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Drafted by Tosh Szatow, on behalf of Renewable Newstead

To the Open Energy Networks Consultation, AEMO.

Contact for Questions: Tosh Szatow; tszatow@gmail.com
: Don Culvenor; deculvenor@gmail.com

Why The Renewable Newstead Project is significant to the Open Energy Networks Consultation

The Renewable Newstead Project has been able to develop a model for lowering energy bills, while supplying 100% renewable energy to consumers on an opt-in basis, regardless of their suitability for rooftop solar. The project has demonstrably shown this to be a lower cost pathway to 100% renewable energy supply when compared to rooftop solar, and if successfully implemented, will result in enhanced network asset utilisation over time, thereby driving down the effective cost of energy delivery further.

It also has the potential to be a lower cost source of energy supply, when compared to centralised renewables deployed in locations with higher solar yield. This is due to savings on grid connection and transmission infrastructure costs including line losses.

The model has been developed by working closely with local distribution business, Powercor, the local community, and key energy market stakeholders including the Australian Energy Regulator, the Victorian Essential Services Commission, and key policy staff within the Victorian Government.

AEMO has the power to significantly increase the probability of projects such as Renewable Newstead succeeding, including replication across the National Electricity Market, by considering relatively simple changes to metering and settlement processes, which have no impact on data security or integrity.

We are aware of, and in dialogue with, many projects of a similar nature, including projects seeking to benefit low income and tenanted households that would otherwise have limited

access to the benefit of low cost renewable energy supply due to a lack of capital to invest, split incentives, or unsuitable roofspace.

Changes to metering and settlement processes outlined in this paper would help place rooftop solar/behind the meter energy supply, and front of meter energy supply, on an equal commercial footing - that is, the market would not have a perverse financial incentive to pursue one option, over another. By enabling technologies to compete fairly, regardless of their scale, AEMO would be helping to facilitate the National Electricity Objective.

This submission describes the Renewable Newstead project, and suggests metering and settlement procedures at a conceptual level for further discussion and consideration.

About The "Renewable Newstead Project

The township of Newstead in central Victoria is seeking to transition to 100 percent, locally generated renewable energy. Community energy group Newstead 2021 Inc. 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, including a final detailed business case and implementation plan for a preferred model. Newstead 2021 engaged consultants Energy for the People to deliver this work.

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"[1].

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:

1. Securing finance and offtake agreement for the construction of at least a 2 MW solar photovoltaic (PV) farm; and
2. Leveraging a trial distribution network tariff, made available by distribution business Powercor, to Newstead customers, which lowers the effective c/kWh supply rate.[2] 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

[1] That is, no one is to be worse off by virtue of the project, and any offer made to residents must be opt-in only

[2] The tariff is $1/day, $2/kW/month, $0/kWh - see https://www.powercor.com.au/media/3465/2018-powercor-network-tariffs.pdf

3. 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.

The Newstead Distribution Grid Context:

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.

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.

The distribution grid serving Newstead has been classed by Powercor as unconstrained, with more demand growth able to be accommodate, without any need for additional network spending

Renewable Newstead - Surmountable Risks Remain

In order to maximise the probability of project success, Energy for the People has recommended working with a single, preferred retailer, who can finance and operate a 2MW solar farm in Newstead, while retailing energy to local residents. Using this model, and the new distribution network trial, 100% renewable energy supply is possible while reducing bills by between 10-30% in year 1, depending on customer energy demand / consumption.

Savings increase over time, as avoided customer churn costs accrue to the retailer, and this value is passed through to customers. We can also confidently assume that the effective cost of energy delivered would decrease over time, due to enhanced network utilisation caused by sharing the same fixed network costs amongst a growing base of energy users.

This model aligns risk and reward between the solar farm investor and offtake partner, and gives the project a higher probability of success. We have found this is necessary due to difficulty in structuring an offtake agreement for a small scale solar farm in the current market

environment, due to significant uncertainty around how clean energy will be valued and the influence of policy settings on market outcomes.

However, unlike an investment in a rooftop solar asset, there is no established contractual model for signing up retail customers to a long term grid-based supply contract. This means a retailer still bears a greater risk when investing in a 2MW solar farm to supply customers, than they would if investing in 2MW of rooftop solar for those same customers - established contractual models exist for solar leases, or long term rooftop solar PPA contracts, and so mitigate risk on those investments.

How AEMO can play a role in mitigating risks and fostering efficient investment in new energy supply infrastructure

AEMO can help place rooftop solar / behind the meter energy supply, and front of meter energy supply on an equal footing, by supporting metering and settlement process that connect solar farm investors and retail customers directly. In this way, more efficient investment in distributed energy resources can occur, lowering the cost of transitioning to renewable energy for all customers.

Specifically, AEMO can support metering and settlement procedures, that enable a solar farm to supply customer energy loads directly, and have these deducted from that customer's net share of system load profile, before that load profile is aggregated and allocated to that customer's retailer.

Importantly, we believe this can, and should, only occur where there is a willing distribution network service provider, noting that such a net metering procedure at the distribution network level would typically result in lower than forecast revenue for a distribution business, and so put upward price pressure on other customers, as the network business seeks to secure it's regulated returns. This occurs because typical network tariffs include a significant c/kWh charge, and a net metering process as described above would mean customers avoid paying that charge. In Newstead, the tariff trial of $1/day, $2/kW and $0/kWh, effectively mitigates this concern for the local distribution business, ensuring they recover their regulated returns independent of energy consumption volume, which is entirely appropriate given the nature of Newstead as an unconstrained network.

After consultation with software service providers that have experience with MSATS, we believe a net metering procedure could be developed without any compromise to the fundamental integrity of procedures laid out in Chapter 7 of the National Electricity Law.