ACIL ALLEN

Evaluation of the Regional Community Energy Program

Outcome evaluation

June 2025

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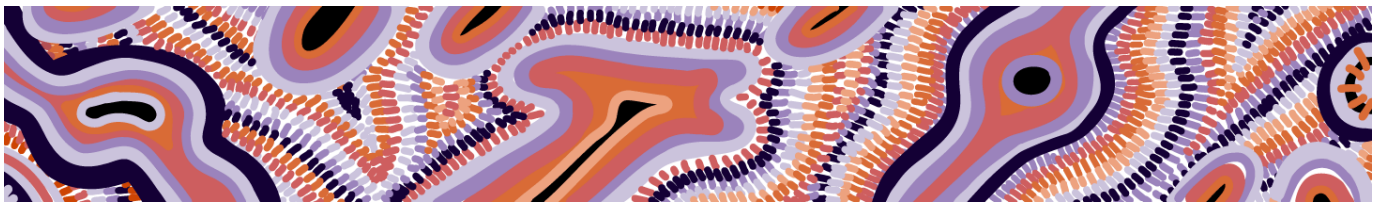
Report to:

New South Wales Department of Climate Change, Energy, the Environment and Water

ACIL Allen acknowledges Aboriginal and Torres Strait Islander peoples as the Traditional Custodians of the land and its waters. We pay our respects to Elders, past and present, and to the youth, for the future. We extend this to all Aboriginal and Torres Strait Islander peoples reading this report.



Goomup, by Jarni McGuire

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Glossary

Abbreviations	Definitions
AC	Alternating current
AEMO	Australian Energy Market Operator
ARTC	Australian Rail Track Corporation
ATO	Australian Taxation Office
BESS	Battery Energy Storage System
CCF	Climate Change Fund
CCU	Co-operative Capital Units
CO_2-e	Carbon dioxide equivalent (a unit of measurement that is used to standardise the climate effects of various GHGs)
EFT	Electronic Funds Transfer
GHG	Greenhouse gas (emissions)
GW	gigawatt
HESS	Hydrogen Energy Storage System
kW	kilowatt
kWh	kilowatt-hour (energy delivered or consumed when a battery/hydrogen storage system operates at a power level of 1 kilowatt for a duration of one hour)
LED	Light-emitting diode (lighting)
MW	megawatt
MWh	megawatt-hour (energy delivered or consumed when a battery/hydrogen storage system operates at a power level of 1 megawatt for a duration of one hour)
NSW	New South Wales
P2P	Peer to peer
PV	Photovoltaic
RCE	Regional Community Energy
RCEF	Regional Community Energy Fund (workstream of RCE)
RCEH	Regional Community Energy Hub (workstream of RCE)
RCERC	Regional Community Energy Resilient Communities (workstream of RCE)
REZ	Renewable Energy Zone

Executive Summary

Overview

The New South Wales (NSW) Climate Change Fund (CCF) was established in 2007, under an amendment to the *Energy and Utilities Administration Act 1987*, to address the impacts of climate change, encourage energy and water saving activities, increase public awareness and acceptance of climate change, and support NSW to transition to a net zero emissions future. The CCF is administered by the NSW Department of Climate Change, Energy, the Environment and Water (the Department).

The Regional Community Energy (RCE) program was delivered under the CCF as one of a range of initiatives that work with community, industry, business and local government partners to develop and deliver projects that reduce greenhouse gas (GHG) emissions and the impacts of climate change, build communities that are more resilient to heat waves, bushfires and floods and help NSW customers to be more energy efficient, save money on their bills, and secure a reliable, low carbon energy future.[1] The RCE originally intended to deliver 3 workstreams, the Regional Community Energy Fund (RCEF); the Regional Community Energy Hubs (RCEH); and the Resilient Communities (RCERC).

The Department commissioned ACIL Allen to undertake an end-of-program outcome evaluation of the RCE. Given 2 workstreams within the RCE did not commence, the evaluation has a primary focus on the RCEF, while seeking to understand the rationale and circumstances that led to the other 2 workstreams not proceeding. The evaluation provides the Department with an opportunity to identify any outcomes and benefits delivered by the RCEF and to understand the challenges and lessons learned from delivering the RCEF. The evaluation includes a focus on how effectively objectives and outcomes were met, the efficiency and progress in achieving economic benefits, and the legacy of any long-term outcomes.

Methodology

The evaluation was undertaken in phases, as follows:

- project inception including assessing data availability and key focus areas (particularly determining an approach to the evaluation given 2 of the 3 RCE workstreams did not commence)
- project planning including an initial review of program documentation and key informant interviews with Department representatives
- internal and external consultation and analysis, involving targeted semi-structured interviews with 18 stakeholders, detailed program data analysis, thematic analysis and synthesis
- reporting, which involved an emerging findings presentation, draft reports and a recommendations workshop.

[1] NSW Government. 2025. *NSW Climate Change Fund*. https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/taking-action-climate-change/nsw

Key findings

Overview

The findings from the Evaluation of the RCE program are grouped into key focus areas, with reference to the relevant Key Evaluation Questions (KEQs) where applicable. The evaluation found that an examination of the program design was integral to setting the context for broader findings and recommendations. It was also critical in differentiating strengths and weaknesses that stemmed from program design as against those linked to delivery and implementation.

Design

The design of the RCE supported innovative approaches and facilitated the design of community driven renewable energy projects. However, while clear outcome intentions were developed for the 3 workstreams, these were not translated into impact measures. The business case set out the challenges facing community energy projects and the design of the RCEF grants program directly addressed some of these barriers. Flexibility incorporated in the design enabled communities to utilise structures and functions that best suited their unique needs and pursue novel approaches.

The intended design and scope of the RCE was only partly executed with some program funding directed to alternate/emerging priorities. Decisions around these changes were not effectively documented or communicated to interested parties, internal or external of the Department – demonstrating significant gaps in record keeping and governance arrangements in both program design and implementation.

The evaluation found there were areas where RCEF's design could have been strengthened, with several shortcomings that hindered delivery. RCEF would have benefited from clarity in grant design, greater flexibility with contract/payment structures, provision of a technical expertise and advisory function to advance projects and a stronger articulation of overall workstream success measures and a realistic means to capture and promulgate impact and benefits (for the short and longer term).

Implementation

KEQ 1 To what extent was the RCE implemented and delivered as intended and what lessons can be learned from any encountered challenges, including why certain projects did not roll out as anticipated?

RCE was not implemented as intended with approximately $8.3 million (of the original $30 million allocation) diverted to other priorities. Only one workstream (RCEF) proceeded to partial implementation, with the second round of grants not eventuating. Under RCEF, only 2 of the 7 projects that received grant funding have been commissioned and are operating. A further 3 projects are still being pursued though none are expected to be commissioned at RCEF closure and grant finalisation on 30 June 2025. Two of these projects are expected to be completed over the coming 12 months, while completion of the third project remains uncertain. The remaining 2 projects ran into intractable challenges and were (rightly) terminated early in the life of the grant.

RCEF timelines blew out in a large part due to unforeseen external challenges including the COVID-19 pandemic and war in Ukraine which significantly impacted project planning and execution. Several other project related challenges led to slippage, including the volume of work required to advance projects to a stage where they were execution/construction ready and the lack of systematised knowledge sharing between projects (which meant similar challenges and issues were tackled in silos rather than through tapping into collective learnings).

Although the Department adopted a flexible approach to keep projects progressing throughout implementation, management of the workstream could have been better. In overcoming delivery challenges, the Department demonstrated an appropriate risk appetite, a sensible approach to terminating projects and commitment to working collaboratively with community groups. This approach has been integral to achieving RCEF's completed and pipeline of projects. Nevertheless, there was scope to better manage the workstream through clear, consistent, shared and accessible practices in contract monitoring. Document and record management do not appear to have always been followed resulting in a loss of continuity and corporate knowledge. Key documents could not be located, and staff churn further exacerbated these issues. Effective governance functions were not in place to oversight progress and manage the volume of change that occurred.

Effectiveness of delivery

KEQ 4 To what extent are RCEF funded projects demonstrating sustainable and replicable business models?

RCEF has boosted community driven renewable projects, despite not hitting targets. RCEF has delivered 6.49 MW (26% of the intended target) of energy generation. It performed stronger in delivering storage capacity, realising some 4.99 MW (or 71% of the target). While not hitting its objectives or realising project expectations (as outlined at the time of announcing successful grant recipients), it has boosted community based renewable energy outcomes. Considering the anticipated outcomes for the 3 ongoing projects, RCEF may contribute a further 11 MW in energy generation and 11.09 MW in storage capacity, estimated to be completed by late 2026 and will have leveraged nearly $38.8 million in private funding, some 97% of its overall objective.

No one model funded through RCEF has demonstrated strong replicability. Nevertheless, battery storage projects and solar garden models show most potential for overcoming sustainability issues in energy reliability and affordability at the community level. Further experience is required to enable development of proven community ownership models to underpin community led regional renewables projects.

KEQ 5 To what extent does the RCE address barriers to regional community energy generation such as achieving regulatory compliance, financing, capacity building, clarifying and documenting community energy models, market failures such as information asymmetry and stakeholder support? To what extent do these barriers remain?

The key contribution RCEF has made to addressing barriers has been through the financial support delivered by the grant funding. The financial backing (and stability) provided for projects that had not attracted sufficient funding/investors enabled projects to proceed. Many RCEF projects would not have occurred or progressed to the extent they did without the funding from the NSW Government. The grant provided the necessary impetus, propelling existing community funding and providing a level of underwriting and certainty for prospective private investors.

KEQ 6 What are the ongoing barriers to obtaining social licence in community energy generation projects?

While RCEF helped to address the financial barriers to regional community generation and has made a contribution to securing the necessary social licence to enable such projects to proceed, barriers remain for communities that may be contemplating leading future renewable energy projects in their region. Securing a social licence for renewable energy projects in regional Australia has proven difficult. Numerous projects of varying size and technology have been challenged, some successfully, which has led to modification and delay, and in some cases, abandonment.

The failure to capture and promulgate lessons around building social licence, addressing the many challenges and barriers faced and developing business models represents a significant missed opportunity

to deliver on the key RCEF objectives in building energy literacy and capacity of regional NSW communities and to demonstrate community ownership models.

Outcomes and impact

KEQ 2 To what extent has the RCE contributed to fund-level outcomes (renewable energy generation and savings, bill savings and GHG emissions avoided)?

Effective assessment of outcomes and impact is hindered by the lack of robust data. Fund level outcomes can only be estimated from the limited data and evidence available. Assuming the 5 projects are completed and are fully operational, economic analysis suggests that the amount energy generated by other sources that would be offset is estimated to equate to 675 GWh for solar and 144 GWh for batteries over their 25-year life span. These projects are estimated to collectively contribute to avoided emissions of 610,213 t CO_2-e assuming they displace the marginal generator (171,503 t CO_2-e if they displace the average generator).

KEQ 3 To what extent have members of participating community energy led organisations changed their energy behaviours?

While anecdotal evidence points to success in delivering community level impact and benefits related to the overall program objectives, there is insufficient data available to draw meaningful or robust conclusions. Outcome/impact measures were not fully articulated and related data collection was not undertaken over the life of the RCEF. Given the challenges faced in implementing RCEF projects, Departmental effort focused on output measures and achievement of milestones to ensure projects continued to move forward.

The future role of the NSW Government

KEQ 7 What is the ongoing role for government in community energy generation projects?

The NSW Government's ongoing role should complement, rather than duplicate, the objectives of the Electricity Infrastructure Roadmap. RCEF's objectives were similar to those included in the *Electricity Infrastructure Investment Act 2020* which was passed following RCEF inception. Future Government initiatives should complement the objectives in the Act rather than seek to achieve the same objectives. Complementary policies or programs should seek to address a market failure or social or equity objectives that are not being addressed by the Act. Market failures that may be relevant to a future program include early mover externalities and split incentives.

KEQ 8 What are the key lessons for future community battery and energy programs?

The key lessons unearthed from RCEF have evidenced the 'realities' of community led/owned capital energy projects, including that:

— community engagement takes time
— grant payments need to align with capital requirements to advance project execution
— the drivers underlying community group led energy projects are complex
— external expertise (on tap) is required over the project lifecycle
— sharing knowledge and project learnings requires structured approaches.

These realities highlight issues that need to be factored into future program design and implementation. 'Shovel ready' is an unrealistic expectation and that government (grant) support is needed to enable projects to move through the complex investment-ready, approval and design processes.

Recommendations

Drawing on lessons learned through the delivery of the RCEF, the evaluation has developed 7 key recommendations to the Department, should the Government decide to pursue a similar community-based energy programs in the future.

Recommendation 1 Adopt a 2-stage grant process splitting feasibility and design from construction and commissioning of community energy projects

Future community energy programs should adopt a clear 2-phase focus with a strong gatekeeping process (clear termination and continuation triggers). The first phase would address the numerous approvals and design considerations and would culminate with the grantee demonstrating a financial/investment capacity/prospectus to the Department. This first stage is essential to ensure a project is investor and construction ready. The second phase should focus on raising the necessary funding, followed by the construction and commissioning of projects. These 2 stages would need to be clearly articulated into grant administration guidance with transparent requirements to demonstrate eligibility to progress.

Recommendation 2 Establish realistic and clear timeframes for delivery when working with community energy projects

Future community energy programs should ensure timeframes are clearly specified and are realistically framed to enable completion. For programs with objectives akin to the RCEF (e.g. increasing capability and capacity in community owned energy), a 5-year timeframe is appropriate. A rigorous gatekeeping process with clear milestone expectations is essential to enable projects that become unviable due to insurmountable roadblocks to be terminated.

Recommendation 3 Strengthen alignment of grant payments with the project's cash needs if supporting community energy projects

To ensure projects can progress towards commissioning in an orderly fashion, future community energy programs should build payment flexibility into contract/grant deed design which strikes an appropriate balance between the needs of volunteer-based community groups while maintaining appropriate risk management and control for the Department. This may include more milestones (with less reporting) or some portion of up-front payment with demonstrated evidence requirements.

Recommendation 4 Establish a program level technical advisory service to support community energy projects

Future community energy programs should establish a specialist technical advisory service to the program (external to the Department, engaged on a retainer basis) which individual grant recipients can draw upon as needed to support them through technical issues and challenges as projects unfold. This would provide grantees with on-demand timely, specialist and independent advice. Examples may include navigating grid connection agreements and establishing the necessary commercial and legal structures around project infrastructure and disbursement of future benefits/costs. This would allow for an appropriate level of separation between the Department and individual projects on technical matters (e.g. legal matters) which are difficult and complex to resolve in house.

Recommendation 5 Facilitate peer to peer knowledge sharing platforms for community energy projects

Organised knowledge sharing should be an essential element of project delivery. Mechanisms (e.g. regular meetings, events and online platforms) between all key project representatives should be established, in addition to contractual meetings between the Department and grantees, to enable projects to learn from each other. This is essential given the likely low level of experience within community groups which are often implementing energy projects for the first time and to maximise the potential to boost energy literacy within and across communities. Project case studies, experiences and learnings need to be captured and promoted broadly to enhance community energy literacy and capacity and to inform emerging community energy projects, allowing for replicability in the future.

Recommendation 6 Clearly define and assess benefits generated by community energy projects and actively collect robust data to measure success

Future programs targeted to delivering direct regional community benefits need to establish realistic and measurable indicators of impact (and success) that can be monitored throughout project implementation and post completion – noting that planning for a 10-year timeframe for outcomes (as envisioned for RCEF) was an unrealistic intention. These indicators need to be measured through more active data collection from the infrastructure (e.g. energy generated/GHG avoided) and from the community sentiment more broadly.

Recommendation 7	Ensure Departmental project management practice is adhered to, supported by overarching governance structures

Consistent project management tracking mechanism must be used by all staff with fidelity. Complex new systems or platforms are not required; rather Departmental project and records management systems need to be adhered to with alacrity and precision to safeguard both corporate memory at all levels (program and executive) and deliver effective and efficient project management outcomes. In addition, standard line management (within the direct program team) is insufficient to manage the complexity, novelty and risk of projects of this nature – strong governance structures are essential.

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Main Report

1 Introduction

1.1 Context

In 2016 the NSW Government released its Climate Change Policy Framework with the objective of realising net zero emissions by 2050.[2] This was adopted into law in the *Climate Change (Net Zero Future) Act 2023*, targeting a 50% reduction of emissions by 2030, and net zero emissions by 2050.[3]

The generation of energy accounts for a significant proportion of total emissions with 37% of NSW's CO_2-e emissions derived from the electricity generation.[4] Therefore, the Government is targeting initiatives that support the reduction of emissions through the CCF to help deliver this outcome.

Emission reduction through decarbonisation of energy systems will require significant transformation throughout the entire system, from energy generation and transmission to distribution and consumption. This will involve shifts to renewable energy sources, enhanced grid infrastructure, increased energy storage solutions, and the adoption of energy-efficient technologies across sectors.

Distributed generation (electricity generated locally, often from renewable sources) rather than centralised power plants present significant advantages but also brings challenges in transmission and storage. This is particularly important in the context of existing infrastructure and systems which have been developed and largely geared toward a centralised grid.

