilitate the sharing of lessons learned and materials and tools developed by Repower Shoalhaven, it is plausible that numerous groups could be delivering projects using this model with a similar cost profile within the next two years. There are currently over 50 community solar projects in development across the country, and many of these groups are looking to utilise the Repower Shoalhaven model.

Thus while it is not possible to project cost reduction over time, as it is critically dependent upon market context, in the case of community solar models, funding agencies can have a substantial influence in supporting rapid cost reductions. Cost reductions for community wind are likely to be somewhat slower due to the longer project development horizon and greater policy uncertainty. The authors expect the speed of community wind cost reductions to reflect the overall rate of investment in the commercial wind industry.

3.7 SENSITIVITY TO EXTERNAL FACTORS

The cost reductions shown in Sections 3.3 and 3.4 are now compared to the impacts of other external factors that influence model finances. This analysis tests the average sensitivity of solar and wind models to a 30% decrease in RET income, electricity sale prices (either wholesale price for wind projects or behind the meter Power Purchase Agreement price for solar), and technology costs. A figure of 30% was used as a plausible lower bound for major movements in these factors and a consistent variation was used to show the relative influence of each factor. The effect of the removal of the RET entirely was also tested due to persistent policy uncertainty at the time of writing. The sensitivity of the model to each factor is presented as the variation of total income (for RET and electricity prices, which reduce the total project income) and the variation in total costs (for technology costs, which reduces total project costs).

Figure 16 shows the average sensitivity of solar models. It indicates a relatively low sensitivity to RET income, with a 30% price decline resulting in a 6% reduction in total project income. Unsurprisingly, as the primary income source, it shows a very high sensitivity to the electricity sale price with a 30% reduction yielding a 24% reduction in total project income. This illustrates why the scale of energy use on the host site and its associated willingness to pay for power is important. That is, smaller sites, while having lower energy demand, pay higher retail power prices and thus have a higher willingness to pay for community solar to offset this demand. This explains why the current “sweet spot” in terms of project size tends to be in the 60-100 kW range; there is a balance between project economy of scale benefits and achieving a high power purchase price with the host site (see Appendix E for further description of the ‘sweet spot’). However, perhaps more importantly, it also signals the potential risk that major changes to the structure of existing energy tariffs has for these models. A major shift to less volume-based and more capacity-based charges as is slated under current AEMC Cost Reflective Pricing reforms will substantially shift the finances for these models. It was not possible to investigate this impact using the current model structure, but future adaptations could be made to investigate this sensitivity.

Figure 16 also shows a strong (20%) cost impact of a 30% reduction in technology prices. This impact could be positive (a cost reduction due to technology cost decline) or negative (a cost increase due to worsening exchange rates on imported goods relative to when these projects were initiated). As the impact is linear, only the cost reduction case is shown. The research team does not expect large changes in these factors in the short to medium term, however this helps to frame the context of the cost reduction.

The dotted lines represent the degree to which **total project costs**[4] are reduced, based on the analysis presented in this report (Sections 3.3 and 3.4). This comparison suggests that the removal of the RET would wipe out the average first to second project replication benefit, as would a ~15% change in

[4] NB: Not just project development and ongoing costs (also includes plant and capital works costs)

electricity sales revenue linked to structural tariff readjustment. Technology costs in the long term are likely to play in favour of community energy, however in the short-medium term major shifts are unlikely.

