JACKA COMMUNITY-SCALE BATTERY PROJECT

Market Sounding Report

Final Report 9 February 2022

ENERGY SYNAPSE

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1 Summary of the engagement

The Suburban Land Agency (SLA) is investigating the business case for community-scale batteries in a greenfield suburb called Jacka, which is located in the north of the Australian Capital Territory (ACT).

The SLA has been working with Evoenergy, the Australian National University (ANU), and other industry stakeholders, which has resulted in a Feasibility Study [1] and a Concept Design Workshop [2]. The SLA has also conducted a Market Sounding process, which sought industry input into the design and development of the Initiative.

Energy Synapse has been engaged to perform the following tasks:

- Qualitative independent review of the Feasibility Study and Concept Design Workshop.
- Mapping the value streams for the following commercial models for community-scale batteries:
  - Retailer owned and operated model
  - Distribution Network Service Provider (DNSP) owned and operated model
  - Community owned and operated model
  - Third-party (non-retailer) owned and operated model
- Summarising and analysing the responses from the Market Sounding process.
- Providing recommendations for a future procurement process.

This report summarises the non-confidential parts of the Energy Synapse review.

2 Background

The SLA is seeking to make the next stage of Jacka an innovative, sustainable suburb with no reticulated gas network, making it the SLA's first fully electric suburb. High electrification and high rooftop solar penetration is likely to result in a "peaky" load profile and will create challenges for the distribution network. To manage this, the suburb has been designed to incorporate community-scale battery storage, with space allocated at each of the distribution substation pad mounts within the suburb.

This Initiative is part of the SLA's Sustainability Strategy 2021-25 and addresses multiple ACT Government objectives, including:

- Supporting suburb-level electrification and transition away from gas.
- Supporting the ACT Government's zero emissions target by
  - Increasing and supporting high penetration of renewable energy generation.
  - Delivering zero emissions suburbs.
- Improving local grid reliability.
- Delivering benefits to the community.
- Supporting knowledge sharing to help overcome barriers and challenges for the deployment of community-scale batteries, including:
  - Research and Development around distribution network services and trade-offs with market services.

3 Review of feasibility study and concept design workshop

Energy Synapse has performed an independent qualitative review of the feasibility study [1] and the concept design workshop [2] carried out by the Australian National University (ANU). Our high-level findings are summarised below.

3.1 Community-scale vs household batteries

The feasibility study found that community-scale batteries can provide more effective local energy management in distribution networks when compared with household batteries of an equivalent total capacity.

Energy Synapse has not been engaged to perform any modelling for this Initiative. However, based on our experience, this is likely to be true. Community-scale storage is generally better suited to optimise power flows on an aggregate suburb level.

3.2 Multiple vs single community battery

The feasibility study found that multiple community-scale batteries installed on the low voltage network would provide the best daily demand management. The study appears to recommend multiple community-scale batteries in Jacka, on this basis.

We would recommend for this conclusion to be given more consideration, as it does not seem to take into account the extra cost and complexity that would come from multiple installations. This concern was also raised by some respondents in the Market Sounding process. For example, one respondent highlighted that the proposed five battery installations would essentially equate to five different projects, with five different grid connection processes, and installation crews who would need to repeat work five different times. It is unclear how much consideration was given to these barriers in the study.

Furthermore, from a network benefit perspective, it is generally more valuable to be optimising for a reduction in the coincident peak demand rather than daily demand management.

3.3 Optimisation of battery sizing

The feasibility study recommended 928 kWh of storage capacity for the battery. However, this does not appear to be fully optimised in terms of the cost structure and revenue streams. For example, battery costs tend to scale differently across the dimensions of power and energy. Increasing energy (kWh) tends to be less expensive compared with increasing power (kW). The potential for capturing revenue from energy arbitrage and frequency control ancillary services (FCAS) also scales non-linearly across different battery configurations.

Furthermore, the study estimated that a 928 kWh system would achieve a reduction in energy imports/exports of only 20%. This seems too low to be able to achieve the objectives of the Initiative.

Based on our experience, a storage duration of two to three hours is likely to be more attractive from a cost/benefit perspective for this particular application. Furthermore, the total capacity of the batteries should be at least 1 MW (ideally 2+ MW) to allow for easier participation in FCAS markets. As suggested by respondents in the Market Sounding process, the battery should be no larger than 5 MW to allow for an easier connection and registration process.

3.4 Household billing schemes

The Concept Design Workshop recommended a community model where all households participate on an "opt-out" basis and receive a small financial discount on their electricity bill, based on the retailer passing through the reduced network tariff.

In a retailer owned/operated model, residents would need to sign up to the retailer that is operating the community-scale battery. Energy Synapse would suggest that a voluntary "opt-in' scheme would be preferable in this scenario and would be better aligned with the intent of Power of Choice regulations.

An "opt-out" model would be better suited to a third-party (non-retailer) owned/operated model where the third-party does not have an electricity billing relationship with the consumer.

The Concept Design Workshop discussed "on-bill savings" as a potential mechanism for consumers to receive the financial benefits from the community-scale batteries. Energy Synapse agrees that well-structured on-bill savings can offer advantages in terms of being intuitive and easy to understand by consumers. However, we were concerned that the Concept Design Workshop only mentioned the retailer passing through the reduced network tariff. We consider this to be a major issue as it implies that all other value streams would be 100% held by the retailer. In order to achieve an equitable distribution of benefits to all stakeholders, it will be important to include a portion of energy arbitrage and FCAS revenue in any pass-through mechanism for the community.

3.5 Multiple value streams

Energy Synapse agrees with the findings in the Concept Design Workshop, which suggest that the commercial feasibility of community-scale batteries will depend on their ability to provide multiple services.

The Concept Design Workshop made several warnings about the competing nature of these services. Battery services certainly can be in competition; however, it is important to note that they are also often complementary. Furthermore, battery operation should be viewed through the lens of "co-optimisation" of multiple services rather than providing one service at a time.

For example, charging the battery with locally produced solar PV will mean that the battery has power ready to discharge in late afternoon and evening when wholesale prices are high and fossil fuel generators ramp up to fill the gap left by solar. This behaviour also helps to manage the demand profile on the distribution network. This is an example of tariff optimisation, energy arbitrage, and environmental services (emissions reduction) working in sync.

4 Mapping the physical and value flows

4.1 Physical flows of power

The electricity system is managed on an instantaneous basis, where the supply and demand for electricity must be in balance at all times.

Figure 1 shows a high-level representation of the expected power flows within the Jacka community.

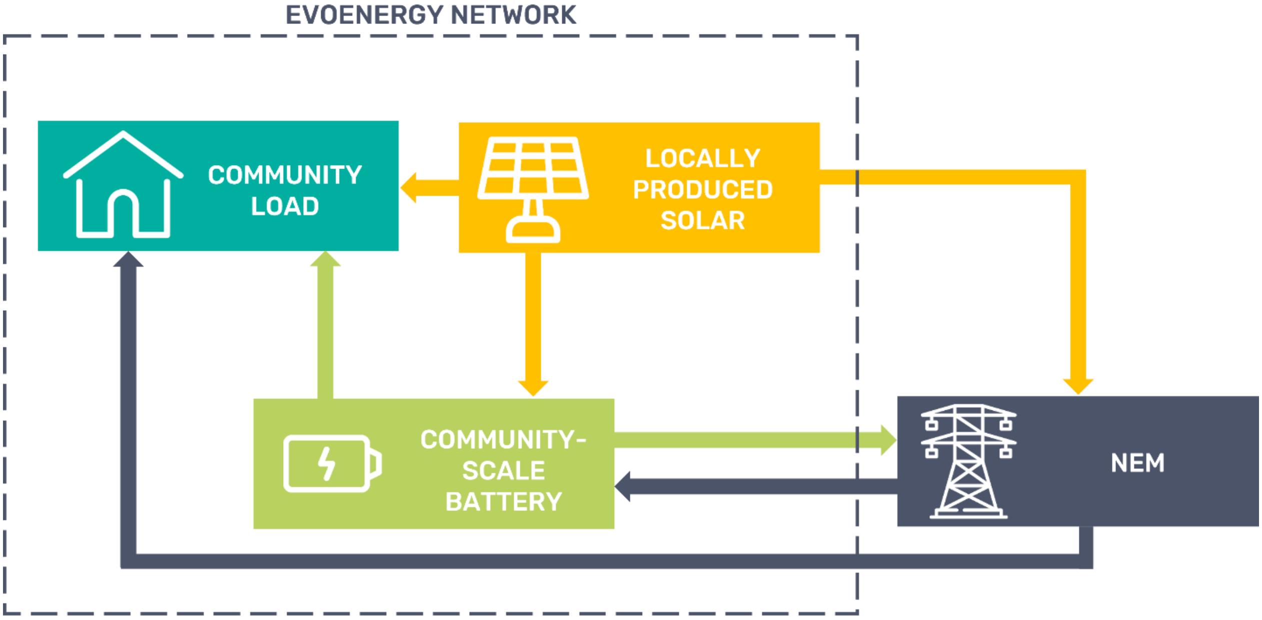

Figure 1: High level schematic of expected power flows in Jacka community

The Jacka community will receive power from a combination of locally produced solar PV, the community-scale battery, and the grid.