System stability can be strengthened by increasing storage capacity through batteries to ensure adequate supply that can withstand peaks in demand. Community batteries are a proposed solution to allow for locally generated electricity to be stored (and used) within a community. This has led to an increase in interest in the potential for community-owned and led energy groups to deliver such generation and storage systems.

1.2 The Climate Change Fund

The CCF was established in 2007 under the *Energy and Utilities Administration Act 1987*.[5] It aims to address the impacts of climate change, encourage energy and water saving activities, increase public awareness and acceptance of climate change, and support the NSW transition to a net zero emissions future.[6] Administered by the NSW Department of Climate Change, Energy, the Environment and Water (the Department), the CCF allocated $1.4 billion between 2017-22[7] to a series of programs aimed at supporting households and businesses to:

— save energy and money

— improve energy reliability and affordability

— improve the resilience of communities across NSW to climate change.

[2] NSW Government (2020). *Net Zero Plan Stage 1: 2020–2030*. Accessed March 2025: https://www.energy.nsw.gov.au/sites/default/files/2022-08/net-zero-plan-2020-2030-200057.pdf

[3] NSW Government (n.d.). *The Climate Change (Net Zero Future) Act 2023*. Accessed March 2025: https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/climate-change-net-zero-future-act-2023

[4] NSW Government (n.d.). NSW greenhouse gas emissions. Accessed March 2025: https://www.climatechange.environment.nsw.gov.au/why-adapt/causes-climate-change/nsw-emissions

[5] NSW *Energy and Utilities Administration Amendment (Climate Change Fund) Act 2007 (No. 35)*, s 34E.

[6] NSW Climate and Energy Action (n.d.). *NSW Climate Change Fund*. Accessed March 2025: https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/taking-action-climate-change/nsw.

[7] NSW EPA (n.d.). *Climate change and NSW: overview*. Accessed March 2025: https://www.epa.nsw.gov.au/Your-environment/Climate-change/Climate-change-NSW-overview

The CCF is funded primarily from electricity distributors Ausgrid, Endeavour Energy and Essential Energy, as well as from interest and other miscellaneous sources. In 2023-24, this totalled $307 million.[8] The Fund can be used for reducing greenhouse gas (GHG) emissions, encouraging water and energy savings, reducing demand during peak periods, stimulating investment in innovative measures, and increasing public awareness about climate change. However, it cannot be used for projects that do not align with its objectives, unrelated administrative expenses, or unapproved contributions. In CCF's current 8-year funding round (2022-2030), the Fund has continued to invest in initiatives that aim to "decarbonise our economy, transition to a renewable energy system and support communities and businesses to mitigate and adapt to a changing climate."[9]

1.3 The Regional Community Energy program

The Regional Community Energy (RCE) program was delivered under the CCF as one of a range of initiatives that work with community, industry, business and local government partners to develop and deliver projects that:

- reduce GHG emissions
- reduce the impacts of climate change
- build communities that are more resilient to heat waves, bushfires and floods
- help NSW customers to be more energy efficient, saving them money on their bills
- help secure a reliable, low carbon energy future.[10]

The CCF allocated $30 million to the RCE, made up of 3 workstreams: the Regional Community Energy Fund (RCEF); the Regional Community Energy Hubs (RCEH); and the Resilient Communities (RCERC) workstreams; plus, a central Departmental administrative allocation. Details of the funding for each workstream are set out at Table 1.1. Changes in government priorities over the life of the program resulted in the RCEF being the only workstream that proceeded to implementation.

Table 1.1 RCE workstream financial allocations

Workstream	Funding ($, million)
Regional Community Energy Fund (RCEF)	20.0
Regional Community Energy Hubs (RCEH)	2.1
Resilient Communities (RCERC)	2.1
Departmental administrative costs	5.8
Total	30.0

Source: ACIL Allen based on Departmental documentation

The RCE business case identified 3 objectives (which apply equally to all workstreams).

- Improve energy reliability and the integration of renewables in regional communities.
- Improve energy affordability and resilience for regional communities.
- Build energy capacity in regional NSW communities.

[8] NSW DCCEEW (2024). *NSW Climate Change Fund Annual Report 2023–24*. Available at: https://www.energy.nsw.gov.au/sites/default/files/2024-12/NSW-Climate-Change-Fund-Annual-Report-2024.pdf

[9] NSW Climate and Energy Action (n.d.) NSW Climate Change Fund Annual Reports. Available at: https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/taking-action-climate-change/nsw/report

[10] NSW Government. 2025. *NSW Climate Change Fund*. https://www.energy.nsw.gov.au/nsw-plans-and-progress/government-strategies-and-frameworks/taking-action-climate-change/nsw

The RCE was announced by the NSW Government on 21 August 2018, with a call for Round 1 applications for RCEF funding following a short time later. Following assessment of applications, in March 2020, approximately $15.4 million was announced to 7 RCEF Round 1 projects.[11]

In early 2021, it appears that the Government re-allocated the remaining grant funds from RCEF and the Community Energy Hubs workstream funding (totalling $6.45 million) to the Renewable Energy Zones work program. Accordingly, Round 2 of the RCEF did not proceed, given the Government's reprioritisation of effort in relation to renewable energy initiatives. The evaluation has been unable to unearth conclusive answers behind reallocation of RCE funding, including evidence as to where the funding now sits or was/is being utilised. This is despite inquiries being sent to current and past program team members and executive staff and finance representatives. While it is assumed by the requirements of the *Energy and Utilities Administration Act 1987* that the funding remained within the CCF, the evaluation has been unable to confirm this verbally or in writing with any departmental staff member.

The execution of the proposed RCEF grant activities faced significant challenges, leading to several planned projects/activities not occurring as intended for a variety of reasons, including challenges with approvals, mixed community stakeholder support and land access issues. These are explored as part of the evaluation with respect to design and implementation domains.

1.4 This evaluation

The Department has engaged ACIL Allen to undertake an end-of-program outcome evaluation of the RCE. As noted, 2 workstreams within the RCE did not commence. Therefore, the evaluation has a primary focus on the RCEF, while seeking to understand the rationale and circumstances that led to the other 2 workstreams not proceeding.

The evaluation provides the Department with an opportunity to identify any outcomes and economic benefits delivered by the RCEF and to understand the challenges and lessons learned from delivering the RCEF. The evaluation includes a focus on how effectively objectives and outcomes were met, the efficiency and progress in achieving economic benefits, and the legacy of any long-term outcomes.

1.5 Project methodology

Overview

The evaluation methodology was developed to best meet gaps in the data available. As explored further in Chapter 5, poor information management has meant that this evaluation has not had access to all relevant decisions made in administering the Program. While the Department's evaluation team provided all readily available information, gaps remain, particularly in tracking progress and changes to the design and implementation of the program.

Key limitations that were considered in the design of the evaluation methodology include:

— aforementioned inconsistencies in record keeping practices leading to a lack of completeness in project documentation

— high staff turnover accompanied by reports of limited handover (discussed further in Chapter 3) resulting in the lack of a clear and consistent narrative from the Department

— the ongoing nature of a number of RCEF projects, and the 2 RCE workstreams never implemented.

[11] NSW Climate and Energy Action (n.d.). *Regional community energy fund*. Accessed March 2025: https://www.energy.nsw.gov.au/government-and-local-organisations/ways-get-started-local/regional-community-energy-fund

Methodological approach

As a result of the data and evidence gaps, this evaluation's methodology placed a greater emphasis on individual project stakeholder consultations and with former project officers, managers and directors currently working elsewhere in the Department (but involved during various stages of the RCE program), as well as current RCEF project management representatives. Seven internal members of the Department and 11 external participants in RCEF projects (covering all 7 projects) were consulted as part of the evaluation (see Appendix A). The Departmental officers were nominated by the program/evaluation team to incorporate a balance of program history and design experience, historical and current implementation and strategic perspectives. External project representatives included project managers/leads (community level) from each RCEF project and contractors who provided lead technical expertise (where applicable) to cover experiences from both perspectives.

This approach reflects a targeted sample survey methodology. While not every individual involved in each RCEF project was consulted, the evaluation successfully engaged at least one senior representative from each of the 7 grantee organisations. While the views expressed may not capture the full diversity of perspectives within each project team, it is assumed that these senior representatives were well-positioned to provide informed insights that broadly reflected their organisation's experience with the RCEF.

Stakeholder consultation involved a series of semi-structured interviews utilising discussion guides which were reviewed by the Department and provided to consultees ahead of the discussions commencing. These guides provided a flexible framework of questions and topics of focus, with opportunities to explore responses in more depth as conversations unfolded (balancing structure with openness). The semi-structured interview approach allowed for detailed insights to be gathered on specific topic areas and for responses to be compared via a qualitative thematic analysis which uncovered individual differences and commonalities in experience and recommended opportunities for improvement.

Testing and validation

Key findings were tested with evaluation and project team staff to ensure the evaluation's findings align with their understanding of the project's events, prior to the completion of the final report.

Key evaluation questions (KEQs)

The KEQs for the RCE program/RCEF stream are outlined in Table 1.2, including the sources of information used to assess each KEQ. The rightmost column denotes whether the KEQ is relevant to the entire RCE program, or only the RCEF stream.

Table 1.2 Evaluation framework

KEQ	Focus areas	Data/analytical sources				
		Program / project data	Key informants	Stakeholder consultation	CBA	RCE/RCEF
Implementation						
KEQ 1: To what extent was the RCE implemented and delivered as intended and what lessons can be learned from any encountered challenges, including why certain projects did not roll out as anticipated?	– Funding and projects awarded – Projects completed – Electricity generation unlocked – Barriers and enablers to implementation	✓	✓	✓		RCE (and RCEF)
Effectiveness and Legacy						
KEQ 2: To what extent has the RCE contributed to fund-level outcomes (renewable energy generation and savings, bill savings and GHG emissions avoided)?	Extent to which the RCEF has: – improved the energy affordability experienced by regional communities through bill savings received by households, community organisations and emergency services – reduced/avoided GHG emissions	✓	✓	✓	✓	RCEF
KEQ 3: To what extent have members of participating community energy led organisations changed their energy behaviors?	– Extent to which participating regional NSW communities have increased energy literacy and capacity	✓	✓	✓		RCEF
KEQ 4: To what extent are RCEF funded projects demonstrating sustainable and replicable business models?	– Extent to which renewable energy generation is integrated into regional electricity distribution network areas – Extent to which funded RCEF projects can be duplicated, adapted and/or scaled	✓		✓		RCEF

KEQ	Focus areas	Data/analytical sources: Program / project data	Key informants	Stakeholder consultation	CBA	RCE/RCEF
KEQ 5: To what extent does the RCE address barriers to regional community energy generation such as achieving regulatory compliance, financing, capacity building, clarifying and documenting community energy models, market failures such as information asymmetry and stakeholder support? To what extent do these barriers remain?	– Extent to which the RCEF has addressed barriers to regional community energy generation – Limitations of the RCEF in addressing barriers to regional community energy generations – Opportunities to overcome remaining barriers	✓	✓	✓		RCEF
Appropriateness						
KEQ 6: What are the ongoing barriers to obtaining social licence in community energy generation projects?	Ongoing barriers to: – community engagement – building community awareness and understanding – achieving community buy in and support – financial viability	✓	✓	✓		RCEF
KEQ 7: What is the ongoing role for government in community energy generation projects?	– Departmental and community perspectives of ongoing need – Evidence on successful government participation in community energy generation projects domestically and internationally	✓	✓	✓		RCEF
KEQ 8: What are the key lessons for future community battery and energy programs?	– Lessons for future program preparation, design and implementation – Opportunities to extend impact	✓	✓	✓		RCEF

Notes: Questions that were proposed as part of ACIL Allen's RFQ (and that are therefore indicative only) are in italics.

** KEQ1 will focus on RCE as a whole (and to the extent necessary incorporate RCEF); the remaining KEQs will focus on RCEF issues.*

Sources: NSW Department of Climate Change, the Environment and Water. 2025. Climate Change Fund: Regional Community Energy evaluation plan and ACIL Allen (2025).

1.6 Report structure

As KEQs are not addressed directly in the order outlined above, Table 1.3 below provides an overview of where each KEQ is addressed within the report structure. The KEQs are addressed in an order that best forms a clear and chronological account of the RCE program.

Table 1.3 Report structure

KEQ	Addressed in:
KEQ 1 To what extent was the RCE implemented and delivered as intended and what lessons can be learned from any encountered challenges, including why certain projects did not roll out as anticipated?	Chapter 3 – Implementation of RCEF
KEQ 2 To what extent has the RCE contributed to fund-level outcomes (renewable energy generation and savings, bill savings and GHG emissions avoided)?	Chapter 5 – RCEF outcomes and impact
KEQ 3 To what extent have members of participating community energy led organisations changed their energy behaviors?	Chapter 5 – RCEF outcomes and impact
KEQ 4 To what extent are RCEF funded projects demonstrating sustainable and replicable business models?	Chapter 4 – Effectiveness of delivery
KEQ 5 To what extent does the RCE address barriers to regional community energy generation such as achieving regulatory compliance, financing, capacity building, clarifying and documenting community energy models, market failures such as information asymmetry and stakeholder support? To what extent do these barriers remain?	Chapter 4 – Effectiveness of delivery
KEQ 6 What are the ongoing barriers to obtaining social licence in community energy generation projects?	Chapter 4 – Effectiveness of delivery
KEQ 7 What is the ongoing role for government in community energy generation projects?	Chapter 6 – Future roles and recommendations
KEQ 8 What are the key lessons for future community battery and energy programs?	Chapter 6 – Future roles and recommendations

Source: ACIL Allen

2 Program/workstream design

This section addresses the design of the program/workstreams, particularly how appropriate the decisions made were at the time of the program design. The section explores aspects such as program/grant design, the established roles and responsibilities of the Department, appropriateness of supports and contractual arrangements. Examination of the design is integral to setting the context for other sections and in generating findings and recommendations for the evaluation as a whole (rather than addressing a particular KEQ). It is also essential in differentiating strengths and weaknesses that stemmed from program design versus those linked to delivery and implementation explored in Chapter 3.

Finding 1 RCE design supported innovative approaches

The design of the RCE supported innovative approaches and facilitated the design of community driven renewable energy projects. Clear outcome intentions were developed for the 3 workstreams, although these were not translated into impact measures. The business case set out the challenges facing community energy projects and the design of the RCEF grants program directly addressed some of these barriers. Flexibility incorporated in design enabled communities to utilise structures and functions that best suited their unique needs and pursue novel approaches.

Finding 2 The RCE was only partially executed

The RCE was only partly executed with some program funding directed to alternate/emerging priorities. This decision does not appear to have been effectively documented or communicated to interested parties, internal or external of to the Department.

Finding 3 RCEF's design could have been strengthened

A number of shortcomings with the design of the RCEF workstream hindered delivery. Future community energy programs need to safeguard against making similar mistakes. RCEF would have benefited from:

- Clear definitions of 'community led/community owned' and 'shovel ready' to avoid ambiguity and provide clarity as to expected benefits/beneficiaries and the use of grant funding.
- Provision of technical expertise to help advance projects. While financing needs were addressed by the grant, project proponents generally lacked/could not readily access the detailed technical expertise necessary to address the myriads of issues required to get projects to commissioning.
- Availability/inclusion of technical advisory functions (external to the Department – engaged on a retailer basis) would have assisted all projects. The lack of awareness in relation to the tax ruling and its implications highlighted this gap.
- Stronger articulation of overall workstream success measures and the realistic means to capture and promulgate impact and benefits (for the short and longer term).

2.1 The initial design of the program workstreams

Upon the commencement of the RCE program in June 2018, the design of the RCE contained 3 distinct workstreams: the RCEF, the RCEH and the RCERC. A total of $30 million was announced for the entire RCE.[12] The direct allocations to the workstreams totalled $24.2 million, with $20.0 million RCEF, and $2.1 million each for RCEH and RCERC. The remaining $5.8 million was allocated for Departmental administration of the program. RCE was set to be completed in June 2022, lasting 4 years.

The project objectives upon commencement in 2018 were as follows:

- Improve energy reliability and the integration of renewables in regional communities.
- Improve energy affordability and resilience for regional communities.
- Deliver bill savings through improved access to information and services.
- Build energy literacy and capacity in regional NSW communities.

Intended outcomes

The design of the separate workstreams involved identification of intended outcomes of each workstream of the project upon completion and within 10 years, as detailed in Table 2.1. While having 10-year 'intended outcomes' was a commendable aspiration, especially given the ongoing sustainability lens, no clear mechanism for assessing this outcome incorporated in the RCEF design. It is an unrealistic expectation to expect outcomes to be monitored that long after program closure.

Table 2.1 Project overview and intended outcomes, at project completion and within 10 years

Workstream description	Intended outcomes
RCEF	
The RCEF was designed to award grants for community owned or led storage and clean energy projects	At project completion: – deployment of approximately 25 MW of new renewable generation and 7 MW of new energy storage capacity throughout regional NSW.
	Within 10 years: – a fivefold increase in the amount of community owned energy projects in operation from 2018 – increased capability and capacity of Community Energy groups – community ownership models will be demonstrated and well proven.