Figure 16: Sensitivity analysis for solar projects - 30% decrease in variables

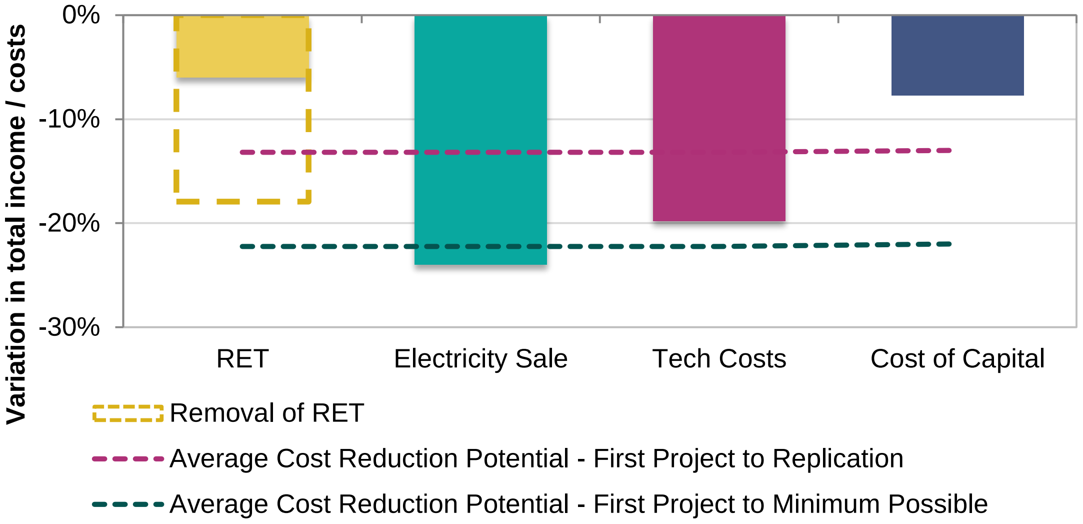


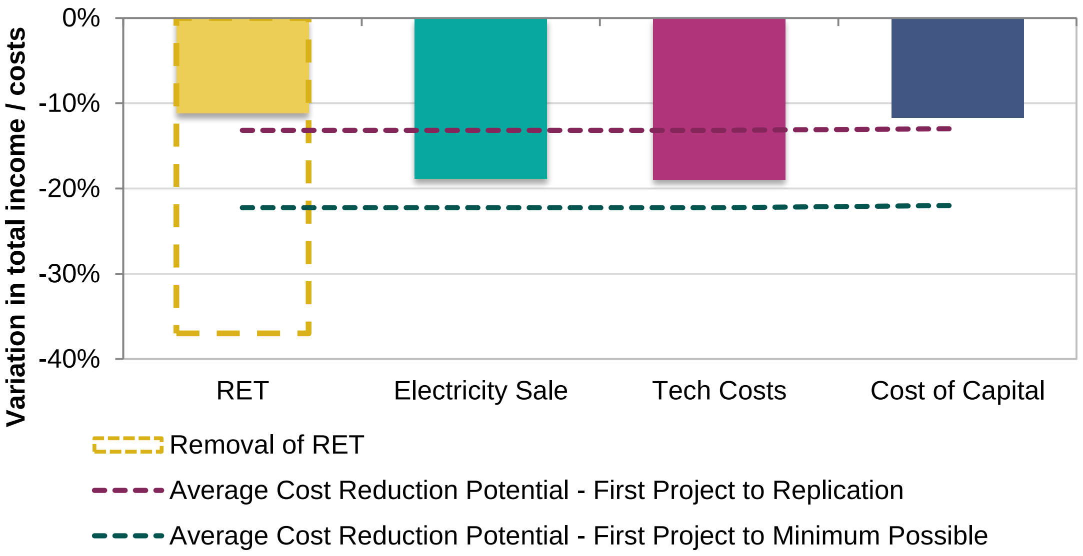
Figure 17 shows the same sensitivity analysis for community wind projects. It indicates a much higher relative sensitivity to RET income, with a 30% price decline resulting in an 11% reduction in total project income or a 37% reduction if the RET is removed. Sensitivity to electricity sales price is lower than for solar, with a 30% reduction yielding a 19% reduction in total project income. This risk of variation in electricity sale price (wholesale price) is much less likely than for solar, as retail tariff restructure will not affect the wind projects. Wholesale prices are already depressed to due to lower than forecast energy demand.

Figure 17 also shows a slightly lower (10%) cost impact of a 30% reduction in technology prices. For Hepburn Wind, both a poor exchange rate at the time of purchase and several years since project construction (even though wind decline is now relatively slow), would suggest that this factor will work in the favour of this model being more cost effective if repeated today.

The impact of variation in cost of capital has also been included in Figure 17, as for commercial projects this is a distinct external factor. For community energy projects, the expected rate of community investor return (the effective cost of capital) is somewhat more of an internal variable than for commercial projects, as models are designed with specific community investor returns in mind. However, the external investment environment does have direct influence on the expected investor returns and a 30% change in cost of capital is tested across the models. The overall impact is smaller than the change in technology prices, but is not insubstantial, at a 12% reduction for wind and 8% reduction for solar, following a 30% reduction in cost of capital.

The comparison of the dotted lines also suggests some vulnerability, in that a 30% change in RET income would wipe out the slightly more modest average first to second project replication benefit for the wind models.

Figure 17: Sensitivity analysis for wind projects - 30% decrease in variables



Thus while the cost reduction benefits from replication are substantial, both solar and wind models are still vulnerable to RET income fluctuations. Therefore a stable and supportive policy environment is still crucial to a flourishing community energy sector. Furthermore, the sector needs to both better understand the impact of potential structural tariff changes on the income steams; and concurrent with tariff reforms work towards consensus on a fair “network value” of distributed energy, which may offset some of the losses caused by tariff changes. This would be through investigation of ‘local network charges’ or ‘virtual net metering’, and should also consider the value that complementary energy storage technologies bring to the equation.

4 CONCLUSIONS

This research has found that through a process of replication and a series of strategic initiatives, community energy groups can reduce project development and ongoing costs substantially. This analysis draws conclusions on existing cost and income structures, cost reduction potential, the importance and influence of income streams, increasing sector scale and reach, and increasing model diversity.

Understanding Model Cost and Income Structures

This research has provide insights into the cost and income structure of six of the leading community energy models. Key findings include:

- Models are very diverse and have very different cost and income profiles.
- The first application of these models is heavily reliant on in-kind contributions, particularly volunteer time. This is a feature of community energy projects and demonstrates the difficulty of establishing a model for the first time.
- For many models, project development income (e.g. grants and sponsorship) has been important to get the first project over the line.
- All models are dependent (to varying degrees) on Renewable Energy Target driven income.

