



# Small Town Big Energy



THE STORY BEHIND NEWSTEAD'S  
COMMUNITY ENERGY PROJECT



Renewable  
Newstead



“There is no power for change  
greater than a community  
discovering what it cares about.”

MARGARET WHEATLEY

**In August 2024, after years of advocacy and project development, Newstead’s Solar Farm and battery were switched on and began feeding energy into the grid.**



Energy generators: The key people who helped establish Newstead’s small-scale Community Energy Project pictured on opening day, August 22, 2024. They are (l-r) Flow Power Chief Executive Officer Matthew Van Der Linden, Renewable Newstead’s Gen Barlow, Flow Power’s Tosh Szatow, Victoria’s Minister for Climate Action and Minister for Energy and Resources Lily D’Ambrosio, Renewable Newstead’s Don Culvenor, Member for Bendigo West Maree Edwards and Renewable Newstead’s Geoff Park and Jane Lean.

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### DISCLAIMER

Renewable Newstead (RN) commissioned this report to inform governments, communities and the wider energy industry about what it takes for a community to lead the development of a small-scale solar farm. The report reflects Renewable Newstead's views and experience in developing this project. It does not reflect the policy or policies of DEECA or any other partners or stakeholders. Any mention of specific companies, products or services does not constitute an endorsement or recommendation by Renewable Newstead. The report is provided for informational purposes only and does not constitute professional advice. While every effort has been made to ensure the accuracy and reliability of the information presented herein, we make no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to the content contained in this report. Any reliance you place on such information is strictly at your own risk.

## ACKNOWLEDGEMENT OF COUNTRY

The Newstead Solar Farm sits on Djaara Country. We acknowledge the Dja Dja Wurrung People as the traditional owners of this land and pay our respect to their Elders, past and present. We honour the deep and enduring connection between the lands on which we live and the Dja Dja Wurrung people, who have cared for this Country for thousands of years.

### Acknowledgements

**Huge thanks to the Newstead community and all who volunteered their time and supported the project.**

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The Hon. Ms Lily D'Ambrosio MP, Minister for Climate Action and Minister for Energy and Resources

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The Hon. Ms Maree Edwards MP, Member for Bendigo West, Victoria

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Department of Energy, Environment and Climate Action (DEECA); Victorian State Government

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**Our thanks also to the following contractors and consultants:**

Tosh Szatow, Energy Consultant and Renewable Newstead Advisor

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Michael McCartney, Consultant and author of Newstead Energy Feasibility Study

---

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---

Fiona Cotter, Energy Forms

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Kirsty McKay, Phoebe Snep and Step Forbes who worked as Executive Officers on various phases of the project

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**Our thanks also to our key partner, solar farm builder, owner, operator and electricity retailer Flow Power. Also to Powercor especially David Holroyd, Mark De Villiers and Jo Pafumi.**

**This story was compiled by the following people, all members of the Newstead community:**

Melanie Bretillard authored and coordinated story writing

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Genevieve Barlow provided editing, and Jane Lean authored the section on The Retail Offer

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Design by Meg Norris (with Vincent Casey) and photos by Carmen Bunting and Janet Barker

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# Introduction to the Report

The way energy is generated and used is changing. In Australia and around the world, people are responding to the need to shift from relying on fossil fuels and reduce carbon emissions by taking up renewable, zero carbon solutions – harnessing the energy of sun, wind, and water.

In Victoria, the current government has set a target for 65% of the state's electricity to come from renewable sources by 2030 (currently 60% of energy generation is from coal)<sup>1</sup>. The transition is happening now, in the retirement of coal-fired power stations, the development of solar and wind farms and battery storage, the electrification of households and businesses, and upgrades to energy distribution and transmission infrastructure.

These changes create opportunities for rethinking and redesigning the energy system.

For instance, it is possible to proactively manage the transition from centralised energy generation and distribution to affordable, locally integrated, community-based energy solutions that are technically feasible and socially equitable.

In 2011, the central Victorian town of Newstead began exploring options for transitioning to 100% renewable energy. With support from the Victorian Government and energy industry partners, Renewable Newstead has delivered a local solar energy-generating farm and storage battery to power the community.

This report has been prepared by Renewable Newstead (RN) so that other communities interested in transitioning to renewable energy may learn and benefit from our experience.

<sup>1</sup> Department of Energy, Environment, and Climate Action. 2023. *Our Renewable Energy Future*. State Government of Victoria. Accessed November 2023 [<https://www.energy.vic.gov.au/renewable-energy/our-renewable-energy-future>]



# Newstead

## Its place in the world

Newstead is a small regional town in central Victoria, on Djaara country – the traditional lands of the Dja Dja Wurrung people – about 150km north-west of Melbourne.

Situated at the intersection of distinct landscapes of volcanic plains and the box-ironbark forests and woodlands, Newstead is rich in biodiversity and cultural history. The Loddon River, which flows through the centre of the town, is significant to the landscape and the people who live here, providing recreation, fertile agricultural land and occasionally the threat of flood.

There is a deep sense of connection between the environment and the people who live here. Locals, including Landcare volunteers, private landholders and farmers actively nurture and protect native flora and fauna, with a significant area of land under voluntary conservation

agreements, including Land for Wildlife properties and Trust for Nature covenants. Traditional Owners care for the land and waters and work with the broader community to share cultural wisdom and practices that enrich the environment.

This sense of connection to and responsibility for the local environment – so characteristic of the people of Newstead – was part of the driving force in the decision to pursue a community renewable energy project.

Newstead is part of Mount Alexander Shire, and the closest towns are Castlemaine (13 mins by car), Maldon (10 mins) and Daylesford (24 mins).

The settlements of Green Gully, Welshmans Reef, Strangways, Sandon, Yandoit, Clydesdale, Joyces Creek, Campbelltown, Strathlea, Muckleford, Guildford, and Yapeen are part of Newstead community life.

## The people

Collectively, Newstead is an ambitious town, actively engaged in shaping its own future, eager to tackle the big questions and committed to making good things happen. People in Newstead like working together, and often do, as evidenced by the number of volunteer community groups and projects around town that have arisen out of community ideas and effort.

As a community, we've built an arts hub, a local pool, a kindergarten, sporting facilities where local clubs thrive, a community garden, a playground and a men's shed.

## We're good at making things happen for our community.

For instance, when the Mount Alexander Shire Council, funded by the Victorian Government, wanted to create local Community Action Plans, it ran the planning process in all participating towns except Newstead. Here local volunteers led the process, believing a locally produced plan would better reflect community needs and draw on local knowledge, skills, and expertise <sup>2</sup>.

Newstead is a town of thinkers and doers, connected to and caring for where we live, but more importantly, we're a community where people care for one another. At the heart of everything we do as a town, is the wellbeing of our community and its members.

Over many years, through active community involvement and volunteerism, the people of the community have built strong social connections and relationships of trust. From this, community leaders emerge and pursue the town's ambitions on their behalf.

*"This is not a project on its own, it's a continuation of a voluntary, problem-solving, social project. One of the things that's been good about Newstead in the past is that we're not afraid to do stuff ourselves and have a crack and be moderately successful. That's the benefit of cooperative problem solving. And it's much more fun to do it ourselves."*

Don Culvenor, Renewable Newstead

<sup>2</sup> Newstead Community Plan, 2013



**1230** people  
**344** families



Median weekly household income  
**\$1146**

**Median age 53**  
– older than state average of 38  
**18.3% over 70 years**  
compared to state 11.9%



**538** households  
**63.8%** are family or group households  
**36.2%** are single person households  
**2.2** people per household

**51.1% in labour force**  
compared to 62.4% (for Victoria)  
**More part time workers at 44.3%**  
compared to 32.3% for Victoria



**2021 Census<sup>3</sup> (Newstead, Welshman's Reef, Muckleford, Sandon, Green Gully)**

<sup>3</sup> Australian Bureau of Statistics, All persons Quickstats. 2021 Census 2021. 3462 VIC. Geography type Postal Area. [<https://abs.gov.au/census/find-census-data/quickstats/2021/POA3462>]

## How Newstead uses energy

- Annually Newstead consumes about 2800 MWh of electricity from the grid.
- With cold winters characterised by sub-zero temperatures at night and morning frosts, most electricity consumption use is for heating during the winter months.
- 60% of the electricity demand occurs at peak times, when electricity is traditionally most expensive (between 7am and 11pm on weekdays).
- There is an evening spike in demand due to residents running off-peak hot water systems.<sup>4</sup>

## How Newstead thinks about energy

Some people in the community are strongly motivated by climate concerns to source renewable energy and reduce energy consumption.

Some people live off-grid and are keenly aware of aligning energy use with generation.

Others buy green power or run their houses on a mix of rooftop solar and grid electricity. This is not the case for everyone in Newstead.

In thinking about change, cost and affordability is a strong driver for most people in the community. Residents are concerned about rising energy bills but cannot necessarily afford to install rooftop solar and battery (even after subsidies), or to switch from gas and wood to electric appliances.

For some, change at the household level is just too costly and too complex to consider.<sup>5</sup>

*I believe that renewables must be a major part of our energy budget if our species is to survive. The time to implement is now, while we still have some non-renewables left to do it with.*  
Denis Miller

# And why Newstead? Well, why not?

Denis Miller

<sup>4</sup> Powercor, Newstead Energy Profile (2016)

<sup>5</sup> Powered by You, A Renewable Newstead Survey, July 2016

# Renewable Newstead

## Newstead 2021 Inc. (known as N2021)

Renewable Newstead operates under the umbrella of N2021, an incorporated association of community volunteers who work together to support projects that enrich our town and its surrounds.

Formed out of the 2008 Newstead Community Summit, N2021 supports the town's many social projects including the Community Garden, the creation of an Arts Hub, the Open Studios Art Trail, Walks and Wheels, Talking Fire, and of course, Renewable Newstead. In 2024 N2021 Inc became N2050 Inc, reflecting its future outlook.



## The Renewable Newstead Team

The Renewable Newstead team is comprised of community leaders and thinkers trusted by the community to lead the project. The project has been guided throughout by a core group, including:



Geoff Park

... an award-winning ecologist, passionate bird watcher, writer, and photographer. With a long history of working on community initiatives, Geoff has a good understanding of government and communities, and how to bring the two together.



Don Culvenor

... a strategic thinker with a lifetime of experience in business, local farming, and community volunteerism. Don brings planning and policy experience and an understanding of the technical and commercial aspects of the project.



Genevieve Barlow

... is a social networker, communicator, freelance journalist, and writer with a background in agricultural and rural affairs, business, community volunteerism and social activism, including her work as a climate change engagement officer in local government.



Jane Lean

... is committed to climate change mitigation and adaption at both the personal and community level. She has extensive experience in small, community energy projects as well as leadership in not-for-profit organisations and volunteering.



Shaun Britt


... has lived in Newstead since 2013 and is passionate about providing a sustainable environment for his kids in a way that is fair and affordable for the whole community. He brings business and managerial experience to the team.

Many other local people contributed to earlier iterations of this project



# The Newstead Community Energy Project





Newstead's solar farm is located 4.5km by road, west of town on Captains Gully Road.

With 4320 solar panels on a 6.2-hectare parcel of land, the farm is considered small scale, and has the capacity to generate 3MW of power: enough renewable energy to power 1300 to 1600 homes – around six times Newstead's needs in 2023.

A 5MWh Battery Energy Storage System (BESS) provides the capacity to feed renewable energy into the grid even when the sun is not shining.

The solar farm is connected to the grid by a new 500m 22kV line from the site to the pre-existing 22kV powerline connecting Castlemaine and Maryborough along the Pyrenees Highway.

To take full advantage of the available solar energy, a solar tracking system tilts the panels to follow the arc of the sun (like a field of sunflowers).

