



Consultation Questions:

<p>Question 1.1: Are the Program Outcomes relevant and appropriate for supporting the needs of battery manufacturing in Australia?</p>	<p>AGL suggests that the first Program Outcome be amended to include a focus on waste reduction, and reduction of both emissions and waste across the value chain e.g. '...support emissions and waste reduction across the value chain'.</p> <p>We note that the Productivity Commission has released an inquiry into opportunities in the circular economy. Given growing global waste issues and the importance of circular economy, it is critical that consideration be given to supporting the reduction in use of virgin resources. Additionally, we suggest that there be a greater focus on supporting emission and waste reductions across the entire value chain, particularly the reduction of important materials upstream of the manufacturing process. The current focus on pack assembly requires significant imports which increases both emissions and logistics costs.</p>
<p>Question 2.1: Are the elements of the battery manufacturing value chain prioritised in the Focus Areas appropriate and defined with sufficient clarity? If so, which Focus Areas would you identify as presenting the highest value opportunities?</p>	<p>End-of-life recycling:</p> <p>AGL urges ARENA to consider end-of-life recycling facilities as a Focus Area of the program. The Australian Energy Market Operator (AEMO) has forecast that Australia will need 19 GW of energy storage capacity in the grid by 2030, which will more than double to 43 GW by 2040, with over a half of it in home and community batteries (including EV to grid) (AEMO 2023). The battery waste issue will increase with rising demand for these products, particularly given recently announced government initiatives to encourage battery uptake (e.g. battery incentives under NSW's Peak Demand Reduction Scheme). Given the safety issues around transporting and exporting batteries for recycling, it is necessary that Australia build the capability and capacity domestically to manage this looming waste issue.</p> <p>Scrap materials produced in the manufacturing process for batteries assist viability of recycling facilities, providing a steady flow of feedstock in the interim as batteries reach end-of-life. We note that there currently is a lack of feedstock from both batteries reaching end-of-life and manufacturing scrap, which is providing a challenge in the Australian context¹. However, as domestic battery feedstock volumes increase over time, recycling and</p>

¹ See: [FBICRC report 'Charging Ahead: Australia's battery powered future'](#)

	<p>end-of-life management will present an opportunity to improve value in the battery manufacturing process through recoverability of materials. There is a risk that expansion of the recycling industry is delayed and cannot meet rising demand if it is not included in the Focus Areas.</p> <p>Long duration storage: We note that only electrochemical battery technologies are within scope of the Program. System inertia is an increasingly important issue as renewable energy penetration increases. Whilst electrochemical batteries can provide FCAS/fault current, more substantial inertia mechanisms in other battery forms may be required. We would urge that consideration be given to support for non-electrochemical based storage.</p> <p>Clarification around existing Focus Areas: AGL would welcome further clarification on the following points:</p> <ul style="list-style-type: none"> • Active Materials: whether precursors/other input material crucial to battery operation that are not the “active material” are within scope. • Cell Manufacturing: whether line automation is within scope. We would also welcome further detail on training and knowledge transfer and ongoing partnerships for onshore capability development and upskilling for cell manufacturing, given it is a nascent area in the Australian context. • Pack Assembly: whether BMS / software development is within scope.
<p>Question 2.2: What is your view and experience with the market readiness of manufacturing projects across different stages of the value chain?</p>	
<p>Question 2.3: Which stages of the battery manufacturing value chain do you have an interest in developing or expanding? What are the timelines to deliver this (e.g. for receiving funding certainty from ARENA, Final Investment Decision, construction, operation)?</p>	
<p>Question 2.4: Should certain stages of the value chain be progressed before others (e.g. do some parts enable others)? To what extent do certain stages of the value chain need to be progressed</p>	<p>Out of the three focus areas, it appears that Cell Manufacturing is the least mature in terms of onshore capability, as well as necessary to enable the foundations and synergies with the other Focus Areas. We therefore suggest that this be prioritised first.</p>

<p>in parallel (or jointly in integrated projects) to be successful?</p>	<p>Also refer to response to Question 2.1. – there are synergies between battery recyclers and manufacturing facilities through production of scrap waste. Therefore, attention needs to be given to scaling up a recycling industry for batteries.</p>
<p>Question 2.5: Do you think there is a need for the Program to support feasibility studies (or other development expenditure)?</p>	<p>We recommend that the Program supports funding of site / facility enabling works such as feasibility studies, planning and design work. Battery manufacturing can be costly with high uncertainty due to new and emerging technologies. Feasibility study support can provide additional confidence to investors for commercial adoption of products generated from this program as well as encourage novel R&D. Like the Solar Sunshot Round 1B objectives and outcomes, funding of these activities will enable development and operation of commercially viable facilities and reduce barriers to establishment of the supply chain.</p>
<p>Question 2.6: Where there is an existing manufacturing ecosystem (e.g. lithium-ion pack assembly), what could be done to ensure funding support through BBI retains competition between suppliers?</p>	<p>AGL considers that retention of IP and clarification of knowledge sharing requirements would help support competition between suppliers.</p>
<p>Question 3.1: Please provide any feedback on the proposed funding mechanisms.</p>	<p>We recommend that the program retains flexibility to offer support either through production linked credits or capital grants. Capital grants are more suitable where a project faces an initial large capital hurdle that once overcome the business can run profitably without ongoing financial support in the way of production linked credits.</p>
<p>Question 3.2: What is your preliminary view of the required production incentive value (range) for your project?</p>	
<p>Question 3.3: In what kinds of projects will production incentives be the most effective form of funding? In what projects might capital grants be more suitable? In what projects might a combination of capital grants and production incentives be suitable?</p>	<p>Refer to response in Question 3.1.</p>
<p>Question 3.4: ARENA has proposed that applicants design the production incentive support model as part of their applications. Would it be more productive if ARENA designed a fixed production incentive model to be used for all projects?</p>	<p>Retention of flexibility of any production incentives would be preferred to maintain the opportunity for applicants to better express the benefits of a particular project.</p>