Cost Reduction Potential

The most important factor in reducing the costs of a model is successful replication. This alone can reduce project development and operational costs by between 5% and 75% from a single replication (including reductions in monetary and in-kind contributions). Funding bodies looking to assist in developing a self-sufficient community energy sector should focus on supporting new and evolving models to get up and running through new and early replication projects. Grant funding has played an important role in this process to date, and remains the most effective form of intervention to achieve cost reductions while the sector is in its infancy. The grant funding process should include support for streamlining of the financial, communications, contractual and administrative processes and systems underpinning a model once a pilot project is delivered and opportunities for efficiency improvements have become clear. See Section 5of the National Community Energy Strategy for further recommendations.

Legal costs, project management, business model development and governance (combined in-kind and monetary costs) were identified as having the biggest cost reduction potential. In some cases the cost reduction of these line items is as great as 99% (CSSI legals). For SRPC by replicating the model once, there is likely to be a 75% reduction in the legal costs, which represent 50% of the cost of project development.

Additional cost reduction potential exists through sector building initiatives such as a central repository of resources, a training program and a public awareness raising campaign. Note that these initiatives will achieve cost reductions for some but not all models, however they will contribute to the increasing the scale and reach of the community energy sector (see below).

ASIC compliance requirements are a significant cost factor for many community energy models. While it is important to acknowledge the importance of doing due diligence, if the cost of compliance were reduced it would be a significant benefit particularly for lean community solar models.

Supporting Income Streams

All community energy models examined have a strong sensitivity to external factors even after replication. Specifically, both solar and wind models are vulnerable to RET income fluctuations. Therefore a stable and supportive policy environment is still crucial to a flourishing community energy sector.

Furthermore, the sector needs to both better understand the impact of potential structural tariff changes on the income steams for behind-the-meter solar projects; and concurrent with cost reflective tariff reforms work towards consensus on a fair “network value” for distributed energy generation, which may offset some of the losses caused by tariff structural changes. Further research is required to understand the cost implications on these and other models of community energy. (Refer to Virtual Net Metering priority initiative in the National Strategy.)

Increasing Sector Scale and Reach

In addition to reducing the costs of community energy models, the strategic initiatives examined, also increase activity and participation in the sector. This in turn increases the impact and societal benefits of community energy. Quantification of the impact of these initiatives on broader societal benefits has not been captured in this research. However, some of this quantification has occurred through research undertaken by Marsden Jacobs and Associates into the impact of a community energy grant fund.[5]

Increasing Model Diversity

This research focussed on six of the most advanced and financially viable models of community energy. An indirect observation of this research is the lack of diversity in the technology type and range of models able to be included. This in and of itself suggests a narrowness in the sector that should be addressed, as international experience suggest that countries with the biggest community energy sectors have a diverse range of models available to communities. Funding support for new models should thus consider a focus on increasing the diversity of available models, as well as sector building activities to address regulatory barriers that are currently restricting the diversity of models possible (see Section 8 of the National Community Energy Strategy).

[5] http://cpagency.org.au/wp-content/uploads/2014/03/MJA-Report-to-CCE-Final-14Jun13.pdf

APPENDIX A – COST DATA TEMPLATE

Community Renewable Energy Cost Reduction Modelling Spreadsheet

Project Name	
Community Energy Model Applied	
Technology	
Installed Capacity (kW)	
Average annual generation (MWh)	
Expected life of equipment (yrs)	
Investment period for investors (yrs)	
Expected rate of return (% p.a.)	
Cost of Capital (% p.a.)	
Location	
State	
Contact Person	

Cost Categories			Notes and Assumptions	Monetary Costs (not including in-kind)					In-kind/Pro Bono Costs			
				Actual current costs (or projected if not complete)	Cost Uncertainty (optional) +- %	Cost when project will be replicated	Minimum possible cost	Conditions under which this minimum cost could be achieved	Actual current costs	Cost when project will be replicated	Minimum possible cost	Conditions under which this minimum cost could be achieved
Capital Costs ($)	Project development	Coordination Business Model Development Planning Approval Community Engagement and Community Capital Raising Site negotiation Technical Feasibility Legals Financial Management (accounting, book keeping, doing tax, banking) Securing project debt finance Compliance (Aust. Financial Services Licence, etc.) Governance										
	Plant and Capital works	Technology Grid Connection Civil Works										
Fixed Ongoing costs ($/a)	Administration	Insurance Community Engagement and Coordination Community Benefit Fund Lease payments Governance Compliance Legals Financial Management										
Variable/Operating costs	Maintenance - Solar ($/a) Maintenance - Wind ($/MWh or $/a - please delete irrelevant unit)											

Income Categories		Notes and Assumptions	Actual/expected income stream	Potential minimum income	Conditions under which minimum income could occur	Potential realistic maximum income	Conditions under which this maximum income stream could be achieved
Electricity sale ($/a)	Behind the meter Export						
Renewable Energy Target ($/a)	LGCs SRECs						
Project Development Income ($)							