The battery will charge from a combination of local solar PV and grid power.

Any locally produced solar that is not consumed by the community or stored in the community-scale battery, is exported to the grid (if within export limits; otherwise curtailed).

The Jacka community will utilise the Evoenergy distribution network to transport power within the community.

4.2 Value flows

A number of financial and non-financial value streams are accessible to community-scale batteries, depending on the commercial model used. These are explained below.

- **Customer tariff optimisation:** This involves charging and discharging the battery such that the retail electricity cost is minimised. This typically involves increasing the self-consumption of locally generated solar PV, reducing peak demand tariffs, and arbitraging the peak/off peak retail tariff.

- **Network services:** Distribution Network Service Providers (DNSPs) can reduce their costs and defer the need to augment the network by using batteries to provide network services such as voltage management.

- **Wholesale energy arbitrage:** Electricity prices in the wholesale market fluctuate between a floor of -$1,000/MWh and the market price cap of $15,100/MWh [4]. This volatility creates an opportunity to arbitrage the market by charging the battery when prices are low and discharging the battery when prices are high (although most value at present comes from avoiding high prices). The battery can access this value stream in several ways:
  - Being registered as a market generator and bidding directly into the wholesale market. Market generators can register to participate directly in the wholesale energy market as well as FCAS markets.
  - Being registered under a Small Generation Aggregator (SGA). The SGA framework can be used by an entity who AEMO has exempted from registering as a market generator (e.g. batteries less than 5 MW). The SGA framework can be utilised by a third-party aggregator who does not hold a retail licence. Note that an SGA cannot provide FCAS [5].
  - Having a bilateral agreement with an electricity retailer to help manage the retailer's exposure to the wholesale market. This does not have to involve bidding the battery directly into the wholesale market.

- **Frequency control ancillary services (FCAS):** FCAS services can be accessed by registering the battery directly as a market generator and then in each FCAS market or using a market facing entity, such as a retailer, to facilitate access to FCAS markets.

- **Environmental services:** This involves using the battery to minimise emissions for the Jacka community. This would involve maximising self-consumption of locally produced solar PV and avoiding charging from the grid at times when a large number of fossil fuel power stations are generating electricity.

We have mapped the value flows for the following four models, which can be found on the next several pages. Note that this is not an exhaustive list of models and there can be several permutations within each model.

- **Retailer owned and operated model (Figure 2):** This is one of the two models recommended by Energy Synapse.

  The electricity market is deregulated in the ACT, meaning that consumers are able to choose their electricity retailer. The competitive electricity plans offered by retailers are known as "market offers". Under the retailer owned/operated model, participating residents would need to choose to contract their electricity with the retailer that is operating the battery (i.e. through the acceptance of a competitive market offer).

  The retailer would then operate the battery to optimise tariffs and earn revenue from wholesale energy and FCAS markets. The retailer could also potentially enter into a contract with the DNSP to provide network services in exchange for a payment or a reduced network tariff.

  Retailers manage electricity billing on behalf of consumers. This includes the full chain of costs including wholesale market costs, network costs, environmental fees, and retail margins. As such, retailers are best placed to pass through cost-savings to consumers in the most straight forward form (i.e. on-bill savings).

  Being both a market facing and consumer facing entity means that retailers are best placed to unlock the full value stack. This is a key reason why we have recommended the retailer owned and operated model. Financial viability is the single biggest risk for community-scale battery projects. As a result, being able to unlock multiple revenue streams is key to achieving commercial viability. Furthermore, retailers receive an additional benefit when they sign up retail customers.

  As the retailer would be both the owner/operator of the battery as well as the party directly passing through savings to consumers, the SLA would be able to implement a fairly straight forward governance structure to help ensure the overall goals of the Initiative are achieved.

  Retailer ownership also means Jacka residents would be able to participate in the Initiative without being required to provide any funding. This is a significant advantage as it offers easy and equitable access to the entire community, including those from a lower socio-economic background.

Although we consider this to be the overall strongest model, it is important to note that it does have some drawbacks. For example, the community may have a distrust of energy companies and feel that their motives are not aligned with the interests of the community. There will be an important role for the SLA to help mitigate this risk by safeguarding community interests via the subsidy agreement and helping to facilitate community engagement and trust in the Initiative. Another drawback is that in order to access the benefits of the battery, the residents would need to contract their electricity with the same retailer who owns the battery. However, they would still be free to accept a market offer from any other retailer and hence there is no conflict with Power of Choice regulations.

- **DNSP owned model (Figure 3):** Under this model, the DNSP would own the battery and would primarily operate it in a way that minimises network costs. As a result, the DNSP could offer a reduced network tariff. However, the DNSP does not have a direct relationship with the consumer. Instead, the DNSP bills the electricity retailer, who then on-bills the consumer. In order for the network savings to reach the consumer, a retailer would need to be willing to pass these savings through (which they are not obligated to do).

  The Initiative is highly unlikely to be commercially viable if the only value stream comes from network services. Current regulatory frameworks prevent DNSPs from being able to trade in wholesale energy and FCAS markets. This is a significant disadvantage of DNSP owned models. However, the DNSP could lease a portion of the battery to a market facing entity such as a retailer to improve the viability of the Initiative. The governance structures for passing wholesale energy and FCAS benefits through to consumers would be more difficult to enforce in this model because the DNSP does not have a direct relationship with consumers.

- **Community owned model (Figure 4):** Under this model, the community would own the battery, but the operation would be outsourced via a lease agreement to other parties (e.g., market facing entity and DNSP). Under this model, profits from outsourcing battery operation can be redistributed to the community as dividends. As a result, the retailer who operates the battery does not have to be the same retailer who sells electricity to households. Note that this also means that the retailer who operates the battery would have little incentive to optimise customer tariffs and will hence likely exclusively focus on maximising revenue from wholesale energy and FCAS markets.

  Governance from SLA to safeguard community and environmental interests will also be more difficult to implement when battery ownership is separated from battery operation.

A major benefit of community ownership is that it could significantly increase the community trust in the Initiative. However, this model does have several significant drawbacks. For example, community groups tend to lack the expertise required to take on the responsibilities of owning and maintaining the battery, and managing contractual arrangements. Furthermore, community ownership would require the community to provide upfront capital, which may create equity issues as it would lock-out lower socio-economic residents from participating.

That being said, partial community ownership may be worth exploring after the battery has been developed, as a means of increasing community engagement and building trust.

- **Third-party owned and operated model (non-retailer) (Figure 5):** Energy Synapse considers this to be the second most favourable model. Under this model, a registered generator or aggregator would own and operate the battery. Depending on their registration type(s) in the National Electricity Market, they may be able to access some or all of the nine wholesale markets (one for energy, and eight for FCAS). The third-party could also enter into an agreement with the DNSP to provide network services.

  As the third-party is not a retailer, consumers would be free to pick a retailer of their choice, while still having access to the benefits of the community-scale battery. Third-parties are also likely to be considered more trust-worthy than a retailer. However, not being a retailer means that there would be little incentive for the third-party to operate the battery in a way that optimises customer tariffs, which is why this value stream has not been included in the corresponding value map. Furthermore, consumers would not be able to receive on-bill savings. Instead, the third-party would provide payments separately from the electricity bill (i.e. off-bill savings).

  This model is easier to implement in a virtual power plant (VPP), where the aggregator already has a commercial relationship with each participating resident (e.g. via the purchase of a control system for the consumer's residential battery). In the absence of this relationship, it will be more difficult to define which residents are part of the Initiative and which are not. As a result, an "opt-out" participation model might be the most appropriate in this instance.

  It is also important to note that the small size of the community-scale battery may make ownership less desirable for third-parties. In a retailer owned/operated model, the retailer can bundle the battery offering with another product (i.e. retail electricity). Similarly, a residential VPP aggregator can bundle market access with hardware. In the absence of these additional products, the community-scale battery would likely need to be at least 4 MW or receive a higher subsidy from the SLA to be considered worthwhile by the third-party.

