Renewable Newstead:
Business Case for 100% Renewable Energy Master Plan

Produced by Energy for the People

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Executive Summary

The township of Newstead in central Victoria is seeking to transition to 100 percent, locally generated renewable energy. Community energy group Newstead 2021 is managing the project and received a $200,000 grant from the Victorian Government for the development of a Business Case and Master Plan for the delivery of their goal. Newstead 2021 engaged consultants Energy for the People to deliver the Business Case and Master Plan.

Over an 18-month period, Newstead 2021 and Energy for the People have undertaken extensive stakeholder engagement, desktop research and modelling. The outcomes from community engagement found that the Newstead community had three main requirements of the project; to transition to 100 per cent renewable energy; to reduce energy bills and to "do no harm".

The options developed and analysed by Energy for the People show that, while challenging, it is possible to achieve these goals, subject to successfully delivering three key outcomes:

- securing finance and offtake agreement for the construction of at least a 2 MW solar photovoltaic (PV) farm; and
- leveraging a trial distribution network tariff, made available by distribution business, Powercor to Newstead customers, which lowers the effective c/kWh supply rate. This includes an extension of the trial network tariff from two-to-five years (which will occur if 50% of Newstead residents take up the trial), and then an additional five-year extension (allowing sufficient time for the solar farm investment to be recouped) will increase the viability of the project significantly; and
- the willingness and ability for a retailer to sign up and secure long-term customers in Newstead, ensuring the output of the 2 MW solar farm is consumed locally, and thereby the value of the investment made by the retailer is maximised

Broader project risks are primarily caused by policy uncertainty, with the future price of clean energy generation being highly contested, making it difficult to agree on terms for a long-term offtake arrangement for a renewable energy asset of this size, in this location. For example, a solar farm developer will naturally seek a high long-term offtake price that includes a premium for green energy, while an offtake partner will naturally be cautious about the implications of future policy changes that may devalue green energy generation, as well as the potential that day time energy prices decrease in the medium term, as penetration of solar energy increases over time.

In order to address the issues outlined above, at least one of the following three mechanisms will be necessary:

- Structuring ten-year supply contracts with Newstead customers, including an extension of the network tariff trial to ten years, to give solar finance and retail partners confidence in long term customer demand for solar energy; or

- Securing Government, philanthropic, or impact investment funding support for the solar farm - we estimate approximately 30% of the all-in development and construction cost is needed at zero cost, being either a grant or donation, or a zero-interest loan; or
- Securing Government, philanthropic, or impact investment funding support for battery storage - batteries enhance the financial viability of the solar farm and help to de-risk investment, but are not viable on a commercial basis for this project. We estimate a total of approximately 2 MWh storage is needed, with 50% of battery costs is needed at zero cost, being either a grant or donation, or a zero-interest loan;

Should the project proceed, the proposed model will be able to supply 100% renewable energy to Newstead customers. Under the proposed model domestic customer bills are forecast to decrease by a minimum of 10% and up to a maximum of 30%+.

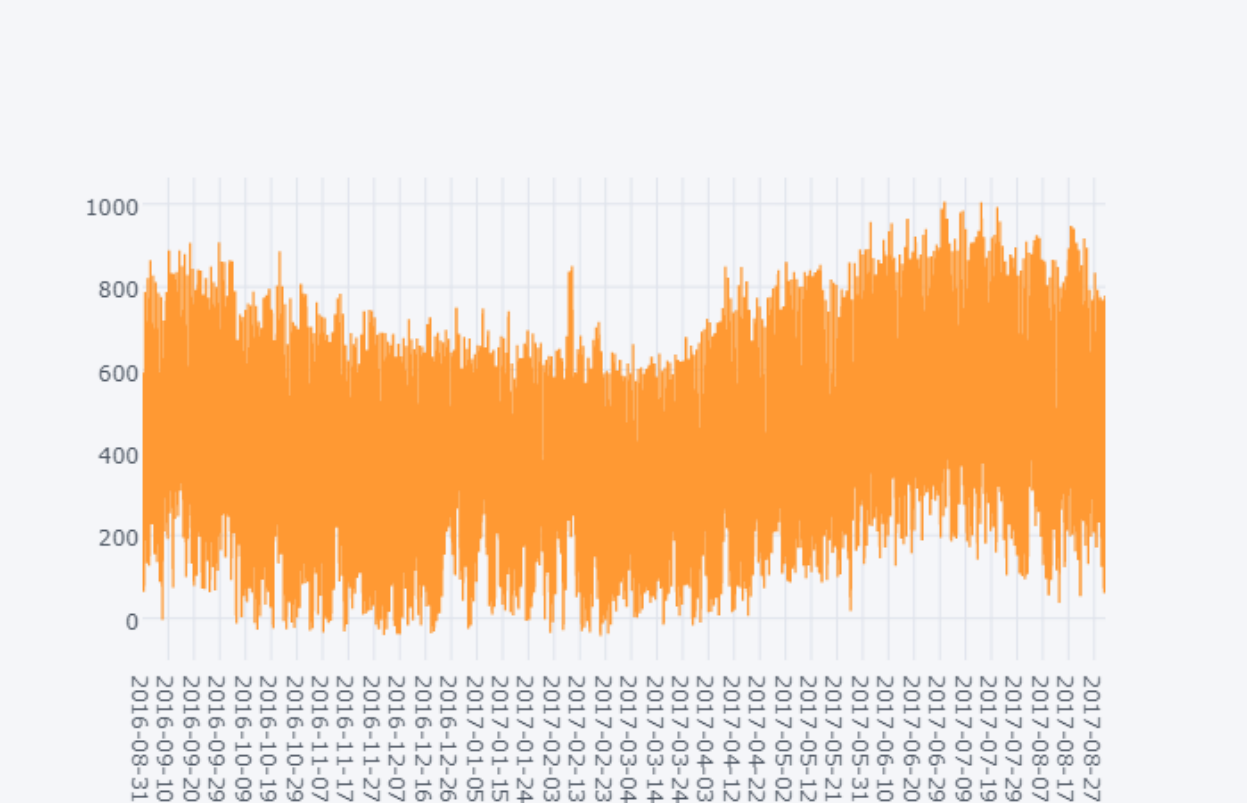
Consultation with energy market participants has demonstrated that the best way to align investment risk and reward in the project is for a retailer to finance and operate a local renewable energy asset in Newstead. For this reason, Energy for the People has recommended that Newstead 2021 partner with a retailer, exclusively, to develop the solar farm, with the retailer owning and operating the solar farm and thereby internalising key commercial risks and rewards. While this does not completely de-risk the investment (at least one of the three mechanisms outlined above remain necessary), it has the benefit of mitigating the potential for a long, or ultimately intractable risk sharing negotiation between a retailer and solar farm owner/operator, and allows the project to proceed on a more streamlined trajectory. It also gives the single retail partner greater flexibility in how they structure the project and adapt to changing market conditions over time, because they will be unencumbered by third party obligations around the solar farm asset(s).

Newstead 2021 accepts the recommendation to partner with a single retailer, and is proceeding on that basis.

Newstead in Context

For the purposes of this project, Newstead is considered to have a population of approximately 500 residential National Metering Identifiers (NMI's), and a geographic boundary defined by the Newstead post code.