Victoria's Climate Action Minister, Lily D'Ambrosio, officially launched the project on the solar farm site in October 2022. Construction commenced in October 2023 and was completed in July 2024.

## Why Solar?

In the beginning, all renewable generation options were on the table. In addition to a community solar farm, rooftop solar and batteries, wind and bioenergy were considered. (Hydro-storage and geothermal options were considered but deemed too impractical.)

### **After researching all options, a solar farm was the clear winner.**

Solar was the best option for the region. Newstead's geography is not suited to wind generation, and there are too few local farms and industries to supply the crop waste required for bioenergy generation. Solar was also the cheapest option to install, with estimated capital expenditure for each source per kilowatt hour (cents/kWh) at solar 6.3, rooftop solar 8, wind 9.3 and bioenergy 12.<sup>6</sup>

## Five reasons why a community solar farm was a better option than rooftop solar.

RN acknowledges that rooftop solar was an appropriate choice for government subsidies when it first became a 'thing'. It normalised solar nationally, allowed people to experience solar and an increasing demand for it led to economies of scale, increasing affordability in the short-term.

Where it is technically feasible and socially acceptable to build them, small-scale solar farms are more cost-efficient and socially equitable than household rooftop solar and battery installation. Here's why.

1. Solar farms are cheaper to install and maintain than rooftop solar.<sup>7</sup>
2. Everyone has the option to connect to the solar farm, whereas not every household can install rooftop solar due to limited roof space, poor roof orientation or shading, financial circumstances and if renting.
3. Keeping households connected to energy from the grid helps maintain this essential resource and keep it affordable.
4. Household batteries, which allow households to take full advantage of the solar energy they generate, are not yet economically viable (i.e., the investment is not recouped over the life of the battery). Solar farms with batteries are!<sup>8</sup>
5. Well-designed solar farms put less pressure on the distribution network compared to multiple rooftop installations.

<sup>6</sup> Michael McCartney, 2011. *Newstead Energy Feasibility Study*

<sup>7</sup> Energy for the People, 2018. *Renewable Newstead: Commercial Model and Business Plan for 100% Renewable Energy*

<sup>8</sup> Mustafa Kaka and Russel Pendlebury. *Turning Point for Incentives to Invest in Residential Batteries*, AEMC, [<https://www.aemc.gov.au/turning-point-incentives-invest-residential-batteries>]





The Newstead  
Energy Project

Creating the renewable  
energy future, together.

The Newstead Energy Project

# The Stakeholders and Partners

Building the Newstead Community Energy Project was a collaborative effort led by Renewable Newstead with essential support from stakeholders and partners. Here's what each group contributed to the project.

## Renewable Newstead (Voluntary)

---

Developed the community's idea for renewable energy and explored what was feasible.

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Engaged and consulted with the community throughout the project, gaining social licence.

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Lobbied for, secured and managed government grants.

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Paid some costs (grid connection studies for example) from grant funding.

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Managed the project, meeting funding milestones over seven years.

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Consulted local landowners and secured a site for the solar farm.

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Applied for a planning permit, including coordinating a series of site assessments.

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Consulted neighbours on the solar farm development plan.

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Varied planning permit to accommodate outcomes of site assessments and neighbours' concerns.

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Developed and managed a national tender process to choose a financing, construction and retail partner.

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Developed and managed a communication and engagement plan.

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Facilitated stakeholder meetings.

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Brought stakeholders and partners together to solve problems.

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Worked with Flow Power to develop a retail offer with benefits for the community.

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## Victorian Government

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Funded model development<sup>9</sup>.

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Funded project implementation.

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Met regularly with RN and provided support and guidance.

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Facilitated stakeholder relationships.

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Provided resources to support the planning and permit approvals process.

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Advocated with various stakeholders at key sticking points.

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<sup>9</sup> The model was outlined in a 2018 report called *Small Town, Big Switch: Newstead's journey to renewable energy*, released in 2018.



### Powercor (Paid)

Provided energy use data to support understanding of Newstead’s energy needs.

Conducted connection studies to test farm’s likely impact on grid (voltage etc.).

Provided advice to help Renewable Newstead navigate the regulatory environment.

Co-developed the Newstead Residential Trial Tariff.

### Energy Forms (Paid)

Worked with Renewable Newstead to develop, submit and champion the solar farm planning permit and coordinated various required planning studies.

### Traditional Owners (Paid)

Carried out cultural assessment of the site to identify cultural artefacts and develop a Cultural Heritage Management Plan.

Supported and championed the project especially welcoming site guests to country.

### Local Government

Advocated for and supported the project.

### Flow Power (Investors)

Funded construction.

Financed and managed ongoing operation of the solar farm.

Retailed solar energy to customers.

Supported the project in alignment with community goals and values.

Continues to fund and support a local community grant program.

### Newstead community (Voluntary)

Initiated and supported the 100% renewable goal.

Participated in meetings, surveys, subscribed to newsletter to stay informed about the project.

Provided feedback and guidance as needed.

Above: Newstead community members and Flow Power staff celebrated when Victoria’s Minister for Climate Action and Minister for Energy and Resources Lily D’Ambrosio, with local state MP Maree Edwards, officially declared construction go-ahead in October 2022.

# The Newstead Model

The success of Newstead's community energy project was founded on three equally important elements.

The Newstead Community Energy Project is:

1.  
Community  
driven and  
developed  
under social  
licence

2.  
Technically  
feasible

3.  
Financially  
feasible and  
commercially  
viable



Tosh Szatow helped Renewable Newstead develop its model before joining Flow Power as an energy strategist.

## What “community energy” means to Newstead

Across Australia there are a range of community energy models, and different models suit different communities.

Community energy projects are developed, owned or controlled by communities. Different models include a mix of these elements.

Newstead’s community energy project was developed by our community to generate enough renewable energy to power our community so that everyone can access it. The Project also had to bring additional benefits.

Working to establish renewable energy generation locally grew our community’s sense of connection and can-do attitude.

Our model reflects the needs, interests, and resources of our community. For Newstead, it made sense that the development of the model should be community led, but that the financing and management of our solar farm be outsourced to a retail partner with expertise, financial resources, and a strong values alignment with the project and the Newstead community.

*“The community wanted to pursue community benefit rather than community ownership. And that came down to an appreciation that asking a community like Newstead to put significant money into renewable energy assets entails risk – financial risk and then the social risk around that. It was seen as best to partner with a commercial entity who would own that asset and funnel benefits back into the community in other ways.”*

Tosh Szatow, Energy Consultant

# 1. Community driven

The solar farm was developed by the community, for the community.

Renewable Newstead consulted with the community throughout the project and from early feedback about the needs and wishes of the town, established a set of principles to guide decision making over the life of the project.<sup>10</sup>

## The five Guiding Principles:

**Be opt-in** – no-one should feel obligated to participate or sign up to the local energy project.

**Do no harm** – no-one should be worse off as a result of any aspect of the project, now or in the future.

**Be 100% renewable** – our aim is to generate 100% of Newstead's energy needs from a local renewable source.

**Deliver community benefits** – the project should deliver benefits for the whole community, not just for residents who sign up.

**Be grid-connected** – residents had a strong preference for remaining connected to the electricity grid.

Maintaining social licence, through regular communication and consultation, was critical to the project and the shaping of the Newstead Solar Farm Model. In the early stages, this was taking ideas and research

findings back to the community for feedback and guidance, and in later stages as the project was underway, sharing key developments and milestones through our website, email newsletters and information booths at community events.

*“One of the things about Renewable Newstead is that all through this project, the rest of the community has been kept informed of their progress, what they are doing and what they hope to achieve. I think it's about taking the community along with you, which they have done very well.”*

Maree Edwards,  
MP for Bendigo West

## A community-initiated project:

The idea for the solar farm originated from a community summit focused on the future of the town. People were concerned about the impacts of carbon on the climate and rising energy costs and wanted to explore renewable energy options that would benefit the entire community.

10 Renewable Newstead, 2018. *Small Town, Big Switch: Newstead's Journey to Renewable Energy*

### **Led by community:**

Renewable Newstead was formed to lead the project on behalf of the community. As Newstead residents with long-established relationships of trust and respect and a history of community involvement and volunteerism, the members of Renewable Newstead brought social licence to the project.

*“The thing we all brought to the space is years of working in the community and that sense of trust in the community. Through our involvement with local clubs and groups over many years – Landcare, the kinder, the school, and sporting clubs – we’ve contributed to that social capital.”*

Geoff Park,  
Renewable Newstead

### **Shaped by community:**

Renewable Newstead consulted early and extensively with the community to understand their needs and goals for the project. Running household energy assessments with residents, they learned about Newstead’s household energy needs. Through community meetings, resident surveys, and face to face discussions they learned more about how people used energy, what their main concerns were, and their capacity for change.

Community consultation showed that:

Energy costs were a concern for all residents. Some were switching off heating and cooling to reduce their bills.

Many households, particularly those with older residents, relied on gas and wood and were not able to make significant changes.

There was a strong preference for remaining grid connected.

There was agreement that no-one should be disadvantaged by any changes to energy supply.

The unifying factor across the community was the impact of rising energy prices and a desire to care for those likely to be most disadvantaged by change.

### **Carrying Social Licence through the Planning and Development Stages**

In the planning and development stages, engagement with specific community groups and adherence to local council approval processes ensured the solar farm was constructed with sensitivity and respect for landowners, Traditional Custodians, neighbours, and the local environment.

The planning studies and approvals required for the project included:

Bushfire Risk Assessment

Built Heritage Assessment

Ecological Assessment

Cultural Heritage Assessment

Geotechnical, Agricultural, Landscape and Amenity Assessments

Noise Assessment

Traffic Assessment for construction period

A community feedback process for objections and comments was established early on to ensure local concerns were heard and understood.

Modifications to the solar farm design in response to site assessments and community feedback reduced its physical footprint and ecological impact, and allayed heritage concerns about nearby historic mine sites and neighbours’ concerns about visual impact, while continuing to meet optimal energy generation and network connection requirements.<sup>11</sup>

11 Flow Power, 2022. *Newstead Solar Farm Planning Permit Amendment Application*

## 2. Technically feasible

Renewable Newstead developed a model that was technically feasible, with the capacity to power the town with 100% renewable energy.

Renewable Newstead's partnership with energy distribution company Powercor, formally established via a Memorandum of Understanding signed at Newstead's Dig Café in 2016, provided essential support in navigating the technical requirements of the project. Powercor provided data to understand the town's energy needs, and carried out grid connection studies, including a steady state study – to assess the existing state of power distribution lines specific to Newstead, and a dynamic modelling study – to assess how the power lines would handle any contingencies once the farm was connected.

It was learned that to power the town with renewable energy and meet the goal of 100% renewable, at least 2MW needed to be generated. Further, a solar farm generating up to 10MW was feasible, but anything over that would exceed the capacity of the local network and trigger additional network connection costs that would make the project commercially unviable.<sup>12</sup>

The original design was for a 10MW solar farm; however, this was later reduced to 5MW, and then to the final design of 3MW with a 5MW Battery Energy Storage System (BESS).

Modifications to the solar farm design were made in response to site assessments, community feedback and network connection studies.

For instance, complexities in connecting the solar farm to the local substation in Castlemaine were discovered during the connection application process. Initially it was thought that a multi-million-dollar upgrade would be needed to support the connection. This was not financially feasible and would have derailed the project. Thanks to strong stakeholder collaboration and a willingness to support Newstead's community energy project, Powercor developed a creative technical solution that satisfied all connection requirements while maintaining optimal energy generation capacity to meet the project goal of powering the town.

*"Powercor came up with a bespoke solution which they hadn't considered doing because of the complexity, but because the project had strong government backing, they were willing."*

a DEECA spokesperson

<sup>12</sup> Energy for the People, 2018. *Renewable Newstead: Commercial Model and Business Plan for 100% Renewable Energy*



## Victoria's First DC Coupled System

A key feature of Newstead's solar battery is Victoria's first Direct Current (DC) coupled system.<sup>13</sup> So, what is a DC coupled system, and why is it important? Here's a little explainer.