[12] NSW Government. 2019. *Clean-energy-funding-to-reduce-power bills*. Archive accessed May 2025 at: https://web.archive.org/web/20190228050350/https://www.nsw.gov.au/your-government/the-premier/media-releases-from-the-premier/clean-energy-funding-to-reduce-power-bills/

Workstream description	Intended outcomes
RCEH	
This component aimed to provide grant funding for community energy hubs, ultimately reducing energy bills and improving energy affordability	At project completion: – establishment of at least 3 community energy hubs in regional NSW – delivery of several innovative community-led energy efficiency, energy savings, or energy procurement projects initiated by community hub coordinators – achievement of hub-specific targets for decision-making support and technology uptake.
	Within 10 years: – increased energy literacy amongst regional communities and households – higher uptake of energy efficient appliances including solar, batteries, LED lighting and space heating/cooling.
RCERC	
Grant funding of up to $30,000 for regional and remote communities. Shared facilities to improve energy affordability and access during natural disasters and severe weather events.	At project completion: – deployment of approximately 70 solar and storage grid backup solutions for community shelters and community owned buildings throughout regional NSW.
	Within 10 years: – lower operating costs for community owned emergency shelters and disaster relief centres – greater community resilience during a grid outage in an emergency (e.g. bushfire, flood, storms etc.).

Source: NSW Department of Planning and Environment (2018). RCE Business Case, Version 1.0. Adapted by ACIL Allen.

Research and prior experience

The business case highlights the research conducted in the scoping and design of RCE, including identifying existing NSW community energy projects. The 2015 NSW Government *Growing Community Energy Fund,* which had provided grant funding for feasibility studies related to potential community energy projects, was a key precursor to the program. As of 2018, one-quarter of the 19 participating start-ups in the *Growing Community Energy Fund* had advanced to a stage where they were considered ready to deploy their renewable energy projects.

As identified in the business case, previous community energy projects had experienced barriers such as:

— challenges in identifying suitable sites

— volunteer management not being as sophisticated as professionally run organisations

— the need for financial support in early stages

— the high cost and administrative burden in complying with regulatory requirements.

The role of NSW Government

The business case lists the benefits of community energy projects and identifies relevant examples and types of market failures. The document does not explore what the role of the NSW Government is in supporting such projects, and why/how the Government is positioned to navigate these market failures.

The role of the RCE project team included the management of the contracts, variations and payments. There is no suggestion in the business case that it was intended for the RCE project team to assist the selected RCEF projects in any capacity (i.e. in navigating technical/regulatory requirements) other than contract management (in line with 'normal' program management approaches).

Intended reach

The RCE program commenced in June 2018 and was launched by then NSW Premier Gladys Berejiklian MP in August 2018.[13] RCEF was the largest (in terms of budget) workstream of RCE and was launched first. The projects approved under Round 1 resulted in the bulk of funds (some 77% of total RCEF funding) being committed which exceeded expectations for the first round. Initial planning suggested the remainder of the grant funding for RCEF would be allocated to a second round, even though the amount available was limited.

Although not specifically addressed in design documentation accessed for the evaluation, the inclusion of 2 rounds of funding for RCEF allowed for a degree of flexibility if there was a lower-than-expected number of applications. The inclusion of a second round would have allowed time for development of more robust projects not ready at time of the Round 1 application opening. Stakeholders reported that some potential applicants decided to wait for the second round to spend time organising their application. Round 2 did not proceed.

The decision to plan for 2 rounds of funding was sound. While it is reasonable for the Government to reallocate program funding/not proceed with program elements and to redirect effort to alternate/emerging priorities, there is no evidence that the decision not to proceed with Round 2 was effectively communicated to interested parties. Given the bulk of the available RCEF funding was committed with the Round 1 announcements ($15.4 million), the limited remaining funds meant that a prospective Round 2 would be severely limited in terms of the number and scope of projects to be funded.

The RCEH and RCERC streams do not provide a particular rationale for the specified number of energy hubs and grid backup solutions respectively in their intended outcomes. The RCERC aimed for 70 solar and storage grid backup solutions. However, design documentation did not indicate whether an expression of interest or any other market research had been undertaken to ground this estimate of uptake.

RCEF rollout

Round 1 was opened for applications from February to May 2019, advertised on social media platforms Facebook and LinkedIn from April to May 2019. The assessment panel (with external advisors) shortlisted 10 projects after meeting in July 2019. The 7 approved projects were selected in August 2019, then recommended for funding in October 2019. The 7 projects were awarded $15.4 million in grants in March 2020.

Funding agreements were negotiated between January and March 2020, with the final agreement executed on the 11 March 2020.

RCERC and RCEH discontinued

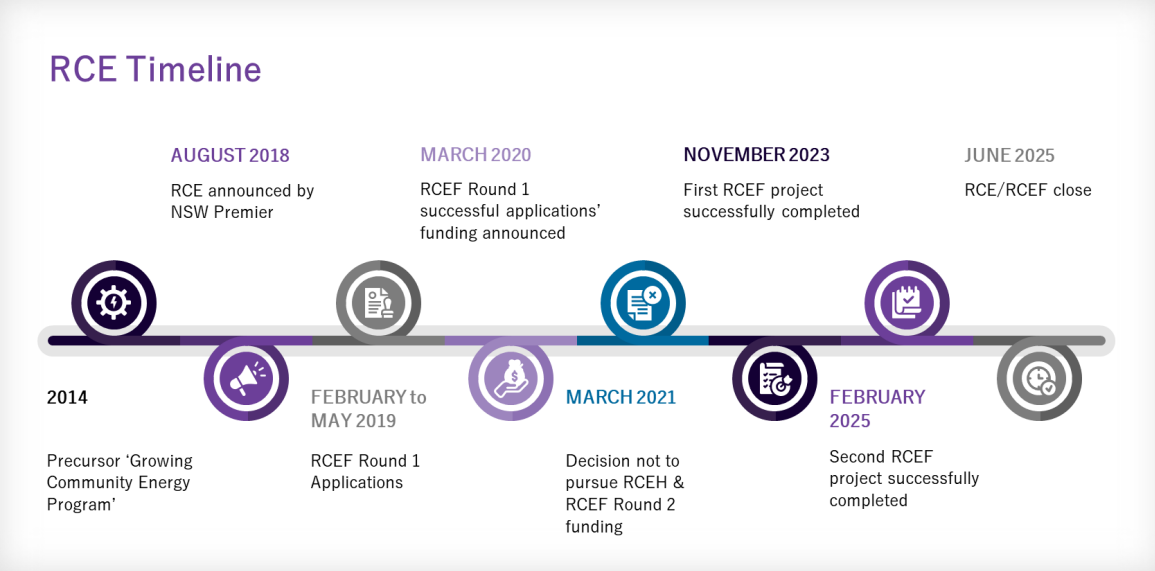
Changes to Government priorities meant that the RCEH and RCERC intended activities never occurred. The workstreams were never approved for commencement and as a result, these workstreams did not meaningfully transition to the implementation stage. As such they are not discussed in the following chapters.

[13] NSW Government. 2019. *Clean-energy-funding-to-reduce-power bills*. Archive accessed May 2025 at: https://web.archive.org/web/20190228050350/https://www.nsw.gov.au/your-government/the-premier/media-releases-from-the-premier/clean-energy-funding-to-reduce-power-bills/

The evaluation has not unearthed definitive reason(s) or decisions as to why the workstreams did not proceed, although it appears clear that in early 2021, the Government re-directed the Community Energy Hubs workstream funding (along with the balance of RCEF funds) to the Renewable Energy Zones work program. Applications for support under the RCERC workstream were not called and it is unclear as to where the funding was redirected.

The timeline below displays the key events in the design and delivery of the RCE program.

Figure 2.1 RCE program timeline



Source: RCE and RCEF program documentation (various).

2.2 Strengths in RCEF design

Identified need for funding and Government support

The RCEF workstream's design identified and addressed a need for financial support to act as a catalyst in the community energy operating space. Further, the funding symbolised the NSW Government's broader support for the concept, which breeds confidence in investors.

The design builds on the assumption (tested and demonstrated through the *Growing Community Energy Program*) that there are interested regional communities in NSW which are passionate and willing to drive a regional community energy project. What they lack is the required capital stimulus to enable them to proceed. NSW Government support aimed to build momentum and enable projects to move to construction and operation. Stakeholder discussion with the community leaders of projects such as Goulburn and Haystacks were very clear that the financial underwriting delivered by grant funding was essential to progress the projects (discussed further in Chapter 4).

Flexibility in governance arrangements

The flexibility in the RCEF guidelines allowed for communities to utilise structures and functions that best suited their unique needs. In particular, the individual projects had capacity to explore a range of community funding models (e.g. solar garden versus private investor crowd funding models), varying partnership agreements and technology (e.g. solar with and without batteries, solar gardens etc.). Further, the

community energy organisations could partner with private organisations to execute projects. This saw 4 of the 7 RCEF projects partnering with the same expert organisation, as explored in Box 2.1.

Box 2.1 Komo Energy

Komo Energy is a specialist renewable energy firm that provides expert advice and investment to community energy projects.

Komo supports communities to develop community scale solar and storage projects. It does this by providing seed funding, technical and energy market expertise to bring them from concept through to investment readiness, delivery and operations. Projects often open investment to individuals, allowing those interested in participating in the transition to renewable energy and funding part of the change they want to see.

Komo worked with 4 projects (Goulburn, Gloucester, Manilla and Haystacks) to assist in the delivery of their projects.

The projects that received advisory services from Komo Energy overwhelmingly reported that it played a significant role in key decisions. Further, as the firm worked across 4 projects, while the RCEF projects transpired, the individuals could take learnings from one project to another.

Source: Consultation with RCEF project representatives. Analysis by ACIL Allen.

An intention to support novel approaches

The design not only allowed, but encouraged the use of innovative approaches, as highlighted in the merit criteria for applications. Given their novelty, these projects involved a level of risk to Government. The Government's funding of these projects therefore supported 'first movers' in an area of significant technological development and growth. The criterion noted that this would either be in the form of technological or business model innovation, such as engaging new customer types or using novel financial or ownership structures. This criterion resulted in projects successfully adopting novel approaches. The criterion was weighted appropriately. Its weighing of 10% meant that while an important consideration, it is not weighted above the ability for projects to be completed in a timely manner, deliver economic/financial outcomes and to be of benefit to the community.

2.3 Shortcomings in RCEF design

While not directly addressing a particular KEQ, the identification of design issues is relevant to other sections of the evaluation. In particular, this provides utility in creating a distinction between choices and actions made in design, rather than implementation, outcomes, or future appropriateness. The RCEF workstream contained several design flaws that hindered delivery. These issues are summarised below.

Lack of clarity in key terms

Examination of the execution of RCEF projects has highlighted 2 areas where greater clarity would have enabled the Department to act more effectively in implementation of the workstream: the definition of 'community' and 'community-led' and the definition of 'shovel ready'.

Community led

The objectives of the suite of RCE projects (see Chapter 2.1) are based primarily on delivering benefits to regional communities. Similarly, the RCEF objectives specify energy projects should be "community owned". While 'community owned' is a key term with many reasonable interpretations, the term was not defined, leading to confusion among stakeholders.

> *"I think each of these projects has a different sense of 'community'." (RCEF project representative)*

The ambiguity of the term 'community' applies to multiple aspects, namely:

- The location of the asset(s): must the infrastructure be in or near the community that is leading the project?
- The beneficiaries: should the beneficiaries be from the local community, or do benefits flow to all grid users (or some combination of the 2)?
- The investors: must the investors live in or near the community?
- The governance: must the project be led by people living in the area in which the assets are being built?

A Departmental representative noted the challenge this introduced when an RCEF applicant with a lack of local, regional community backing was seeking exemption from the clause of being community-led.

> *"… there was no way for us to say* [the application] *didn't look good because we didn't have the definition* [of community-led] *anywhere." (Department representative)*

Defining this term could – for example – include a requirement that a certain percentage of investors' primary places of residence are within a radius of the local community and arrangement be establish so that at least a portion of the benefits are accrued to members of the local community.

Shovel ready

The concept of shovel readiness (meaning that a project is effectively ready to commence construction activities) was raised frequently by internal and external stakeholders as a fundamental flaw in project design and expectations. Internal stakeholders were (at the commencement of the project) under the assumption that projects were to be at a point of advanced development in order to be approved, rather than still requiring significant time and resourcing prior to commencing construction.

> *"The concept of 'shovel ready' varies from person to person. It is not naïve though, it means you have gone through a lot of compliance with lots of bodies, EPC, council, engineers… The concepts that are involved, they have to be understood – 'shovel ready' means you are good to go, green light, council tick, Essential Energy, tick. You are ready to procure and construct." (RCEF project representative)*

The evaluation did not uncover evidence of this requirement per se in the application guidelines. The application process did ask applicants to provide (optionally) any 'other approvals and due diligence already conducted', such as technical and environmental studies. However, this was not a requirement, meaning many approved projects were still in a relatively early planning stage. Further confusion was introduced in the RCEF Fact Sheet and FAQ documents, wherein the RCEF would only fund projects at advanced/progressed stages of development or "shovel ready",[14] and "will not fund pre-feasibility work".[15]

> *"Projects were terminated because they had to reassess location. They didn't have a location. How can you tell me that you have a 'shovel ready' project if you don't have a site?" (Department representative)*

[14]NSW DCCEEW (n.d.) RCEF Fact sheet

[15]NSW DCCEEW (2019) RCEF Frequently asked questions

Given the projects were originally to be completed by June 2022, the lack of an eligibility requirement specifying a degree of readiness to commence works was likely to result in the termination of projects and an inability to meet the intended timelines.

The timelines proposed could be considered reasonable if indeed all applicants were required to be 'shovel ready'. Without this requirement, it could have been predicted that significant time would be required to progress projects to this point. It follows that the original timeline was unrealistic given applicants were not required to be at an advanced stage of development.

Lack of technical expertise

As defined by the RCE criteria, RCEF projects were expected to be highly complex in nature, particularly in relation to the technical, financial and governance aspects of the projects. In addition to aiming to construct significant infrastructure, the complexity of the projects was magnified by the focus on innovative and community owned approaches.[16]

While the Department contracted Deloitte for financial advisory services and GHD for technical advisory services in the assessment of applications, technical/expert consultants were not engaged on an ongoing basis. While the RCEF management team had the expertise to administer the funding, they did not have – nor were expected to have – the expertise to make judgements or provide advice to projects on the highly complex technical and financial matters that were bound to arise over the life of the project. With the benefit of hindsight, it is concluded that the workstream design and execution would have benefitted from more involvement from experts.

> *"Department had some good, intelligent people who knew what they were talking about. But because there was never the technical expertise, electrical engineering for example, we had lots of holdups." (RCEF project representative)*

Innovative approaches to renewable energy at the community level have a degree of experimentation and additional risk. Community owned structures carry associated risks in comparison to a conventional organisation, including limited human and financial resources.

Due to the limited resources available to a community owned organisation, they are unlikely to be able to efficiently and confidently navigate the delivery of such projects without significant external expertise. Further, it is likely that greater access and utilisation of technical advice/guidance for the duration of the RCEF stream would have led to more timely delivery of projects.

2018-19 Tax ruling

Shortly after program commencement, in November 2018 and January 2019 the Australian Taxation Office (ATO) made rulings regarding the treatment of depreciation of assets and taxation of grant funding that had direct relevance to the funding delivered through RCEF.[17] While it cannot be expected that this change could have been anticipated during the original design of the workstream, it should have been foreseen during the assessment of bids and as grant deeds were being negotiated/executed. The assessment process and due diligence on project financial plans should have foreseen the complexities that would arise throughout project execution.

In formulating projects, community groups failed to take into account the taxation implications related to the grant funding, which had a significant impact on multiple projects, requiring them to pay far more tax upfront than they had expected.

[16] As specified in RCEF intended objective.

[17] Common Capital (2020) *NSW Regional Community Energy Fund Process evaluation*, 14 October 2020, p43.

"There was this big issue with how the cash flow would work once we realised that there would be this huge upfront taxed imposed." (RCEF project representative)

There is no evidence that these implications were incorporated into workstream design or that the risk that the tax ruling carried for projects was identified (as something to be considered by applicants). Project stakeholder feedback highlighted this as a significant reason for time delays while alternative approaches were formulated/negotiated and additional funding raised. Given the Department had engaged experienced financial advisors to assist in design of the workstream and the assessment of applications, it is unclear how this critical consideration was missed.

Financing challenges

RCEF project representatives expressed a view that the post milestone payment arrangement was a significant barrier to implementation which meant they needed to take on high-interest debt, raise further crowd funding and delay activity to be able to pay suppliers. In effect, the community is forced to assume all project risk which imposes cash flow problems and raises issues of project credibility with potential investors (despite the Government effectively underwriting the project).

"… big challenges to my mind were that the funding, the funding model of RCEF was to achieve a milestone. We paid for that milestone right up to the end with at least 10% being held back at the end, once achieved the final milestone, you get the final 10% – it's paid in arrears." (RCEF project representative)

The payment in arrears arrangements were exacerbated by existing financial challenges experienced by the individual projects (particularly those that did not have a commercial/industry partner). This created barriers to generating required investment, adapting to evolving design or technological changes and maintaining viability. In the case of the Enova project, the small electricity retailer delivering the project found itself in voluntary administration which resulted in project termination.