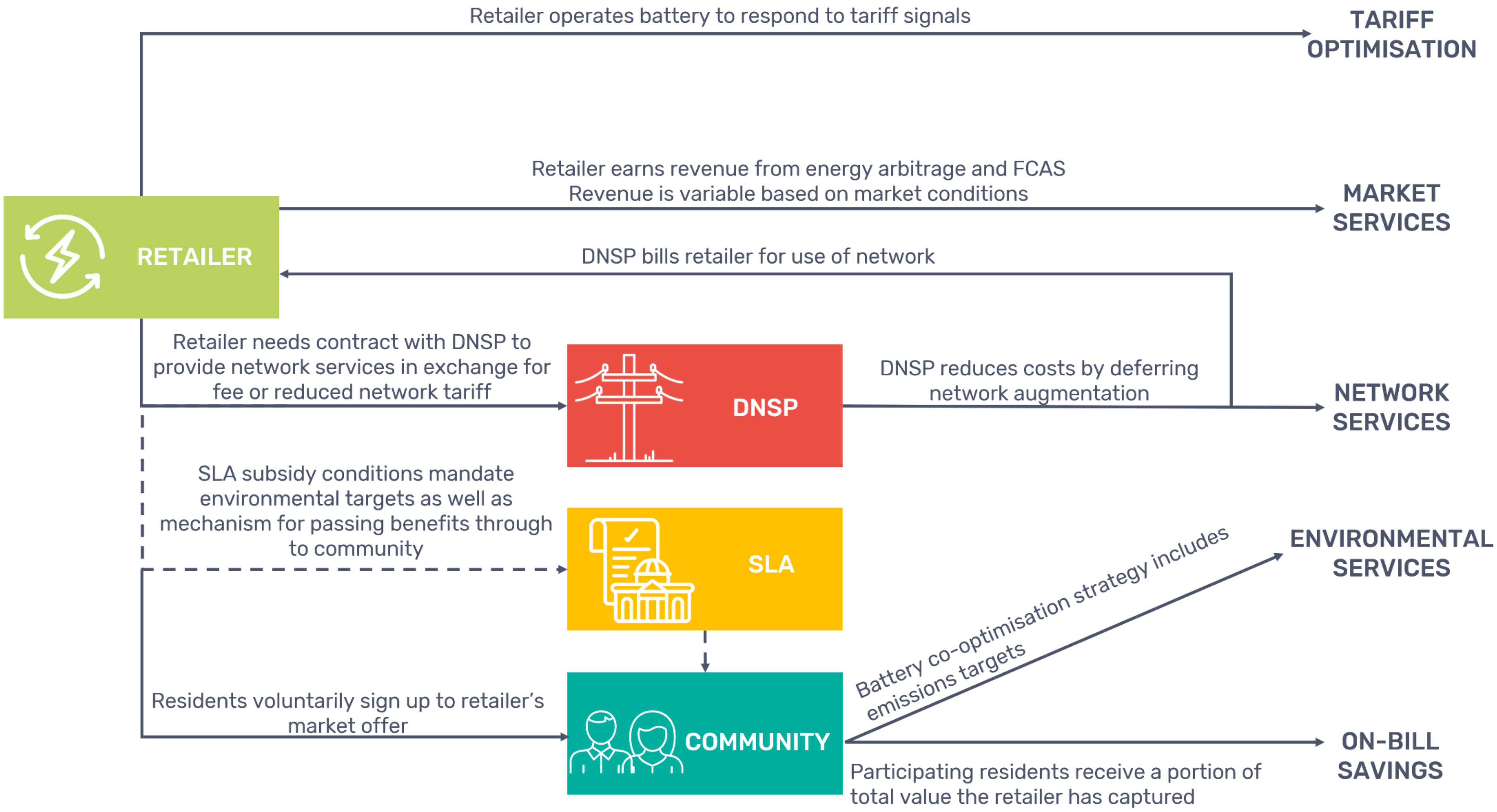

Figure 2: Retailer owned and operated model

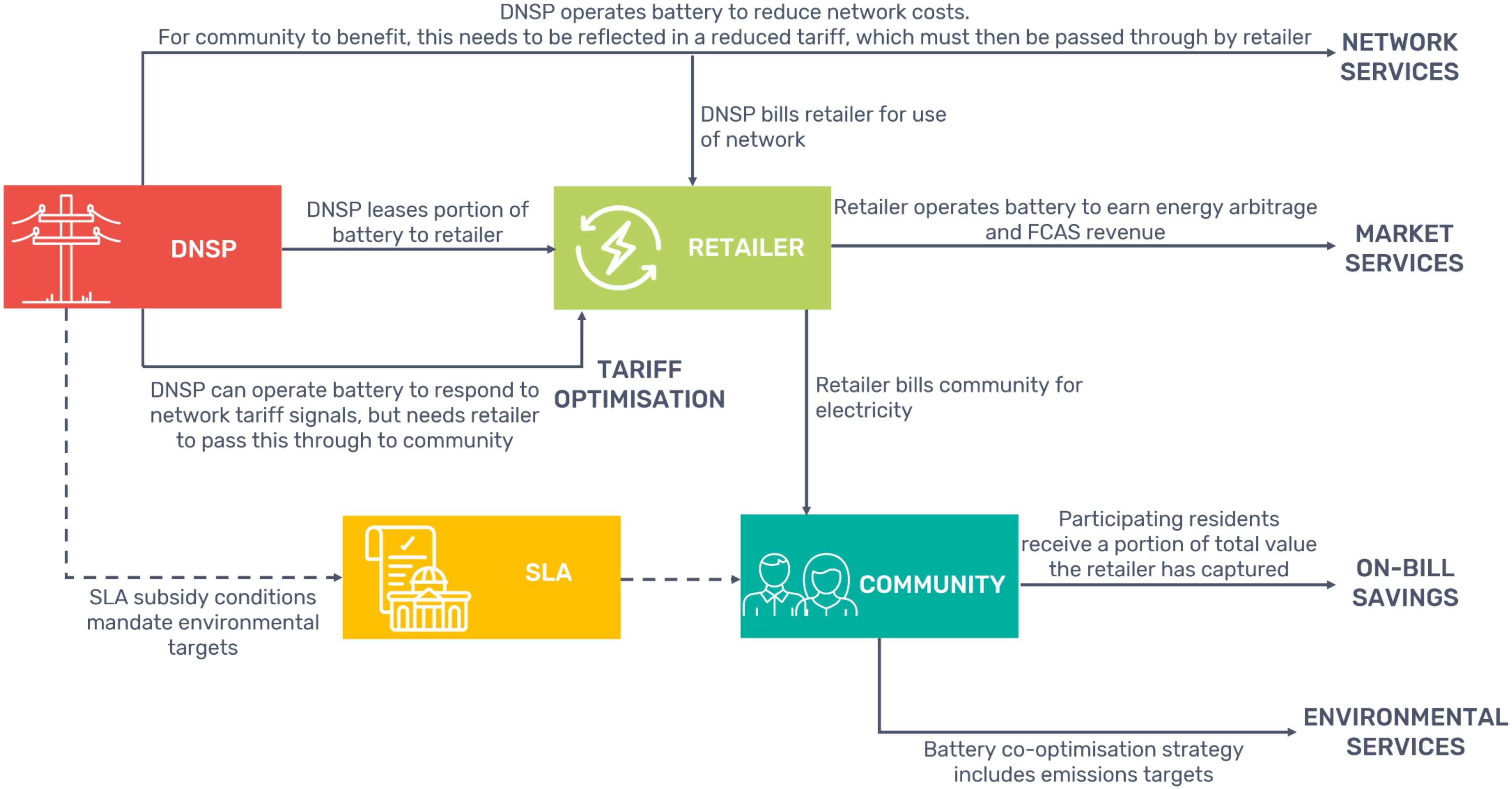

Figure 3: DNSP ownership model

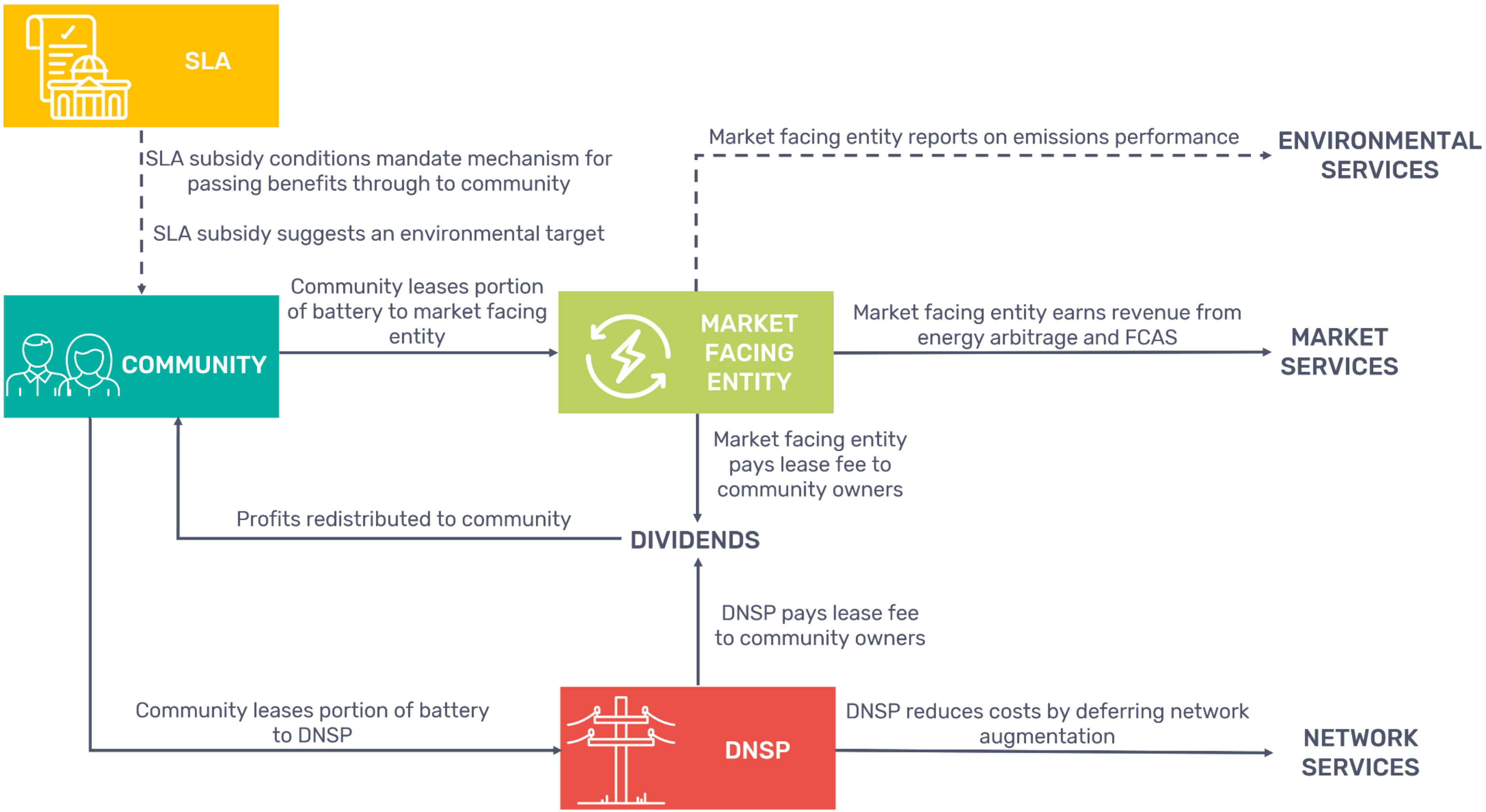

Figure 4: Community ownership model

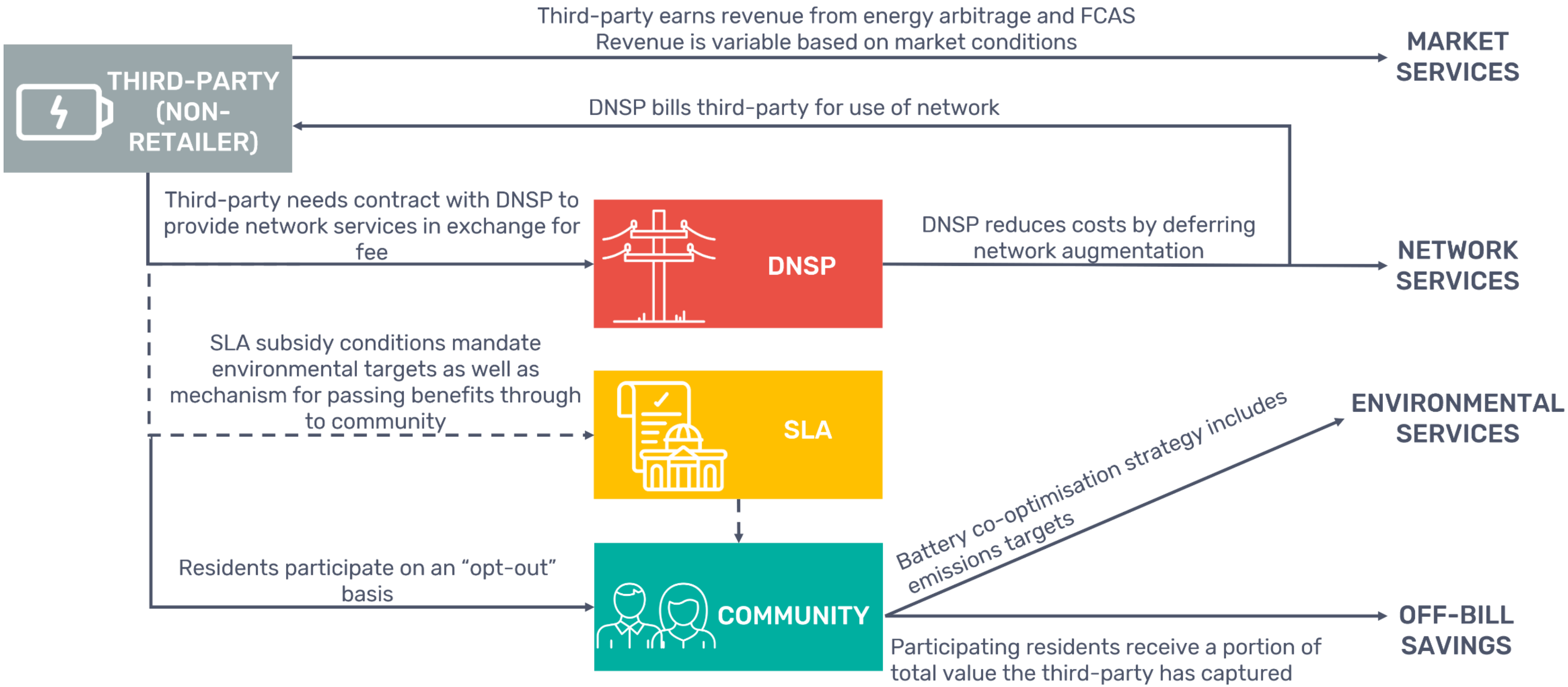

Figure 5: Third party (non-retailer) owned and operated model.

5 Analysis of Market Sounding responses

Energy Synapse has reviewed all the responses from the Market Sounding process in detail. Our summary on a question-by-question basis is provided below.

5.1 Ownership and governance model