The electricity consumption of Newstead has been assessed in aggregate using anonymous smart meter data provided by distribution network business, Powercor. Annual demand is 2838MWh, and the load profile has a winter bias which is typical for the climate zone, reflecting approximately 85% of thermal energy demand being for winter heating, and 15% being for summer cooling. There is also an evening spike in demand due to customers running off peak hot water systems. This load profile is presented below for a full year, with the y-axis in kW.



Approximately 60% of demand occurs at peak times, defined as 7am-11pm on weekdays, and 40% at off peak times. No forecast of electricity demand growth has been made, other than acknowledging it will occur, and that any renewable energy solution for Newstead will need to have capacity to expand over time to accommodate demand growth.

The total rooftop solar PV installed as at June 2016, the time of energy load assessment, was 237 kW, supplying with approximately 51% of energy generated by those systems exported to the grid, and 49% consumed directly by those solar customers. These rooftop solar assets are supplying approximately 11% of Newstead energy demand. Advice provided by Powercor suggests that at approximately 500 kW of installed rooftop solar capacity, network upgrades may be required and/or solar installations may require export limiting.

These network limits, combined with small-scale solar farms now having a lower installed cost/kW than rooftop solar[1] mean that Newstead has focused on a front of meter solar farm, over rooftop solar, as a preferred renewable energy solution. It is expected that rooftop solar installations are likely to continue to grow, but no forecast of this was made as it has an immaterial impact on the preferred business model option for delivering the project goal.

[1] rooftop solar systems are typically installed for between $1200-$1800/kW, after small-scale technology certificates (STC) rebates, whereas a 2 MW solar farm can be installed for less than $1200/kW without any STC rebates. The value of STC rebates are typically 30% of total installed cost for residential rooftop systems

It is recognised that fuel switching from diesel, petrol, gas; or wood burning appliances to electric appliances will increase electricity demand, however no forecast of this has been made as any forecast would be speculative in nature, and unlikely to have a material impact on the preferred business model option. However, case studies have been developed and assessed to highlight the value of fuel switching, as part of the transition to 100% renewable energy.

It is also recognised that energy efficiency solutions and battery storage will be implemented alongside renewable energy solutions. The impact of this on electricity demand has not been modelled, however, case studies have been developed and assessed to highlight the value of energy efficiency and battery storage, as part of the transition to 100% renewable energy.

Given the above parameters, the project has focused on defining a preferred solution for supply of at least 2800 MWh of renewable energy per annum, equivalent to the current annual energy demand of Newstead residents, that includes the capacity to grow that supply over time in response to changing energy demand. It has also worked on defining a local energy service that can help customers take advantage of fuel switching, battery storage and energy efficiency solutions where they can enhance the value proposition for renewable energy supply.

Statement of purpose

This document is produced for Newstead 2021 and relevant stakeholders. It is designed to:

- show the decision-making pathway, options assessed and associated, considerations and assumptions made to arrive at the recommended option;
- discuss the limitations and challenges of the recommended option; and
- enable all stakeholders to understand, and agree on, the recommended business model and assumptions underpinning it, for delivering the goals for the project which are articulated below.

This report recommends a business model option for delivering the project, including:

- Forecast capital and operational costs in a cash-flow model, including assumptions of customer uptake and customer price-points achieved;
- Technical and funding requirements for implementation, including an overview of options for raising capital;
- High-level governance and risk management plan;
- Proposed tariff structure, including agreements from Powercor that confirm network tariff structures;
- High-level implementation and roll-out timeframes and milestones; and
- Roles and responsibilities of key project stakeholders.

Problem statement and project vision

The key problem Newstead 2021 is aiming to address, concerns how to transition Newstead to 100% renewable energy supply, by ensuring all community members can participate and benefit.

Newstead 2021 is aiming to address this problem out of two, equally important concerns. The first is for the environment and climate change, caused by burning fossil fuels to generate electricity. The second is out of concern for the potential that rooftop solar has to create winners and losers in the Newstead community - specifically, people that can afford solar panels and have suitable roof space can benefit, while those who don't face increasing power bills caused by shifting distribution network costs from solar customers, to non-solar customers.

Specific goals of the project are:

- *Enhance the social and economic life of the community:* this is a broad goal and aspiration to enhance the reputation of Newstead as a community, to create local employment where possible and to ensure the project strengthens community relationships;
- *Do no harm:* ensure any enterprise involved in delivering the project will meet best practice policies for managing consumer protections, including payment difficulties and hardship, and dispute resolution provisions offered by the market. No one in Newstead will be forced to participate in the solution - it will have to be appealing enough to energy customers, to encourage voluntary opt-in. No one should be worse off due to the project proceeding;
- *Eliminate emissions from energy supply:* It is recognised this will occur in a phased way, progressively increasing the share of renewables over time before, ideally, reaching 100% renewable energy supply, recognising this will need to be a community-wide solution, based on people opting in. The aim includes an ambition to eliminate emissions from transport energy over time.

Option Development, Assessment and Recommendation

In developing and assessing options for delivering the project, historical research and activities undertaken by Newstead 2021 was considered and built upon. The options development and assessment process was structured around three key considerations:

1) *Technology choice:* what is the best, currently available technology option, for delivering the project goals, considering capital and operating costs, as well as adaptability to future market trends and availability of local renewable fuel sources;
2) *Commercial viability:* what commercial model best enables the project goals, considering all costs, risks and benefits of the project;
3) *Retailing model:* which retailing model enables the sharing of project costs, risks and benefits, in a way that best satisfies the project goals.

Technology Considerations

The following section outlines key technology considerations in delivering the project goal, and Energy for the People's recommended technology option.

Assumptions, data inputs and constraints

Table 1 below summarises key variables, assumptions, data inputs and constraints considered, when assessing technology options for delivering the project goal.

Table 1: Summary of key variables, assumptions, data inputs and constraints.

Variable	**Assumptions, Data Inputs and Constraints**
Energy demand	Network data provided by Powercor shows Newstead residents use 2830 MWh electricity per annum, with a winter and evening load bias. Newstead 2021 has an ambition to supply the equivalent of 100% of annual electricity demand, from local renewable energy asset(s). Bottled gas and wood fuel is also used for cooking and heating but reliable estimates for gas and wood fuel use are not available. Newstead 2021 recognises that fuel switching from gas or wood to electricity will be an incremental process, and is not considered essential to achieving the project goal in the short term. Powercor has advised there is scope to install up to 10 MW of energy generation capacity in the local distribution network, however limitations on transformer capacity within the Newstead township mean that network upgrade costs would be incurred if rooftop solar capacity exceeded approximately 500 kW.
Fuel availability	Historical studies conducted for Newstead 2021 show limited, low quality wind and bioenergy resources in and around Newstead, with wind speeds typically averaging 6 m/s and the main form of bioenergy being crop waste, which has a relative low energy value and has a high cost to collect and transport. Solar irradiance is approximately 4.4 kWh per sqm for north facing panels at 27^0 tilt.
Capex / operating expenditure profile	Due to low quality fuel resources, wind and bioenergy have high capex requirements, relative to solar. Solar also has lower, easier to predict opex characteristics, being a simpler technology type with less moving parts, and more predictable fuel supply - i.e. annual solar irradiance levels are more stable and predictable than local wind resources or bioenergy resources.
Future proofing	Future demand for batteries and electric vehicles, as well as changing electricity market characteristics, may influence the viability of technology choice into the future. Technology choice must be compatible with future market trends, meaning it must scale up and down in capacity/output for a low incremental cost, and incorporate energy storage.