Solar panels generate direct current (DC) electricity and solar batteries store electricity in DC form; however, DC electricity needs to be converted to alternating current (AC) electricity when connected to the grid.

Energy generated by solar panels needs to flow through an inverter, transforming the energy from DC to AC ready for use in the grid. When a battery is added to the system, any unused power needs to be transformed back to DC via a second inverter for storage, and back again for later use in the grid. With every conversion, some energy is lost.<sup>14</sup>

The DC coupled system directly links the solar panels to the solar battery through a charge controller, which means the DC electricity generated by the solar panels only needs to be transformed to AC once, as the power flows from the battery to the grid. A solution that is more affordable and more efficient ... **Brilliant!**



<sup>13</sup> Flow Power. Newstead Energy Project. Accessed November 2023 [<https://flowpower.com.au/newstead-energy-project/>]

<sup>14</sup> Deege Solar, 2023. What is AC or DC Coupling? Accessed November 2023 [[https://www.deegesolar.co.uk/ac\\_coupling\\_vs\\_dc\\_coupling\\_solar\\_battery\\_storage/](https://www.deegesolar.co.uk/ac_coupling_vs_dc_coupling_solar_battery_storage/)]

### 3. Financially feasible and commercially viable

Government funding and commercial investment made the project possible, however questions remain about how to make locally generated renewable energy available in a way that is affordable to consumers and commercially viable. Renewable Newstead thinks changes in regulatory and commercial arrangements as well as government subsidies all have a role to play.

Early in the project, Renewable Newstead partnered with the federally funded Central Victoria Solar Cities (CVSC) project<sup>15</sup>, which offered a demonstration of the technical and operational aspects and the community benefits of community solar farms but raised questions about how to achieve a commercially viable and affordable model.

Renewable Newstead set out to explore the options and commissioned a feasibility study in 2011<sup>16</sup>, which provided encouragement for the possibility of a commercially viable, community-based solar farm that could deliver energy

to the community at low cost (our aim was 10% below the Victorian Default Offer). With this encouragement RN lobbied government for funding to develop a commercial model and in late 2014 secured \$200,000 from the incoming Labor government to develop an actionable business case for the Newstead Solar Farm.

Significantly, developing this business case included finding ways to break through existing policy, technical and regulatory barriers that would bring about the goal of connecting Newstead to 100% locally generated, affordable, and commercially viable renewable energy.

*“Not everything needs to be commercially feasible, especially for public utilities like energy. I believe, as part of our civil society, we could add a subsidy to renewable energy consumer purchases, to allow more people to participate rather than ask people to pay more via the GreenPower<sup>®</sup> scheme”.*

Jane Lean, Renewable Newstead

<sup>15</sup> Central Victoria Solar City Final Report 2012-2013, Australian Government Solar Cities, 2013

<sup>16</sup> Michael McCartney, 2011. *Newstead Energy Feasibility Study*

“The dedication of the Newstead community to advancing community renewable energy has been extraordinary, particularly their willingness to invest time and energy in the pursuit of an idea not yet arrived, in the belief that it will come.”

Central Victoria Solar Cities Final Report, 2012-2013

## The Business Case (2018)

In 2018, Renewable Newstead, with essential support from Energy Consultant Tosh Szatow, presented a Commercial Model and Business Plan for the Newstead Solar Farm to the Victorian Government. Ultimately the business case showed that a community solar farm supported by government funding and commercial investment, and new regulatory and commercial arrangements had the potential to provide clean energy at low cost in a way that was fair and equitable to all.<sup>17</sup>

Key elements of the commercial model presented are presented below.

### Funding development and operational costs

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Development and construction costs were estimated at \$2.7 million; with \$2.3 million in construction and around \$400K for studies, development approvals, site preparation and grid connection in 2018.

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Government funding of around 30% of the development and construction made the project financially feasible. The project received \$1.1 million in government funding.

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A single energy generator and retailer (a gentailer) was required to finance and operate the solar farm and retail renewable energy to local customers. An expression of interest and tendering process led to partnering with Flow Power.

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A suite of changes to tariffs and retail contracts were recommended as part of the solar farm model to strengthen commercial viability, including:

- Extension of a local energy distribution tariff, the Newstead Residential Trial Tariff (NRTT) developed by Renewable Newstead and Powercor and approved by the Australian Energy Regulator (a more detailed discussion of the NRTT is on the following page).
  - Retail tariffs structured to reward daytime energy use to match solar output.
  - Long term (e.g., 10 to 15 years) retail contracts for local customers, with discount incentives to reward loyalty over time.
  - A storage battery to control energy fed into the grid and enhance the commercial viability of the solar farm.
- 

With these assumptions met, the Newstead solar farm model offered investors/operators a 6% return on investment and the potential for customer savings of 10-30% on energy bills.

This was an opportunity to demonstrate a new model for powering the Newstead community with 100% renewable, locally generated energy.

<sup>17</sup> Energy for the People, 2018. *Renewable Newstead: Commercial Model and Business Plan for 100% Renewable Energy*

## Newstead Residential Trial Tariff

Renewable Newstead worked with Powercor to develop the Newstead Residential Trial Tariff (NRTT) to support the goal to deliver low-cost locally generated renewable energy. Every energy bill includes an amount for distributing energy along poles and wires as well as for generating it, transmitting it and selling it.

Under the current regulatory system and pricing structure, the overall cost of sending electricity through the poles and wires from the source of generation to households and businesses, is covered by a c/kWh cost (approx. 7.18c/kWh).<sup>18</sup> This means the more energy a person uses the more they pay for distribution, regardless of how far that energy has to travel from generation to use.

Under current pricing, the only way to reduce household energy costs is by using less energy. Local generation which costs less to distribute locally is not incentivised. This situation exists because electricity pricing is based on a system that until recently generated coal-powered electricity in the Latrobe Valley, and sent it across Victoria, i.e. electricity generation was centralised. Consequently, everyone pays equally for the state-wide grid, regardless of whether they live near or far from the source where the energy is generated, i.e. how much of the grid is used.

Renewable Newstead wanted to test a different approach and developed modelling to demonstrate that a distribution tariff with a fixed supply charge and a peak use charge, rather than a c/kWh charge, would reduce energy bills for consumers while still covering costs to distribute energy through the grid.

The NRTT proposal also included a pricing signal incentive to shift energy use from peak times when solar generation is low (weekday evenings) to times when the sun is shining, and renewable energy is being produced.

Inclusion and extension of the NRTT was strongly recommended as part of the business case for the solar farm and was a key factor in its commercial viability. Unfortunately, the tariff was never able to be trialled and was abandoned in 2021, partly due to current regulatory conditions that restrict the ability to test and try innovative pricing structures. Renewable Newstead still believes that future policy and regulatory decisions need to focus on solutions for incentivising local energy generation and distribution as part of the shift to renewable energy.

<sup>18</sup> Powercor, 2018 Pricing Proposal [<https://www.aer.gov.au/documents/aer-approved-powercor-2018-pricing-proposal-12-october-2017>]

# Funding the project

The cost for a community-led, commercial-partner-developed and government-supported 3MW solar farm with a 5MWh battery will vary depending on the model chosen, when it's developed and other variables.

For the Newstead Community Energy Project (Solar Farm), the total investment included:

CONTRIBUTING PARTY	\$M (incl.GST)
Victorian Government	1.21
Flow Power	7.10*
Renewable Newstead	0.50
<b>TOTAL</b>	<b>\$8.81M</b>

\*Capital cost invested by Flow Power

## FLOW POWER: \$7.10M Capital + in-kind resources

In addition to capital costs (\$7.10M), Flow Power also contributed in-kind resources including:

- Project management
- Landowner relationship and contracts
- Environmental and cultural heritage management
- Management of planning, grid connection and construction approvals
- Engineering, procurement and construction of the project
- Communications and event planning
- Renewable Newstead energy retail product design and implementation for community energy users

## THE VICTORIAN GOVERNMENT: \$1.21M (incl GST)

This was issued as a grant to Renewable Newstead to implement the project. It was spent as follows. All figures are GST inclusive.

GENERAL COSTS	EXPENDITURE \$
Planning studies and approval	118,801
Network modelling*	145,380
Technical advice	22,935
Cultural heritage studies and management plan	42,936
Connection studies	165,000
Land lease	164,129
Network connection fee	350,000
Communication strategy	19,295
<b>SUB-TOTAL</b>	<b>\$1,028,476</b>
LOCAL IMPLEMENTATION COSTS	\$
Project reporting	12,380
Project administration	48,315
Project coordination	34,224
Insurance	3,245
Local Community Benefit Program	40,000
BAS payments	50,130
<b>SUB-TOTAL</b>	<b>\$188,294</b>
<b>GRAND TOTAL</b>	<b>\$1,216,770*</b>

\*This figure is slightly more than the grant and includes funds generated locally through Renewable Newstead activities.

## RENEWABLE NEWSTEAD: \$0.5M in volunteer hours

Excluding activities before 2019, Renewable Newstead volunteers undertook an estimated 35 hours/week of work collectively to mid-2024. Funded professionally and given their qualifications and experience, our volunteers would command salaries of \$120,000/year. This equates to an in-kind contribution of approximately \$500,000 over 4.5 years.

Effectively RN's time was spent delivering the following outcomes:

- Identifying suitable and acceptable site
- Gaining social licence to operate
- Gaining pre-build approvals such as planning permission
- Avoiding potentially costly and time-delaying objections in the planning process through community consultation.

Flow Power saved these costs by partnering with and having RN on the ground and at the centre of the project.

# Partnering with Flow Power

Finding the right energy company to partner with was essential for the project to succeed. In addition to demonstrated capability to fund and manage the construction and retail operation of a small-scale community solar farm, there needed to be an alignment of values between the retail partner and the Newstead community, as outlined by the project's guiding principles. Above all else, the retail partner needed to be able to deliver community benefits and to build trusted relationships with the community to carry over the social licence established for the project.

Renewable Newstead issued a national Expression of Interest (EOI), followed by a tender process, from which Australian tech energy innovator and retailer Flow Power emerged as the favoured candidate. Flow Power officially signed on to the project in July 2021.

Flow Power builds and supports a range of renewable energy generation projects across Australia, including a mix of wind, solar and storage projects across Victoria, New South Wales, Queensland and South Australia.

At the core of Flow Power's business model is an interest in using innovative technological solutions and retail pricing structures to drive change towards more efficient use of renewable energy and reduced reliance on fossil fuel generated energy. This includes the use of energy monitoring devices (the kWatch and a general power outlet socket plug) and a smart phone app for customers to view and adjust their energy use to align with hours of renewable energy generation (See the Retail Offer section).

One of the advantages of this technology is that Flow Power is able to connect their customers to one particular generation project. For instance, Newstead customers can use real time data provided by Flow Power to see when the Newstead Solar Farm is generating energy, signalling the ideal energy consumption times. Flow Power's model also includes a unique arrangement approved by the Australian Energy Regulator to link green energy certificates with specific projects. All green (renewable) energy retail contracts require customers to purchase green energy certificates (part of the cost of green energy) and typically these can be for projects anywhere in the country. Under Flow Power's model, customers sign up to specific generation sites, such as the Newstead Energy Project, and the green certificates they purchase go directly to their allocated project.

# Reshaping power

Creating the renewable  
energy future, together

*“When we say you’re going to buy power from your local renewable asset, and you’re going to buy the green credentials from there, it firms up the finances for that renewable project and it builds the business case.”*

Jacob Mahoney, Flow Power

Before partnering with Renewable Newstead, Flow Power had operated as an energy retailer primarily in the commercial and industrial space. The Newstead Energy Project offered a new opportunity to branch into the residential retail market and to test and try their business model under different customer conditions. This has delivered some challenges for the project, particularly in terms of developing the retail offer. For instance, commercial customers are more likely to use energy during daylight (business) hours, whereas residential customers tend to see peak use outside daylight hours. Pricing structures that reward daylight use and penalise evening energy use are often less suited to residential customers (see The Retail Offer section).