1. ***What is your level of interest and intended type of involvement in the Project?***

Eight organisations submitted a response to the SLA's Market Sounding process. A ninth professional services firm submitted their capability statement but did not provide any responses to the questionnaire. Energy Synapse has excluded this organisation from the analysis.

The potential contribution of each respondent to the Initiative is summarised in Figure 6.

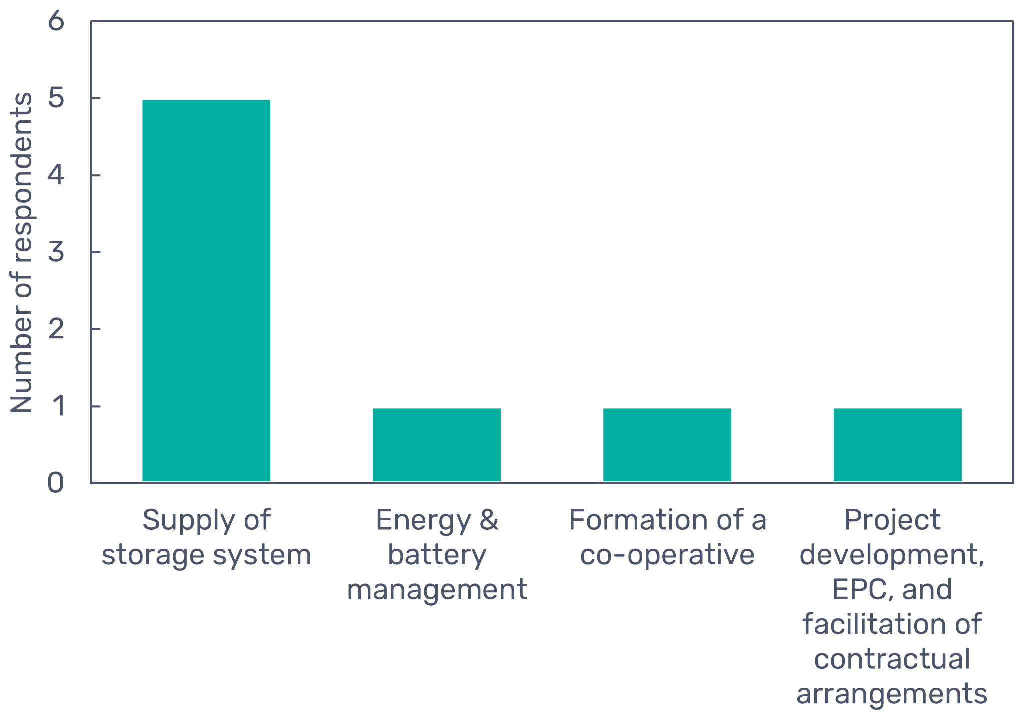

Figure 6: Potential role of the respondent in the Jacka community-scale battery Initiative.