"The community groups themselves were just not set up to deliver the projects and therefore it became quite clear that those community groups that actually had a strong commercial partner involved would be successful in achieving its milestones." (Department representative)

"We had to get loans to fix the cash flow issues which were at stupidly high interest rates, 12% interest rates, because it's really high risk." (RCEF project representative)

It is noted that the alternative of upfront payments would've posed risks to the Department (given the volume of funds being outputted), but this may have been alleviated through more fit for purpose milestones and gateways within contract design.

A partial solution only

The business case identified the array of areas to be addressed to broadly advance the uptake of community energy, including to clarify community energy models, increase access to funding, build the sector's capacity, and the need for reform to create a conducive environment for community energy models.

The design of RCEF focused largely on providing access to funding rather than addressing the other barriers that prevent uptake and success in community energy more broadly.

"It was set up for communities to deliver their own projects. It made the assumption completely counterfactual that communities have developed projects that needed only construction funding." (Department representative)

While the business case identified challenges other than financial barriers, there was no reasoning presented to justify which issues the RCEF stream aimed to address and which it implicitly does not target.

Therefore, it is unclear as to whether potential solutions to other barriers were considered, for example, whether the RCEF could build capacity or clarify community energy models.

Success measures not specified adequately

The design phase of the workstream did not articulate consideration of how success would be measured, particularly in terms of collecting data to demonstrate outcomes. As explored further in Chapter 5, this hindered the ability to demonstrate whether program objectives have been met.

3 Implementation of RCEF

This section addresses KEQ 1 To what extent was the RCE implemented and delivered as intended and what lessons can be learned from any encountered challenges, including why certain projects did not roll out as anticipated? This section of the report considers the delivery and management of the RCEF from the point of announcement, identifying issues and strengths that were implemented.

Finding 4 RCEF implementation is not complete

Two of the 7 projects to receive grant funding have been commissioned and are operating. These projects have delivered final knowledge sharing reports. A further 3 projects are still being pursued though none are expected to be commissioned at RCEF closure and grant finalisation on 30 June 2025. At least 2 of the projects are expected to be completed over the coming 12 months. The completion of the third project remains uncertain as it is yet to seek investor funding. The remaining 2 projects ran into intractable challenges and were (rightly) terminated early in the life of the grant.

Finding 5 RCEF timelines could not be met

The COVID-19 pandemic and war in Ukraine significantly impacted project planning and execution, highlighting the susceptibility/volatility of the construction and energy sectors with globalised supply chains.

A number of project related challenges led to slippage including:

- Financial and cash flow challenges with milestone payments linked to completion of work (in effect payment in arrears), exacerbated by having to pay taxation on grant funding in the year of receipt. Community groups had to raise additional funds to offset these impacts or develop alternate financing models (such as crowd sourced funding), both of which took time.
- Projects required further work to advance them to a stage where they were execution/construction ready. Securing necessary approvals, agreements and land access coupled with revised plans to address technical challenges slowed progress.
- The lack of systematised knowledge sharing between projects meant several were tackling the same issues/challenges in parallel rather than tapping into collective learnings.

Finding 6 While the Department adopted a flexible approach to keep projects progressing, management of the workstream could have been better

In overcoming delivery challenges, the Department demonstrated an appropriate risk appetite, a sensible approach to terminating projects and commitment to working collaboratively with community groups. This approach has been integral to achieving RCEF's completed and pipeline of projects.

Nevertheless, there was scope to better manage the workstream. Clear, consistent, shared and accessible practices in contract monitoring, document and record management do not appear to have always been followed resulting in a loss of continuity and corporate knowledge. Key documents could not be located. Staff churn further exacerbated the issue.

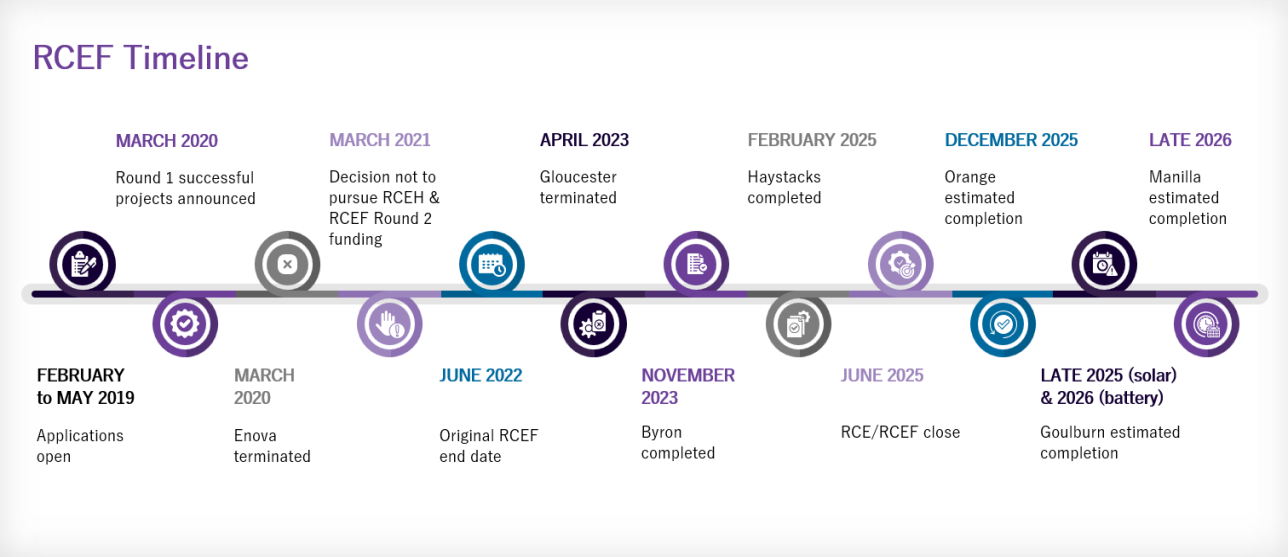
3.1 Delivery of RCEF

RCEF has not been delivered as intended. Only one of RCEF's planned 2 rounds was announced and funded. Of the single round of grants delivered, only 2 of the 7 announced projects will have been completed when RCEF closes on 30 June 2025 (achieved all contracted milestones and agreed funding paid in full). As the grants were paid on a milestone (in arrears) basis, a total of $10.87 million of the announced $15.4 million for Round 1 has been provided to the projects.[18]

While only 2 RCEF projects reached full commissioning by program closure, broader value has been delivered across all projects – evident in less tangible areas such as building a practical knowledge base, testing innovative delivery models, and strengthening the capacity of regional communities to engage in renewable energy initiatives. The broader outcomes of RCEF are discussed in Chapters 4 and 5.

RCEF was also intended to be delivered as a 4-year project stream[19] but has stretched to over 6 years of operation. An overview of the delivery timeline for RCEF is provided in Figure 3.1.

Figure 3.1 RCEF timeline



Source: RCE and RCEF program documentation (various).

While RCEF has not been delivered with fidelity, project representatives commonly regarded the workstream's initial intent to be ambitious and innovative from the outset. At the time of announcement (of NSW Government project support), the concept of funding and delivering 'community owned' and small-scale renewable energy projects was relatively nascent and un-tested. Given the ground-breaking nature of such an innovative approach, it was inevitable that unforeseen challenges would arise, and that implementation of the program exactly as planned was unlikely. External challenges which emerged alongside RCEF delivery issues (summarised later in this chapter) further exacerbated implementation.

> *"… it was a great, ambitious project and to roll out such a thing and to trust community groups with that. And you know in hindsight, we were all really naïve as to how complicated the project was, or the processes were." (RCEF project representative)*

> *"Ambitious RCEF – good on them for trying" (RCEF project representative)*

[18] NSW Government. 2024. *Regional community energy fund.* https://www.energy.nsw.gov.au/government-and-local-organisations/ways-get-started-local/regional-community-energy-fund

[19] NSW Department of Climate Change, Energy, the Environment and Water. 2018. *Regional Community Energy Project Plan v8.*

RCEF's performance in implementation demonstrates the need for greater flexibility around project delivery and timeframes for grant programs of this nature if they are pursued in the future, or consideration of a more phased approach that is less ambitious but that is more realistic toward delivering on intent.

3.2 Delivery and status of RCEF projects

When examined at the individual project level, most RCEF projects deviated significantly from their original design and timeframe as outlined in applications and the grant deeds. While 2 projects were completed and commissioned, even these required adjustments during implementation. Individual RCEF projects featured different and evolving designs, locations, financial and legal structures which makes clear comparisons around implementation in accordance with the original intentions difficult due to the varying milestones and unique challenges to delivery each encountered.

> *"Every project is different. Every project unfolds in a different way." (Department representative)*

The individual projects all required at least one, and sometimes up to 4 contract variations as they were implemented which altered the original intent of projects with respect to factors such as delivery timeframes, design (technical and location) and total grant funding. This resulted from a lack of flexibility embedded into contract design (e.g. with set milestones) which meant administrative approvals (even of a minor nature) were needed to keep pace with evolving project specifications.

> *"A lot of variations, a lot of delays." (Department representative)*
>
> *"We didn't put in enough flexibility in those funding agreements." (Department representative)*
>
> *"Some of the processes were too rigid for something like this because of how tricky these things are. I.e., a battery will be very late, and it is a key* [deliverable] *for the milestone, so we should be able to split it off the milestone and give them most of the money… so then it needed a variation, and by the time it got approved and done it wasn't all that helpful…" (Department representative)*

An overview of the 7 RCEF projects is provided at Table 3.1, outlining their intended scope and delivery status. This shows that at end of June 2025, 2 projects have been completed (all milestones delivered) and that 3 projects are ongoing with some milestones delivered. After 30 June 2025, the delivery of ongoing projects will be overseen by the relevant community groups. Representatives from 2 of these projects reported that they were in the final stages of project execution and should commission the projects over the coming months. Two projects were terminated completely due to insurmountable challenges and/or unviability.

> *"Three of the 7 original projects will be pretty close to being completed, 2 are complete now. One will have barely moved. It will have done its initial tasks, which is a pretty poor indictment given they've had 5 years to do so. And one is currently held up and with Transport for NSW approvals we have our fingers crossed it will happen." (Department representative)*

While at the individual project level, RCEF was intended to support advanced development and construction, implementation became overwhelmingly focussed on overcoming project design and early development activities which evidences the lack of genuinely 'shovel ready' and implementation immaturity of the projects from the beginning.

> *"… the projects were more conceptual when they were accepted and then they had to be further developed so they could get into that stage* [shovel ready]*." (Department representative)*

3.3 Challenges to delivery

RCEF encountered several challenges to delivery at the macro and micro levels which individually and collectively meant no project rolled out as anticipated. These challenges have been categorised and

summarised as external, project specific and Departmental (management) below, identifying the key emerging learning associated with each category.

External challenges

RCEF was announced and delivered at a time of several interlinked global and domestic external challenges outside of its control which had significant impacts on implementation. Firstly, the COVID-19 pandemic aligned almost directly with projects commencing, impacting planning and construction activity, supply chains, meetings and collaboration.

> *"… unfortunately, this program went live right as COVID-19 was about to hit and I can't help but think that that's been a factor in the less than desirable outcomes. It caused a whole range of issues." (Department representative)*

> *"COVID-19 was a big one. A lot* [of projects] *were travelling well, then it made it so difficult. Any sort of work on site was impossible, supply chains were crazy, from 6 to 18 months for a battery. Then in the US, Biden signed the Inflation Reduction Act which had a big focus on green infrastructure, which made it difficult to source batteries etc." (Department representative)*

Secondly, the impacts of the war in Ukraine created barriers to material and contractor supply chains for projects.

These external challenges do not provide many specific learnings for RCEF specifically but more broadly demonstrate the volatility of the construction and energy sectors with globalised supply chains that cannot always be relied upon. Experience in rolling out RCEF highlights the need to incorporate flexibility into design and implementation to enable appropriate responses to unexpected challenges that cannot be avoided or planned for.

Table 3.1 RCEF projects – Summary of implementation

Project	Intended scope (capital and operational)	Funding ($ million)	Project status	Milestones/scope delivered
Byron Bay	Construction and commissioning of: – a 4.99 MW AC solar photovoltaic (PV) – a 4.99 MW/10 MWh lithium-ion battery storage system.	$3.5m (equal to the funding announced)	Complete	As intended.
Haystacks	– Construction, commissioning and commercial operation of a 1 MW AC solar photovoltaic (PV). – Implementation of a solar garden model.	$1.97m ($650,000 greater than approved grant*)	Complete	Greater than intended. Construction, commissioning and operation of a 1.5 MW AC solar PV and implementation of a solar garden model.
Manilla	Construction, commissioning and commercial operation of: – a 4.5 MW AC solar PV system – a 4.5 MW/4.5 MWh Battery Energy Storage System (BESS) – a 2 MW/17 MWh Hydrogen Energy Storage System (HESS).	$22,500 ($1m less than approved grant*)	Ongoing	Not as intended. Achieved up to financial close and approvals.
Orange	Construction, commissioning and commercial operation of: – 4.99 MW AC solar PV – 4.99 MW/h BESS.	$2.92m ($580,000 less than approved grant)	Ongoing	Not as intended. Achieved up to procurement and construction
Goulburn	Construction, commissioning and commercial operation of: – a 1,200 kW AC solar PV – 400 kW/800 kWh BESS.	$2.298m ($197,500 greater than approved grant)	Ongoing	Not as intended. Achieved up to financial close.**
Enova	– Construction, commissioning and commercial operation of a 1 MW/2 MWh BESS. – Development of a peer to peer (P2P) energy trading software platform. – Implementation of a solar PV trading scheme and shared battery scheme for 12 months.	$99,800 ($898,000 less than approved grant)	Terminated	Not as intended. Only achieved defined location and acceptance by Department.
Gloucester	Construction, commissioning and commercial operation of: – 500 kW AC solar PV system.	$460,000 ($377,000 less than approved grant)	Terminated	Not as intended. Only achieved execution of funding agreement and financial close and approvals (not in full).

Note: funding amounts have been rounded. *Updated approved grant. **The financial close milestone requires achievement of key stages such as OM contracting, evidencing SPV and equity.

Source: NSW Department of Climate Change, Energy, the Environment and Water. 2025. Funding agreements (various), milestone reporting and stakeholder consultation.

Project specific issues

The 7 individual RCEF projects experienced a wide range of similar and unique challenges in delivery which have been the key barrier to implementation of each of the grants as intended. These challenges are summarised at the aggregate level below, noting the individual locations, technical specifications, level of experience and partnerships of each project influenced the challenges experienced. A summary of the project specific challenges at the individual level is provided in Appendix C.

Taxation

Multiple RCEF projects were impacted by an ATO ruling not accounted for in grant execution (see section 2.3) whereby grant funds were subject to income taxation upfront (in the year the grant was paid) which they had to allocate un-budgeted funds to cover. This created delays (in finding resolution) and placed significant risks on project viability.

> *"… we had to raise an extra $450,000 to pay the tax liability up front and we get higher depreciation benefits in future years. So, the total, if you don't account for NPV and discounting, amount of tax and depreciation is actually exactly the same. It's just paid up front, and this is where it kills the projects and the viability of the whole project, the* [project name] *is actually significantly diminished because of that tax liability, and* [another project] *currently has the same issue." (RCEF project representative)*

Project immaturity and varying expertise

The RCEF design assumed projects would be 'shovel ready' and ready to support/proceed to advanced development and construction activities. It became very clear early in the implementation of projects that there were considerable design, development and approval elements which all projects still had to address (before they could be considered 'shovel ready'). Progressing through these activities required significant technical expertise which was not available through the Department or (in many cases) at the community level. Some projects opted to engage legal and engineering expertise alongside their teams to fill this gap. In other cases, they relied on their commercial partners (although commercial partner stakeholders indicated that on occasion, they did not have the necessary expertise to deal with the wide array of legal, financial and technical issues).

> *"… when communities want to do renewable energy projects, they lack expertise. They also lack risk funding in the development phase. We have actually seen that on the* [project name]*, you can spend money, and you can come back completely empty handed … Sometimes you can raise some risk capital from the community, but they can't lose it." (RCEF project representative)*

> *"…* [communities often had] *absolutely no comprehension for what it takes to pull together the land component, the connection agreement, and how it all interlinks." (RCEF project representative)*

The lack of technical and legal expertise among projects resulted in delays and inefficiencies in project delivery that could not be addressed solely through volunteer hours, despite the level of passion and motivation in communities.

Lack of organised knowledge sharing

RCEF project representatives communicated that there was a lack of organised knowledge sharing facilitated by the Department between projects which meant tested strategies and resolutions to overcoming common delivery challenges went un-shared. Some Department representatives felt this did occur, particularly early in the program but this appears to have worn off over time, particularly with the increase in staff turnover and therefore relationship and rapport building.

> *"… it was almost like we all just sat on 7 different paths and maybe perhaps we should have been a bit more coordinated to share what learnings or road bumps we all experience without having to do it individually, maybe a bit of forewarning." (RCEF project representative)*

> *"The projects are all slightly different, so we didn't have much contact between us, but perhaps we could've. Perhaps the Department could have driven this more." (RCEF project representative)*

While the influence of a knowledge sharing platform cannot be determined in hindsight, RCEF project representatives were confident that greater collaboration would have alleviated some barriers to delivery. In addition, given the Department intended for RCEF to demonstrate a range of community energy projects, models and approaches, the sharing and gathering of ideas through a knowledge sharing platform may have furthered the goal of promulgating replicable and more robust financial models for community energy in regional communities.

