2020-21 BUDGET: BUSINESS CASE

Proposal name:	ACT distributed large scale battery storage system
Minister and Ministerial Portfolio:	Andrew Barr MLA, Minister for Climate Action
Electorate:	All
Suburb:	All
Election Commitment details:	Yes Parliamentary Agreement Item A1(v)
Year to Cease Funding:	2023-24

Financial Impacts Summary	**2020-21 $'000**	**2021-22 $'000**	**2022-23 $'000**	**2023-24 $'000**	**2024-25 $'000**	**Totals $'000**
Capital Impacts						
Capital						
Capital (provision)		15,000	25,000	30,000	25,788	95,788
Expense Impacts[a]						
Expenses	250	1,389				1,639
Expenses (provision)[c]			1,292	952	329	2,573
Expenses – depreciation						
Revenue/Savings/Offsets Impacts						
Revenue						
Savings						
Offsets[b]						

Staffing Impact	**2020-21**	**2021-22**	**2022-23**	**2023-24**	**2024-25**	**Total**
Total additional FTEs (number)	1.1	5.5	4.5	4.5	2.0	

(a) For capital works proposals, this should be the whole of life cost.
(b) Applies also to expenses associated with capital works and ICT proposals, with the exception of Repairs and Maintenance expenses.
(c) Some provisioned expenses may be capitalised, depending on the finalised design.

PLEASE NOTE THAT THE YEAR ON YEAR SPLIT OF THE CAPITAL PROVISION WOULD BE MARKED NOT FOR PUBLICATION IN THE FEBRUARY 2020-21 BUDGET DUE TO COMMERCIAL SENSITIVITIES.

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1. Description

Action A1(v) of the Parliamentary and Governing Agreement (PGA) specifies a government commitment to deliver at least 250 MW of new 'large-scale' battery storage (LSBS) distributed across the ACT. Depending on the outcome of a market sounding and the LSBS reference design findings, this could include one to two large sites, as well as a series of distributed precinct-scale batteries.

This business case has been developed to provide an estimate of the cost of delivering the initiative. To devise these cost estimates a range of assumptions have been made around how the commitment would be delivered and operate. These assumptions have been made for the purposes of costings only and do not represent final design decisions on how the initiative will be delivered. As the Minister for Climate Action, I will bring a submission to the Climate Action Cabinet Subcommittee early in 2021 with a proposed design of the initiative for consideration and decision.

The initiative was provided as an election costing request (**Attachments A**) which specified the funding envelope of $100 million to achieve the 250 MW target.

The initiative design will need to take into account the 4 key considerations:

1 – Determining the **optimal package of services** of a distributed LSBS system in the ACT

LSBS systems provide a range of 'services' to electrical transmission and distribution networks. **Attachment A** outlines the types of services that could be provided in the ACT by LSBS above 5 MW and between 200 KW and 5 MW.

In the last 5 years several LSBS systems have been built or are currently under development in Australia. However, despite these existing systems some of the services provided by LSBS systems are relatively novel to the Australian Energy Market and do not have mature market pricing mechanisms. In its *Large Scale Battery Storage Knowledge Sharing Report*, ARENA found that:

> *"Commercial viability of battery projects requires further development of market structures and incentive mechanisms to recognise and value the services LSBS can provide, including for Fast Frequency Response (FFR) and simulated inertia."*

Battery proposals have had mixed success attracting private sector financial backing without underpinning Government guarantees or subsidies. Successful LSBS systems have resulted in reduced power prices for consumers. For example, SA's Hornsdale Power Reserve, saved consumers more money in 2019 alone than the cost of the project. The Victorian Big Battery is similarly projected to have a high benefit cost ratio).

The Government's commitment is to a distributed network of LSBS systems. This flexible approach provides an opportunity to acquire a range of LSBS services that can be customised to the unique requirements of the ACT energy network and support a stable transition of households away from gas in line with PGA A1[vi – ix].

While the potential benefits from this distributed model may be higher than a single LSBS, more work will be required to understand the highest value LSBS services for the ACT, and to support an orderly approach to market. This distributed model approach adds significant complexity to the project and will require greater implementation time – if only due to the need to identify and achieve planning approvals for a larger number of sites. There are technical considerations regarding the optimal location of batteries, however, they tend to be in areas of constrained land availability.

The financial arrangements of the Territory will also be examined. The Territory may deliver components of the distributed network itself and retain full asset ownership rights, it may partner with a private sector provider through an SPV model, it may offer concessional finance for a guaranteed rate of return or it may underwrite projects for a fee. A number of commercial arrangement options will be explored.

2 – **Integration** with the ACT electricity network and **site constraints**

Determining the appropriate sites to physically locate LSBS systems will also require consideration. Some LSBS systems will require direct connection to the TransGrid or Evoenergy networks which limits the number of suitable sites. A market sounding will provide insights for best placement of sites to optimise network support.

Neighbourhood level LSBS will be in closer proximity to households and may attract objections from residents on perceived safety, noise, and visual amenity grounds. Community engagement will be important to communicate LSBS opportunities. Evoenergy engagement will help identify suitable connection locations within the ACT distribution network.