Five out of the eight responses received were from organisations who were interested in supplying the storage system for the Initiative; four of which indicated that they could also install the storage system. Most of these organisations expressed capabilities in installing lithium-ion batteries. One organisation offered a storage solution using hydrogen electrolysers.

One of the organisations who expressed an interest in supplying and installing the community-scale battery, also expressed an interest in installing EV charging infrastructure and participating in customer facing activities along with project partners (for example, explaining electricity offers to homeowners).

The remaining three respondents identified their role in providing:

- Energy and battery management control systems.
- Assistance with the formation of a co-operative to help facilitate the community energy program.
- Professional services related to project development, EPC, and the facilitation of contractual arrangements.

Note that there was a gap in responses from potential market participants.

2. *Who would you seek to work in partnership with to support delivery of the Project, if anyone?*

Respondents indicated that they would seek partnerships with the following types of organisations.

Core partners:

- SLA to integrate scheme into broader community objectives, particularly with the less advantaged in the community, and to act as the customer representative of the battery energy storage system (BESS).
- Battery suppliers.
- EPC contractor of the BESS.
- Market facing entity with appropriate software, such as a retailer and/or aggregator.
- DNSP (Evoenergy) to use BESS for network management.

Supporting partners:

- Research partner (e.g. ANU) to provide advice on battery selection and social systems.
- Property developer.
- Civil contractors (e.g. Complex Co.)
- Local town planner with expert knowledge of the particular conditions and regulatory requirements of the area.
- Financing company (such as Brighte).
- Legal firm to provide advice on legal structures and agreements (e.g. Bradley Allen Love Lawyers).
- Professional services firms to lead grid connection process as well as overall project strategy.
- The Co-op Federation to provide advice on cooperative governance.
- Cooperatives Canberra to provide links to other ACT cooperatives.

- Accounting firm to provide advice on accounting practices.
- Canberra Business and Technology College to integrate the battery into their upcoming Gungahlin Campus.
- Australian Energy Market Regulator to use in other jurisdictions to assist in the evolution of the energy market.
- The Gungahlin Community Council to help spread the knowledge of the community initiative.
- Jacka residents.

As can be seen from the above list, respondents felt that there were several players who would be required to make projects such as this successful. However, one respondent suggested that a key driver of success would be to limit the number of parties involved (as each party has its own goals and objectives to achieve financial gain).

Energy Synapse view: While the delivery of community-scale battery projects does require a broad set of expertise, we have found in our experience that it is very helpful to have one lead project proponent who can manage the supply, installation, and operation of the battery, including the required network of partners and subcontractors.

We also believe there is value in having a separate research partner (i.e. who is not involved in the commercial delivery) who can provide independent advice.

3. *What type of community-scale battery solution do you think can best meet the SLA's objectives?*

Respondents suggested that the following characteristics would be important to the Initiative's success.

Technical & economic characteristics:

- Able to capture multiple revenue streams.
- Be at least 1 MW in order to participate in FCAS markets.
- Have strategically distributed network of 4-6 battery locations in order to provide energy management efficiency, dependability, and maintainability, while delivering pleasing aesthetics within a residential environment by the reduced footprint of the modular battery storage construction.
- Have an intelligent battery management system, which can balance consumption patterns and needs with distributed generation and community-scale battery capabilities.
- Have a long life and a high number of charges/discharges.
- Low maintenance.
- Low risk of fire.

Ownership models:

- One respondent indicated that an initially entirely privately funded, with ongoing majority privately owned community-scale battery with a proportion of local community voluntary ownership, would best meet the SLA's objectives. The initial entire private funding would allow the Initiative to access the required resources to meet required timelines and cost structures. Under a project funding and delivery agreement, a portion of local community ownership could be made available as a requirement to those who wish to have a proportion of ownership of the community-scale battery.

  This staged ownership approach would have the effect of shielding the local community investors from the development and delivery risk, allowing them to have preferential access once the community-scale battery has been delivered, commissioned and operational, being significantly de-risked, and left with only the ongoing operational risk. The ongoing operational risk can be addressed with a Long-Term Service Agreement (LTSA) associated with the battery performance warranty, which the battery OEM supplier can provide.

- One respondent indicated that a retailer ownership model had the best ability to manage all stakeholder interests (i.e. community participants, DNSP, government and NEM participation).

Other considerations:

- Be recyclable.
- Manufactured locally.

Energy Synapse view: Energy Synapse agrees with the respondents that access to multiple value streams will be essential for the commercial viability of the Initiative. Having software systems and market know-how to provide multiple services will be a vital part of this.

Given that payment for network services is uncertain, we believe that a retailer owned and operated model would be best placed to unlock the remaining revenue streams. We support the respondent's suggestion for an initially privately funded battery, with an option to offer partial community ownership at a later stage. This is a good strategy to shield the community from the development risks.

Although not explicitly raised by respondents, Energy Synapse would recommend the use of a lithium-ion battery in the Initiative. Lithium-ion batteries are the most proven storage technology at this scale and hence present the lowest technical and commercial risk.

3.1 What are the financial and non-financial benefits for the stakeholders and how are they shared equitably?

Financial benefits:

- Reduced energy bills for residents (suggested by one respondent to be a 30-70% reduction relative to the regulated any time charge). This also includes community members that have traditionally been locked out of solar (i.e. apartments, social and affordable housing tenants and renters).

- Increased capability to produce and utilise local solar electricity.

- Reduced/delayed capital expenditure requirement for Evoenergy as local grid can be stabilised and large connection points can be reduced.

- The option to operate the community as a microgrid and use the grid as backup. This depends on the SLA's goals and objectives and Evoenergy's willingness to accept non-ownership.

- Reduced need for additional infrastructure on a transmission level due to the high level of self-generation and storage.

- Battery owner/operator could earn revenue in wholesale energy and FCAS markets and also have an incentive for solar sales to the community.

- SLA could market its land developments as green and hence promote land sales.

- The ACT Government would be able to deliver a territory with high-tech investment and high-tech trained workforce, and increased export.

Non-financial benefits:

- Knowledge sharing.

- Awareness of increased renewable energy uptake.

- Reduced emissions per household.

- Jacka residents would have higher reliability of the renewable energy and lower risk of power outages through improved network resilience.

- Evoenergy would prove its commitment to innovative energy solutions and a zero-emission future.

- SLA would gain a repeatable and scalable solution for green suburbs, which is in line with its sustainability strategy.

- The ACT Government would be able to deliver on its promise to achieve its Net Zero target.

- Educational institutions such as ANU, UC, and CIT could gain world class recognition in promoting state-of-the-art technologies developed and implemented in Canberra.

- Rebuilding trust in the energy sector.

- May resolve existing inequalities in the energy system.

Respondents suggested that the financial and non-financial benefits would need to be shared through an appropriate ownership and billing model to maintain equity. This may be achieved by metering individual generating clusters to off-set the energy consumption of participating members of the community. One respondent suggested that the most valuable way to apply the energy credit would be to use the measured solar generation vs. consumption, rather than the sell and buy value per kW.

Energy Synapse view: Energy Synapse agrees with the list of financial and non-financial benefits put forward by respondents. Our view is that transparency will be key to being able to share the benefits equitably.

3.2 How would it be determined who is included and excluded from the scheme?

There was strong agreement between respondents that participation should be open to anyone in Jacka, regardless of whether they own their homes or rent. There was also strong agreement that participation should be voluntary on an "opt-in" basis and the need to meet regulatory requirements under the Power of Choice legislation.

It was suggested that the most equitable approach would be to make a market-based offer to all members of the Jacka community.

Some respondents also mentioned the potential to create a scalable model for participation that could be rolled out to other suburbs.

One respondent cautioned that under an opt-in model, the ownership of the battery would be best placed with a market interacting entity, such as an electricity retailer. This could create a risk of the financial benefits mostly going to this entity, which would be given a monopoly position for all intents and purposes.

Some respondents suggested that Jacka residents should be presented with multiple options for how to access the scheme. This could be in the form of 2-3 market offers or through the ability to create new co-operatives if a member does not want to join any existing ones.

Some respondents mentioned that it would be important to define a process upfront for how members of the scheme would be able to exit (for example if moving to another suburb or simply moving to another retail offer). One respondent suggested that a minimum notification period might be required. Another respondent suggested careful consideration would be needed to understand what happens when community members leave. For example, could their share be offered to other community members or would the battery owner be obligated to repurchase that share?

Energy Synapse view: Energy Synapse strongly agrees with respondents that participation should be open to any Jacka resident who wishes to participate (regardless of home ownership status or whether they live in a house or apartment). Energy Synapse also strongly agrees that participation should be voluntary.

Energy Synapse agrees that a market-based offer would be the most straight-forward and would also allow residents to make comparisons with competing offers from other retailers (for standard electricity contracts). The market facing entity who operates the battery should have a clear process for how residents can roll-in and roll-out of the scheme.