<p>Question 3.5: What evidence could be provided to ARENA to ensure production incentives are only paid for outputs that are successfully delivered to the end customer? How might ARENA ensure that outputs meet quality standards and are fit for purpose?</p>	
<p>Question 3.6: What other policies or support could Government consider that would complement the Program?</p>	<p>There are a number of policy and support mechanism that the government could consider to complement the Program and support growing the battery manufacturing industry, some of which include:</p> <ul style="list-style-type: none"> • A national product stewardship scheme for e-waste, including batteries, to regulate end-of-life management for these products. • Establishing standards for battery information accessibility e.g. Guarantee of Origin certification scheme or battery passport system as is seen in Europe, to track the full lifecycle as well as embodied emissions. • National standards for e-waste, but specifically battery recycling (aligning with Victoria). This could include: <ul style="list-style-type: none"> ○ Minimum recycled content for manufacturing solar panels and batteries. ○ Recycling/collection targets to drive investment, as well as waste levy reviews to disincentives sending waste products to landfill. ○ Support for second-hand economy for used batteries e.g. repurposing EV batteries into stationary batteries. • Funding support for recycling and recovery of high value critical minerals from batteries and solar. • Leveraging government buying power to provide support and establish domestic demand for locally manufactured materials and products.
<p>Question 4.1: Are the proposed maximum and minimum funding limits appropriate, given the draft Program Outcomes? How might these limits constrain your Project?</p>	
<p>Question 5.1: Do you think there is merit in the Program supporting projects through this demand-side model (in addition to supply-side support)?</p>	

<p>Question 5.2: Please provide examples (if any) where this demand-side model would effectively contribute to the Program Outcomes.</p>	
<p>Question 7.1: Do the Eligibility Criteria seem reasonable? Are there any additional criteria you would add to the list, or are there any criteria that may be challenging to achieve?</p>	<p>AGL considers the Eligibility Criteria to be reasonable. However, we would welcome clarification as to whether Joint Venture or Consortium partnerships are eligible under the Program.</p>
<p>Question 8.1: Do the Merit Criteria seem reasonable? Are there any additional criteria you would add to the list, or are there any criteria that may be challenging to achieve?</p>	<p>AGL considers the Merit Criteria to be reasonable. However, it's unclear whether some criteria will be prioritised over others. AGL would welcome further detail as to potential weightings for each Merit Criteria.</p> <p>It is also unclear whether there will be a focus on sustainable manufacturing inputs and development e.g. design for manufacture and flexible equipment selection.</p> <p>AGL provides the following as additional merit criteria considerations:</p> <ul style="list-style-type: none"> • <i>Prioritisation of Australian owned products:</i> Higher consideration in the assessment criteria should be given to Australian-owned innovative designs, or foreign companies partnering with Australian-owned entities. Additionally, thought should be given to supporting companies that prioritise locally manufactured content upstream in the value chain (i.e. refined minerals, battery cells), decarbonising the manufacturing process through reducing the need to import components. • <i>Prioritisation of innovative designs:</i> Consideration should be given to prioritising innovative products that are designed optimally for Australian conditions, and with safety and waste reduction in mind e.g. cybersecurity and recyclability considerations.
<p>Question 10.1: What are the highest value knowledge sharing benefits that could be gained from this Program?</p>	
<p>Other feedback</p>	<p><i>Reporting requirements:</i> Due to the small-scale nature of a number of potential applicants and</p>

	<p>potential resource constraints, we recommend that consideration be given to application and ongoing reporting requirements under the Battery Breakthrough program and streamline these where possible to reduce burden on project proponents.</p> <p><i>Inverters:</i> while not directly covered within this program, or the Solar Sunshot program, it is critical that inverter technologies be considered as part of the broader Future Made in Australia policy agenda given their critical role in grid connection and stability within solar and battery systems. They play a vital function in ensuring system safety and maximizing energy production, and inertia may be partially addressed through battery capacity.</p> <p><i>Interaction with other support mechanisms:</i> battery manufacturing is highly entwined in other technologies such as solar. We would welcome clarification on the interaction of this Program with other similar programs such as Solar Sunshot, which may have synergies.</p>
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