3 – Determining an appropriate **engagement model**

There are a range of approaches and ownership models available in the market. Each option will use a different combination of government and private investment capital and will have differing revenue streams, for example:

- the Government could directly procure a distributed LSBS system through a standard procurement or a joint venture and take a share in any profits/losses, or
- it could undertake a reverse auction to guarantee a LSBS provider an availability payment for a range of energy market services, potentially funded directly by energy users off budget.

4 – Modelling the **financial and other impacts** of the initiative

An assessment of the impact of the scheme will then need to be made in terms of financial, electricity network stability and emissions reduction objectives. This is likely to take the form of a cost benefit analysis, which could be undertaken following the market sounding.

Proposed phasing of work

A market sounding/expression of interest process (Phase 1) will be undertaken to test the market and determine what types of packages of services and infrastructure the market can provide.

This information will be incorporated into an analysis of the scope of LSBS services that will be optimal for the ACT's distribution and transmission networks. The result of this work will be an *ACT distributed LSBS design brief* which will describe for each identified site:

- what LSBS services should be provided,
- where they can be located and the specifics of the site,
- how the LSBS will be initially funded (see 3 above) and any ongoing revenue streams; and
- the expected delivery timeframe of each project.

A Submission will be brought to Cabinet on options as part of the development of the *design brief*.

This *design brief* would also reflect the Government's complimentary initiatives to increased rooftop solar generation, and commitments to restrict gas connections in new suburbs and infill development. Specialised technical inputs will be required to complete the *design brief* which will be jointly produced with EPSDD's Climate Change & Sustainability Division and Access Canberra's utility technical regulation team.

Using the *design brief* and the information gained during the EOI process, a procurement/engagement process (such as a request for tender or a reverse auction) will be undertaken on a rolling number of investment packages (Phase 3).

Outputs funded by this Business Case

This business case seeks funding for staffing and specialised technical inputs to undertake the following tasks to deliver this election commitment:

- Run a market sounding or expression of interest process to understand opportunities available and potential market offerings.
- Prepare an *ACT distributed LSBS design brief* for Government to guide engagement with the private sector on investment opportunities.
- Prepare a Project Business Case which will include the costs and preferred market options for the delivery of the ACT distributed LSBS program for the purposes of releasing a capital and expenses provision from 2021-22.
- Run a procurement/engagement process (mix of procurement approaches to be determined by the *design brief*).
- Identify and support land approvals for appropriate large and neighbourhood level LSBS.

- Issue the appropriate contracts or instruments to engage with private sector providers to construct the physical LSBS systems.
- Probity advice and legal services from GSO.

The cost associated with funding the LSBS has been provisioned in this business case as the impact on the Headline Net Operating Balance will be further developed as part of the design brief. Financial adjustments to these estimates are expected in future budgets.

2. Options Analysis

Option 1: Fully fund the project expenses across the budget period with provisioned capital funding from 2021-22.

Option 2 **(recommended)**: This business case. Same as option 1 but also provision expenses from 2022-23 onwards and all capital funding from 2021-22.

There are a number of uncertainties in the expenditure profile of this initiative as key design decisions have not yet been taken. As such, I recommend that funding be approved for expenditure in 2020-21 and 2021-22 only. All future expenditure would be provisioned and subject to a review by ERC based on the government's decisions of the number and type of LSBS systems, and the process of engagement with the private market.

Option 3: Defer commencement of this business case to 2021-22 Budget and restrict the number of neighbourhood sized systems (not recommended).

Deferring this business case for 12 months would reduce the ability of the project team to deliver the full commitment during this term of government.

However, the complexity of the project and the timeframes required hinge on the total number of individual LSBS systems that are to be connected to the network. This is due to a need to undertake planning approvals and network engineering studies for each individual site.

If the complexity of the project is reducing by limiting the number of neighbourhood LSBS systems to say one or two, with a limited number of larger systems (of greater than 50 MW capacity) then the number of site investigations and approvals would be commensurately less. However, it is not clear at this point whether this configuration would provide useful services to the ACT transmission and distribution networks.

3. Stakeholders and consultation with other directorates

The proposed phasing of work outlined in this business case has been informed by consultation within CMTEEDD as well as with the Environment, Planning and Sustainable Development Directorate (EPSDD), the Transport Canberra and City Services Directorate (TCCSD), Access Canberra, and the Justice and Community Safety Directorate (JACS).

External organisations including Evoenergy, TransGrid, ActewAGL Retail, Origin Energy, the Australian National University (ANU) Energy Change Institute, the Australian Renewable Energy Agency (ARENA), the ACT Council of Social Services (ACTCOSS) and the Conservation Council ACT are relevant stakeholders and would be consulted as appropriate.

The stakeholders anticipated to be impacted by the measures include ACT electricity consumers, TransGrid, Evoenergy, and electricity retailers.

4. Further cost details

4.1. Preliminary cost estimate

The initiative will be delivered by CMTEDD in partnership with EPSDD. These cost estimates outline the anticipated expenditures across scheme design and ongoing operation.