3.3 Do you have any examples of arrangements for managing multiple contractual relationships with respect to this type of model?

Respondents indicated experience with the following types of models.

Retailer owned and operated model:

- Retailer facilitates use of battery in FCAS markets and rewards the customer with a fixed amount, e.g., $1/kWh for energy exported for FCAS participation.

- Retailer facilitates use of battery to reduce demand charges, offers market rates for exported solar power, and gives benefits from arbitraging the wholesale energy market.

Third-party (non-retailer) owned and operated model:

- Third-party aggregator facilitates participation in FCAS markets without the need to have a contract with the electricity retailer.

- Third party aggregator enters into a contract with the DNSP to provide network services and shares value with customer.

Community ownership model:

- Residents join a co-operative and enter into a standard non-distributing cooperative agreement to share in the ownership of the community-scale batteries. Community members are custodians of the batteries, and as custodians, they share the responsibility and receive the benefits from the batteries. Financing with prepayments uses similar payment agreements commonly used by any business with subscriptions. The benefits appear as discounted electricity.

- Alternatively, project costs can be added to the rates of every private dwelling in Jacka.

Note that three respondents declined to respond to this question and self-described themselves as not having experience with contractual arrangements (as they focus purely on supply and/or installing storage systems).

Energy Synapse view: We note that all the models presented by respondents were missing one or more value streams. As previously mentioned, access to multiple revenue streams will be key to being able to achieve commercial viability for the Jacka battery.

Given that payment for network services is uncertain, a retailer owned/operated model would be better placed to capture the remaining revenue streams than a third-party (non-retailer) owned model.

A retailer owned/operated model would also offer additional synergies as the retailer is the party who controls electricity billing for the customer and hence is best placed to be able to pass through the benefits to consumers in an easy-to-understand manner (i.e., through on-bill savings).

However, a risk of both the retailer and third-party owned/operated models is that the battery operator may be tempted to prioritise the operation of the battery for their own profit rather than for benefit to the community.

Energy Synapse sees considerable risks in a fully community owned model. Community groups often lack the necessary expertise to develop, operate, and maintain battery projects. That being said, participants in the Concept Design Workshop [2] made a useful distinction between battery ownership and operation. For example, the battery could be community owned, with the operation being leased to a retailer. Community owned models have another disadvantage in that they could potentially lock-out members of the community who cannot afford to invest in the community-scale battery.

4. How should the SLA evaluate potential models?

Respondents offered a variety of metrics, including:

- Financial attractiveness: Based on the costs required, the benefits to the community, and overall value for money.
- Ease of community access/participation.
- Delivery risk, including the proven capability of proponents to deliver the scope of works. This includes both technical and commercial risks (e.g. how energy and FCAS revenue risks are managed and how exposed the community is to these risks; for example through guaranteed returns).
- Technical ability to improve reliability and power quality of network as well as to optimise the use of renewable energy.
- Flexibility and scalability of the proposed model, including consideration of ownership models (e.g. body corporate or DSNP) that allows the market interacting entity to be changed to ensure best financial result for community.
- Transparency of the model.
- Ability to maximise battery life by intelligent discharge and recharge.
- Costs and benefits to government, for example: will it decrease social welfare transfers, will it increase the land value at Jacka, does it help other R&D opportunities?

Energy Synapse view: Energy Synapse broadly agrees with the above list from respondents. We would also suggest including the ability to track emissions performance against targets as delivering zero emissions suburbs is a key goal for the SLA.

We note that the ability to maximise battery life by intelligent discharge and recharge is unlikely to be a differentiating factor as all battery control systems are designed to manage this.

Community-scale batteries are still very novel, and hence the delivery risk will be important to assess when considering different proponents.

5.2 Engagement and participation of key stakeholders

5. ***How can the business models be informed through the Community Engagement Strategy during planning, construction and operation? How should the SLA evaluate the Community Engagement Strategy?***

Respondents suggested the following community engagement strategies:

- Running effective marketing/advertising campaigns
- Holding community consultation/workshop sessions
- Community surveys and satisfaction polls
- Information and Q&A sessions with stakeholders

One respondent suggested that the engagement process should be ongoing, with re-engagement at key milestones. When the hypothetical project scenarios become tangible realities, it will allow the community to provide more informed and accurate feedback and take decisions based on more specific and defined parameters.

One respondent recommended that the SLA evaluate the effectiveness of zero interest loans for household battery purchases compared to community-scale batteries. The measurements from those households could then be used to help validate the business model before batteries are purchased.

Energy Synapse view: Energy Synapse agrees that the community engagement process should be ongoing throughout the development and operation of the Initiative. We would suggest that the main responsibility for community engagement rest with the lead proponent, while the SLA should play a facilitation role. The SLA may want to consider tracking the "net promoter score (NPS)" as a key metric when evaluating community engagement. The NPS is a well-known metric in customer experience programs and is typically measured by survey questions such as "How likely are you to recommend the program/product/service to a friend or colleague?". Gathering this feedback will be most meaningful once the community-scale battery is operational.

Energy Synapse recommends consideration of the following issues when evaluating community engagement strategies:

- Will the proposed engagement strategy be inclusive of all members of the Jacka community (regardless of solar status, home ownership, socio-economic status etc)?

- Has the proposed engagement strategy been presented in a simple, transparent, and structured way with regular community touchpoints during planning, construction, and operation?

- Is the proposed business model flexible enough to be able to adapt to ongoing community feedback gained throughout the community engagement process?

6. How can the Project ensure appropriate consumer protections are in place including the data that is obtained, stored or used is protected?

Two respondents expressed support for a retailer owned/operated model because licenced retailers (under existing National Electricity Market (NEM) and Australian Energy Regulator (AER) regulatory frameworks) already have appropriate consumer protections in place to ensure the data that is obtained, stored or used is protected.

Other respondents indicated specific measures such as:

- Ensuring that the service/technology providers and operators comply with the Australian cyber security legislation.
- Compliance with Privacy Act 1988.
- Inclusion of consumer protection clauses in agreements.
- Effective data capture and management plans.
- Clear definition of ownership of batteries and the energy operating system.
- Effective data encryption and protection standards.
- Cyber security plan that protects from local and international hacking
- No access to third-party providers and advertisers to any household's data.
- Household data should be fed on a consolidated and de-identified basis to the demand management, battery control and financial systems.
- Basic IT security measures such as use of strong passwords, anti-virus/antimalware software, firewalls, single point access control to server, and appropriate user permission system.

Energy Synapse view: Energy Synapse agrees that the existing AER frameworks are likely to be sufficient in managing consumer protection. This lends further support to a retailer owned/operated model as licenced electricity retailers already have appropriate consumer protection measures in place.

7. What are your thoughts on allowing some level of community ownership or co-investment in the project as part of a Community Engagement and Benefit Sharing Strategy?

Respondents gave wide ranging views to this question.

Most respondents supported exploring at-least partial community ownership. Two respondents expressed strong support for a 100% community owned model. Those supporting full ownership thought that this would increase community engagement and would be likely to benefit the local community more than any other model (due to a natural alignment of interests).

One respondent was opposed to any community ownership model because they viewed this as creating additional complexities for:

- Contractual arrangements for the battery ownership.
- Risks associated with the transient nature of residential homeowners.
- Equity across the community and sharing of benefits (not all members of the community will be in a position to, or will want to, invest).
- Total life cycle costs and risk management is quite complex with too many stakeholders.

Energy Synapse view: Energy Synapse would not recommend a 100% community owned model as this creates additional complexities, and most community groups do not have the expertise required to manage the project development, operation and maintenance, and contractual arrangements. Furthermore, a community owned model is likely to lock out lower socio-economic residents who are not in a financial position to be able invest in the Initiative.

That being said, together with majority retailer or third-party (non-retailer) ownership, we would recommend that partial community ownership be kept as a potential option and explored further, as this could increase community trust and interest in the Initiative. Limiting community ownership to no more than one-third is likely to provide a good balance between increasing community engagement and having a more experienced party taking on ownership responsibilities.

8. *What are examples of credible recruitment strategies for customer participation models?*

Respondents gave examples of the following types of participation models.

Offering a lower electricity price than competing offers

Under this voluntary, opt-in model, residents would be presented with an attractive market offer that is lower than competing electricity offers. Offering lower prices to all Jacka residents was viewed as a key factor in encouraging household participation. Furthermore, on-bill savings were seen as being easy to explain to consumers and also have regulatory requirements that provide protection for the consumer.

One respondent noted that offering cheaper electricity through a co-operative structure would further increase participation because consumers would have a stake in the success and savings to be made.

Direct investment model

Under this arrangement, consumers would invest directly into the community-scale battery, on an opt-in basis. Energy and FCAS services would then be sold to a market participant, such as a retailer. The profits would be returned to the Jacka community as dividends. The key incentive for participation under this model comes from providing an attractive return to member investors. One respondent mentioned that this would be in line with current rates offered by high-interest saver accounts.