Ultimately, these challenges were navigated (with some compromise) to deliver on the community and commercial goals of the project, a testament to the importance of strong communication, respectful stakeholder relationships and an alignment of values.

*“Being able to innovate with a community group like Renewable Newstead has been amazing. It’s helped us to learn how to adapt those quite complicated (commercial) contractual arrangements and make them work in the residential space.”*

Jacob Mahoney, Flow Power



# The Retail Offer

Within the Renewable Newstead (RN) team, the story of the retail offer for the town has been one of surprises and patience. The retail offer is about how the generated electricity is priced for the local community.

To be clear, customers signing up with Flow Power buy electricity from Flow Power's pool of available supplying assets and from power supplied into the grid from other asset owners, since electrons supplied from various sources cannot be isolated.

Initially, the plan was to use a special rate or tariff (known as the Newstead Residential Trial Tariff) within Powercor's Schedule of Charges<sup>19</sup> to encourage electricity demand management. This poorly understood concept was abandoned by the end of 2021 although the tariff remained for a few years. It is now noted as closed<sup>20</sup>. Despite this, the commitment to encourage households to manage demand so renewable electricity is used when it is plentiful and, therefore, cheap continues. This commitment is reflected in Flow Power's Price Efficiency Adjustment (PEA) which is part of the company's retail offer and is described below.

## Participation

Initially it was planned to encourage a substantial percentage of Newstead households to become customers of the solar farm, while retaining the commitment to making this a choice (see previous discussions about the 'opt-in' principle). In 2021 when there were 436 private dwellings in Newstead<sup>21</sup>, the Renewable Newstead team and the then Department of Land, Water, Environment and Planning (DELWP) set a target to have 200 to 250 expressions of interest (EOIs) from households to sign up to the retail offer when it became available. By the end of February 2022, despite challenges posed by the pandemic, 123 households had lodged EOIs.

By February 2024, at the time of writing this report, people from 173 unique local addresses had expressed interest in the retail offer. This interest was generated despite little promotion beyond mid-2021. After unforeseen delays to the solar farm's construction and to the refinement of Flow Power's retail offer, the RN team chose to no longer actively seek expressions of interest from potential retail customers: each announcement, followed by a delay, might have caused hope fatigue. These delays also meant re-working grant milestone agreements with DELWP and its successor DEECA (Department of Energy, Environment and Climate Action).

<sup>19</sup> Powercor, 2018 Pricing Proposal [<https://www.aer.gov.au/documents/aer-approved-powercor-2018-pricing-proposal-12-october-2017>]

<sup>20</sup> Powercor, 2023/24 Pricing Proposal. [<https://www.aer.gov.au/documents/powercor-2023-24-pricing-proposal-27-april-2023>]

<sup>21</sup> Australian Bureau of Statistics. *Newstead 2021 QuickStats*, Accessed February 2024 [<https://abs.gov.au/census/find-census-data/quickstats/2021/SAL21936>]

## Lower Cost

The grant supporting this project required that any written retail offer for electricity from the solar farm had to be 10% below the Victorian Default Offer (VDO). The VDO is a benchmark price for electricity that the Victorian Government sets and reviews annually. It's a safeguard for customers who are on a standing offer, which means they haven't signed up for a specific plan or cancelled their contract within the cooling-off period. Electricity is supplied from the grid which includes a mix of renewable and non-renewable energy. If people wish to buy electricity that is called '100% green', then the cost per kilowatt hour is usually \$0.05 more. This is called the 'GreenPower' premium. Since the grant was established, the VDO has changed annually but the 'GreenPower' premium has remained consistent at an additional 0.05c/kWh. As a result the RN team and Flow Power have found it challenging to identify what the '10% below' VDO is on a like-for-like comparison.

The 2023/24 VDO is based on a household using 4,000 kWh of electricity per year<sup>22</sup> and costs **\$1,755.00**.

If the cost of electricity for such a household was 10% below the VDO, then it would be  $\$1,755.00 - \$175.50 = \mathbf{\$1,579.50}$  but this is electricity without the "GreenPower" premium. The solar farm is offering 100% 'GreenPower' electricity. The premium that customers pay to have 100% 'GreenPower' electricity is usually 0.05c/kWh. Using this as the benchmark, then the VDO becomes  $\$1,755 + (4,000 \text{ kWh} \times \$0.05) = \mathbf{\$1,955}$  and 10% below is **\$1,799.50**.

The retail offer for Newstead customers is contained in the Fact Sheet later in this section. All retail electricity suppliers are required to provide a Fact Sheet. This Fact Sheet shows that the daily charge to be connected to the grid is \$1.16 and the cents per kWh is \$0.3061 so for a household using 4,000 kWh over a year, the cost is  $(\$1.16 \times 365 = \$423.40) + (4,000 \text{ kWh} \times \$0.3061) = \$423.40 + \$1,224.40 = \mathbf{\$1,647.80}$ .

Using the VDO plus the 'GreenPower' premium, the relationship between the retail offer for Newstead and the VDO is as follows:


Type of VDO	Amount \$
VDO	1,755.00
10% Below	1,579.50
VDO with 'GreenPower' premium	1,955.00
10% Below	1,799.50
Flow Power Retail Offer with 100% 'GreenPower' premium	1,647.80
<b>Relationship to VDO</b>	<b>6.11% below</b>
<b>Relationship to VDO with 'GreenPower' premium</b>	<b>15.71% below</b>

**This outcome is good news for the RN team and the community.**

The two following pages are the Fact Sheets explaining FlowPower’s retail offer current at October 2024.

Figure 1. Flow Power’s Fact Sheet page 1

Flow Power — Flow Home - Single Rate
Offer ID: FLO564161MR



**Flow Power**

- No contract term
- Single rate

[Call 1800 359 797](tel:1800359797)

[flowpower.com.au](http://flowpower.com.au)

### Estimated electricity cost

 <b>1 person</b> <small>13.2 kWh/day</small>	<b>LOW</b> <small>13.2 kWh/day</small>	<b>\$1,920/year</b> <small>No discount conditions apply to this offer</small>
 <b>2 to 3 people</b> <small>16 kWh/day</small>	<b>MED</b> <small>16 kWh/day</small>	<b>\$2,260/year</b> <small>No discount conditions apply to this offer</small>
 <b>4+ people</b> <small>23 kWh/day</small>	<b>HIGH</b> <small>23 kWh/day</small>	<b>\$3,090/year</b> <small>No discount conditions apply to this offer</small>

### Features

- Direct debit payment required**
- No pay on time discount**
- Green power**
- No fixed price contract**
- No paper bills available**

Estimated costs are inclusive of GST and are based on typical usage in your postcode, with regular usage on weekday afternoons and evenings. Your household’s usage may vary. Costs exclude controlled load charges, solar payments, concessions and bonuses. A more personalised estimate can be found on the Victorian Energy Compare website at <https://compare.energy.vic.gov.au>. Retailers must provide clear advice to help customers find the offer that best suits their circumstances. Contact the retailer by calling **1800 359 797** and quote this Offer ID **FLO564161MR**.

### Offer details

<b>Distributor</b>	Powercor
<b>Offer type</b>	Market offer
<b>Fuel type</b>	Electricity
<b>Customer type</b>	Residential
<b>Release date</b>	01-07-2024
<b>Expiry date</b>	31-07-2025

### Offer eligibility

Generally available

### Contract details

<b>Contract term</b>	No contract term
<b>Cooling off period</b>	10 business days
<b>Eligibility criteria</b>	Generally available
<b>Prices are not fixed</b>	Usage and solar feed-in tariff rates are not fixed. For more information about our pricing please visit <a href="http://flowpower.com.au/residential/pricing/price-efficiency-adjustment/">flowpower.com.au/residential/pricing/price-efficiency-adjustment/</a>
<b>Contract expiry details</b>	Ongoing with no fixed term. No lock in contract or exit fees.
<b>Full terms and conditions</b>	See Flow Power Market Retail Contract Agreement Terms at <a href="http://flowpower.com.au/residential/policies/">flowpower.com.au/residential/policies/</a>
<b>Green power inclusions</b>	This offer has 100% green power included in the offer rates.
<b>ESC licence information</b>	Electricity retail licence under Progressive Green Pty Ltd

### Fees

<b>Disconnection fee</b>	(incl. GST) <b>Flat rate: \$70.61</b>
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This fact sheet is presented in accordance with the requirements of the Essential Services Commission (ESC) - the independent regulator of the retail energy industry in Victoria.

Figure 2. Flow Power's Fact Sheet page 2

<p>Fee may apply when your property is disconnected (including when you move), and is passed through from your distributor. Please visit your distributor's website to find out the current fee as they may vary.</p>	
<b>Reconnection fee</b>	<b>Flat rate: \$66.44</b>
<p>Fee may apply when your property is reconnected (including when you move), and is passed through from your distributor. Please visit your distributor's website to find out the current fee as they may vary.</p>	
<b>Payment processing fee</b>	<b>Percentage of bill: 0.66%</b>
<p>A 0.66% fee (GST Incl) may apply to payments made by Mastercard or Visa credit cards.</p>	
<b>Additional information</b>	
<p>Additional fees may apply. For more information, please visit the retailers website at <a href="http://flowpower.com.au">flowpower.com.au</a>.</p>	
<hr/>	
<b>Billing details</b>	
<b>Bill frequency</b>	1 month
<b>Payment options</b>	Direct debit
<hr/>	
<b>Offer rate and details</b>	
Local time	
<b>Electricity charges (All year)</b>	<b>Tariff (incl. GST)</b>
<b>Daily supply charge</b>	90.48 c/day
<b>Peak consumption</b>	
All consumption	32.95c/kWh
<p><b>Daily supply charge:</b> a charge that applies for supplying electricity to your premises for each day of the billing period, regardless of how much electricity is used.</p>	
<p><b>kWh:</b> a 'kWh' stands for kilowatt hour and is the unit of measurement for your electricity bill.</p>	
<hr/>	
<b>Solar feed-in tariff options</b>	
	<b>Tariff</b>
<b>Premium feed-in tariff</b>	63.30 c/kWh
<b>Current retailer feed-in tariff</b>	3.30 c/kWh
<hr/>	
<i>Climate zone 4: Hot dry summer, cool winter</i>	
<p>This fact sheet is presented in accordance with the requirements of the Essential Services Commission (ESC) - the independent regulator of the retail energy industry in Victoria.</p>	

## The Offer

It is a government requirement that a Fact Sheet is provided for all retail electricity offers. Flow Power’s retail offer includes additional features. These are:

**1.** A discount and additional cost feature that rewards customers who use most of their electricity when wholesale prices are low. Typically, this is during the middle of the day. Flow Power call this feature a Price Efficiency Adjustment (PEA). This is a type of demand management. It was unexpected in this form but is the way of the future. As Flow Power has refined the PEA over the period involving 10 Newstead households in a trial of Flow Power’s retail product, the PEA has become more understandable. Some trial participants have ‘gamed’ the PEA. Others ignored it and one trial participant has swapped to a more conventional retailer.