Design, site and connection approvals

The individual RCEF projects suffered significantly in attaining the necessary approvals to progress to construction, commissioning and operations. These approvals related to factors such as design and specifications (e.g. export limits and connection arrangements), land use (development approvals) which in some projects required investigations of up to 10 possible sites and in determining appropriate technology and infrastructure for ongoing viability.

> *"The vast majority of the problem was actually the land* [approvals]*." (RCEF project representative)*

> *"*[The project/community group said] *This is where we're going to connect into the grid, they* [the electricity distributor] *said, 'Oh no, you can't do that. The wires are not strong enough. You can't do it.' And the whole project at that point collapsed." (RCEF project representative)*

Significant delays in achieving milestones may have also been influenced by the 'community organised' nature of the projects and a lack of experience dealing with the various government agencies and approval processes and the requirements involved. In some instances, RCEF project representatives also expected a greater degree of Departmental intervention in resolving these matters.

> *"Essential energy was in the same department as it was before… during COVID there was a particular type of copper cable, from our fence to essential energy's connection. We needed 180m of it, and they said no sorry… essential energy had bought up all the remaining cable, and for themselves, did not let us have any… they were storing all of it… they needed it for potential emergencies. There was a guy there* [name], *who talked to people there. It was insanity. They were asking us if we were ready but not letting us buy the cable." (RCEF project representative)*

Facilitation of this nature was not embedded into the original intent or design of the grant management and is not always practical or pragmatic. Departmental staff, quite rightly, did not seek to sway independent approval processes, other than ensuring projects understood what was required and how to go about the process. In some cases, applications were held up pending the provision of all required information by projects (which took time to complete, especially where projects lacked the necessary expertise to fully understand requirements).

The project specific challenges encountered in RCEF delivery provide important learnings around what can be expected from community organised and managed energy generation projects that emerge out of altruistic intentions, sometimes without sufficient commercial or technical acumen to draw from. These projects require a layer of technical, commercial and legal expertise particularly when engaging with novel technologies and financial arrangements. Community based project proponents do not necessarily understand or appreciate the complexity of the approvals processes they will face. The provision of appropriate information and support can help facilitate the process, alongside facilitated knowledge sharing opportunities. The challenges experienced through RCEF projects should be documented and shared to ensure they are adequately factored into viability and feasibility considerations for replicable models in the future.

Departmental (management) challenges

While some of the most influential challenges to delivery fell outside (external) of the Department's control and oversight as RCEF managers, key challenges have been identified within their remit that have had an evidenced impact on implementation. These included staffing, document and record management and approval/decision delays.

There was no clear over-arching governance function to manage challenges (e.g. via regular traffic light issue or progress reporting or steering committees) which contributed to ambiguity and a lack of clear, timely decision making. The project management team had to rely on line management to provide direction in the absence of broader governance oversight.

> *"…the entire governance of the program shifted at mid-2019 when we merged* [with the environment portfolio]*, the whole governance framework just disappeared… a lot of the issues would be symptoms of that. We lost the program control and governance structure. It was up to the project director to run the ship without the surrounding infrastructure." (Department representative)*

A high rate of staff turnover (at all levels) throughout RCEF delivery impacted the Department's ability to meaningfully manage and guide the projects at all levels of seniority. This issue was especially impactful given the complexity and extent of changes occurring at the project level which required a comprehensive understanding, careful monitoring, and close grantee management. Department representatives noted that the lack of staffing stability created delays to administrative activity where the churn in staff required constant transitional arrangements and the need to 'play catch up' with projects and next steps.

RCEF project representatives similarly voiced issues about the staffing which resulted in the need to re-educate new staff and re-communicate assistance/approvals required.

> *"… the project suffered a lot from many people joining, coming and going." (Department representative)*

> *"Whoever comes in, they need to find their feet. But it was a constant challenge to almost re-educate the manager that came in, and sometimes also the administrator below that also changed a lot… re-educating them on the project and regaining the momentum." (RCEF project representative)*

Alongside this high turnover was a lack of adequate handover in some instances, wherein new staff members were provided a limited handover as to the progress of each project and what their roles and responsibilities were. This has arisen from a mixture of poor or inconsistent document and record management practices and inconsistent approaches to project and milestone monitoring (which are sometimes unavoidable in the context of a high staff turnover). At its worst, poor record keeping or documentation has meant the evaluation has been unable to confirm the paper trail on key decisions on the discontinuation of RCE workstreams (including Round 2 of RCEF) and re-allocation of significant amounts of funding (as per Chapter 2). This lack of a clear paper trail leaves no answers or shared understanding on

what or whether a decision was made, where funds are currently held and whether executive staff authorised the options followed.

> *"… it is very hard to find one source of truth to get information." (Department representative)*

> *"Each project had at least 6 milestones. They were very admin heavy. We had an Excel file that was very basic. The budget figures were not really up to date. It was very hard to know if the projects were achieving the milestones. The budget was never monitored in a way that could assist in decision making." (Department representative)*

Consultations with Departmental representatives and RCEF project representatives have revealed that there were significant delays experienced in decision making, payments and approval of contractual variations. While some concession to this is warranted given the number of contractual variations necessitated through the original funding agreement design, the constant deferral to the legal team and a lack of confidence in decision making (over, at times, minor matters) also contributed to these delays. For projects, these delays had tangible impacts on their maintaining progress and financial momentum.

> *"Nobody wants to make decisions, nobody wants to take risks. Sometimes we are waiting for 4 or 5 months for approval on something." (Department representative)*

> *"The management would always delegate the decisions to legal, and it would always take ages, it would take 3 weeks, when the community is waiting. For example, 2* [projects] *had asked for additional funding. They need to know soon if they can get funding or if they need to raise money." (Department representative)*

> *"…* [delays in Department decisions and administration] *doesn't instil confidence in the community or in the investment process." (RCEF project representative)*

Alongside administrative delays, the Department did not specify and communicate a clear end date to RCEF throughout implementation (until 30 June 2024) whereby the individual community groups held expectation funding and support would roll forward (almost indefinitely). This posed legal risks to the Department in terminating the funding agreements and meant community groups were not incentivised to meet milestones sooner. In addition, naming conventions utilised for new milestones added to contracts throughout implementation (e.g. Milestone 1A and 1B) created issues for the Executive within the Department whereby there was confusion around whether part or full payments were being made.

> *"The contracts did not have an end date. We only realised this recently… it just said the end date is when the recipient has finalised all its milestones. Well since there is no end date, they could argue that they don't want to end the project and that it hasn't finished because they haven't finished the milestones. The relationship is good, so they won't take the legal action, but they could… how did this happen – A contract with no end date." (Department representative)*

Assessment of the Department's experience in managing and administering RCEF demonstrates the need to enhance and adhere to clear, consistent, shared and accessible practices in contract monitoring, document and record management as a team to ensure a sustained level of corporate knowledge despite staffing disruptions. These issues came to the fore given the complexity and innovation attached to the individual projects which needed stable systems of monitoring and management around them to maintain progress and momentum. At a higher level, stronger governance structures were needed to provide program oversight and clear direction.

3.4 Overcoming delivery challenges

Despite a failure to deliver RCEF with fidelity due to a broad array of challenges highlighted above, the Department demonstrated strong flexibility, adaptability and commitment to implement the individual projects

to the extent possible. Key strengths in overcoming delivery challenges that have been evidenced by the Department are summarised below.

Appropriate risk appetite

In delivering RCEF, the Department showed a strong approach to flexibility in interpreting funding agreements and associated milestones in a way that helped to move projects forward while maintaining strong risk management in withholding funds where appropriate. This typically involved splitting or adapting milestones which enabled a portion payment of funds (tied to smaller deliverables) for projects to achieve their next activities and remain momentum. It is noted in doing so, the Department should have maintained appropriate naming and numbering conventions to avoid confusion as new milestones were created. RCEF project stakeholders were highly appreciative of the Department's approach and management of the funding agreements – especially given the overarching design constraints.

> *"I was consistently impressed with the culture of their* [the Department's] *risk appetite…. they were still moderate, but the culture of their team. We would come up with a new plan, some new challenge had come up which had just blown the last scenario out of the water, and we would come to them with the new plan, and it would be more money, or it would be more time, or it would be a different geographic area, some moving of the goal posts. Every single time they were up for listening. They couldn't always say yes, but they never shut us down. The culture was always 'alright, let's see how we can make this work within the system.'" (RCEF project representative)*
>
> *"There were obviously a number of gates that we went through in terms of the Government's due diligence, which we felt were acceptable." (RCEF project representative)*
>
> *"… the project going from equity ownership of a 1 MW solar farm to being a debt component to 1.5 MW solar farm was a complete rewrite of what the project actually represents, and the Government has been good on that front." (RCEF project representative)*

Sensible approach to terminating projects

While the lack of project delivery in full can be viewed as a failure with respect to delivery as initially intended, the decision to terminate 2 projects in the RCEF context was sound. The Department demonstrated a sensible approach to making these decisions based on ongoing viability and a commitment to maintaining efforts in line with project intent.

> *"They* [the project] *were not a viable project from the get-go. They had to evaluate maybe 3 different sites, so it wasn't a good thing. It was bad. The letter for termination was drafted with* [the program manager] *and legal. And that was submitted. Finalising the Enova project was a little bit more mutual." (Department representative)*

RCEF project representatives from terminated projects supported the Department's approach in line with their obligations to maintain value for money and integrity of Government funding, which suggests communication with these projects was well managed and adequate support and resolution was provided where possible.

> *"I felt they were stringent but fair and were very clear with their guidelines in terms of what they required from us and didn't shift those posts when the time came, which is very helpful in terms of such incredibly complex and risky* [projects]*." (RCEF project representative)*

Commitment to working collaboratively with communities

Throughout the entire period of RCEF implementation, Department staff demonstrated a strong commitment and persistence to working collaboratively and meaningfully with communities to progress individual projects. The Department stayed true to the intent of maintaining the 'community' concept of the program design and were willing to adapt to evolving project needs. This commitment was a key driver of projects achieving the milestones they have demonstrated.

> *"They* [the Department] *were fantastic in the, you know, after the disappointment* [with the electricity distributor] th*ey then said, look, have you got another project* [approach]*?" (RCEF project representative)*

4 Effectiveness of delivery

This section addresses: KEQ 4 To what extent are RCEF funded projects demonstrating sustainable and replicable business models?
KEQ 5 To what extent does the RCE address barriers to regional community energy generation such as achieving regulatory compliance, financing, capacity building, clarifying and documenting community energy models, market failures such as information asymmetry and stakeholder support? To what extent do these barriers remain?
KEQ 6 What are the ongoing barriers to obtaining social licence in community energy generation projects?

Finding 7 RCEF has boosted community driven renewable projects, despite not hitting targets

RCEF has delivered 6.49 MW (26% of the intended target) of energy generation. It performed stronger in delivering storage capacity, realising some 4.99 MW (or 71% of the target). While not hitting its objectives or realising project expectations (as outlined at the time of announcing successful grant recipients), it has boosted community based renewable energy outcomes.

Taking into account the anticipated outcomes for the 3 ongoing projects, RCEF may contribute a further 11 MW in energy generation and 11.09 MW in storage capacity, estimated to be completed by late 2026 and will have leveraged nearly $38.8 million in private funding, some 97% of its overall objective.

Finding 8 Grant funding was essential to enabling projects to proceed

Government support provided the necessary impetus, propelling existing community funding and providing a level of underwriting and certainty for prospective private investors.

However, the failure to capture and promulgate lessons around building social licence, addressing the many challenges and barriers faced and developing business models represents a significant missed opportunity to deliver on the key RCEF objectives in building energy literacy and capacity of regional NSW communities and to demonstrate community ownership models.

No one model funded through RCEF has demonstrated strong replicability, but battery storage projects and solar garden models show most potential for overcoming sustainability issues. Further experience is required to enable development of proven community ownership models to underpin regional renewables projects.

4.1 Delivery on intended objectives

New generation and storage

RCEF's objective was to deploy approximately 25 MW of new renewable generation and 7 MW of new energy storage capacity throughout regional NSW. When the 7 successful projects were announced in

March 2020, it was anticipated they would "unlock nearly 17.2 MW in electricity generation and up to 17.9 MW/39.3 MWh of energy storage, leveraging around $36 million in private investment."[20]

Given only 2 of the 7 projects have reached completion, these original objectives have not been delivered. RCEF has delivered 6.49 MW (approximately 26%) of the intended generation objective (25 MW). RCEF has performed better in developing energy storage capacity, delivering 4.99 MW/10 MWh (approximately 71%) of the intended objective (7 MW).

While 2 projects were terminated, the 3 ongoing projects (Manilla, Orange and Goulburn) show some promise of contributing to the overall objectives for generation and storage in the future (albeit not at program close on 30 June 2025).

The estimated completion dates, key remaining issues and proposed generation and storage capacity for each of these ongoing projects are provided at Table 4.1. It is noted that estimated completion dates have been informed by RCEF project knowledge sharing reports (where applicable) and via stakeholder consultations. Accordingly, these estimates should be treated with a degree of caution given the changing timeframes that have unfolded to date. This indicates the potential for a further 11 MW of energy generation and 11.09 MW in storage which, if completed, would take the pipeline totals to 17.49 MW and 16.08 MW respectively. This equates to almost 70% of the intended generation and almost 230% of intended storage (MW).

Table 4.1 Generation and storage pipeline

Project	Estimated completion	Remaining issues	Generation	Storage
Manilla	Late 2026	– Civil works – Dependent on finance	4.6 MW solar PV	4.6 MW/10 MWh BESS
Goulburn	Late 2025 (solar) 2026 (battery)	– Further fundraising (for larger battery) – Construction and commissioning	1.41 MW solar PV	1.5 MW/4.07 MWh BESS
Orange	December 2025	– Transport for driveway approval – Development Approval	4.99 MW solar PV	4.99 MW/10.5 MWh BESS
		– Total	11.0 MW	11.09 MW

Source: RCEF project knowledge sharing reports (where available) and stakeholder consultation (Analysis by ACIL Allen)

Private investment

RCEF was intended to leverage more than $40 million in private investment for innovative projects in regional NSW. The 7 approved projects were forecast to leverage around $41 million in private investment. The total private investment (capital expenditure less the RCEF grant funding) individually and collectively for the RCEF projects is provided in Table 4.2.

RCEF fell short of achieving these targets given the termination of the Enova and Gloucester projects. The 2 completed projects generated $14.7 million in investment (around 37% of the target). Taking into account the projected investment levels for the 3 highly prospective projects, the level of leveraged funding rises to near $38.8 million (97% of the $40 million target).

[20] NSW Government; RECF website https://www.energy.nsw.gov.au/government-and-local-organisations/ways-get-started-local/regional-community-energy-fund#:~:text=The%20regional%20community%20energy%20fund,and%20benefit%20the%20local%20community.

Table 4.2 Private investment in RCEF projects

Project		Total private investment ($, million)
Byron Bay		$12,030,508
Haystacks		$2,707,172
Manilla		$11,922,900
Goulburn		$3,213,783
Orange		$8,893,701
Completed/highly prospective projects	Total	$38,768,064
Gloucester		$510,000*
Enova		$1,688,668*
	Total	$40,966,732

Note: *Anticipated capital expenditure on terminated projects (Enova and Gloucester).

Sources: Capital expenditure has been sourced from the documentation provided for each project – from the original Funding Agreement or updated budgets submitted through the course of the project.

While RCEF may not have achieved its overarching capital and operational (generation and storage) objectives in a tangible sense at closure on 30 June 2025, it has contributed to a boost in community energy project outcomes. Potential completion of the 3 projects still in train will further bolster community driven renewable energy generation and storage in coming years.

4.2 Addressing barriers

RCEF has helped to address the financial barriers to regional community generation and has contributed to securing the necessary social licence to enable such projects to proceed. However, barriers remain for communities which may be contemplating leading future renewable energy projects in their region.

The key contribution RCEF has made to addressing barriers has been through the provision of the grant funding. The financial backing (and stability) provided for projects that had not attracted sufficient funding/investors, allowed them to progress to execution. Government support provided the necessary confidence and credibility projects required to convince investors that they could deliver. Many RCEF project representatives indicated that their projects would not have occurred or progressed to the extent they did without the funding from the NSW Government. The grant provided the necessary impetus, propelled existing community funding, and provided a level of underwriting for prospective private investors.

> *"For the communities, the Government involvement is actually almost an endorsement, it gives them confidence that the Government backs the project." (RCEF project representative)*
>
> *"Without the grant we would not have been able to do the project." (RCEF project representative)*
>
> *"While it hasn't got the actual outcome through the funding we have given them, it has still provided a channel for that project to continue beyond our funding, which in my view is still a good outcome." (Department representative)*

Securing a social licence for renewable energy projects in regional Australia has proven difficult. Numerous projects of varying size and technology have been challenged, some successfully, which has led to modification and delay, and in some cases abandonment.