Options Considered

Based on the information included in Table 1, Table 2 below summarises the generation options considered for renewable energy supply, based on meeting the demand of 2830 MWh per annum.

Table 2: Generation options considered

Option	Capex (ex. grid connection)[2]	O&M budget plus fuel cost	Simple levelised cost of energy	Adaptability
Front of Meter Solar Farm	2 MW ~ $2.4m	2.5% with zero fuel cost	6.3c/kWh - lowest capex and operating expenditure gives lowest cost of energy	Highest - can be designed as portable / relocatable, scaled up to accommodate load growth, and accommodate future battery storage.
Rooftop Solar	2 MW ~ $3m including STC rebates, $4m excluding STC rebates	2.5% with zero fuel cost	8c/kWh - highest capex and lowest operating expenditure gives reasonable cost of energy	High - can be easily scaled up to accommodate load growth and retrofitted with storage. However, as is shown in the capex column, is more expensive than a front of meter installation.
Wind	1.2 MW ~ $3.3m	3% with zero fuel cost	9.3c/kWh - high capex and low wind speed gives high cost of energy	Lowest - difficult to scale up or down - lumpy capital increments. Can accommodate future battery storage
Bioenergy	Highly variable based on capacity and biofuel type	Highly variable based on capacity and biofuel type	Biomass-based generation starts at 12c/kWh - likely highest cost of energy supply	Medium - can be designed to be dispatchable - generating at times of high demand. Can accommodate future battery storage

Price data has been gathered from market participants where possible (i.e. verbal or written quotes) and publicly available research data. It was collected in 2017.

Technology Recommendation

Based on the technology considerations and assessment, Energy for the People recommend that Newstead proceed with developing a 2 MW, front of meter solar farm, as a priority. Rooftop solar can also be developed as an option in combination with the solar farm, focusing on rooftop locations that gives the lowest installed cost - rooftops with unimpeded, north facing space greater than 100 sqm (greater than 10 kW capacity can be installed). If additional project adaptability is required, a portable, modular solar farm can be designed and installed.

[2] Grid connection costs are excluded as this table simply focuses on comparing generation technology options. However, we note that if they were included here, it is likely that they would further support the front of meter solar farm as the preferred option.

Site Selection

Newstead 2021 has consulted with a range of local landholders, with a view to gauging interest in hosting a 2 MW solar farm, with scope to increase the size of the farm towards 10 MW - the upper size being guided by Powercor feedback on the capacity of the local network, as additional network connection costs beyond that size is likely to erode any advantage from economies of scale.

A range of land options have been identified, that meet the following criteria:

- Flat, or gently sloping land falling to the north;
- Cleared land that is not exposed to bush fire risk;
- Close proximity to local distribution network assets;
- Of low agricultural or other value;
- Available on long term lease on rates that can be accommodated by solar farm economics; and
- Land of at least three hectares, and up to fifteen hectares in size.

At least three parcels of land have been identified as prospective locations, giving Newstead 2021 confidence that suitable land is available for the project.

During the next phase of project development, Newstead 2021 intends to run an open EOI process to confirm interest from local landholders before proceeding further with negotiations.

Financing Considerations

Various financing models were considered and assessed for the project, with a view to ensuring the long-term risks to Newstead customers would be minimised, while also ensuring a share of benefits are returned to Newstead customers.

Four types of capital were considered in the assessment of financial options for the implementation of the project. They include:

- *Secured debt:* is typically the lowest cost form of capital, with debt secured against an appreciating asset, which in turn drives down finance risk and hence lowers the cost of capital.
- *Unsecured debt:* debt finance provided for solar assets is typically closer in nature to unsecured finance, with the underlying asset (solar panels) depreciating in value over time - unsecured finance typically has a higher cost, to compensate for the risk that should repayments cease, the finance provider will be left with security over a depreciating asset.
- *Equity investment:* can also be used for solar assets, for example community-based investment. Equity investment is typically appropriate when the source of capital is happy to take on additional risk, in exchange for additional reward, and is appropriate when the investor is confident that the value of the asset will be higher than expected.
- *Blended finance:* can also be structured, for example a mix of debt and equity. Leveraging equity in this way exposes the investor to greater upside, and downside risk, if the value of the asset is higher or lower than expected respectively.

Of these four types of capital, unsecured debt is most likely to be suitable for the Newstead project, as it can be structured with lower cost than equity, and secured debt is not possible given there is no property asset to secure the debt against.

Consultation with solar companies, retailers and financial institutions (banks, fund managers) suggests that project finance is likely to cost at least 6% over 15-years. This is equivalent to an internal rate of return of approximately 9.5% over 15 years. The implication of this for the project is that for the solar farm to be viable, a 15-year offtake term sheet needs to offer sufficiently high price for energy generated, to provide an internal rate of return of 9.5% on the 2 MW capital investment.

Energy for the People's consultation with finance providers suggests that if the project were to be funded by a third party, such as a bank or solar company, it is likely that they would require higher than market rates for a power purchase agreement / offtake agreement with a retailer, to compensate for project risk, and that these higher than market rates would make the project unviable for a partner retailer.

Consultation with Newstead 2021, solar companies, retailers and financial institutions (banks, fund managers) reveals a relatively risk averse approach to renewable energy investment, driven in part by policy uncertainty at the Federal Government level. Specifically, there is uncertainty as to the future value of green energy credits for renewable energy generation - currently 'large generation certificates (LGCs) - which are paid to renewable energy generation assets, by retailers, to meet their retail obligations under law.

Financing Recommendation

In order to minimise finance costs, and maximise the probability of securing project finance, Energy for the People made two capital finance recommendations. To partner with a retailer to develop the 2 MW solar farm exclusively and to seek additional (grant, philanthropic or other) funding which would help secure project finance and / or project partners.

Partnering with a retailer to develop the solar farm ensures that any risk to the retailer involved with financing the project, is balanced by the prospect of winning and retaining long-term Newstead customers and improved brand value.

These recommendations align with the expressed preference of Newstead 2021 to avoid investing local capital in the project, as a means of insulating the community from investment risk, and in line with its "do no harm" principle.

Retailing Considerations

Retailing model options range from partnering with a single retailer, through to establishing a community owned retailer, with options in between such as using white label retail software[3] backed by a retail partner. These options influence the viability of the project including how risk and reward is shared across project stakeholders, and are considered below.