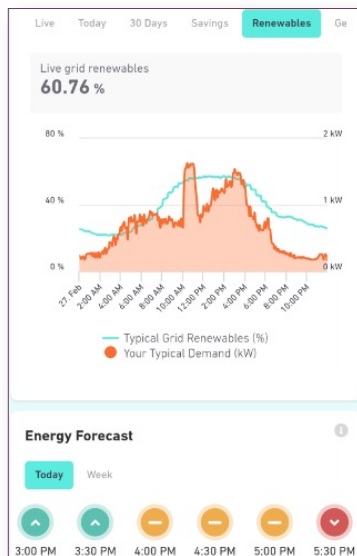
**2.** A variety of ‘tech’ products to help customers transition to using electricity when it is at its cheapest. These products include access to a smart phone app that gives the user real time information about electricity prices in the form of coloured up and down arrows as shown in Figure 3 below. Using the information provided by the app, ideally a customer would start ‘powering down’ their electricity use by 5.30pm at the latest.

Flow Power also provides a device called a kWatch Mini and a general-purpose power outlet (GPO) socket plug. The kWatch Mini uses wireless information from household

smart meters (ZigBee network) to tell households how much electricity they are using in the moment. This, in turn, helps residents to use electricity when the sun is shining or the wind is blowing. This device is similar to the ‘Powerpal’ provided by the Victorian Government to households. The GPO socket plug facilitates the remote turning on and off of devices. It requires the KWatch Mini and the phone app to be working to do this.

**3.** An annual grants program of \$5,000 a year for 10 years for Newstead community groups to apply for. See Figure 4 for the program’s principles/aims.

**Figure 3.** An example Flow Power’s app providing information about electricity generation and usage.



**Figure 4.** Principles of Flow Power’s annual grants program for Newstead.

PRINCIPLE	DESCRIPTION
Increase access to and/or use of renewable energy	The initiative allows for greater access to or use of renewable energy in the local community. This could be through development of renewable energy projects in the local community.
Support energy literacy and education	The initiative improves access to and quality of education and training in the local region, particularly with respect to energy.
Conserving and rehabilitating the environment	The initiative supports the conservation and rehabilitation of the environment; helps to reduce emissions and waste; and/or promotes recycling and the circular economy.
Improving the wellbeing of the local community	The initiative enhances, supports, and promotes the health and welfare of community members; including relief of poverty, sickness, or distress.
Reducing energy poverty	The initiative contributes to alleviating energy poverty, particularly for low income or vulnerable households. This could be through access to renewable energy, improved energy efficiency or by increasing energy literacy.

## Process

Developing and understanding the retail offer required ongoing dialogue between the RN Team and Flow Power and this continues in the interests of understanding how it works and what can be done to ensure it's accessible to the Newstead community. This occurred right throughout the project. RN released updates on progress. The pandemic and construction delays meant there were sometimes long gaps between updates.

Flow Power became RN's partner for reasons discussed elsewhere in this report. Flow Power's interest in entering the retail sector, while maintaining their commercial and manufacturing client base, interested RN as it was felt the two organisations could grow together for the benefit of the Newstead community.

Flow Power continues to develop its retail product. Some product features the RN Team would have liked for the community were not available when the retail offer was launched in May 2024. The Newstead Solar farm was not grid-connected or generating electricity when Flow Power launched its retail offer, however new customers from Newstead were linked to Flow

Power's generating facility near Ouyen until generation began at Newstead when they were linked to the Newstead site.

Given the nature of the PEA, RN recruited 10 households to transfer to Flow Power as part of a trial that started in October 2022. Responses to the PEA and the supplied 'tech' varied among trial participants. At two points in the first year, they were asked about their experience.

Some households didn't care how the PEA affected the price per kWh that they paid because they wanted renewable electricity at any price. One household switched back to a more conventional electricity supplier because they were dissatisfied with the additional cost they paid as a result of using a lot of electricity in the evenings. Some participants 'played around' trying to achieve the greatest possible PEA discount. Others didn't alter their electricity usage and just observed how their PEA effected the kWh price. All were in a position to buffer any 'bill shock' that might have occurred as a result of the trial.

Trial participants reported almost universally negative experiences with the supplied

tech. The smart phone app worked quite well for those with a smart phone and who are interested in seeing daily price changes. The kWatch Mini was not used by most trial participants; some were not interested and did not try to set it up. Others tried to set it up, with the patient help of Flow Power staff, but were not successful in doing so. The kWatch Mini doesn't work for households without NBN or where it's plugged in too far from the power meter. In some cases, "it remains a mystery" why it does not work. RN is unaware of anyone who is using the socket device to control appliances. Flow Power says: "We acknowledge that for early 'trial' participants of Flow Power's retail offer, the technology we tested was in its initial phase of development and we can reasonably expect that it will continue to improve over time. The aim of Flow Power's technology is to connect households with the energy market, and – together with the PEA – inform and encourage use of energy when it's cheaper (and renewable generators are most active)."

## Pros and Cons

The exciting things about the retail offer and the challenges it presents, are listed below.

### Exciting:

Locally generated electricity.

Flow Power is a local (ish) business based in Hawthorn (Victoria).

100% green electricity based on a legislated definition.

Price structure is the way of the future.

Very competitive daily rate.

Users can work towards a lower price per kWh.

Flow Power is committed to ongoing product refinement.

Local support from Australian based team.

6.11% below the VDO.

15.71% below the VDO plus 'GreenPower' premium.

Generally good for people with no rooftop solar.

Generally very good for people with no rooftop solar; who can use most of their electricity in the middle of the day; who live in a well-insulated home; and, who have the skills, interest and time to work towards a discounted rate.

Means people can avoid roof top solar and still access renewable electricity.

Maintains most of the benefits of rooftop solar without the initial capital cost and ongoing maintenance costs.

### Challenges:

The upper limit of the PEA is unknown. This is likely to frighten some potential customers.

No paper bills are offered.


Payments can only be made online.

The reality is that Flow Power's retail offer for electricity won't suit everyone unless using renewable energy is their primary driver. On price alone it is unlikely to suit households with a lot of rooftop solar or that are poorly insulated or that are empty during the day or that are uninterested/unable to shift their usage patterns. Each of these scenarios generally means that more electricity is used in the late afternoon and evening, when wholesale prices are high, without achieving the discounts from using electricity when prices are low in the middle of the day. Flow Power understands this and the Renewable Newstead team understands this.

## Bill Examples

This household has rooftop solar panels so is using their own electricity in the middle of the day and, predominantly, drawing on renewable electricity in the evening when prices are usually higher.

Figure 5. Bill example 1, page 1.



### Electricity Tax Invoice

**Progressive Green T/A Flow Power**  
ABN 27 130 175 343

**Supply details**  
Supply address:  
  
National Metering Identifier (NMI):

**Billing Summary**  
Account number: 9937  
Invoice number: 143888  
Issue date: 01 Feb 2024  
Due date: 15 Feb 2024

**Need help?**  
Victoria Ombudsman: [1800 500 509](tel:1800500509)  
Faults and emergencies: [Powercor 13 24 12](tel:132412)  
Account enquiries & complaints: [1800 359 797](tel:1800359797)  
[contact@flowpower.com.au](mailto:contact@flowpower.com.au)

### Amount due

**\$149.87**  
Direct debit will occur on 15 Feb 2024  
See bottom of page for payment options

### Other information

**Are you on the best offer?** You're receiving a fair energy deal with a base price which is adjusted depending on how efficiently you use energy against market pricing. Please contact us if you think this plan isn't right for you. You can view and compare generally available offers online at Victorian Energy Compare [compare.energy.vic.gov.au](https://www.compare.energy.vic.gov.au).

The Victorian Default Offer is a reasonably priced electricity offer set by Victoria's Independent Regulator. Contact us on [1800 359 797](tel:1800359797) to discuss the suitability of this plan for you.

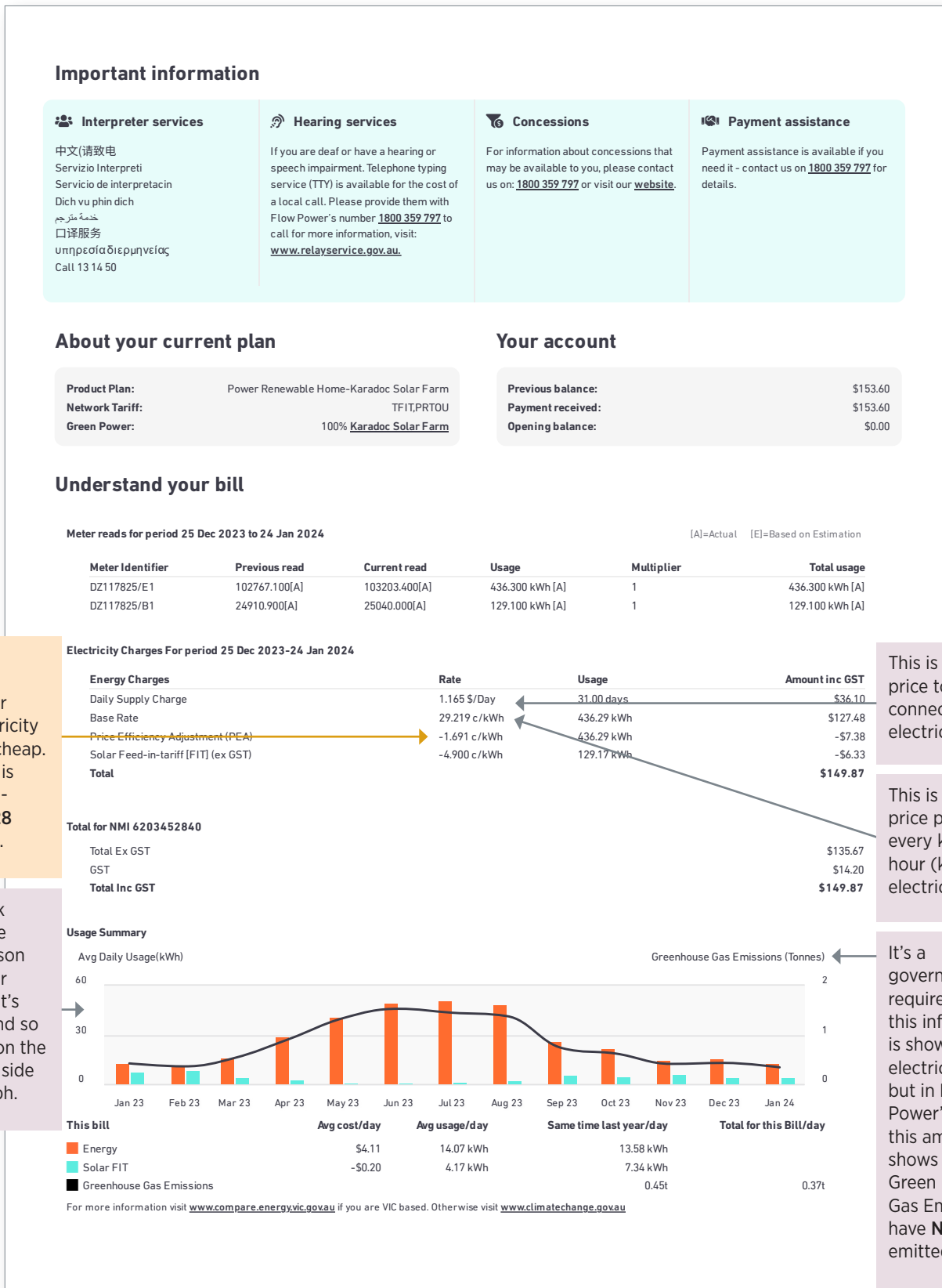
The Australian Government and your State Government are supporting customers to reduce bills. Check the understand your bill section to see if you have received a rebate or concession. More information at [energy.gov.au](https://www.energy.gov.au).

### Payment options

<p><b>Direct Debit</b></p> <p>Direct debit is a simpler way to pay.</p> <p>To set up Direct Debit, call us on: <a href="tel:1800359797">1800 359 797</a></p>	<p><b>Bank Transfer</b></p> <p>Bank: Westpac BSB: 033397 Account Number: 502834 Ref: 143888</p> <p>Or pay in person at any Westpac Bank branch with the above details.</p>	<p><b>By Mail</b></p> <p>Send a cheque payable to Flow Power with your customer number on the back to PO Box 100, Hawthorn, VIC, 3122</p>
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Figure 6. Bill example 1, page 2.