> "[Regional community] *was coal mining town – still get community input, some believe in its* [renewables] *sizable amount of people don't believe in it. Information spreads. A lot of people who don't*

believe in what we do. Fighting for slice of pie in community in a small community, [our regional community is a] *reasonable town* [but there are] *many who don't like us." (RCEF project representative)*

"Gen X, Y and Z have no problem investing. Older demographic, no, they worked hard, bought property and say, 'how dare you put this next door!'" (RCEF project representative)

The involvement of the NSW Government in community energy projects through RCEF provided an effective lever on which the social licence required by projects could be built. RCEF achieved this through staying committed to the principles of community ownership of the projects where the community groups could engage directly with locals and/or shared interest groups. Stakeholders were convinced that the strong sense of local community ownership was the key to garnering and maintaining broader regional support (even when there was initial local resistance in some quarters).

"… the social value that comes from community energy projects, I think that's very difficult for state governments to do, and there was definitely a lot of commitment within RCEF to create those social outcomes and those social values." (RCEF project representative)

"… without that funding application, we wouldn't have had that commercial partnership, and it really legitimised the whole project and what we were trying to do, where there were other people interested. With the community funding, it actually gave the community weight in that partnership. We weren't just a silent bystander." (RCEF project representative)

Unfortunately, effective mechanisms were not in place to gather, and, more importantly, promulgate the experience of each of the projects in addressing barriers experienced at a community-wide level. While final knowledge sharing reports have been submitted by the 2 completed projects, the Department does not have a mechanism in place to share these lessons with the broader community (or those focused on developing community led renewables projects). The failure to systematically document and promote ongoing approaches and experimentation in addressing barriers exacerbates this shortfall.

While RCEF was successful in addressing significant financial barriers to community energy projects, the program missed an important opportunity to deliver on the key RCEF objectives in building energy literacy and capacity of regional NSW communities and to demonstrate community ownership models (successful, unsuccessful and ongoing).

Ongoing barriers

While the RCEF grants have supported the approved projects, the one-off workstream outcomes have done little to address ongoing barriers to regional community energy generation, especially where projects are planned with the absence of commercial or industry partnerships. In these circumstances communities face considerable challenges in building and maintaining financial security and viability, adopting the necessary technical and legal expertise to overcome regulatory challenges or in foreseeing and managing risk. Communities must also confront these issues in the context of continuing misinformation around climate change and renewables in their regional localities and a limited level of understanding of the role of energy generation and distribution to their everyday lives.

"… an industry partner and needs to come in to take the risk, of course get paid for that risk…ultimately industry pipeline needs to support the communities because communities haven't got the risk capital, but the community also don't have the skills that are necessary to develop projects." (RCEF project representative)

"… the community had a very strong community focus, was a very strong community advocate, but zero experience that would be in anyway helpful to actually deliver the project." (RCEF project representative)

"The barriers are still there. Smaller projects are more difficult to deliver to budget. We just happened to be lucky to have the right people to make it work. It has all become even more difficult, for a sub-5 MW project. If you are between 5 and 30 MW it is even more complicated…whether it can be organised, with no money, no payment, volunteering, … I doubt that there is actual viability left." (RCEF project representative)

A focussed information and communication approach that captured ongoing lessons could have ensured that community groups are better attuned to the challenges they will face in developing and executing generation and storage projects, as well as possible approaches that may help address these barriers.

4.3 Sustainability and replicability of business models

In the 7 years since RCEF was announced, there have been considerable changes in the electricity market and infrastructure, shifts in the overarching policy and reform context, and rapid technological advancement in renewables. These changes bring new variables, shift underlying assumptions and create a new level of unpredictability in determining whether any of the RCEF projects have demonstrated models that are sustainable and replicable for the future.

"… the space of large scale solar and batteries is changing at a rapid pace and they're already finding themselves outdated in some of the technologies that we implemented." (Department representative)

"It's too late for community solar farms. The system has gone beyond that." (RCEF project representative)

Notwithstanding significant evolution of the energy system, RCEF enabled innovation and experimentation in community renewable energy projects relevant to its time. As such it has tested approaches for communities and industry more broadly to explore with a higher level of confidence in the future. In some instances, RCEF enabled the successful use of new technologies and storage approaches that adapt to the changing climate and in others it facilitated crowd funding and debt financed models that were completely nascent to the Australian market at the time.

"… crowdfunding had never been used to fund an infrastructure asset before. It was the first, large scale solar garden. At first, [when faced with] *even a 1.5 MW in front of the metre solar farm*, [the electricity distributor] *didn't know how to do that. They actually changed their connection rules or their connection policy for sub 1.5 MW on the back of this." (RCEF project representative)*

"Clouds change the signal significantly, but with our grid, it is much, much more stable, whereas the old ones are far more volatile. So that was a huge win. We would never have been able to show that without the RCEF." (RCEF project representative)

While no one model funded through RCEF has demonstrated sufficient experience to draw conclusions on replicability, battery storage projects and solar garden models show the strongest potential for overcoming sustainability issues in energy reliability and affordability and can collectively benefit regional and metropolitan communities alike. Given solar farms now constitute a more mature element within the renewables mix, there is less need to develop models addressing their deployment. However, innovative battery storage projects and solar garden models are still relatively novel and have greater capacity to demonstrate appropriate models by which they can be integrated into and benefit the current electricity system.

"… battery farms, battery banks, forget solar farms, [what is needed is] *just bunches of batteries. You would still have to have the expertise, but they take less land, less build costs, procure and connect them, I think that is more economically viable and delivers more power." (RCEF project representative)*

"… 'replicable' for solar gardens is being able to bolt them onto large scale solar farms, e.g., a 700 MW solar farm and a 2 MW corner of it could be a solar garden and have community co investment and they would be using the exact same model that the Haystacks project have, which is a debt financing model." (RCEF project representative)

No one model funded through RCEF has demonstrated strong replicability. The experience with deployment of the RCEF projects has highlighted the need for further work to develop proven community ownership models that can be adopted more broadly.

5 RCEF outcomes and impact

This section addresses: KEQ 2 To what extent has the RCE contributed to fund-level outcomes (renewable energy generation and savings, bill savings and GHG emissions avoided)? KEQ 3 To what extent have members of participating community energy led organisations changed their energy behaviours?

Finding 9 Effective assessment of outcomes and impact is hindered by the lack of robust data

While anecdotal evidence points to success in delivering community level impact and benefits related to the overall program objectives, there is insufficient data available to draw meaningful or robust conclusions. Outcome/impact measures were not fully articulated and related data collection was not undertaken over the life of the RCEF. Given the challenges faced in implementing RCEF projects, Departmental effort focused on output measures and achievement of milestones to ensure projects continued to move forward.

Assuming the 5 complete/ongoing RCEF projects are fully operational, economic analysis suggests that the amount of energy generated by other sources that would be offset is estimated to equate to 675 GWh for the solar and 144 GWh for batteries over their 25 year life span. These projects are estimated to collectively contribute to avoided emissions of 610,213 t CO_2-e assuming they displace the marginal generator (171,503 t CO_2-e if they displace the average generator).

5.1 Fund level outcomes

There was insufficient evidence availed to draw robust conclusions on the outcomes and impact of RCEF with respect to the fund level objectives including for:

- improving energy reliability and the integration of renewables in regional communities
- improving energy affordability and resilience for regional communities
- building energy literacy and capacity in regional NSW communities
- reducing GHG emissions.

These outcomes were tied to the RCE program as a whole (all 3 workstreams). They do not necessarily apply equally across each, with the capacity for each workstream to contribute varying according to design and implementation (individually they may not generate significant change in these outcome areas).

> *"*[evaluation planning was] *complicated by the fact that there were 3 streams of work." (Department representative)*

> *"… we do have a problem across the board with all of the programs and that portfolio that even when they did get an approved change or things got changed or their funding got cut, they didn't go back and remodel all the targets and goals and whatever for those programs." (Department representative)*

The limited evidence base has partly arisen due to the lack of project completions which ultimately limits the potential for intended impacts to occur. The Department's focus on output monitoring (via project milestones) throughout RCEF implementation, necessitated by the sheer volume of issues management that was required throughout delivery, also contributed to the lack of data to effectively measure success.

> *"There is no particular way to measure success, there has been so much turnover, most of my time is reactive, trying to get my head around where the projects are at, so there is not a lot of tracking, measuring, you just don't have the time. It is putting out fires. From memory, I don't know if there are*

indicators to measure success in this program. I vaguely remember the objectives." (Department representative)

"[Department was] *strong on program management of inputs and outputs, but not very strong on outcomes." (RCEF project representative)*

Despite the circumstances RCEF faced, the Department could have developed stronger data collection practices with the individual RCEF projects from the outset, as envisioned in initial versions of the RCE Evaluation Plan.[21] This may have provided more robust insights on:

- changing sentiment and knowledge within project communities around energy efficiency/renewable energy
- community perspectives and experience on the various RCEF project models and willingness to participate in community energy in the future
- tangible outcomes for private investors like bill savings/credits, including for RCEF generator supplied customers
- tracked performance of the renewable infrastructure as it rolled out (energy generated factoring in battery storage and GHG emissions avoided)
- whether any of the RCEF models show evidence of clear replicability and viable business models.

As captured in earlier sections of the report, there is considerable anecdotal evidence (from project participants and community members) suggesting that RCEF did 'make a difference'. However, there is a lack of data to support these assertions. Meaningful conclusions as to the extent to which outcomes met overall program objectives, including the extent these objectives were translated into RCEF outcome measures, cannot be drawn given the deficiencies in the data available.

5.2 Estimated impacts

The evaluation was unable to determine actual impacts on avoided energy costs and GHG emissions avoided from the data available. However, economic analysis has drawn estimated benefits based on relevant assumptions.

Benefit assumptions are based on the following:

- the average wholesale electricity costs (as a proxy for the resource cost of avoided energy generated), average emissions intensity factor and average avoided health costs
- energy that would not have to be generated by other sources by estimating the energy generated by the solar system installed under the RCEF; energy stored in the battery; energy discharged from the battery; and losses in the network.

Avoided energy cost assumptions are based on the following:

- the avoided energy generated by other sources and resource costs associated with avoided generation
- the energy avoided directly by the solar system (valued using the NSW solar dispatch-weighted electricity price); through the discharge of the battery valued using the NSW wholesale electricity price.

Avoided emission assumptions are based on the following:

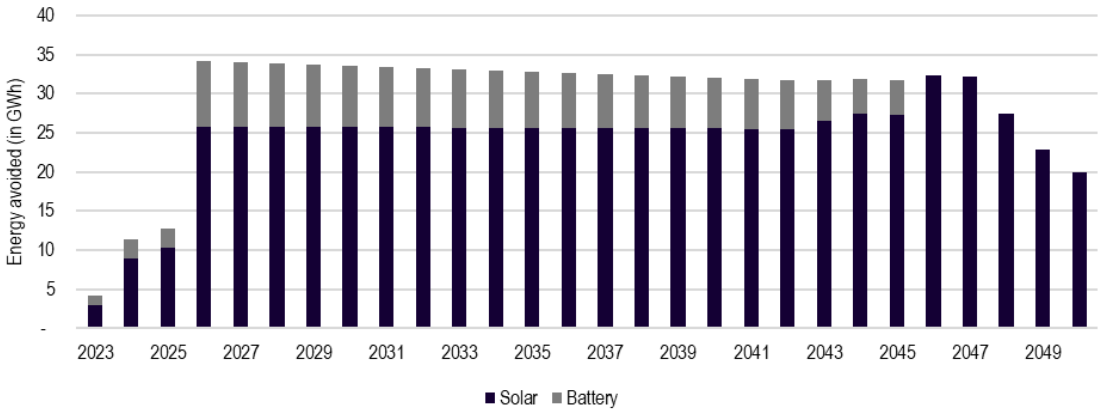
- avoided energy generated by other sources
- relevant emissions intensity factors
- carbon price.

[21] NSW DCCEEW (2022). *Climate Change Fund: Regional Community Energy evaluation plan (Revised).*

Avoided energy generated from other sources

The energy that would not be generated by other sources as a result of the RCEF program is illustrated in Figure 5.1. The energy avoided increases as the RCEF projects become operational and then declines over time as the solar system and battery degrade. The batteries are assumed to have a shorter life than the solar systems (20 years compared to 25 years), so the amount of energy avoided through the charging and discharging of the batteries decreases to zero earlier than through the solar system.

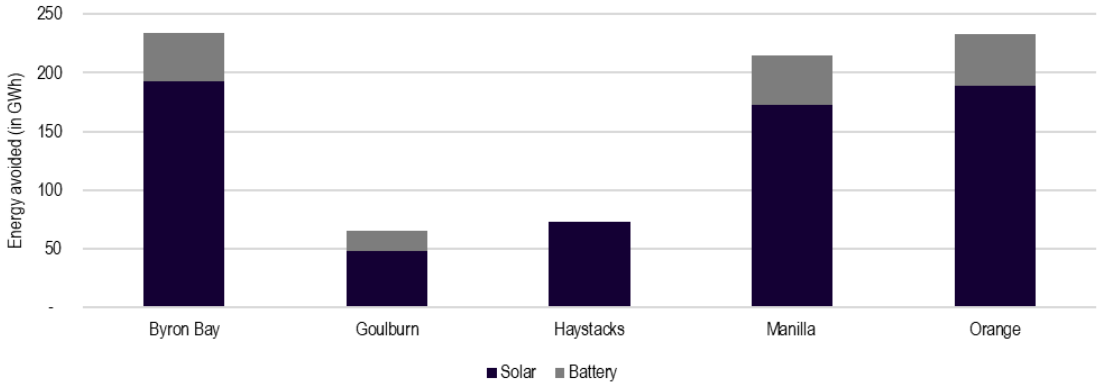
Figure 5.1 Energy avoided by other sources



Source: ACIL Allen

The energy that would not be generated by other sources as a result of each of the RCEF projects is illustrated in Figure 5.2. Collectively, this equates to an estimated 675 GWh for the solar and 144 GWh for batteries over the 25-year life of the 5 RCEF projects. The energy avoided is greater for the projects with a larger solar system (Byron Bay, Manilla and Orange) than for those with a smaller solar system (Goulburn and Haystacks). Haystacks is the only project without a battery so there is no energy avoided through the charging and discharging of the battery for that project.

Figure 5.2 Energy avoided by other sources, by RCEF project

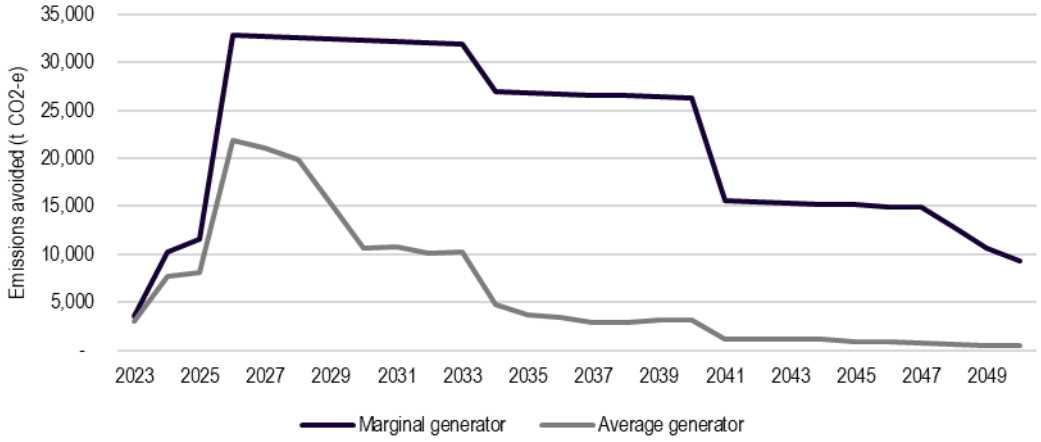


Source: ACIL Allen

Avoided emissions

The emissions avoided by the RCEF are illustrated in Figure 5.3. The emissions avoided are significantly higher when the emissions intensity factor associated with the marginal generator[22] is used rather than the average emissions intensity factor. The emissions avoided decreases over time as more emissions-intensive coal-fired generators retire. Given RCEF projects are more likely to displace the marginal generator in the generation dispatch order, the marginal generator projections are more likely to be a realistic indicator.