For a number of reasons establishing a community owned retailer was ruled out for this project. Reasons include:

- Customer numbers and energy demand are the key determinants of the addressable market size for a retailer. With Newstead having approximately 500 residential meters, and residential energy demand being approximately 75% of Newstead's energy demand, the size of the Newstead market is small. Based on a retailer having a gross margin of approximately $200 per customer per annum, it is estimated that at least 2,500, and ideally more than 5,000 residential customers would be necessary before a new retailer becomes financially sustainable and cash flow positive.
- Consultation with the Victorian Essential Services Commission confirmed that securing an exemption from requiring a retail licence would be a difficult process, and any exemption would be likely to come with responsibilities that largely match those of a licenced energy retailer, leading to high compliance costs.
- Engagement with six prospective retail partners showed a strong appetite for project partnerships. Each retailer consulted for the project had varying preferences for how partnerships would be structured, entailing varying levels of adaptability, to accommodate the community's interest

This left options around partnering exclusively with a retailer and partnering with a white label retailer. When considering retail and white label partnerships, Newstead 2021 has the following preferences:

- brand credibility - the partner must have a brand, and track record, that supports renewable energy and community/consumer interests
- tariff flexibility - the partner must be willing and able to adapt its tariff offering to accommodate the Newstead tariff trial with Powercor
- tariff and billing simplicity - the partner must offer a simple to use, and simple to understand tariff, and billing interface, to ensure broad appeal with Newstead customers.

Importantly, a white label service provider, would need to be partnered with a licensed retailer, to ensure all regulatory obligations to customers and the market can be met.

Energy for the People note that Newstead 2021 can play a valuable role for a partner retailer and local consumers, in helping to raise awareness, build trust and sign up customers, and in setting up valuable complementary services with local partners, such as energy efficiency and fuel switching.

[3] a white label software platform would enable Newstead 2021 to generate its own brand, and manage "front end" retail functions like customer sign ups, and day to day communication with customers. Back end functions like market settlement processes would be handled by a licensed retailer.

Retailing Recommendation

Based on the small market size for Newstead, and the relatively high barriers for establishing a community owned retailer, Energy for the People recommend Newstead 2021 establish a partnership with a single retailer that can accommodate the project requirements, or pursue a partnership with a white label retail service provider, that can meet all necessary retail licensing requirements.

Integrated Option Assessment

When technology, financing and retail factors are considered concurrently, it is recommended to prioritise an exclusive partnership with a retailer, over a white label agreement. This is because in this scenario the retailer can finance and operate a 2 MW solar farm, and retail energy locally on terms that accommodate the project goals. A white label agreement would not deliver this outcome.

Under the recommended approach, an established retail business takes on investment risk in the solar farm, insulating the community from potential financial downside. The retail partner is compensated for this risk, by being offered an exclusive partnership which increases the potential for signing up and retaining customers in the long run.

Should these benefits not be sufficient to compensate the retailer for the project risk, complementary finance may be necessary, and can be pursued from Government, philanthropic organisations, or impact investors - this is explored further in the complementary measures section below.

Complementary Measures

A range of measures, complementary to the core solution outlined above, can be pursued by Newstead 2021 to enhance project viability. These measures cannot be relied upon solely to make the project viable.

Funding – government/impact investment/philanthropic

In order to lower the cost of finance for the solar farm, funding support can be pursued from Government, impact investors and/or philanthropic organisations.

Victorian Government funding for community renewable energy projects exists through the New Energy Jobs Fund and is available on a competitive basis. There may also be other Victorian or Federal government funding that the Newstead 2021 project would be eligible for. Impact investors and philanthropic organisations may also be willing to provide no, or low-cost finance, to help deliver the project. These organisations will need to see compelling environmental and/or social benefits delivered by the project.

Pursuing these funding opportunities provides a way of mitigating investment risk and improving the project's probability of success.

Energy efficiency and fuel switching

Energy efficiency and fuel switching services can help maximise the value of the trial distribution network tariff offered by Powercor, and to help grow demand for local renewable energy. For example, solutions may include switching from wood to efficient split system air conditioners for space heating, or switching to electric heat pumps operated during the daytime to coincide with solar farm output.

Additional work is required to determine how best to deliver energy efficiency services locally. However, we note a prominent, local business in Newstead is already providing energy efficiency and fuel switching solutions including insulation, heat pumps (hot water), and draught sealing products. Newstead 2021 has begun a dialogue with this local business and will work towards structuring an effective partnership to help deliver the project goals.

Battery Storage and load shifting

Matching energy demand to solar farm output enhances the value of the solar farm. This occurs because a retailer that sells the solar farm output to local customers (i.e. the energy is consumed locally at the same time it is generated locally) will not pay transmission fees on that energy consumed. Energy that is exported beyond Newstead, and not consumed by other retail customers within that same distribution node, will incur transmission fees.

For these reasons, installing battery storage of shifting energy load into the daytime, for example running electric hot water heaters during the daytime instead of overnight, can be considered complementary to the proposed solar farm investment.

Where battery storage is deployed behind the meter, the $2/kW/month network capacity charge can also be mitigated, while also providing useful backup power supply to customers.

For this reason, we recommend Newstead 2021 pursue the deployment of battery storage, as a way of de-risking third party investment, including risk associated with the network tariff trial. This may be facilitated via funding support.

To complement a 2 MW solar farm, we recommend up to 2 MWh of battery storage based on providing the optimal cost and payback outcomes - any larger than 2 MWh is likely to increase the payback time due to underutilisation.

Preferred Model

Based on the Integrated Option Assessment above, it is recommended Newstead 2021 pursue an exclusive partnership with a single retailer, who can finance and operate a solar farm in Newstead and retail energy locally. The partner retailer would develop one or more tariff offers, taking advantage of the distribution network tariff trial, and structuring a tariff to reward daytime energy consumption - this will encourage load shifting and so maximise the value of the solar farm.

Rooftop solar can also be deployed by the partner retailer on a case by case basis as a means of mitigating risk caused by the network tariff trial (rooftop solar assets would not be devalued in the vent the tariff trial ends). Rooftop solar may also offer additional value to customers, in combination with battery storage, as it could help extend power supply during blackouts.

Newstead 2021 will play an important role in raising awareness in the Newstead community, educating residents on the new tariff offer, and may play a role in signing customers up to the new retail offer in return for a sign-up fee - this will be negotiated with a partner retailer. Newstead 2021 can also work with a partner service provider to offer fuel switching and energy efficiency services that align to the project goals.

Forecast project cash flow and customer uptake

For full details of the project cash flow can be accessed using the following link to a shared file: <https://docs.google.com/spreadsheets/d/1YVuEXL297BABgATUJMNEIg8kj-jSH-xUweijnoG6LEI/edit?usp=sharing>. We note the file is available on a "view only" basis. To edit the file, please save a copy of the file to your computer first, or contact the lead author of this report.

The following tables show a summary of key figures for the proposed 2 MW solar farm as owned by a retail partner. All-in development costs are assumed to be just under $2.7m, with a 15-year offtake agreement, in line with market forecasts for wholesale energy prices including green energy premiums.

Table 3 summarises key project cash flow outcomes for the retail partner to the Newstead project, noting cash flows from year 5-10, and 10-15, are removed for simplicity of presentation. Costs are based on\e a customer base of 500, with all development and customer sign up costs occurring during a project setup phase (year 0), and revenue from year 1 onwards. The numbers show that the project becomes cash flow positive in year 8?