This is the **DISCOUNT** received for using electricity when it is cheap. Price/kWh is now 29.219-1.691=**27.528** cents/kWh.

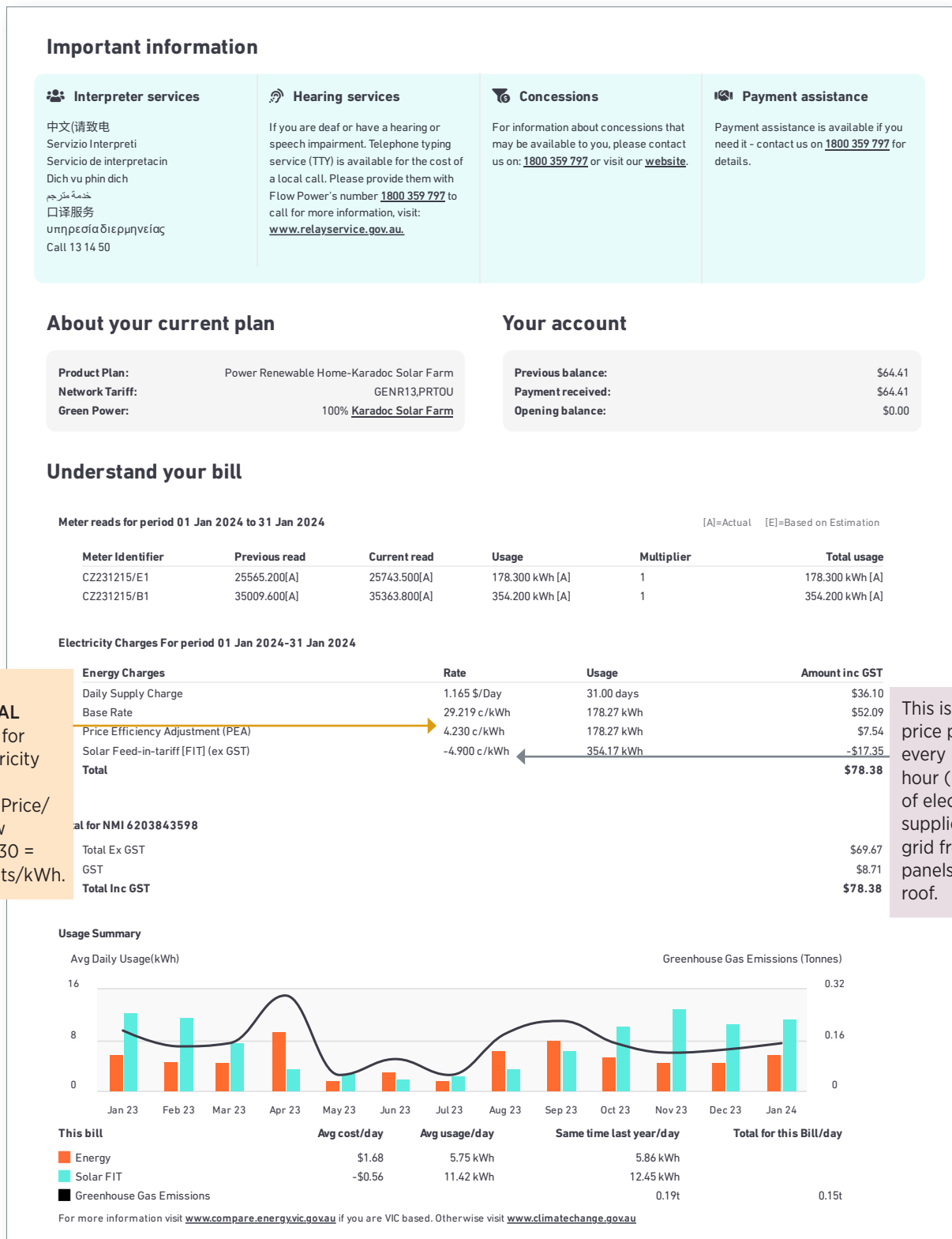
Have a look at this scale in comparison to the other examples; it's different and so is the one on the right-hand side of this graph.

This is the daily price to be connected to the electricity grid. This is the price paid for every kilowatt hour (kWh) of electricity used.

It's a government requirement that this information is shown on electricity bills but in Flow Power's case this amount shows how many Green House Gas Emissions have **NOT** been emitted.

This household has rooftop solar panels so is using their own electricity in the middle of the day and, predominantly, drawing on renewable electricity in the evening with the prices are usually higher.

**Figure 7.** Bill example 2, page 2 (other than cost, page 1 is the same for all examples so it is not shown again)



This household does not have rooftop solar panels so can use cheap electricity in the middle of the day to offset the cost of more expensive electricity in the evening.

Figure 8. Bill example 3, page 2



The Renewable Newstead team understands the retail offer or the way the electricity is priced will be refined over time. Initially it was expected that those households who expressed interest in buying from the solar farm would do so as soon as it was possible. The current view is that the take-up will be slower, possibly over a year or more, as people understand and experience the effects of the Price Efficiency Adjustment (PEA) on costs.

# Benefits of the Solar Farm

The Newstead Solar Farm delivers many benefits for the community.

The model reflects the goals and values of the Newstead community; it is

- Connected to the grid, so everyone can benefit
- Optional – residents can make their own choices about whether they want to buy their electricity from the solar farm
- Not harmful or risky to the community, for instance, no community investment or management is required
- Big enough to generate 100% of the town's annual energy use using a renewable resource

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The local community will have first access to lower cost, renewable energy, securing our energy future.

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Everyone can benefit.

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Benefits will be delivered to local community groups. For example, Flow Power is funding a \$50K grants program delivered as annual \$5K grants over 10 years, to be managed by a local community organisation (Newstead Rural Transaction Centre).

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The community can take pride in the endeavour.


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*"This project was one of the reasons we chose to move to Newstead. We're excited to live in a community that values self-sufficiency, environmental sustainability, and action from the ground up."*

*Vanessa and Ryan,  
Newstead residents*



*"This means all households can access renewable energy, regardless of whether they rent or own a house. It brings a degree of equity to climate change action."*

*Genevieve Barlow,  
Renewable Newstead*



*"It's another reason to be proud of where we live. It's a nice place to live and it feels nice when people have looked at your town from afar and said they want to come and live here because of things like this."*

*Don Culvenor,  
Renewable Newstead*

# Community Solar Farms: What we've learned (and the challenges still ahead)

This project set out to answer questions about our community's energy future, and the role small communities might play in the bigger energy picture. Over a decade of working towards and then helping to establish renewable energy that's generated and available locally and that delivers additional benefits for our community, Renewable Newstead and its partners have learnt the following.

## 1. At a community scale, and where they are socially acceptable and feasible, solar farms are better value than rooftop solar (and should be subsidised).

*“If the rooftop solar subsidies were made available for projects like this the net benefits for communities would be larger.”*

Tosh Szatow, Energy Consultant

Australia benefits from an abundance of sunshine and so it is no surprise that solar energy solutions are a big part of the way our nation is tackling climate change and reducing reliance on fossil fuels. In 2022, renewable energy accounted for 35.9% of Australia’s total electricity generation, and combined small, medium, and large-scale solar made the highest contribution, accounting for 41% of all renewable energy generated (14.7% of Australia’s total energy generation). Of solar energy sources, most was generated from rooftop solar (25.8% of renewable energy generated), followed by large scale solar (14.0%) and medium scale solar (1.2%)<sup>23</sup>.

By 2022, around 3.4 million Australian homes (around 1 in 3 households) had rooftop solar installed.<sup>24</sup> In Newstead, around 40% of households do.<sup>25</sup> This is great for driving down climate-changing emissions. Yet issues with rooftop solar remain and need to be addressed.

● **Rooftop solar systems are more expensive to install, even after rebates.** Rooftop solar systems typically cost around \$1,200 to \$1,800 / kW to install after rebates, whereas a 2MW solar farm can be installed for less than \$1,200 /kW without rebates.<sup>26</sup> Further to this, solar farms have the capacity to attract commercial investment to fund their installation and operation costs, whereas rooftop solar relies on individual households to be able to afford the out-of-pocket installation cost and ongoing maintenance costs.

● **Not all households can install rooftop solar;** they may not have a suitable rooftop, be renting or are unable to afford the installation cost, even after subsidies are applied. This is the case for many in Newstead. This situation creates inequities in who can benefit from subsidised renewable energy options. Solar farms give everyone the option to connect and benefit from locally generated renewable energy.

23 Clean Energy Council. *Clean Energy Australia Report 2023*. [<https://assets.cleanenergycouncil.org.au/documents/Clean-Energy-Australia-Report-2023.pdf>]

24 Clean Energy Council. *Clean Energy Australia Report 2023*. [<https://assets.cleanenergycouncil.org.au/documents/Clean-Energy-Australia-Report-2023.pdf>]

25 Solar Power Information: Newstead 3462, Solar Quotes, [<https://www.solarquotes.com.au/location/newstead-3462-vic/>]. Accessed November 2023]

26 Michael McCartney, 2011. *Newstead Energy Feasibility Study*

- **Multiple rooftop installations put pressure on the distribution network and trigger costly network upgrades.** However, a solar farm with a well-designed connection to the local distribution network can avoid these costs, as Codie Wills, Manager of Engineering and Consulting at CitiPower and Powercor explained:

*“(There are) efficiencies that come with larger projects. At a smaller scale, rooftop solar can trigger augmentation and investment to enable a relatively small amount of additional (electricity) export, whereas if you have a community solar farm project that’s located in a well thought through position in the network, then it can lead to a really efficient connection solution that doesn’t trigger a significant amount of augmentation.*

*And it can also lead to smarter solutions, such as pairing a battery with the generation source – solar or wind – then you can effectively control how and when the energy is used and exported, and further avoid any upgrades to the network. So, you get the benefit of solar and renewable generation into the community, but you avoid any of those additional costs associated with these types of projects.”*

Codie Wills, Powercor

- **Household batteries do not yet offer an economically viable option for harnessing 100% of renewable energy generation.** Ultimately, the amount of solar energy that can be fed into the grid is limited, which means households generating excess solar cannot share that excess or benefit from feed-in tariffs. Household batteries – which are becoming more affordable but do not yet work financially (i.e., the investment is not recouped over the life of the battery)<sup>27</sup> – provide some, but not all, of the solution.

Pairing a community solar farm with an on-site storage battery smooths out the feed in of electricity from the generation source to the grid, avoiding the problems of intermittent load that come with renewable energy generation. The capacity to store excess energy for later use also improves the financial viability of the solar farm, as operators can retail more of the energy generated (without the battery this excess energy would be lost).

- **As more households take up rooftop solar and shift to off-grid energy, the cost of grid-generated energy increases.** This is because the cost of operating and maintaining the grid remains the same, but fewer pay the cost. Our national grid, including long distance transmission lines and local distribution networks, is essential infrastructure that ensures the security of our energy supply and allows energy trading and commercial viability for generators.

Community solar farms, connected to the national grid, offer an affordable, efficient, and equitable solution to the problems raised by rooftop solar and should be considered (and subsidised as) an essential part of Australia’s renewable energy solutions.

*“This project reflects what the whole nation is dealing with at the moment in the energy space – reducing climate-changing emissions.”*

*Genevieve Barlow,  
Renewable Newstead*

<sup>27</sup> Mustafa Kaka and Russel Pendlebury. *Turning Point for Incentives to Invest in Residential Batteries*. AEMC [<https://www.aemc.gov.au/turning-point-incentives-invest-residential-batteries>]





## 2. Embedded policies make it challenging to develop community renewable energy projects.

The biggest challenges for the Newstead Community Energy project, and for the renewable energy sector broadly, were and are how to deal with legacy issues around industry regulation and energy pricing.