Figure 5.3 Emissions avoided

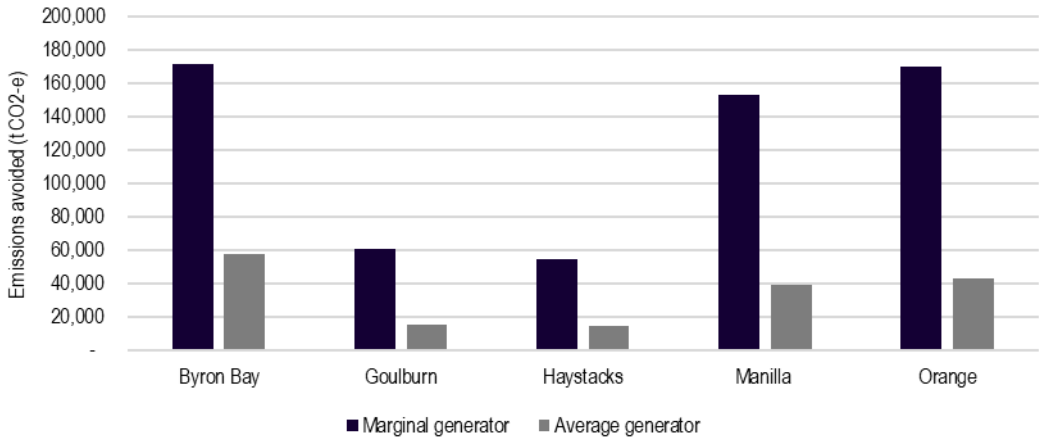


Source: ACIL Allen

The emissions avoided by RCEF project are illustrated in Figure 5.4. For the marginal generator scenario, the projects are estimated to collectively contribute approximately 610,000 t CO_2-e in avoided emissions (171,503 t CO_2-e for the average generator) over the 25-year life of the projects. The emissions avoided are greater for the projects with a larger solar system (Byron Bay, Manilla and Orange) than for those with a smaller solar system (Goulburn and Haystacks).

[22] The 'marginal generator' scenario assumes the generator for the projects would be a marginal generator and used the short run marginal cost (SRMC) for that generator as published in the Australian Energy Market Operator's (AEMO's) Draft 2025 Stage 1 Inputs and Assumptions. When making assumptions on which generator would be the marginal generator, it was noted that solar systems produce energy during the middle of the day when the marginal generator would generally have a relatively low SRMC, and that a battery would be discharged strategically during periods when the marginal generator would generally have a relatively high SRMC. The marginal generator changes over time as generators retire.

Figure 5.4 Emissions avoided, by RCEF project



Source: ACIL Allen

5.3 Impact on communities

Departmental staff and RCEF project representatives have shared anecdotal experiences which indicate RCEF has sparked discussion and interest around community energy, has increased knowledge around energy generation, distribution and efficiency and has opened opportunities for bill savings for vulnerable communities and returns for those involved.

However, there is limited evidence to underpin these assertions, with data being too sparse to draw firm conclusions on the impact for communities,

> *"It kind of meant the members that were engaged were attending events, asking questions, learning about DAs, financial models, hydrogen and batteries. Communities were engaged. From that respect it was really interesting. That goes a long way to letting people feel like they have a say. I think if it had been done properly it would have been a really cool thing." (Department representative)*

> *"It* [RCEF] *certainly has built a lot of expertise, within our organisation, but also within communities." (RCEF project representative)*

There was no reliable quantitative data available to the evaluation to quantify the actual tangible impact of the completed RCEF projects in terms of the financial returns to communities involved (either via a return on their investment e.g. a dividend, or a saving on their electricity bill). Consultations with RCEF project representatives also indicate that these returns (albeit undefined) are being experienced much broader than the local level (by impacting grid electricity prices).

There is evidence of buy in from the broader NSW, Australian and international community. This indicates there may have been a missing community engagement piece within these communities where misinformation or a lack of confidence in the new technologies was influencing decisions to buy in or become involved or that local communities faced a financial barrier where initial outlay was too high to offset eventual returns.

> *"Originally* [the crowd funding was to be] [regional community name] *specifically but we expanded,* [became a] *NSW thing* [then an] *Australia thing – now* [we have] *overseas investors. Investors from all over." (RCEF project representative)*

RCEF projects have typically adopted equity crowd funding models that will pay dividends to investors, e.g. in the form of an Electronic Funds Transfer (EFT), with some evidence emerging of the estimated returns to

be expected. Of completed projects, Byron Bay utilises a Merchant Model selling generation to the spot market whereas the Haystacks project notably adopted a solar garden model where people who purchase a plot of the solar garden receive a financial benefit via a credit on their electricity bill.

> *"…* [the project is] *still* [likely to be a] *reasonable return* [for investors of] *7-8%,* [considering they] *don't need to do anything." (RCEF project representative)*

> *"The solar garden portion means that folks who purchase into the program we call it 'purchasing a solar garden plot' receive their financial benefit as an electricity credit on their electricity bill. It's another layer. All the other RCEF* [projects] *receive a dividend like an EFT payment into their bank account, whereas ours goes through an electricity retailer onto your electricity bill and that model is called a solar garden." (RCEF project representative)*

Some RCEF projects have been able to evidence anecdotal examples of financial returns beyond those who have bought into the projects directly. This has been demonstrated through members providing bill credits to those in financial hardship and vulnerable housing circumstances.

> *"In terms of community impacts, so we've had it, we know that there's a couple of people who have plots and there's one lady in the Northern Rivers who bought 3 plots in order to provide this relief to people in housing stress…we do know a couple of people who have been having a bit of a problem paying their bills and this* [bill credits from the community energy project] *has provided a bit of relief for that." (RCEF project representative)*

> *"… one of the situations with this lady that's donating plots is that she's providing this to people who are in housing distress. And that's exactly what we want to achieve in a future reiteration of solar gardens is providing it to those sorts of people." (RCEF project representative)*

The evidence on impact to communities (albeit sparse) indicates that outcomes have not been concentrated in the local communities surrounding the new renewable energy infrastructure as perhaps initially intended in initial objectives and design. The scale of private investment shows there is clear state and national level interest and confidence in renewable energy projects on a financial basis, but RCEF has not substantially influenced people living in regional communities to buy in to these local projects.

6 Future roles and recommendations

This chapter synthesises key insights from the evaluation into future roles and lessons and provides specific recommendations for program design improvements, delivery efficiency, strategies to address barriers, and enhancements to monitoring and evaluation.
KEQ 7 What is the ongoing role for government in community energy generation projects?
KEQ 8 What are the key lessons for future community battery and energy programs?

Finding 10 The NSW Government's ongoing role should complement rather than duplicate the objectives of the Electricity Infrastructure Roadmap

RCEF's objectives were similar to those included in the *Electricity Infrastructure Investment Act 2020* which was passed following RCEF inception. Future Government initiatives should complement the objectives in the Act rather than seek to achieve the same objectives. Complementary policies or programs should seek to address a market failure or social or equity objectives that are not being addressed by the Act. Market failures that may be relevant to a future program include externalities, early mover externalities and split incentives.

Finding 11 The RCEF has evidenced the 'realities' of community led/owned capital energy projects

The RCEF has evidenced the 'realities' of community led/owned capital energy projects, highlighting issues that need to be factored into future program design and implementation, including:

- 'shovel ready' is an unrealistic expectation
- Government (grant) support is needed to enable projects to move through the complex investment-ready, approval and design processes
- community engagement takes time
- grant payments need to align with capital requirements to advance project execution
- the drivers underlying community group led energy projects are complex
- external expertise (on tap) is required over the project lifecycle
- sharing knowledge and project learnings requires structured approaches.

6.1 The ongoing role for the NSW Government

Since the inception of RCEF, there have been significant changes to the NSW Government policy, and the energy market more broadly, which directly influence considerations around its ongoing role in community energy generation (section 4.3). While RCEF project representatives clearly articulated the ongoing need for Government intervention in ensuring a more stable and reliable electricity supply for regional communities and industries, they, like Departmental representatives, acknowledge the changing landscape for decisions around the NSW Government's role and investment at the local level.

"… these regions need power and great stability, and that is what these projects can actually contribute to. It's on the distribution line. It's not on the transmission line." (RCEF project representative)

"… by creating these energy assets in the Community, you're not only do something for the grid in those areas, especially if you have batteries to go with it, but you also create an opportunity for industry to co-locate." (RCEF project representative)

"I've worked on projects where I had situations where people wanted to put in a laser cutting business into Longreach in Queensland and couldn't do so because there was not enough power and we can actually change that paradigm by saying, we don't need to always wheel the power from the big power station to the regional area. We can actually create islands of higher power supply in the regions and thereby create industry." (RCEF project representative)

One of the key pieces of legislation to have emerged since RCEF is the *Electricity Infrastructure Investment Act 2020* (the Act). The Act implements the NSW Government's Electricity Infrastructure Roadmap. The objectives of the Act are to:

- improve the affordability, reliability, security and sustainability of electricity supply
- encourage and co-ordinate investment in new generation, storage, network and related infrastructure
- foster local community support for investment in new generation, storage, network and related infrastructure.

The minimum objectives of the Act are to construct 11 gigawatts (GW) of renewable energy capacity (8 GW in the New England Renewable Energy Zone (REZ) and 3 GW in the Central-West Orana REZ), 1 GW of additional generation capacity and 2 GW of long-duration storage infrastructure by 31 December 2029.

The objectives of the RCEF were to:

- improve energy reliability and the integration of renewable in regional communities
- improve energy affordability and resilience for regional communities
- build energy capacity in regional NSW communities.

These objectives are similar to those in the Act. With the passing of the Act, any policies or programs, such as an extension or expansion of the RCEF or introduction of a similar program, should complement the objectives in the Act rather than seek to achieve the same objectives. The complementary policies or programs should seek to address a market failure or social or equity objectives that are not being addressed by the Act.

There are 3 types of market failures that may be relevant to an extension or expansion of the RCEF or introduction of a similar program which should be considered when determining the ongoing role of the NSW Government. These are summarised below.

- ***Externalities*** – the key market failure that these types of policies or programs seek to address is the externality associated with emitting GHGs (with emissions measured on a state-wide basis). As inferred from the RCEF objectives, the projects are focused on generating local or regional outcomes and are relatively small in the wider context of the state electricity market. Nevertheless, more broadly there will be a significant reduction in GHG emissions through the Electricity Infrastructure Roadmap.
- ***Early mover externalities*** – early mover projects contribute to the knowledge base about community scale energy projects that benefit later projects. The Knowledge Sharing Reports produced by RCEF recipients are designed to share the learnings from these projects. Any future projects should build on this knowledge base rather than duplicate the existing knowledge base.
- ***Split incentives*** – the business case identified that one of the market failures to be addressed by RCEF was that landlords do not have the incentive to install renewable energy on their properties and hence renters are not able to benefit from an improvement in their energy affordability. Any future

projects could specifically target addressing this market failure. This would also address equity objectives.

From a technology and model perspective, RCEF project representatives have suggested battery storage projects and solar garden models show the strongest potential for overcoming sustainability issues in energy reliability and affordability at the community level and can collectively benefit regional and metropolitan communities alike (as discussed in section 4.3).

6.2 Lessons for the future

The design, implementation and experiences of the RCEF presents several key lessons for the NSW Government should it elect to play a continued role in community battery and energy programs. The RCEF has evidenced the 'realities' of community led/owned capital energy proposals which should be factored into future program design and implementation.

Community energy organisations (like those funded through RCEF), are unlikely to hold the technical and commercial expertise required to progress capital/commercial energy generation and storage projects efficiently, nor to navigate and manage the range of complex design considerations, approvals, legal and financial processes involved to establish viability. These limitations do suggest the Government should avoid investing in community projects in the future but rather demonstrate key factors that must be taken into consideration when designing grant programs in the future. These are outlined below.

1. ***'Shovel ready' is an unrealistic expectation*** – Proposals are very unlikely to be genuinely 'shovel ready' due to the considerable financial and technical investment required up front to progress projects to this stage. See Section 2.3.

2. ***Government (grant) support is needed to enable projects to move through the complex investment-ready, approval and design processes*** – The experience with RCEF project execution highlights the need for sustained support to get projects from prefeasibility/feasibility to the investment ready/pre-construction stage. See Section 2.2.

3. ***Community engagement takes time*** – Timeframes may be protracted when compared to those delivered in industry (commercial settings) due to the need for community engagement, cooperation, decision making and voting processes. See Section 3.4.

4. ***Grant payments need to align with capital requirements to advance project execution*** – Traditional payment in arrears via milestone-based contracts is unlikely to be fit-for-purpose for community groups managing multi-million-dollar capital intensive (by their standards) energy projects. Many suppliers or materials require significant payment up-front and/or within 10 days of invoicing which does not always fit neatly into bureaucratic financial control processes. See Section 2.3.

5. ***The drivers underlying community group led energy projects are complex*** – Community objectives in looking to pursue regional energy projects are broad ranging and impact decisions. Climate altruism can play a significant role and may result in more thorough, critical and protracted considerations around supplier and material decisions, effectively clouding rational commercial/economic outcomes. Desired 'social good' outcomes (i.e. bill relief for the local disadvantaged) can likewise add to complexity. See Section 2.3 and 5.3.

6. ***External expertise (on tap) is required over the project lifecycle*** – Community groups require considerable technical, legal and commercial support to reach completion. While commercial partners working with community groups can partially address this issue, given the complex and innovative nature of projects, gaps in expertise will assuredly arise. See Section 3.3.

7. ***Sharing knowledge and project learnings requires structured approaches*** – Community groups stand to benefit greatly from facilitated knowledge sharing platforms that enable learnings to be spread across individual projects to promote efficiencies in overcoming complex approval and design processes. See Section 3.3.

6.3 Recommendations

Drawing on lessons learned through the delivery of the RCEF, the evaluation has developed 7 key recommendations to the Department should the Government decide to pursue a similar community-based energy programs in the future. The underlying rationale driving each recommendation and key considerations are specified below.

Phased approach

While the RCEF was intended to fund and support advanced development and construction activities (and therefore construction and commissioning), it ultimately supported significant design and feasibility processes. This unsurprisingly drew out original timelines, meant 2 projects were terminated and 3 remain ongoing (Section 3.2). No project was, or could have been expected to be, genuinely 'shovel ready' at point of application given the range of complex approvals, design considerations and associated financial/investment requirements that needed to be addressed to reach this stage (especially given the volunteer/community grounding of projects) (Section 2.3).

To avoid drawn out timeframes and promote the achievement of program intent, future programs in the community energy space should establish a clear 2 phase focus with a strong 'gate-keeping' process. The first phase needs to address the numerous complex design and planning issues to be resolved prior to moving to project execution. This should include matters such as access consents, connection approvals, development and land approvals, environmental clearances etc. In effect this phase advances projects to the state where they are 'investor and construction ready'. The second phase should then look to support the projects that pass the first 'gate' to move to construction and commissioning. Application processes need to set clear, tangible eligibility criteria grounded in technical and industry requirements and experience rather than broad terms like 'shovel ready'. Examples of eligibility for construction and commissioning may include criteria such as development approvals, pre-conditions and connection agreement.

Recommendation 1 Adopt a 2-stage grant process splitting feasibility and design from construction and commissioning of community energy projects

Future community energy programs should adopt a clear 2-phase focus with a strong gate-keeping process (clear termination and continuation triggers). The first phase would address the numerous approvals and design considerations and would culminate with the grantee demonstrating a financial/investment capacity/prospectus to the Department. This first stage is essential to ensure a project is investor and construction ready. The second phase should focus on raising the necessary funding, followed by the construction and commissioning of projects. These 2 stages would need to be clearly articulated into grant administration guidance with transparent requirements to demonstrate eligibility to progress.

Delivery timeframes

The RCEF was originally planned as a 3-year program but stretched to over 6 years with only 2 of 7 projects constructed and commissioned within this time (Section 3.1). While the timing blow-out can be partially attributed to the impacts of COVID-19 and other external challenges such as the war in Ukraine, the experience has shown community energy projects are typically highly immature at point of seeking assistance (Section 3.3). They require a significant investment of time (likely 5 years minimum – even with private sector partner and technical support) to reach completion.

The lack of a clear end date in grant deeds set up a false sense of security in that grantees anticipated that payments would continue as long as milestones were achieved (reinforced by year-on-year rollovers and milestone resets) (Section 3.3).

Recommendation 2 Establish realistic and clear timeframes for delivery when working with community energy projects

Future community energy programs should ensure timeframes are clearly specified and are realistically framed to enable completion. For programs with objectives akin to the RCEF (e.g. increasing capability and capacity in community owned energy), a 5-year timeframe is appropriate. A rigorous gatekeeping process with clear milestone expectations is essential to enable projects that become unviable due to insurmountable roadblocks to be terminated.

Flexibility

RCEF grantees stressed that one of the biggest hurdles to maintaining project progress, momentum and viability was the lack of flexibility of the milestone payment structure which meant payments were made in arrears (Section 2.3). This posed risks for cashflow, the levels of trust and buy in from investors, supplier relationships and reliability, whereby grantees struggled to pay material and supplier costs up front (particularly for big ticket capital items). These challenges were magnified when there were delays in Department processing and approvals. Some of these challenges were offset through splitting and adjusting milestones over time (after the fact), which allowed for a significant proportion of the original funding to be paid, but this caused considerable delays in seeking legal and executive approval in each instance (Sections 3.4 and 3.3).

Community based energy project support needs to recognise the challenges community groups face in managing cash flow issues (particularly for large capital and construction items) and embed a level of payment flexibility into contract/grant deed design. The approach adopted needs to strike an appropriate balance between the needs of volunteer-based community groups while maintaining appropriate risk management and control for the Department. The payment schedule needs to closely align to the outgoings schedule of the grantee. This may require building more milestone payments in up-front (utilising the learnings from the RCEF contract variations and correct milestone naming conventions), splitting payments directly or exploring opportunities to partially fund major capital components up-front. Importantly, an increase to milestone payments should not align with an increase in individual onerous reporting requirements as this only serves to delay projects.