Table 3: Project cash flow outcomes for the retail partner

Retail partner cash flow								
Year	**0**	**1**	**2**	**3**	**4**	**5**	**10**	**15**
billing engine updates	-$50,000							

develop marketing and sign up collateral	-$20,000							
manage marketing and sign up process	-$75,000							
Total budget before solar farm capex	-$145,000							
Total budget including solar farm capex	-$2,695,000	*415,831*	*394,770*	*378,255*	*359,487*	*346,422*	*321,051*	*303,601*
Aggregate cash flow	-$2,695,000	*-2,279,169*	*-1,884,399*	*-1,506,144*	*-1,146,657*	*-800,235*	*854,959*	*2,407,515*

Table 4 summarises key financial metrics for the partner retailer. These figures show and show that a 15-year internal rate of return of 9.93% is plausible, based on 100% customer sign up and loyalty over that time. This equates to a compounding investment return of just under 6%.

Table 4: Financial metrics for the retail partner

Retailer model financial metrics	IRR	gross cash	Simple ROI
5yr	-10.99%	*$1,894,765.27*	*-5.94%*
10yr	5.62%	*$3,549,959.20*	*3.17%*
15yr	9.93%	*$5,102,514.92*	*5.96%*

Table 5 summarises the cash flow for the solar farm, as an asset owned by the retailer. The table shows the cash flow becomes positive in year 9.

Table 5: Cash flow summary for 2 MW solar farm based on commercial offtake terms

Solar farm cash flow								
Year	*0*	*1*	*2*	*3*	*4*	*5*	*10*	*15*
Average, all in $/MWh price paid for solar output		*$131*	*$128*	*$124*	*$121*	*$118*	*$118*	*$118*
Share of customer loyalty value paid to solar farm		*$60,000*	*$60,000*	*$60,000*	*$60,000*	*$60,000*	*$60,000*	*$60,000*
Council rates		*$15,000*	*$15,000*	*$15,000*	*$15,000*	*$15,000*	*$15,000*	*$15,000*
Opex budget		*-$80,000*	*-$80,000*	*-$80,000*	*-$80,000*	*-$80,000*	*-$80,000*	*-$80,000*
Grid connection study budget	-$50,000							

Environmental studies and development approvals budget	-$100,000							
Site preparation and grid connection cost	-$100,000							
Solar farm build cost	-$2,300,000							
Net Cash flow	-$2,550,000	*$324,250*	*$310,768*	*$297,910*	*$285,648*	*$275,025*	*$258,839*	*$244,438*
Aggregate cash flow	*-$2,550,000*	*-$2,225,750*	*-$1,914,982*	*-$1,617,071*	*-$1,331,423*	*-$1,056,398*	*$267,776*	*$1,518,477*

Table 6 summarises key financial metrics for the solar farm as a stand-alone asset. These figures show and show that a 15-year internal rate of return of 6.86% is plausible, based on commercial offtake rates over that time. This equates to a compounding investment return of just under 4%, which is not sufficient for the solar farm to be viable as a stand-alone asset. This assessment helps underpin the recommendation to partner with a retailer, who can own and operate the solar farm.

Table 6: Solar farm financial metrics

Solar farm financial metrics			
	IRR	gross cash	Simple ROI
5yr	*-15.89%*	*$1,493,601.84*	*-8.29%*
10yr	*1.93%*	*$2,817,776.48*	*1.05%*
15yr	*6.86%*	*$4,068,476.65*	*3.97%*

Indicative tariff structures

To ensure the partner retailer could offer a competitive retail offer, given the forecast cash flow modelled above, a review of market offers to the Newstead postcode was conducted, and modelling was undertaken of potential new tariff structures focusing on residential customers (as the distribution tariff trial has only been made available to residential customers).

The following market offers were considered as price benchmarks to beat, based on a review of Newstead customer's bills and a desktop market research exercise:

- Single rate tariff, standard market rate, no discounting - 27c/kWh, $1.06/day;
- Single rate tariff, best market rate, including discounting - 19c/kWh, $1.06/day;
- Two rate tariff, standard market rate, no discounting - 35c/kWh peak, 13c/kWh off peak, $1.2/day;
- Two rate tariff, best market rate, no discounting - 23c/kWh peak, 9c/kWh off peak, $1.2/day;

It was found that the retail partner to Newstead 2021 should be able to deliver 5-15% energy bill reductions compared to the benchmarked market rates above, and 20-30% discounts compared to standard market rates, while maintaining viability. Discounts for customers that have relatively

high consumption (6000kWh/pa or more) should be easier to achieve, than customer's that have relatively low consumption (3000kWh/pa). This is due to the network tariff structure consisting of largely fixed charges ($1/day), with very low consumption based charges ($0/kWh, $2/kW/month).

It is estimated that the single rate tariffs offered to Newstead customers are likely to be in the range of 17 - 18c/kWh, with combined network charges typically ranging from $420-$520/yr.

The following table summarises customer energy cost outcomes for a range of different energy consumption assumptions.

Table 7: customer energy costs based on energy consumption assumptions.

Retail offer to Newstead customers				
peak demand/month (kW)	*3.00*	*3.50*	*4.00*	*5.00*
peak demand $/month charge	$2	$2	$2	$2
$/day network charge	*$1.00*	*$1.00*	*$1.00*	*$1.00*
Fixed network cost - $/pa	$437.00	$449.00	$461.00	$485.00
Variable before loyalty - $/kWh	*$0.1850*	*$0.1850*	*$0.1850*	*$0.1850*
Variable after loyalty - $/kWh	*$0.1795*	*$0.1795*	*$0.1795*	*$0.1795*
Annual demand (kWh)	*2,500.00*	*3,500.00*	*4,500.00*	*6,000.00*
Whole of bill cost before loyalty discount	$899.42	$1,096.39	$1,293.36	$1,594.81
Whole of bill cost after loyalty	$885.72	$1,077.21	$1,268.70	$1,561.93

Whole of energy bill savings for customers that participate in fuel switching (from gas or wood to electricity) are likely to be significant, as any additional electricity consumption effectively has an energy only charge - additional utilisation of the distribution network has a near zero cost under the new distribution network tariff.

Based on this, we can be confident that the Newstead proposed pricing model is able to supply 100% renewable energy to Newstead customers and:

- At worst, domestic customer bills could decrease by 10%+
- At best, domestic customer bills could decrease by 30%+

It is noted that volume weighted retail prices experienced by customers will naturally vary based on the level of peak, versus off peak consumption, as well as peak demand, customer by customer.

Most importantly, this confirms that it is possible to transition to 100% renewable energy, while reducing energy bills for Newstead customers.