Bundling project costs into the property cost

Two respondents suggested that the community should have 100% ownership of the battery and that this should be built into the cost of the property, either through rates or another mechanism.

One participant noted that if customer participation is optional, interest will vary over time and will lose focus as generally speaking, power is a low priority for people.

Recruitment strategies

- Recruitment via channels of procurement for solar panel and electric vehicle charging infrastructure could provide an opportunity to explain the model and recruit customers.
- Setting a clear understanding of the benefits from a financial and non-financial perspective.

- Keeping promises on the Initiative's objectives.
- Investing in training local staff to support local job growth.
- Rewarding customer participation.
- Use of community social media platform as a basis to promote and discuss new ideas and sharing of information and knowledge to build community understanding.

Energy Synapse view: We believe that offering an attractive market offer is the most likely strategy to encourage community participation, when compared with the other suggestions made by respondents. A market offer and on-bill savings are intuitively easy to understand for customers. Furthermore, this model does not require any outlay of upfront capital, which could lock-out some members of the community.

It is important to note that communities tend to place a high value on non-financial benefits, such as broader community and environmental benefits [3]. This will be important to emphasise as part of the recruitment strategy.

5.3 Implementation and battery requirements

9. What is your preferred optimisation of number and size of batteries and duration of storage across substations, and why?

Respondents indicated that more work is required to wholistically answer this question. However, they offered the following preliminary thoughts.

Storage duration

In terms of optimal storage duration, responses varied from two hours to four hours. Respondents pointed out that adding extra storage capacity (MWh) is cheaper than adding AC power electronics to increase the power (MW).

Battery size

There was a strong consensus from respondents that the battery size recommended by the feasibility study was undersized.

Respondents viewed the ability of the battery to store cheap locally generated solar energy, as a key consideration for the sizing of the battery. The total amount of stored solar could be then shared equally among all residents at a reduced tariff.

Furthermore, there is also the need to optimise the battery's ability to capture revenue in energy arbitrage and FCAS services as well as the cost scaling considerations of adding power and energy.

A 1 MW/1 MWh battery was seen as having insufficient storage capacity to absorb the excess solar within the community or to meaningfully shift household consumption. This configuration was also seen as suboptimal for capturing market services (energy arbitrage and FCAS).

In contrast, A 1.5 MW/3 MWh was estimated to be able to store 50% of exported power from 6 kW solar systems. This configuration was also seen as having high return on investment for market services.

2 MW/6 MWh was estimated to be able to store exported solar energy from each household with solar PV and to also make a significant contribution to households that does not have access to solar energy.

Another respondent suggested that the optimal size would be 1.1 MW/3.3 MWh.

One respondent indicated that the battery could be as big as just under 5 MW with two hours of storage duration. 5 MW was seen as a strategic cut-off point in terms of simplifying the grid connection process and reducing the time and cost of the development.

Number of batteries

Several respondents suggested that a single battery, rather than a network of smaller batteries, would be the most cost-effective solution. The additional complexity of numerous battery installations was seen as negating economies of scale.

Energy Synapse view: Energy Synapse agrees with the respondents that the 1 MW/1 MWh configuration recommended by the Feasibility Study is likely to be undersized. Energy Synapse has not been engaged to perform any qualitative analysis or modelling for this Initiative. However, based on our experience, two to three hours of storage duration is likely to be more favourable on a cost/benefit basis, compared with one hour of storage duration.

We also agree with respondents that fewer, but larger batteries would be preferable to several smaller batteries. We understand that there are 2 x 750 kVA substations and 1 x 500 kVA substation that are available to be used as battery locations. We understand that Evoenergy has advised that a 750 kVA substation would be able to accommodate a 700 kW battery. We would recommend utilising the locations at the two larger substations for a total battery system size of 1.4 MW. If the total size across these two substations could be increased to 2 MW, that is likely to be preferable in terms of improving the co-optimisation of services (including FCAS). However, this size upgrade would need to consider the cost and community impact ramifications from upgrading two substations to 1 MVA each.

We agree with respondents that limiting battery size to less than 5 MW would simplify the connection and registration process.

The above views are indicative only and we agree with respondents on the need for a more comprehensive study to be carried out.

10. Depending on the services that the battery will be offering, what is the impact on the warranty of the battery and overall system?

There was very strong agreement among respondents that the expected operation of the battery was unlikely to have adverse impacts on the warranty.

Several respondents noted that the standard warranty for lithium-ion batteries is 10 years, but that the expected lifetime is often much longer (15-17 years).

Respondents also noted that battery control systems are designed to ensure that the battery operates within warranty conditions.

One respondent also noted that increasing the storage duration would have the added benefit of reducing the wear on the battery, resulting in a longer service life.

One respondent noted that hydrogen fuel cells typically have twice the lifetime of lithium-ion batteries.

Energy Synapse view: Energy Synapse agrees with respondents that the intended operation of the battery across multiple services is unlikely to adversely impact the warranty. Our experience with large-scale battery storage is that these systems are able to participate across energy arbitrage and all eight FCAS markets, whilst remaining well within warranty conditions. It is important to note that FCAS services are paid based on "enabled" volume. This is essentially battery volume that is kept in reserve. This means that a battery is able to earn FCAS revenue on a 24/7 basis, while only being required to provide a physical response for a fraction of the time.

Furthermore, as noted by respondents, battery control systems are designed to take into account warranty limitations and ensure the battery is not being over cycled. Increasing the storage duration will reduce this risk further.

11. Are there any design, spatial and construction requirements for batteries at this scale which can help inform planning and implementation?

Respondents indicated that the footprint of the battery will be a function of the storage capacity. At the upper end, a 5 MW/10 MWh battery would be expected to require 676 sqm. In contrast, a 4 MWh battery would require approximately 348 sqm (include substation).

Respondents also made a number of recommendations to help inform planning and implementation:

- Provisioning of sub-stations to include a pad-mount slab that already includes cable conduits for connection.

- Network power flow modelling to be included in the development stage with a robust set of assumptions of what local generation and residential loads will be.

- Network connection should be done on the low voltage side of the network where greater local benefit is derived.

- Site geotechnical and flooding conditions should be considered, so that the battery is in a location that avoids additional costs of raising the bench level.

- Evoenergy to stipulate in the scope and specification of the substation (during design stage) if there is any additional protection equipment it may require to operate a battery of this size and specification. If left unspecified, this could result in a large unexpected cost. For example, similar projects have incurred up to 30% of additional project costs for redundancy in protection devices.

Energy Synapse view: Energy Synapse strongly agrees that all of the above will be required to help inform the planning and implementation of the Initiative. A Network Technical Study (NTS) would also be helpful here.

Further requirements will likely be identified when the proponents prepare a development application.

5.4 Overall project related key considerations, challenges and risks

12. What timeframe would be required to develop proposals? What timeframe would be required to develop the project?

Respondents indicated they would need one to three months to develop a proposal, with the most common responses being six weeks or less.

Project development was generally expected to take six to nine months. Within this period, the development application was expected to take six months. Grid connection applications could take six months for a non-registered or non-scheduled battery, but could increase to a year for a scheduled battery. Note that development applications and grid connection applications can be carried out in parallel.

Energy Synapse view: SLA should allow respondents eight weeks to develop a proposal. Project development of six to nine months is realistic based on our experience.

13. What are the barriers/concerns in relation to financial, risk, planning and connection or operational elements of delivery including Covid-19 impacts? How can these concerns be minimised/addressed or managed?

Table 1 provides a summary of the barriers/risks and mitigation strategies suggested by respondents.

Table 1: Risks and mitigation strategies identified by respondents

Barrier/risk	Mitigation strategies
Financial project risks	
High upfront capital cost of battery	• Partial government funding to ensure that the model has an attractive return on investment (ROI) for the owner/operator. This could be in the form of a capital contribution, a reverse auction, or a joint ownership model. • Developing a single battery rather than a network of smaller batteries to reduce capital costs.

Barrier/risk	Mitigation strategies
Uncertainty over revenue streams (in particular FCAS)	• Government underwriting a portion of expected revenue streams to offset risk exposure to the market facing entity. • Billing model to largely benefit the community. • Use of financial modelling to better understand uncertainties.
DNSP network charges (A discounted daily connection fee could form a significant part of the value to residents. This would require negotiation between retailer/aggregator and Evoenergy, which involves a financial risk for both parties).	• Government underwriting this portion of the project to de-risk this component should the DNSP not be willing to provide an exemption.
Late and unexpected additional charges from DNSP (potentially up 30% of project cost)	• Evoenergy to include details of any additional protection equipment that may be required upfront in the project design phase in the scope and specification of the sub-station.
Planning and timing risks	
AEMO registration timing	• Sizing under 5 MW to be able to pursue a non-registered, non-scheduled strategy in order to reduce process from 52 weeks to 20 weeks. (Note that it is possible to upgrade to a registered connection at a later date, though there may be additional cost implications).
Site geotechnical conditions	• A geotechnical report to be required for the selected site to evaluate and mitigate this risk correctly.
COVID-19 impacts on timing (Note that most respondents indicated that they do not anticipate any significant project impacts due to COVID-19)	• Professional project planning with backup alternatives. • COVID-19 safe plan.