The current system – its physical infrastructure and pricing – was designed for state-wide distribution of coal-powered electricity generated 24 hours a day, 7 days a week from the Latrobe Valley. There is now a shift to a system that generates electricity in various locations across the state and at times when the sun shines and the wind blows.

## These are the changes we need...

### Current System

Distribution tariffs – which cover the costs for operating and maintaining the electricity grid – are charged at c/kWh. Customers pay more or less depending on how much energy they use, regardless of how far the electricity has had to travel across the poles and wires. This model does not reward the reduction in carbon emissions from local energy generation and use.

Peak and off-peak charges are currently designed to incentivise night-time (10pm to 7am) energy use to account for the excess supply generated by coal-fired power stations that need to run 24 hours a day. High energy use appliances such as hot water heating, pool pumps, washing machines and dishwashers are often set to run at night to take advantage of lower prices.

Short-term retail contracts are the norm, typically signing customers up for 12 or 24 months, or on a month-to-month basis. This makes investment in local renewable energy projects risky as companies are unable to predict whether they will make money on their investment.

Distribution network pricing periods are currently set at 5-year cycles, whereas renewable energy generators set their prices over 10, 15 or 20-year cycles. This mismatch creates a problem, and an investment risk, for retailers in pricing their energy and calculating their financial returns over time.

Certified 'green' power costs more than 'black' power i.e. coal and gas generated power. On average it costs consumers an extra 4 to 8c/kWh for 'green' power (see <https://www.greenpower.gov.au/get-greenpower/how-much-does-greenpower-cost>). This disincentivises 'green'.

### New System

**Distribution tariffs could be redesigned to reflect the lower costs of local energy distribution.** Community renewable energy projects provide an opportunity to trial new pricing structures that will support the transition to decentralised energy generation in a way that maintains the return on investment for distributors. The Newstead Residential Trial Tariff was an example of this.

**Reverse peak and off-peak pricing to reward using energy when renewable generation is abundant (during the day) and energy prices are often cheapest.** Households can be supported to adjust to renewable energy pricing by changing controlled load consumption and hot water service smart meter timing.

**Longer term contracts that align with construction finance payback periods (10 or 15 years),** reduce the investment risk and lower financing and energy costs. This would align with contract arrangements in commercial and industry sectors. It would be important that long term contracts include conditions that meet consumer protection laws.

**Network pricing periods need to align with the investment timeframes of renewables and move to 10- to 15-year cycles.** This can be done at a small scale without needing approval from the Australian Energy Regulator (AER). However, at a larger scale, institutional reform is needed to change pricing periods.

'Black' or coal and gas fired power needs to be disincentivised by costing more with additional funds generated going towards incentives to encourage 'green'.



## How Newstead’s Community Energy Project adds value to Australia’s energy transition: a big picture perspective from Energy Consultant Tosh Szatow.

Australia’s energy market is going through “phase change”, from a fairly static, fossil fuel dependent system, to a more dynamic one powered by renewables – largely solar and wind. Three themes stand out, and tell the story of change and opportunity:

- 1** We are seeing record energy contributions from solar to Australia’s electricity market, measured in a variety of ways, including the contribution of solar overtaking that of coal for periods of time;
- 2** Renewables could contribute more energy. The generation is there but is being curtailed or is asking too high a price at times. Given that the marginal cost of renewables is near zero, this suggests a market inefficiency, with buyers and sellers not finding each other;
- 3** The industry consensus is that Australia will fall short of the ambitious 82% renewable energy target by 2030. Common reasons given are planning approval delays for new generation, and that more transmission lines are needed to connect renewables to the grid.

In short, we have an energy market struggling to absorb new renewables at the right time and price, while the need for accelerated deployment of renewables is butting into planning and approval constraints. All this despite customer demand, government backing, and willing capital. We have a fully-fledged teenage transition, full of emotional contradictions and gangly limbs that won’t always do what the brain suggests.

In simple terms, the challenge to energy market stakeholders is to do two things:

- 1** Rapidly and efficiently deploy capital into new supply infrastructure. This requires securing land where renewable energy is abundant and the cost of grid connection is low in a way that builds social license to operate;
- 2** Mitigate or avoid stranded assets risk by locking in customer demand. This includes stacking value around assets to deepen buy-in. That is, it's not just about minimising cost, but maximising value to all stakeholders in the energy ecosystem. Think commercial models that enhance customer loyalty, provide grid stability or resilience to black-out, or solve adjacent issues like energy efficiency or electrification of transport.

The above sounds simple but is hard to do well.

At worst, energy infrastructure can be planned without a nuanced appreciation of its value stack. For example, top-down planning and management of infrastructure tends to focus on cost-optimisation and not on opportunities to test models that deliver extra value. Think managers chasing lowest cost generation solutions forgetting enabling infrastructure, like what it takes to get community approval, or the port infrastructure upgrades needed to facilitate offshore wind farms.

In this way, fund managers with billions typically chase simple,

lowest cost infrastructure transactions, seeking to deploy \$100m+ at a time. In contrast, many customers chase energy independence – think solar on the roof, batteries behind the meter, and an electric car charged at home or work. Ultimately, customers want an outcome that is about more than buying electricity, meaning customers and capital don't always meet in the middle.

Resolving this tension between the weight of capital being invested in energy infrastructure, and fundamental customer desire, is critical to Australia's energy market transition from here.

It is instructive to consider recent history – understanding how we got here gives insight into what comes next and how that future can be shaped.

When solar became cheap in 2012, a clear split emerged in the energy market's evolution. One ecosystem evolved around 'behind the meter' energy infrastructure (think rooftop solar), and another, quite separate and competing ecosystem, evolved around large scale renewables (think big wind and solar). This split became more distinct with the advent of Power Purchase Agreements (PPAs) for large energy users – a fantastic product for large energy users, largely unavailable to smaller ones.

Different clusters of people, different software systems, different capabilities and even different ways of thinking about what energy customers need from the energy market, have emerged from this split between large and small scale

infrastructure solutions. While the split remains entrenched, it is likely that our energy market will continue to behave chaotically.

Against this backdrop emerged Renewable Newstead – developed by a community group, with the goal of making renewable energy available to all residents of Newstead, at a price cheaper than conventional energy from the grid.

Project investigations with Powercor revealed that the capital cost of getting to 100% renewable energy on a net basis with rooftop solar, would be up to 50% higher than with a shared solar farm, with no commensurate benefit in terms of reduced network infrastructure costs. This investigation also showed that the way network costs are recovered from customers distorts signals for energy investment – network costs are largely recovered on a c/kWh basis, meaning a rooftop solar customer benefits from avoiding network charges, without necessarily reducing network costs. Rebates for rooftop solar further skew the rooftop solar versus shared solar farm trade-offs.

In short, solar rebates and network tariffs seem at risk of encouraging inefficient spending on energy supply that creates winners and losers.

By contrast, Renewable Newstead in partnership with Flow Power, is leveraging Victorian State Government funds on a 9:1 basis, building a 3MW solar farm, coupled with a 5MWh battery. The outcome? 100% 'green' power will be

available at a price lower than the Victorian Default Offer (VDO)\* to most customers in Newstead. Customers that can match their energy demand to renewables supply by shifting loads like hot water, laundry, heating, cooling and now EV charging to peak times of energy generation are likely to benefit handsomely compared to conventional 'black' energy customers.

It is quite a remarkable outcome when we consider rooftop solar is being funded on an approximate 3:1 basis, and more remarkable considering the Renewable Newstead project had to leave some valuable innovation "on the table" – contracting and network price innovation.

Is the model worth other communities and retailers pursuing? I think the answer right now is a convincing yes, with important contracting and network price innovations still to come from Newstead and projects seeking to replicate it, summarised below.

To underpin significant investment in community-centric energy supply – think shared infrastructure within the distribution network – we would benefit from contract innovation. Specifically, the ability to sign up aggregations of small to medium enterprises (SMEs) and residential customers to long-term (think 5-year+) retail supply agreements. This would underwrite investment risk in shared renewable energy assets at community scale, and so enable the capital to flow at scale. This would bring the benefits of the PPA model to a larger pool of customers.

Further, network tariff innovation would help customers and suppliers squeeze more value out of distribution network infrastructure. This is because much of regional Australia's distribution grid is unconstrained – meaning additional energy demand can occur without needing to upgrade network infrastructure. Re-pricing the network based on network access, not consumption volume, would address the perverse incentive to install individual rooftop solar, instead of shared solar farms. For those communities undergoing electrification (switching from gas and fossil fuel transport to electric), the unit cost of additional electricity demand resulting from fuel switching would go down, because pricing for network access is decoupled from demand volume.

By working backwards from community needs using community-driven problem solving, to shape an energy solution delivered by the market, Renewable Newstead is showing that the front of meter / behind the meter renewable energy divide can be bridged. It will be up to others now to determine how far and fast those project lessons and benefits are shared across regional Australia.

\*The Victorian Default Offer is set by the Essential Services Commission and essentially aims to safeguard domestic and small business electricity consumers from price gouging.

***Anthony (Tosh) Szatow specialises in energy market innovation. He has worked in the energy sector for 18 years, emerging from CSIRO where he focused on unlocking distributed energy value to transform Australia's energy system. He is a founding Director of Boompower – Australia's leading electrification software platform. Tosh advised Renewable Newstead in the early phase of its development, including attracting investors and stakeholder buy-in. He now works with Flow Power with a focus on leveraging structure and process into products and services aligned to true zero emission goals. His support and advice to the Renewable Newstead team has been invaluable. RN is pleased to have commissioned his 'big picture' perspective on the value the Newstead Community Energy Project offers in Australia's energy transition.***

# Key milestones on the journey



2008-2014	Setting the goal for a 100% renewable town
2008	Newstead holds a community summit and the idea for powering the town with renewable energy is raised.
2011	Newstead 2021 Inc. partners with Central Victorian Solar Cities.
	A feasibility study is commissioned and provides confidence for pursuing the goal.
2012	Renewable Newstead begins lobbying government for funding.
2013	<p>Community endorsement of the project and set project goals.</p> <ul style="list-style-type: none"> <li>• Develop, document, and implement a plan for Newstead to achieve 100% locally generated, renewable energy in a commercially viable way that would benefit the whole community.</li> <li>• Develop a model that identifies and breaks down barriers making small-scale, community-partnered options possible elsewhere.</li> </ul>
2014	Renewable Newstead secures commitment from Victorian Labor Party for \$200,000 grant to develop a business case if they win government.
2015-2018	Building the business case / commercial model
2015	Incoming state Labor government announces grant for the project.
2016	MOU signed with Powercor at Dig Cafe.
2015-2018	Research and consultation – RN engage with industry, community etc. to build a business case – socially equitable, technically feasible and commercially viable.
2018	Deliver the model / business case and begin lobbying for funding to implement the model.



2019-2024	Creating the Newstead Community Solar Farm
2019	Government grant of \$1.1 million received to fund part of construction.
	RN calls for expressions from local landholders for a suitable site.
	<p>RN appoints a planning consultant, Energy Forms, to finalise site selection and gain planning approval for a 10MW solar farm</p> <ul style="list-style-type: none"> <li>• Bushfire Risk Assessment</li> <li>• Heritage Assessment</li> <li>• Ecological Assessment</li> <li>• Cultural Heritage Assessment</li> <li>• Energy Forms delivers site assessment</li> <li>• RN announces solar farm site</li> </ul>
	Energy Forms delivers site assessment.
	RN announces solar farm site.
	Network connection studies are completed. A <i>steady state study</i> assesses the existing state of the power distribution and how the lines work in the area specific to Newstead. A <i>dynamic modelling study</i> assesses how local power lines would handle any contingencies once the farm is connected.
	Lots of problem solving to respond to issues and obstacles as they arose!
	Project is modified in response to planning assessments, neighbours' input and connection studies. Farm size is reduced from 10MW to 5MW and then to 3MW with a 5MW Battery Energy Storage System (BESS).
	Final plan announced.
2020	EOI and tender process to find a construction and retail partner.
2021	Flow Power confirmed as project partner.
	RN holds community updates.
2022	Official project launch at the solar farm site.
2023	Construction starts.
2024	Solar farm is connected to the grid and customer offer is launched.
2024	Newstead achieves goal of generating 100% renewable energy!