Key Assumptions and financial metrics

Energy and financial modelling suggests the following key assumptions need to hold true, in order to deliver the forecast cash flows as modelled above, and for the project to be viable for a partner retailer, while also reducing bills for Newstead residents relative to business as usual tariffs:

- Installed cost of solar farm less than $1200/kW (assumes no solar tracking, with output starting at 3.75 peak sun hrs per day, degrading at 1%/pa);
- Value of customer sign up is $150, and loyalty/customer retention value is $150/pa to the retail partner;
- Operating costs of $40/kW for the solar farm;
- All in peak price paid to the solar farm of $139/MWh in year one, declining to $125/MWh in year 5, remaining at $125/MWh thereafter;
- All in off peak price of $125/MWh in year one, declining to $100/MWh in year 5, remaining at $100/MWh thereafter;
- 500 residential customers sign up and stay loyal customers for 15 years

All assumptions listed above have been tested and informed in the market, and are valid assumptions to make. Should these assumptions hold true, the following key financial and project outcomes are achieved:

- The solar farm achieves an IRR of 9.9%, or simple ROI of 6% for a retail partner, over 15-years, thereby justifying the investment made by a partner retailer;
- Gross retail margins of 30% are maintained on energy sold – based on research by the Grattan Institute[4] we assume this is sufficient to cover operating costs, while delivering a commercial profit margin - it implies approximately $200 gross margin per customer, before avoided churn costs;
- A single rate retail price starting at 18c/kWh, and declining to below 14.5c/kWh by 2027, is offered to Newstead customers, with declines in price over time reflecting the value of customer loyalty, and a declining price path for energy supply costs. It is noted that while the 2027 price of 14.5c/kWh rate looks very low compared to current prices, wholesale prices are forecast to decline and revert to their long-term average from 2020 onwards. We also note that the network tariff entails a 0c/kWh charge and $1/day fixed charge, meaning that the relatively low 14.5c/kWh is likely to be coupled with relatively high fixed charges in the range of $1.50-$2; and
- Network connection charges of $1/day and $2/kW/month are passed through by the retailer, resulting in energy bills savings of 10-15% for small energy users (3000kWh/pa, and up to 25-30% for large energy users (8000kWh/pa)[5].

Engagement with Newstead 2021 and the local community suggests that savings of this magnitude will be needed to drive towards 100% take up of the offer, and to compete with temporary discounts that are offered in the market by retailers.

[4] Recent research by the Grattan institute suggests that in Victoria, the retailer cost to acquire, serve and hedge on behalf of a customer is approximately $200. With Newstead 2021 expected to play a significant role in customer acquisition and retention, we believe the $200 gross margin per customer is a reasonable assumption for modelling purposes. See Grattan Research here

[5] We note that any investment in a local solar farm is likely to be of low value, and potentially loss making, if the network tariff is discontinued. However, in the model recommended, this risk is borne by the retailer, and their is no risk to Newstead residents/customers

Assessment Method, Assumptions and Constraints

Assessment Method

The method used to assess project viability and to develop this business case and the project business plan, was iterative between project stakeholders including the Newstead community and its project control group managed by Newstead 2021, over an 18-month period.

As described in detail below, consultation was used to construct a 15-year cash flow model representing key project stakeholders (solar farm owner, offtake partner, Powercor and Newstead customer(s)). Key variables were then isolated and adjusted to test the viability of the project, in consultation with those stakeholders.

During this process, a range of business models were developed and considered in consultation with Newstead 2021 and market stakeholders. Models ranged from Newstead 2021 becoming a retailer (either through licensing or via an exemption) and raising all funds for the project with Newstead; through to relying on project partners for all finance and retailing services, and variations in between. During this process:

- Extensive consultation (over ten formal and informal meetings and briefings) was held with Newstead 2021, as well as survey data gathered from Newstead residents and insights gathered at three large group community forums. This included ten case studies of local families analysing energy costs, energy bills and energy use patterns;
- Eight face-to-face meetings were conducted with Powercor as part of data gathering, technical assessment of network constraints, and development of suitable tariffs to enable the project goals;
- Three meetings were held with the Australian Energy Regulator and Powercor, including one meeting with the Victorian Essential Services Commission and State Government stakeholders, to discuss high level project objectives and suitable enabling strategies through regulatory and policy frameworks;
- An Expression of Interest process was run, over 20 responses were received:
    - Six prospective retail partners and six prospective solar farm providers (finance, construction, management) were engaged for further negotiation;
    - Face-to-face meetings were held with four prospective retail partners and four prospective solar farm providers;
    - A solar farm offtake / term sheet was secured from one prospective retail partner, which was benchmarked against term sheets provided in confidence for alternative solar farm projects in Victorian and South Australia;
    - That term sheet was shared with the four prospective solar farm providers, in order to gauge their interest in the project

The overarching objectives guiding model development and assessment during the above process was dictated by the project vision, to ensure:

- It could be reasonably expected that savings on bills would be achieved for Newstead customers;
- A market/commercial rate of return could be paid to the solar farm operator, to justify investment - this was seen as critical to success and in mitigating social risk for Newstead;

- Sufficient retail margin would be achieved to facilitate the offtake and re-selling of power to Newstead residents - this was also seen as critical to success and in mitigating social risk for Newstead; and
- Social risk to Newstead would be minimised where possible, to protect the social capital of those involved in the project and with respect to Newstead's "do no harm" principle.

The following key variables were isolated and adjusted as part of the modelling work undertaken, and in consultation with all stakeholders, to determine the viability of various business model options and the investment in assets required to transition Newstead to 100% renewable energy, while retailing that energy locally:

- Availability of cost-effective renewable energy[6]
- Peak sun hrs in Newstead
- Degradation rate of solar panels
- All in installation cost for solar farm / MW (noting the financial model is not affected by whether this is rooftop solar or front of meter solar farm)
- Operational expenditure budget per MW installed
- Value of customer loyalty - $/pa in avoided churn costs for the retailer
- Peak energy price paid for solar farm output and balance of energy supply to customers
- Off peak energy price paid for solar farm output and balance of energy supply to customers
- LGC / green energy credit value paid $/MWh
- % energy demand at peak times
- % energy demand at off peak times
- % total demand supplied by local solar farm
    - % demand supplied by solar farm at peak times
    - % demand supplied by solar farm at off peak times
    - % solar farm output exported to the grid at peak times
    - % solar farm output exported to the grid at off peak times
- Transmission use of system fees paid per MWh
- Market fees paid per MWh
- Gross retail margin paid on energy sold

In all scenarios modelled, hypothetical retail tariffs were developed and assessed against energy consumption patterns and tariffs gathered from customers as part of the previous phase of work. This was done to verify the potential savings to customers, relative to "business as usual" energy supply, and to confirm the viability of each model assessed.

Assumptions

Table 8 provides a snapshot of the key solar farm offtake assumptions over time required to ensure the solar farm generates a commercial return, combined with retail price outcomes for Newstead customers[7].

[6] Historical work conducted for Newstead by consultant Michael McCartney shows that wind and bioenergy are not, or highly unlikely to be, cost-effective in Newstead, relative to solar power. For this reason, the project has focused on solar as a source of renewable energy supply, while continuing to explore the potential for other renewable energy sources. At this stage, no other form of renewable energy supply has emerged as a cost-effective option.

[7] Determined in consultation with solar farm investors/builders - i.e. what returns they need to seer to justify investment

Table 8: Key solar farm off-take assumptions.

Year	*2018*	*2020*	*2022*	*2024*	*2026*	*2028*	*2030*	*2032*
All in peak price paid to solar farm - $/MWh	$139.39	$131.60	$125.00	$125.00	$125.00	$125.00	$125.00	$125.00
All in off peak price paid to solar farm - $/MWh	$112.20	$106.54	$101.32	$100.00	$100.00	$100.00	$100.00	$100.00
Single rate energy only retail price after margin, transmission and market fees - c/kWh	$0.182	$0.169	$0.169	$0.160	$0.155	$0.148	$0.144	$0.144
Price after loyalty discount recognising avoided churn cost for loyal customers - c/kWh	$0.176	$0.163	$0.163	$0.155	$0.150	$0.143	$0.139	$0.139

Implementation strategy

The following implementation strategy is based on Newstead 2021 pursuing the recommended approach of partnering with a single retailer. Newstead 2021, without any modifications to its structure, can continue to play an important role in raising local awareness, engaging the community and helping customers understand and assess retail offers being made by the partner retailer, or any other retailers/solar companies in the market.