A Project Lead team 0.5 FTE of an SES 1.4 and one ASO 5 to oversee the project including working with EPSDD overseeing the scheduling and production of the key outputs and manage the procurement of specialised consulting inputs. The position would require an understanding of LSBS systems and key decision processes of government. This position would also develop key project probity, governance processes and reporting functions. It would also ensure the application of these processes could be demonstrated (such as for the Auditor-General).

One SOG B and one ASO 6 officer with skills in energy policy to prepare the design brief and project business case and manage and oversight the procurement of any specialised technical inputs. Additional tasks will involve progressing planning approvals or environmental studies for identified LSBS sites and undertake any community and industry consultation.

One SOG C and one ASO 6 officer to develop the options on how the territory financially engages with LSBS operators which may include negotiations with Evoenergy and TransGrid. There will be a range of potential options from direct procurement, reverse auction, PPP, or joint venture. The differing sizes and services provided by the LSBS systems will impact on the financial engagement model.

Specialised technical inputs will be required to produce the *ACT distributed LSBS design brief* which will be accessed through a service agreement with Access Canberra – who have existing commercial arrangements with technical experts.

GSO has advised that they expect significant legal resources would be associated with this project given the potential for multiple commercial arrangements, possibly for novel LSBS services. They have also advised that a contingency should be established for external legal services given the technical nature of the anticipated work. In the event external legal services costs arise I will bring forward a separate business case.

Anticipated costs in 2021-22 and 2022-23 are as follows

	Cost $'000
External technical inputs (design)	100
Access Canberra UTR technical inputs (service agreement)	300
Probity and legal advice (GSO)	400
TOTAL	800

5. Implementation

5.1. Key deliverables and timetable

The key deliverables are considered within three distinct phases.

Phase 1: Market sounding and Expressions of interest

This phase would involve engagement with industry providers through market sounding and an expression of interest process to determine the market options and interest.

The key deliverables would be:

- Recruitment actions undertaken to create project team (December 2020 / January 2021)
- Conduct a market sounding (Feb/Mar 2021) and then an Expressions of Interest in April/May 2021 closing in June 2021.

Phase 2: *ACT distributed LSBS design brief* and Project Business Case

Phase 2 is the development of an *ACT distributed LSBS design brief* which would be used to engage with private sector providers in phase 3. The design brief would outline the range of opportunities for LSBS projects (including the types of services required and the types of legal and revenue structures that could be acceptable). An associated business case (called the *Project Business Case*) would also be developed seeking the release of the expenditure and capital provisions proposed in this business case.

The key deliverables would be:

- Tender released seeking specialised technical inputs to support the development of the *ACT distributed LSBS design brief* (Feb 2021)
- Tender evaluation completed and specialised inputs commence (March/April 2021)
- Options analysis provided to the Climate Action Cabinet Subcommittee (approximately August/September 2021) including the identification of any potential expansions of existing LSBS projects
- *ACT distributed LSBS design brief* and Project Business Case considered by Climate Action Cabinet Subcommittee, Expenditure Review Committee and then Cabinet

(October/November 2021). Seeking early approval to release the contingency to allow procurement phase to begin.

- (subject to Cabinet's decision on early engagement options) Commence early engagement with existing LSBS providers (November/December 2021)
- Land studies and planning approvals for identified sites (September 2021 – March 2022)

Phase 3: Procurement phase (2021-22 to 2023-24)

The deliverables and timing of this phase would be subject to decisions taken by Cabinet on the design brief. Indicative deliverables and timing are:

- From January 2022 run a series of procurement/engagement processes as determined by the design brief. Expected to be in a series of packages over 6-12 months starting with large systems (50 MW+) then moving to neighbourhood sized systems.
- Construction of individual LSBS projects are expected to commence from July 2022 at the latest subject to approvals, some contingency has been allocated in 2021-22.
- Ongoing work in oversighting completion of works or activation of service contracts.

5.2. Governance, resources, and risk management

Governance

Governance arrangements and implementation team design will be developed based on the options chosen by Cabinet on this business case and the other climate action business cases under consideration in the 2021-22 Budget. A submission covering all Parliamentary and Governing Agreement climate action commitments will be brought to Cabinet for consideration early in February 2021 which will detail these governance and implementation arrangements.

While the funding would be appropriated to CMTEDD, it is expected that some of the delivery team would be functionally located in EPSDD (reimbursed by CMTEDD) to ensure linkages with other energy initiatives and to leverage existing knowledge and capability. The final model will be determined in consultation with relevant Ministers.

Risks

The novel nature of LSBS projects mean that optimising their operation in the ACT's electricity grid will require specialised inputs. Failure to procure appropriately skilled individuals to undertake this task could flow through to lack of market interest from private providers in the expression of interest phase, or significant reworking of designs. Integrating the distributed LSBS system into the ACT in a suboptimal way could lead to low rates of return for the ACT Government, or in terms of downward pressure on energy prices for ACT consumers. A complementary business case (entitled *Phasing out*

fossil-fuel-gas in the ACT, supporting energy grid stability and supporting vulnerable households) has been prepared to address this risk and ensure that a holistic ACT Energy Policy is put in place to guide the ACT's energy system transition.