# Reflections on a community renewable energy project

Renewable Newstead has reflected on its achievements, challenges and what it takes to make complex community projects work. They share some of what they've learned.

## Achievements

Securing funding and government support, first for the business case, and then to implement the solar farm

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Establishing industry relationships to support the project

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Maintaining our community's support and social licence to act on their behalf

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Delivering a project that benefits the community and aligns with their values

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Demonstrating what is possible in community energy

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Maintaining friendships among the volunteers who steered the project over 15 years

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*Making inroads into government and into Powercor have been really big achievements.*

Genevieve Barlow, Renewable Newstead

*The story of Renewable Newstead shows the value of teamwork, persistence and staying true to a set of core guiding principles ... community energy is not a 'magic pudding', it has taken creativity, hard work and trust to deliver a positive outcome for our community.*

Geoff Park, Renewable Newstead



*“There is lots of determination, doggedness, persistence, and never giving up in our team”.*

Genevieve Barlow, Renewable Newstead

*“This is something I’ve noticed with community groups. There are so many boxes to tick, and large corporations and industry have the resources to do that all at once, whereas community groups can only do one at a time, so instead of a 2-year planning period it can take 5 or 6 years and that’s a lot to ask of a small group to deliver something like this.”*

a DEECA spokesperson



*“The complexity in that (energy distribution) space is like a foreign country, and even if you go and try to understand it, you can’t.”*

Geoff Park, Renewable Newstead

## Challenges

There were many challenges to work through along the way. These are the things that tested Renewable Newstead’s resolve the most.

### The length of project

It’s fair to say the project took longer than anticipated – 15 years! This was a challenge for the volunteers who have jobs, businesses and families. Staying motivated and committed to the project over time was not always easy.

Working at the pace of a community driven project also challenged government and industry partners such as Powercor, who typically work on projects with the resources and budget that allow them to move quickly. They needed to be flexible and adjust their ways of working to accommodate.

Shifts in policy and technology, which are inevitable over time, also created challenges for the project. For instance, no-one was considering renewable energy batteries when the project commenced, and Powercor only began developing their solution to batteries in 2020. There was a need to constantly adjust the parameters of the project to align with the current environment.

### The planning process

The sheer amount of work in the planning process is a major, but not insurmountable, hurdle for volunteer community groups.

Potential ‘BBQ stoppers’ included planning approval conditions which mandated costly road upgrades that were not financially feasible under the project grant which could have derailed or severely disrupted the project.

### Navigating the energy industry

The complexity and opacity of the energy industry challenged the project and caused several significant budget shocks.

For instance, connection studies needed to be contracted from Powercor. Initially an indicative \$50,000 to \$60,000 was set aside for these. They ultimately cost \$250,000, on top of a \$450,000 connection fee.

The discovery during the connection approval process that connecting the solar farm to the Castlemaine substation would require a multi-million-dollar upgrade came as a huge shock. There was no way for the Renewable Newstead team to have foreseen this issue and it could have meant the end of the project had Powercor not agreed to step in with an alternative, more financially feasible solution.

## Negotiating the retail offer

At the beginning of the project, Renewable Newstead and their stakeholder partners had ambitions that a local solar farm would be able to offer residents low-cost renewable energy, and their aim was to develop a retail price below the VDO. Initially they worked with Powercor to come up with a special tariff that would reduce the distribution cost and lower energy bills, however the opportunity to trial this tariff – which would involve partnering with a retailer willing to adopt the special tariff – didn't eventuate and it was abandoned in 2021.

The partnership with Flow Power as the energy generator and retailer set a new framework for negotiating the pricing structure for the Newstead Community Energy Project. At the time of partnering with Renewable Newstead, Flow Power was relatively new in the residential space, having primarily operated in the commercial sector. This presented challenges for pricing electricity (known as creating a retail offer) to attract Newstead energy users as customers because pricing structures designed for the commercial sector which uses energy primarily during business hours do not necessarily suit households who tend to use energy in the evenings and early morning.

Over the course of these negotiations, Renewable Newstead have needed to adjust their expectations of what could be achieved in the retail offer, while always remaining focused on the core principles of the project and the needs and wishes of their community. Renewable Newstead worked with Flow Power to offer feedback on its proposed energy retail offer and through this process – while it has been challenging – there have been valuable lessons for each side.

*Because Renewable Newstead is so engaged and knowledgeable, they are a great partner to talk through and work out how to take the commercial model to a residential market. We don't have the lessons yet, but we're working with the group to understand the market.*

Jacob Mahoney, Chief Revenue Officer, Flow Power

## Competing renewable energy initiatives

To support their community-based project, Renewable Newstead was keen to build a strong local customer base of residents, businesses, and local government. Because they had committed to buy energy through the Victorian Energy Collaboration (VECO), the local government, Mount Alexander Shire Council, had limited capacity to support the local energy project as a consumer. Under the VECO, councils commit to pooling their energy purchases – for powering local infrastructure such as town halls, sporting grounds, and community venues – into one long-term contract with a single energy provider. This energy is mostly sourced from large-scale wind farms outside the local government area.

## Tips for community groups undertaking a community energy project

For other communities looking to take on their own community energy project, these are Renewable Newstead's seven key ingredients for success.

### 1. Gather the right people for the task

Community projects of this scale are complex and require committed and capable people with a diversity of experience. The Renewable Newstead team drew together years of experience in business, government, environmental management, community volunteerism, communications, and public policy. Your team doesn't need to agree on everything, differences of opinion can be a strength, but gather people who can work together with trust and respect and who have a deep commitment to seeing the project through.



*Their ability to communicate with government departments, with myself, to reach out, to know the right people to talk to for support, was crucial. People like Geoff, and Gen and Don and others have the experience to understand government processes, budget cycles, and who to speak to. They had the capability and the skills required.*

Maree Edwards, MP

### 2. Be willing to seek expertise when needed

Identify the gaps in knowledge and expertise in your team and seek them elsewhere. When Renewable Newstead began it had little understanding of the energy industry. Renewable energy consultant Tosh Szatow brought valuable expertise in this area. Seek knowledge and experience wherever you can, including asking others who've done similar projects for their guidance.



*Tosh could see the outcome we were striving for and we realised that he had a set of skills that we could never even hope to acquire that would help us achieve that outcome.*

Geoff Park, Renewable Newstead

### 3. Engage your community.

Seek and gain social licence from your community. Consult and communicate broadly to determine what your community needs, to explore options with them, and to define the project. Renewable Newstead found using small surveys, town meetings and street conversations useful. Plan with your community how you'll communicate with them, when you'll do this and what you'll share. Agreeing on these expectations, and meeting your commitments, goes a long way to keeping the community on board. And importantly, secure community benefits from your major partners including getting the pricing right and setting up grant programs for community groups.

### 4. Do the work (including research, milestones, communication)

There's no getting around the fact that there's a lot of work in a community energy project. Commit to action and have a plan for getting things done – who will do this work and when. Some of the important tasks you'll need to undertake include;

Doing the research, including assessing the feasibility of different generation options and community energy models

Lobbying for funding

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Managing finances and reporting

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Getting a planning permit

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Finding land and working with the landowner

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Establishing and managing relationships in the energy industry

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Communications – with your community, your partners and stakeholders and other interested parties

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*“These things can't happen unless the community supports them.”*

Jane Lean, Renewable Newstead



*“The capacity for work, to put in, has been quite extraordinary”.*

Genevieve Barlow, Renewable Newstead



## **5. Build and maintain strong stakeholder relationships:**

Be clear about the funding you need for your project and lobby like mad for it, including talking to government, philanthropists, or other values-aligned investors. Once you have it, maintain that support throughout the project by setting up arrangements for keeping your funder updated, engaged, and informed, managing their expectations by flagging issues early and as soon as possible. If the project is government funded, appoint someone to manage and assemble milestone reports.

Engage early with other key partners such as Traditional Owners and power companies managing your local network. Working with the energy industry and other large stakeholders can be challenging and, for our project, government played an important role in helping bring stakeholders to the table, using existing relationships with energy industry partners to facilitate problem-solving and decision-making.

Keep your local council informed and engaged in your project.

## **6. Be willing to compromise but know what is non-negotiable**

Some compromises are bigger than others. Readjusting environmental or social ambitions to fit with commercial realities was a big part of the process for the RN team.

The ability to do this, to adapt and keep progressing while staying true to the project's core principles, has been a defining feature of the project's success and is a model for community groups, industry and government to work together toward common goals.

## **7. Be in it for the long haul**

Community energy projects are long and complex. For the Renewable Newstead project, the site selection, planning, and approvals process alone took four years with lots of obstacles to overcome. If you're setting out, expect the project to take at least five years. Plan for how you will manage this. For instance, Renewable Newstead agreed to meet only as necessary to achieve the project milestones, and to be flexible with when and how they engaged. It's also important to be forward thinking. When the project is established, what then? How will it continue to be managed in the long term to ensure sustainability and ongoing alignment with the values of your community.

## Tips for government supporting community energy projects

Government funding and support was crucial for the project, and Renewable Newstead strongly encourage government to continue to support community energy projects. Here are some important lessons Renewable Newstead and its state government partners learned along the way.

### 1. Understand the needs, values, goals and capabilities of the community

This involves listening closely to what the community says they want from the project, why they are undertaking it, and what it needs to do for the community. If the community group leading the project has consulted well, they will be able to represent their community's interests. Also understand what level of expertise the community can bring to the project – do they bring experience in technical aspects, policy, business, planning and council processes, project management or communications, or will they need to seek this expertise. How well resourced is the community? Identify where government can step in to support the project.

### 2. Appoint staff willing to work with small community groups

It's important to appoint staff who will be invested in the project and have the capacity to establish solid relationships and trust with the community group. This involves taking the group's suggestions seriously and working genuinely with them. Staff should also have an understanding that community projects led by volunteers take time, tending to move more slowly than government and industry led projects. Be patient.

### 3. Be prepared for challenges

With so much to do, particularly in the planning phase, limited time and resources were challenging for the project and could have derailed progress. Be willing to offer practical support in terms of time and personnel resources to help community groups to move through project hurdles and be ready to work with all stakeholders to resolve challenges as they arise.

### 4. Expect market conditions to impact on timelines and accommodate this

Obstacles along the way impact on project parameters, costs, and timelines. These include changes in technical or planning requirements, supply of materials, partnership relationships and global pandemics! Community groups have less capacity to buffer against these challenges but can still achieve success with flexible, supportive partners with whom trusting and transparent relationships are built and honoured.

*“When we began, there was no planning permit, no clear pathway with the distributor or retail partner and it was just the start of community consultation. There were lots of challenges ahead.”*  
a DEECA spokesperson



# Conclusion

This report has been prepared by Renewable Newstead to share their experience in delivering a community-led, commercially viable renewable energy project. It is hoped that others interested in locally-generated renewable energy solutions – government and policymakers, energy regulators and retailers, citizens and communities – will find value in the insights the report provides.

Newstead's goal of 100% renewable locally generated energy was big, but it was matched by enormous passion and commitment to see it through.

While there is work to be done within policy, regulatory and commercial arrangements to realise all the benefits of locally generated renewable energy, the Newstead Energy Project demonstrates what communities, working collaboratively with government and industry, can achieve.

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