Key implementation milestones

Several key milestones will need to be achieved on the path to implementation, with that pathway simplified by working with one retail partner. The pathway mapped out by Energy for the People with Newstead 2021 is as follows.

Table 9: key implementation milestones.

Date	**Milestone Description**	**Milestone outcomes sought**
February 11, 2018	Community Forum in Newstead to discuss tariff options and gauge community buy-in.	- Key retail partner understands community needs and demand more deeply - Community builds relationship (and trust) with key retail partner)

Current and to be completed by 1 July 2019	Landowner agreement, network connection agreement and Development Approval for solar farm secured, noting consultation with landholders, Powercor and Local Council have already commenced with suitable land identified.	- Subject to commitment from partner retailer and sufficient customer demand, negotiate and secure landowner and Development Approval to proceed with a minimum 2 MW solar farm, and a connection agreement with Powercor.
Late April / early May	Pre-commitment confirmed prior to formal retail offers.	- Local PR and marketing drive leads to pre-commitment and expressions of interest from local customers, including more detailed customer data gathering
By July 1 2018 or as soon as practical	Retail partner commitment	- A retail partner is chosen and has committed to the project, supporting applications for funding if necessary and developing offers to local residents
By July 2018 or as soon as practical	Funding application made and funding secured	- If necessary, funding is sought and secured to ensure the project is sufficiently de-risked in order to proceed with a retail partner
By July 1, 2018 or as soon as practical	Commence roll out of green energy and rooftop solar PPA offers via the partner retailer.	- Early success stories from customer's switching - Capitalise on success with ongoing community engagement and awareness/support building - Continue building support for local solar farm
By July 1, 2019 (subject to customer sign up)	Break ground on up to 2 MW solar farm	- Transition existing 'green grid' customers, and residual customers to a 100% renewable offer with all generation coming from Newstead
By June 30, 2020	Aim for 100% take up of Renewable Newstead clean energy offer. At least 50% take up of new distribution network tariff trial	- 100% take up of clean energy offer(s) ensures Newstead transitions to 100% renewable energy supply - Greater than 50% take up of the new distribution network tariff ensures an additional 3-year extension of the trial

Immediate next steps

To deliver the project goals, Energy for the People recommend the following next steps be taken by Newstead 2021:

- Continue discussion and negotiation with Powercor, with a view to extending the network tariff trial beyond 2 years, ideally securing a ten-year trial commitment;

- Continue discussion and negotiation with prospective retailer partners with a view to finalising a retail offer that facilitates investment in a solar farm with a minimum of 2 MW capacity, with scope to grow.
    - Pursue complementary financing and other risk management options outlined in Table 10, Draft risk management plan (below), that de-risk investment in the solar farm, including funding support for battery storage;
- Use the retail offer to complete final market testing and confirm the viability of the proposed model;
- Undertake an Expression of Interest process to identify suitable land, and negotiate the lease required to facilitate investment in the solar farm;
- Complete environmental and network connection studies, prior to securing environmental, network connection and development application approvals; and
- Finalise the retail tariff and solar farm investment package, prior to commencing solar farm construction, in parallel with launching retail offers.

Draft risk management plan

The project will continue to be managed by Newstead 2021, working directly with a partner retailer to define and promote a 100% renewable retail offer to Newstead residential customers.

Table 10 serves as a draft risk management plan for the coming phases of the project and as such summarises key risks identified for the implementation phase of the project, how they will be mitigated and an assessment of how effective the risk management is likely to be.

Risk impacts are ranked as follows:

- High - if this risk materialises, it has a significant impact on the success of the project for Newstead locals and / or the ability to replicate the model. Replication would be very unlikely without changes to the model;
- Medium – if this risk materialises, it has a moderate impact on the success of the project for Newstead locals and / or the ability to replicate the model. Replication would have a moderate chance of success without changes to the model; and
- Low - if this risk materialises, it has a negligible impact on the success of the project for Newstead locals and / or on the ability to replicate the model. Replication is likely without changes to the model.

Likelihood assessments are made as follows:

- Low - the risk is highly unlikely to materialise;
- Medium - the risk may or may not materialise- insufficient information is known at this stage to more accurately gauge probability; and
- High - the risk is highly likely to materialise.

Table 10: Draft risk management plan

Risk	Impact	Likelihood	Risk Rating	Mitigation and management strategy	Risk outcome
Longevity of the network tariff trial	*High* - Network tariffs revert to business as usual, making it difficult for the partner retailer to offer a competitive c/kWh rate	*Medium* - continuation of the trial beyond 2 years of 5 years is difficult to predict with confidence	*High*	Continue to work with Powercor on extending the trial to a minimum of ten years Pursue complementary project funding options to decrease investment risk, including funding for battery storage. Consider strategic use of rooftop solar assets, as they are not prone to de-valuation should the tariff trial end.	Risk is effectively neutralised if Powercor commits to ten-year trial, or sufficient funding support is provided to the 2 MW solar farm
Securing the all-in offtake price required to make the model viable, including the impact of energy market policies on future green energy pricing	*High* - Offtake pricing not sufficient to secure investment in the solar farm, making the project a non-starter	*High* - Assessment shows it is unlikely that offtake terms would be sufficient to support third party investment in the solar farm.	*High*	Align risk and reward by partnering with a single retailer who will own and operate the solar farm and/or any rooftop solar and battery assets deployed as part of the project. Consider complementary offtake partnerships that would enable a larger scale solar farm to be built, and/or a high offtake price - for example an offtake partner willing to pay a green energy premium.	Risk is effectively neutralised by partnering with a single retailer, who invests in the solar farm
The ability for a retailer to absorb the all-in offtake pricing required to make the model viable, and still provide a competitive retailer offer to Newstead residents	Medium - The retailer is not able to maintain a competitive retail offer in the long run, and Newstead customers switch away from the 100% renewable energy offer	*Medium* - this risk is influenced by many variables influencing the future price of energy including how policy and markets evolve over time, making likelihood difficult to determine	*Medium*	Pursue complementary project funding options to decrease investment risk, including funding for battery storage. Consider complementary offtake partnerships that would enable a larger scale solar farm to be built, and/or a high offtake price - for example an offtake partner willing to pay a green energy premium.	Securing funding support or an offtake partnership that enhances the value of the solar farm and offtake price paid effectively mitigates this risk
Finance can not be secured to enable project implementation	*High* - funding is critical to project success	*Medium* - it appears funding solutions are available, but cannot be	*Medium*	- Pursue a ten-year network tariff trial and partnerships that can enhance the value of the solar farm investment - Pursue funding support	Risk to project remains until network tariff trial is extended or funding