Recommendation 3 Strengthen alignment of grant payments with the project's cash needs if supporting community energy projects

To ensure projects can progress towards commissioning in an orderly fashion, future community energy programs should build payment flexibility into contract/grant deed design which strikes an appropriate balance between the needs of volunteer-based community groups while maintaining appropriate risk management and control for the Department. This may include more milestones (with less reporting) or some portion of up-front payment with demonstrated evidence requirements.

Technical expertise

Each RCEF project encountered a range of complex technical (engineering), design, specification, legal and financial challenges which they could not overcome by in-house experience, expertise or commercial acumen available to community groups (Sections 3.3 and 2.3). The more successful projects were able to access this expertise down the track through partnerships with commercial player such as with Komo Energy who could bring expert advice to the table. Partnerships of this type were not initially envisaged and were not planned for or integrated into the original design. Even with Komo Energy's involvement, projects still needed to access external technical/engineering support to resolve some issues.

The capacity of community groups to see highly complex, technical projects which faced a wide array of different issues, through to completion was over estimated. All required technical assistance far beyond the remit of the Departmental project officers (their active involvement in addressing such issues would have been inappropriate regardless given potential conflicts of interest and liability).

This shortcoming could be addressed through the establishment of a technical advisory service which project proponents could call on as projects rolled out. Such a service would need to cover technical (electricity infrastructure, connections and engineering), legal and commercial domains of expertise. While it would not provide solutions and decisions, it would be able to advise projects on key next steps, issues they can expect, legal matters to address etc. This service could also serve to advise the Department on contract design and execution whereby they would have the technical expertise to ensure milestones have been met with fidelity.

Recommendation 4 Establish a program level technical advisory service to support community energy projects

Future community energy programs should establish a specialist technical advisory service to the program (external to the Department, engaged on a retainer basis) which individual grant recipients can draw upon as needed to support them through technical issues and challenges as projects unfold. This would provide grantees with on-demand timely, specialist and independent advice. Examples may include navigating grid connection agreements and establishing the necessary commercial and legal structures around project infrastructure and disbursement of future benefits/costs. This would allow for an appropriate level of separation between the Department and individual projects on technical matters (e.g. legal matters) which are difficult and complex to resolve in house.

Knowledge sharing

Grant recipients expressed a strong desire for a more organised mechanism for knowledge sharing between projects as each navigated delivery. While the Department held monthly meetings with the individual projects, sustained connections and facilitated knowledge sharing between the projects themselves did not occur. Some knowledge exchanges between projects occurred on an ad hoc basis early on following the announcement of the successful projects, but this did not continue on an ongoing basis.

Had an appropriate mechanism/platform been available, project leaders considered it could have been invaluable in sharing challenges, options and solutions to the similar barriers they were all facing (such as taxation, connection processes, crowd funding (offers and development) etc). While Komo Energy's involvement in several projects (Box 2.1) facilitated some knowledge exchange, overall, they considered this a missed opportunity that added to project delays and duplication of effort.

Leaving aside shortcomings in project-to-project knowledge sharing, the Department did not make the most of capturing and promulgating the knowledge garnered from community-led projects more widely (Sections

3.3 and 6.2). Given the objective of lifting 'community energy literacy and capacity', mechanisms to capture and promote knowledge generated more broadly (beyond internal reporting) were needed.

Recommendation 5 Facilitate peer to peer knowledge sharing platforms for community energy projects

Organised knowledge sharing should be an essential element of project delivery. Mechanisms (e.g. regular meetings, events and online platforms) between all key project representatives should be established, in addition to contractual meetings between the Department and grantees, to enable projects to learn from each other. This is essential given the likely low level of experience within community groups which are often implementing energy projects for the first time and to maximise the potential to boost energy literacy within and across communities. Project case studies, experiences and learnings need to be captured and promoted broadly to enhance community energy literacy and capacity and to inform emerging community energy projects, allowing for replicability in the future.

Benefits for regional communities

RCEF design did not clearly articulate the direct benefits that could be expected to accrue to regional communities (Section 2.3). The workstream objectives and outcomes focused on energy (generation and storage) and GHG outcomes and output measures to assess the move to project completion. The higher level RCE business case objectives (improved energy reliability and the integration of renewables in regional communities; improved energy affordability and resilience for regional communities; and the building of energy capacity in regional NSW communities) were not clearly addressed.

Given clear impact measures were not put in place to assess progress in relation to these objectives, there is a dearth of data that can be drawn on to evidence impact. Given most projects supply direct to the grid (rather than to power local communities) identifying the tangible generation or storage benefits for regional NSW is difficult (Section 5). Nevertheless, projects have put in place mechanisms to provide bill relief to vulnerable community members, explored battery options to enhance local grid stability and are looking to pursue in front of the meter supply options whereby local industry and regional infrastructure (i.e. telecommunications facilities) can directly access generation from the community owned solar farm on favourable terms, thus bypassing grid supply (Section 5.3).

Recommendation 6 Clearly define and assess benefits generated by community energy projects and actively collect robust data to measure success

Future programs targeted to delivering direct regional community benefits need to establish realistic and measurable indicators of impact (and success) that can be monitored throughout project implementation and post completion – noting that planning for a 10-year timeframe for outcomes (as envisioned for RCEF) was an unrealistic intention. These indicators need to be measured through more active data collection from the infrastructure (e.g. energy generated/GHG avoided) and from the community sentiment more broadly.

Departmental project management practices and governance

The RCEF suffered considerable staff churn within the project management team and at executive level. This disrupted contract management activities and the overall sense of corporate memory (Section 3.3). While staff turnover is inevitable, mechanisms are required to enable appropriate handover practices,

supported by good record keeping, updating key decisions and documenting changes over time. These are essential to maintaining good corporate memory which new staff can use to seamlessly take over ongoing project management. Strong governance structures and processes are essential to delivering project success. These practices were not a prominent feature in managing the implementation of RCEF which solely relied on a standard line-management approach to delivery oversight.

The Department has a range of management tools and established practices and approaches (i.e. SmartyGrants, records management systems and protocols) in place to adequately manage and monitor programs such as the RCEF and importantly, the accountability of grantees. On the evidence available, these do not appear to have been used effectively (Section 3.3). Staff indicated there was no set way in which the individual contracts were monitored (milestones, budgets and scope changes) which created inefficiencies and a lack of a single source of truth – crucial to the implementation of complex and innovative projects. This in turn exacerbated issues with project management as new staff had to 'come up to speed' often reliant on information provided by the projects themselves.

Recommendation 7 Ensure Departmental project management practice is adhered to, supported by overarching governance structures

Consistent project management tracking mechanism must be used by all staff with fidelity. Complex new systems or platforms are not required; rather Departmental project and records management systems need to be adhered to with alacrity and precision to safeguard both corporate memory at all levels (program and executive) and deliver effective and efficient project management outcomes. In addition, standard line management (within the direct program team) is insufficient to manage the complexity, novelty and risk of projects of this nature – strong governance structures are essential.

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Appendices

A Stakeholders consulted

A.1 Number of stakeholders consulted

Table A.1 lists the stakeholders consulted for the evaluation. At the time of writing the draft report, a total of 18 stakeholders had been consulted in 9 interviews.

Table A.1 Stakeholders consulted – Key informants

Stakeholder	Number of consultees
Program staff (current and former)	6
Strategic/evaluation staff	1
Total	7

Source: ACIL Allen

Table A.2 Stakeholders consulted – RCEF projects

RCEF project	Number of consultees
Byron Bay	1
Haystacks	2
Goulburn	2*
Orange	1
Manilla	1
Enova	2
Gloucester	2
Total	11

**Includes a consultee who had experience with 4 of the RCEF projects and therefore spoke with respect to each of these projects within their consultation.*

Source: ACIL Allen

B Documents informing the evaluation

B.1 Summary of documents

A total of 123 documents were provided by the Department which informed the evaluation (Table B.1). These documents were requested from the Department on the basis of their direct linkage to the key evaluation questions and formed the key source of truth in the absence of broader quantitative data collection throughout program implementation.

Table B.1 Summary of documents provided to the evaluation

Category	Overview	File names (as per Department naming)
Prior evaluation	Prior evaluation and evaluation planning undertaken in relation to RCEF	1. DOC19 21931 Regional Community Energy evaluation plan.DOCX 2. DRAFT RCEF Process Evaluation Plan v1.docx 3. Peer review - Grosvenor eval report - SES_LB.docx 4. Peer review - Grosvenor plan _LB.docx 5. Peer review - Grosvenor plan.docx 6. RCEF Application Process Evaluation Final.pdf 7. RCEF Process snapshot review management response - SES validation.docx 8. Common Capital (2020) NSW RCE - Process Evaluation draft report V_1.0.docx 9. Common Capital (2020) NSW RCE - Process Evaluation final report_20201014.docx 10. Common Capital Proposal - Process Evaluation.pdf 11. DPIE RFT Part D - Process evaluation RCEF.docx 12. Peer review - RCEF process eval - SES Aug2020.docx 13. RCEF process evaluation management response - SES validation.docx 14. Part B - Request for Quote - PMS Scheme _SES update.docx 15. Prev program review - Peer review Regional Community Energy - supplementary docs.msg 16. RCE - Procurement Eval Plan - EOP.docx 17. RCE Evaluation Plan - CM10.url 18. Regional Community Energy evaluation plan revised.docx 19. Regional Community Energy evaluation plan revised1.docx

Category	Overview	File names (as per Department naming)
Financial	Budget and expenditure summaries at a program (RCEF) and individual project level	1. RCEF Project Budget Template_BBSF_update Nov 2022 v 2.0 2. 2025 03 27 Goulburn SF Budget (final) 3. GGSF Budget Milestone 4D+5 - Statement of Funding 2025 02 25 (FINAL for submission) signed 4. RCEF Project budget_Apr25 5. Latitude Solar Farm - Budget MS1 6. RCEF_payments 7. Paid Milestones 8. RCEF Expenditure Summary FY23 to Apr25 YTD 9. Actual Transactions YTD Jun 2022 10. Actual Transactions YTD Jun 2021 11. Actual Transactions YTD Jun 2020 12. Actual Transactions YTD Jun 2019
Briefings and other departmental documents	Briefing documents seeking decisions, advice, approval in relation to key program considerations	Various documents not in the public domain (22 documents total)
Program management	Program management documentation (including grantee management)	1. ~$180709 Regional Community Energy Project Plan v8.docx 2. 20180709 Regional Community Energy Project Plan v8.docx 3. 20181010 Regional Community Energy Project Plan v17 Clean.docx 4. CEFP Overview - V2.docx 5. CEPF In-front of the meter Guidelines - V2.docx 6. Discussion on innovation indicators - FW RCE Consolidated list of measures for review.msg 7. Discussion on innovation indicators - RE SLIH and RCE peer review.msg 8. Dispatchable Energy PL _LB thinking.vsdx 9. Draft Application Form - RCEF 18.01.2019.docx 10. Draft RCEP Application Process Evaluation Plan.msg 11. Files n folder link - Regional Community Energy - Relevant Documents .msg 12. RCE_Stakeholder register.xlsx 13. RCE_Stakeholders List_2025.xlsx 14. RCEF Main contacts.xlsx 15. KSR_Energise Gloucester Knowledge Sharing.docx 16. KSR Latitude Jan 17 2024 FINAL VERSION.pdf 17. Haystacks-Solar-Garden-Knowledge-Sharing-Report.pdf 18. RCEF project reports.docx 19. Latitude SF_3 days of Full Production.pdf 20. Grong Grong - Mondo - Metering Report (2024 12).pdf 21. Grong Grong - Mondo - Metering Report Raw Data (2024 12) 22. Grong Grong - Mondo - Metering Report (2024 12) (1) 23. CONFIDENTIAL - Latitude Battery Dynamics – SOC 24. CONFIDENTIAL - Latitude Battery Dynamics - monthly average production profiles

Category	Overview	File names (as per Department naming)
Contractual	Funding agreements and variations between the Department and RCEF project grantees over the course of RCEF implementation to date	1. Byron Byron RCEF Funding Agreement 2. ED APPROVED BN-updated RCEF fin.delgation_GuidelinesJAN2020 3. Gloucester RCEF Funding Agreement 4. Manilla RCEF FA 5. Orange RCEF Funding Agreement 6. RCEF001 Goulburn CE4G FA EXECUTED 7. RCEF016 Enova FA EXECUTED 8. RCEF027 Pingala Haystacks FA EXECUTED 9. APPROVED BBSFH Variation Register M2 split 10. MS3 split V.1 approved 09.09.22 11. PCR 001 BBSF - Variation Register 12. RCEF Byron-Variation Record MS 3 Split APPROVED 13. RCEF010 BBSFH Variation to Funding Agreement 051021 signed (1) 14. RCEF016 Enova Variation Reg. FINAL countersigned 15022021 15. EG-VariationRegisterAPPROVED 20.10.2020 16. PCR 001 BBSF - Variation Register 17. RCEF014 EG Variation-subcontractor APPROVED 18. 07012025 - Goulburn Community Dispatchable Solar Farm Variation Request 19. CE4G Variation MS2 Split+additional funds 20. CE4G Variation Record MS2B split executed 21. CE4G Variation Record MS3 _final 2025 03 28 signed 22. CE4G Variation Record MS4 and MS5_final 2025 03 28 signed 23. RCEF001 Goulburn Variation Reg_Split M1 executed 24. 07012025 - Haystacks Solar Garden Project Variation Request 25. APPROVED 11May2022_Haystacks Variation Register Split M3 26. Haystacks PCR3 Variation EXECUTED 27. Haystacks variation reg. additional funding (SIGNED) 28. Variation Milestone_4C_final signed 29. Manilla - PCR Request - Proposed Milestones for Reduced Funding Amount (2025 02 24) 30. Manilla Variation Register M1 split EXECUTED 31. 07012025 - Orange Community Renewable Energy Park (OCREP) Variation Request (1) 32. 1.ITPD Variation debt partner+M3+4 edits EXECUTED 33. APPROVED ITPD Variation record-RCEF funds extended to 2023 34. APPROVED Orange variation 11.08.2021 35. APPROVED Variation M2 split 20.10.2020 36. DCCEEW Change in Control Consent Letter_SIGNED 30April2024 37. ITP Variation Record MS4 (EDP signed)

Category	Overview	File names (as per Department naming)
Grant administration and communications	RCEF grant administration documentation	1. RCEF Guidelines DRAFT V25 19.12.2018.docx 2. RCEF Guidelines DRAFT V42.docx 3. FW Regional Community Energy - RCEF launch.msg 4. Launch announcement FW Regional Community Energy.msg 5. NSW RCEF factsheet.pdf 6. NSW RCEF frequently asked questions.pdf 7. NSW RCEF guidelines (4).pdf 8. NSW RCEF guidelines (4)1.pdf 9. NSW RCEF guidelines.pdf

Source: ACIL Allen

C RCEF project challenges

C.1 Overview of key project specific challenges

A summary of the key challenges faced by the individual RCEF projects is provided in Table C.1.

Table C.1 Overview of key RCEF project specific challenges

Project	Key challenges in project delivery
Byron Bay (complete)	– Development approvals (macro and micro) – Community push back – Working with multiple manufacturers – Integration (engineering challenges) – COVID-19 restrictions on construction/procurement delays (pandemic declared same day project was announced) – Maintaining momentum of project team/investors (through challenges and delays)
Haystacks (complete)	– Fluctuating construction and component costs during the COVID-19 pandemic and Ukraine war (supply chain disruptions) – Navigating cooperative laws and associated regulators, specifically involving Cooperative Capital Units (CCU) usage, with limited assistance or institutional understanding – Grid connection design requirements – Navigating the various bill credit/payment systems of the different energy retailers – Building membership (crowd funders) based on original local market assumptions – Taxation ruling on grant payment – Maintaining community engagement during the COVID-19 – Energy crises and the impact on the financial model – Energy price crisis (resulting in the voluntary administration of their retail provider) – Drawn out approval process of their Offer document with NSW Fair Trading (body that governs co-ops in NSW) due to their limited experience with CCUs
Manilla (ongoing)	– Navigating design and development approvals (e.g. road access, land and grid studies) – Delays in the electricity distributor application process – Need to explore behind the meter supply options and negotiate with potential users and address design constraints that arose – Relationship breakdown with commercial partner and resulting need to negotiate exists and set up a new crowd source funding model – Financial (cashflow) challenges

Project	Key challenges in project delivery
Orange (ongoing)	– Difficulties and delays in receiving development approvals – Raising local investment and support – Community push back
Goulburn (ongoing)	– Prolonged civil works including in relation to disused Transport NSW owned and Australian Rail Track Corporation (ARTC) leased land – Taxation ruling on grant payment – Delays in grid connection – Lapsing approvals (due to connection delays) – Initial community skepticism – Maintaining community group impetus in the face of setbacks and investor commitment (had to return some investments)
Enova (terminated)	– Electricity retailer (Enova) collapsed into voluntary administration – Russia and Ukraine tensions (impacting gas and electricity pricing)
Gloucester (terminated)	– Time spent evaluating and inspecting sites (10 just in 2020) – Site issues – physical reasons, financial reasons, connection costs, export limits – Unviability – due to export limits (30kW compared to their intended 250kW/originally 500kW)

Source: ACIL Allen

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