Barrier/risk	Mitigation strategies
Technical ability of project to meet project goals	
Power capacity and technical equipment requirements	• Gain inputs from the DNSP, retailers, AER and the Jacka community to establish an effective solution. • Residential load modelling to forecast load growth and provide a basis to design equipment with suitable requirement.
Environmental risks	
Risk of fire and/or environmental contamination	• Battery installation and maintenance schedule as per manufactures guidelines. • Handle battery with care. • Ensure batteries are not exposed to high temperature or prolonged sunlight. • Ensure batteries are not exposed to water or humidity. • Installation of fire sprinklers and fire suppression system.
Environmental and social justice impacts in the battery supply chain	• Sourcing materials sustainably.
Vandalism	• Investing in CCTV as a deterrent and/or fencing off community battery sites.
End-of-life management plans to ensure batteries are disposed of, recycled, or reused appropriately and in a sustainable way.	• Disposal at permitted treatment facilities.

Energy Synapse view: Energy Synapse has provided a consolidated risk analysis to the SLA in a confidential report.

13.1 What is the potential impact of technologies installed by community, such as vehicle-to-grid or behind the meter battery storage, on the market and non-market services especially distribution network services offered by the community-scale battery?

Respondents gave a wide range of views on the impacts of behind-the-meter and vehicle-to-grid technologies.

Some respondents expressed concerns that the installation of behind-the-meter batteries would reduce the availability of cheap, locally generated solar electricity, which may negatively affect the ability to share the benefits with community members who do not have access to solar. This would also mean that the owner/operator of the community-scale battery would need to purchase more electricity from the wholesale electricity market.

Other respondents thought that behind-the-meter (BTM) batteries would have a negligible impact on the Jacka community-scale battery, especially if the community-scale battery model is able to offer a more attractive/lower cost offer. One respondent thought that BTM batteries would increase benefits to the community through access to additional storage backup and better demand management. However, this was expected to come at a higher capital and operating cost to the community.

The uptake of electric vehicles could significantly increase the expected load in Jacka. Respondents expressed a high level of uncertainty around what might be possible with vehicle-to-grid (V2G), given that the uptake of V2G to date has been limited to very small trials. Some respondents suggested that V2G would shift the network peak demand from morning and evening peaks to a midnight peak. Others suggested that V2G would have a similar impact to BTM batteries in reducing the amount of locally produced solar for community redistribution.

Energy Synapse view: The impact of behind-the-meter batteries on the Initiative is likely to be minor if the community-scale battery delivers a more attractive offer, as is expected.

Our view is that the uptake of V2G is likely to be minor over the next decade. The primary form of load flexibility from electric vehicles is likely to be deferred charging, rather than V2G [6]. Deferred charging will be useful in helping to avoid growth in the coincident peak demand, even while total load is growing.

14. How can the SLA best ensure the proponent is making an informed choice and is managing customer expectations about their potential return on investment?

Several respondents highlighted the importance of good planning and preparation, with particular focus on scrutinising the proponents track records in managing costs and managing value stacking risks. It was suggested that offtake agreements and prices must be well understood and defined to ensure the customers' expectations are met. For example, potential returns could be very volatile if done under a merchant arrangement or very stable under a leasing arrangement (where the leasing party assumes the energy market exposure risk).

In terms of managing technical risks, one respondent suggested implementing a trial that would then allow the benefits to be assessed by all stakeholders.

One respondent suggested that under a co-operative structure, the community would set its own goals, and hence the SLA would not need to manage expectations. This respondent also suggested using real world data, confirmed by unbiased organisations such as research institutions and governments, to increase residents' confidence on the returns.

Another respondent cautioned that poor service delivery in the green energy industry would be immediately noticeable and would not be tolerated by consumers.

Energy Synapse view: Energy Synapse sees an important role for an independent party to provide a view on the potential returns. As these returns get realised, it will be important to have a transparent approach in communicating and passing these benefits through to the community.

15. How can the SLA best ensure that the research and development opportunities arising from the Project support the SLA's objectives in accordance with the SLA Sustainability Strategy 2021-2025?

Most respondents suggested implementing knowledge sharing plans, with one respondent suggesting this could form part of the contractual requirements for the successful delivery partner. The knowledge sharing plan should outline how data and learnings from the Initiative could be made available to help the SLA and research partners apply the learning to other projects and zero emission suburbs. Examples of shared data could include PV generation, electricity usage, energy import and export, and number of subscribed residents.

As part of this knowledge sharing, it was also suggested that there could be a role for an independent research partner to assist in the monitoring and evaluation of SLA's strategy objectives.

One respondent highlighted the important of developing a scalable and flexible solution, which can deliver zero emission suburbs beyond Jacka.

Another respondent mentioned that taking co-ownership of the development would help the SLA take responsibility of the direction.

Energy Synapse view: In addition to the proposed knowledge sharing plans, there is an opportunity for the Initiative's direction to be guided and evaluated by an independent research partner. This will help to ensure that the Initiative is being optimised to benefit all stakeholders and meet SLA objectives. The learnings from the evaluation can then be fed into future projects.

5.5 Government support

16. What role can the SLA play in supporting and addressing challenges or barriers for this Project and why is this required?

Respondents saw a key role for the SLA in community representation and engagement. This was seen as especially important in the context of a newly built community, where a sense of community would not exist for some time.

Multiple respondents also saw a role for the SLA to endorse the Initiative from a development and planning perspective. For example, the SLA will be more familiar with the relevant planning authority for the Development Application approval process. The established relationships with the specific people involved in the approval process, with their names and introductions, will help expedite the process, and as a result reduce costs and potential interface risks. Respondents also saw a role for the SLA to mandate a minimum of 6 kW solar to be installed on all properties, however, no justification was provided for this figure.

Multiple respondents also saw a supporting role for the SLA to assist with negotiations with Evoenergy regarding distribution charges.

One respondent mentioned the opportunity for the SLA to provide a financial contribution to the Initiative, which would bridge barriers including the capital cost of equipment and hard to manage project risks.

Energy Synapse view: Energy Synapse agrees with most of these responses. We see the primary roles for the SLA being the provision of a governance model to help safeguard consumers and overall SLA objectives, providing a subsidy payment to help improve financial viability, facilitating community engagement, and acting as a project champion.

16.1 In case of financial support, what is the ratio of Capex to support required?

Respondents gave a variety of options for financial support including:

- Similar levels to what is provided by the Next Generation Energy Storage program (i.e., $825 per kW of AC capacity installed).

- Facilitating a zero-interest loan.

- Zero government support.

Note that the ratio of capex to funding will vary depending upon the final design/configuration of the battery.

Energy Synapse view: Our view is that financial support from the SLA is highly likely to be required to make the Initiative financially viable. Energy Synapse has not been engaged to perform any quantitative analysis and would suggest that further work is required to identify the funding gap.

17. What information from SLA or Evoenergy would help the proponents to deliver a model that best suits the SLA's objectives?

Respondents requested access to the following information:

- Size of solar system that will be mandatory.
- Information on the type of dwellings for the sub-division including:
  - number of units expected,
  - number of town-houses, and
  - details on social and affordable houses.
- Network design for the Jacka community, including location of potential connection points, sub-station sizes and anticipated energy flow models (that show constraints at feeder and zone substation level).
- Power quality profile, including voltage levels.
- Expected residential and commercial loads.
- Clear intent from Evoenergy on the role they would like to play in the Initiative, including which network services it might take up and the willingness for Evoenergy to reduce Distribution Network Charges.
- Expected timelines of the development.
- How any concerns from the Jacka community will be addressed.
- How SLA will ensure that the Initiative benefits both participating and non-participating Jacka residents.

Energy Synapse view: Energy Synapse agrees that the above information would be helpful. An independent research partner would be best placed to lead the model development process because they will be able to work towards the SLA's objectives.

18. How can the SLA help to ensure a level playing field across different types of proponents and operational models?

Suggestions from respondents included:

- Having a well-defined scope, and key questions answered such as those relating to distribution charges.
- Setting up a panel that has appropriate skills and expertise to be able to evaluate the proponents' submissions from both a technical and commercial perspective.
- Potentially running a competitive bidding process such as a reverse auction (note that one respondent cautioned against price driven decisions).
- Seeking continuous inputs from key stakeholders before the SLA decides on major milestones, for example: when deciding on the ownership model, battery configuration, billing model, strategies to re-build community trust in the energy sector, and maintaining equity and long-term objectives.

Energy Synapse view: View provided to SLA in a confidential report.

6 References

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