		guaranteed at this point		from Government and philanthropic organisations	support for solar farm secured
Retail / solar farm developer partner can not be secured	*High* - partners will be critical to project delivery	*Low* - it appears there is sufficient demand from partners	*Medium*	- Partnerships will be conditional on network tariff trial being extended or investment risk being compensated for by funding support	Risk to project remains until network tariff trial is extended or funding support for solar farm secured
Retail/ solar farm developer partner pulls out of project	*High* - losing a project partner would be damaging to the project brand and credibility	*Low* - it appears unlikely a partner would willingly pull out of the project	*Medium*	- Due diligence completed to ensure robust partnership with all known issues tabled - Appropriate agreement in place with project partner - Ensure Newstead 2021 stays active in the market for alternative partners, should its preferred option pull out.	Risk will always remain.
Customer uptake of the retail offer is too low	*Medium* - our modelling suggests that a 25% drop in customer uptake reduces IRR by .5%. A 40% drop still maintains IRR of 8.85%	*Medium* - should the project go live it appears the offer will be very competitive and attract strong interest	*Medium*	- Continue to maintain diligence of project costs and retail margins, to ensure a competitive offer is made, should the project proceed to delivery phase.	Risk will always remain
Customers are not better off on new tariff	*High* - key goal of reducing bills is not realised. Customer complaints undermine viability of the solar farm and the social licence of Newstead 2021 and its partner retailer	*Low* - an assessment of existing tariffs and likely tariffs under the new model confirm that reasonable savings can be expected	*Medium*	- Pre-offer diligence, ensuring offers marketed to customers result in lower whole of bill costs - Bill comparison service - help customers assess their energy demand, current tariff, and value of new tariff - Opt in nature of the tariff means customers can always switch to alternate offer	Risk will always remain and mitigation actions will be required for the duration of the project
Customers are not loyal in the long run	*High* - Customers switch to new market offers, chasing short term discounts being offered by competing retailers. This	*Medium* - probability is difficult to assess as it is an unknown variable at this time and subject to the offer made by the retail partner and	*Medium*	- Offer rewards for loyalty - tariffs decline over time if customers stay loyal and renew contracts - Consult with Essential Services Commission and State Government on the nature of retail markets, and explore the role of long term	Risk remains and is borne by the partner retailer

	undermines the viability of the solar farm and retail partnership	how this offer may vary over time to reward customer loyalty		retail contracts as a way of reducing prices	
Financial return on solar farm is not sufficient to provide commercial return	*Medium* - solar farm becomes a low value asset and may undermine the credibility of the project, with negative impacts to replica projects. However solar asset will still retain some value, and the project will deliver additional lessons to the sector, remaining a valuable contribution	*medium* - this is very much contingent on continuation on the network tariff trial, funding support and customer loyalty, and so difficult to predict with certainty at this stage	*Medium*	- Preferred approach is that the retail partner will finance and own the solar farm, isolating Newstead residents from this financial risk - Should a vehicle be established to invest in the solar farm, standard ASIC protections are designed to ensure investors are fully informed of investment risks. - Explore funding support for solar and/or storage assets to help de-risk investment.	Risk remains and is borne by the partner retailer
Distribution tariff trial is discontinued by 2020	*Medium* - Reverting to business as usual tariffs may undermine the viability of the model, particularly for customers that undertake fuel switching and/or rely on purchasing renewable energy from a centralised solar farm.	*Low/medium* - likelihood is dependant on customer uptake, which cannot be predicted with certainty at this stage	*Medium*	- Work towards minimum 50% take up - Ensure risks of tariff trial ending are explained to customers, particularly those investing in fuel switching or other measures that depend on the new tariff to realise value - Pursue funding support for the solar farm to compensate for investment risk	Risk remains and is borne by the partner retailer
Perception that the solution is not addressing climate change	*Low* - Many Newstead residents that are driven by environmental values don't	*Low* - Given the track record of Newstead engaging and educating its community, this	*Low*	Explain the story and detail behind the model, and how it fits into a broader transition of the energy market, to ensure all stakeholders understand the environmental impact.	Effectively mitigated

	trust the offer(s) being made, and fail to take it up despite it offering value.	risk is unlikely to materialise			
Perception that this is a solution being controlled by outsiders	*Medium* - Newstead residents don't trust the offer(s) being made, and fail to take it up despite it offering value.	*Low* - the engagement process to date has been effectively involving community stakeholders in decision making and so this risk is unlikely to materialise	*Low*	- Ensure local content in the final product and service mix - Explain the story behind the model, and how RN has worked to define what it needs from partners (as opposed to the other way around), to reach a compromise it believes works for all	Effectively mitigated
Longevity of the model and partnerships	*Medium* - over time, the relationship between Newstead 2021 and partner retailer fades. Newstead 2021 either ceases to exist, or ceases to be an effective local stakeholder	*Low* - probability of this risk is very much subject to final tariffs offered by a partner retailer and customer loyalty over time, but at this stage looks unlikely	*Low*	- Establish a continuity plan for Newstead 2021 - Embed measures in the partnership with retailer to ensure cheap power to Newstead residents over time.	Ongoing work required to effectively mitigate this risk
Population growth	*Low* - Additional solar capacity is needed to maintain 100% renewable energy supply	*Low* - while some level of population growth can be expected, it does not have an impact on viability of the model	*Low*	- Ensure sufficient land is available to expand a solar arm in the future (this has been factored into ongoing landholder discussions)	Effectively mitigated
Population decline	*Low* - lack of customer demand and decline over time undermines viability	*Low* - regional growth trends in Newstead and surrounds suggest this likelihood is low	*Low*	- Ensure project partners understand this risk and it is considered in their decision-making process	Effectively mitigated
Retailer sells asset	*Low* -Retailer decides solar assets are not worth keeping and decides to sell it/them.	*Low* - if the assets do not have value to the partner retailer, it is unlikely they will be able to sell	*Low*	- Ensure project partners understand investment risk - Ensure participating Newstead customers understand the risk they are buying into	Risk remains and is borne by the partner retailer

		them at a price that warrants selling them		- Ensure contingencies are developed in the event the solar asset(s) are to be sold.	
Retailer business fails	*Medium* - Retail partner ceases to exist as a business and is forced to churn customers and sell assets	*Low* - it is unlikely that a partner retailer would participate in the project, if they are financially vulnerable	*Low*	- Ensure retail partner has adequate financial backing and track record of success	Risk remains and is borne by the partner retailer

High-level roles and responsibilities

Roles and responsibilities of stakeholders are an extension of the project to date and reflect the capabilities and interests of project stakeholders.

Table 11: Overview of roles and responsibilities.

Role	**Managing Stakeholder**
Manage local PR and engagement with local community including all public forums and Q&A (online, local paper, etc)	Newstead 2021
Management of Powercor relationship including participation in any ongoing research initiatives and two-way sharing of customer insights	Newstead 2021
Manage detailed design and delivery of solar farm, including any battery storage integration, retail pricing and ongoing management/maintenance of assets	Retail partner, with review of pricing by Newstead 2021 and/or its partners/consultants
Manage negotiation of landholder agreements and DA approval process with Council	Newstead 2021, with review by retail partner
Manage sign up of customers to new retail offer	Retail partner, with support from Newstead 2021
Oversight and peer review of the process	Energy for the People