PLANIT

Strategic + Transport
Town Planning

Planning Review Battery Storage Systems & Electric Vehicle Charging

Final Report

June 2022

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1 Introduction

1.1 Objective

The objective of this project is to review the interaction of the 'planning system' with the growing demand for grid connected batteries in the ACT and to provide commentary on the provision of electric vehicle charging infrastructure.

For this project the 'planning system' relates actions and decisions relating to the *Planning and Development Act 2007*.

The project has been initiated by the Climate Change and Energy Division of the Environment, Planning and Sustainable Development Directorate within the ACT Government.

1.2 Scope

The scope of the review is to focus on the following areas:

- Whether a specific Development Approval exemption should be introduced for battery storage proposals that meet certain criteria.
- Whether Impact Track triggers sufficiently address larger battery storage proposals.
- A review of the definitions of utility and electricity infrastructure.
- A general review of the Planning and Development Act, Regulation, and the Territory Plan.

The scope is to develop policy recommendations rather than detailed planning controls.

1.3 Background

There is growing acceptance that grid connected batteries are part of the solution to meeting our energy needs in a zero emissions future. They are complementary to intermittent renewable energy generation and can be distributed in the network to also provide grid stability services and reduce the need for grid upgrades.

Batteries can be installed at any scale allowing them to be installed at a single home or business, a neighbourhood or suburb or at a utility scale. With the larger batteries comes an economy of scale, but a loss of self-sustainability for individual users. Larger batteries also result in a concentration of energy supply and demand in the network, potentially increasing the need to transmit electricity and consequently undertake network upgrades.

It is not yet clear whether household scale batteries or utility scale batteries are the best solution, and it seems likely that a combination of different scales will be developed. Household and utility scale batteries have led the market to date and neighbourhood scale batteries have lagged, but this is changing.

Energy companies in Sydney and Melbourne (and other jurisdictions) have active programs to roll out hundreds of neighbourhood scale batteries within the National Electricity Market[1].

The ACT Government is seeking to facilitate the transition to zero emissions and batteries, electric vehicles and hydrogen are all a part of this plan.

The Sustainable Household Scheme is actively encouraging people to purchase household batteries (and other electric products) with zero interest loans.

The ACT Government's Big Canberra Battery project is seeking to provide at least 250MW of battery power connected to the grid within the ACT. It is expected that this will consist of some large facilities and numerous small installations.

A recent review of the Territory Plan in relation to hydrogen projects identified some recommendations for changes. This review seeks to understand whether changes to the planning system are also needed to support the safe and orderly integration of batteries into our power supply network.

1.4 Planning Reform Project

The ACT Government is progressing a planning reform project that will result in a new Planning Act and a new Territory Plan.

This report provides the opportunity to suggest changes to the planning system that could be incorporated into the planning reform project.

At the time of writing this report a Consultation Draft of a new "Planning Act 2022" is available for public review. This planning bill proposes several changes to the planning system and will require the introduction of a new Territory Plan.

It is expected that a Draft Territory Plan will be presented for consultation in late 2022.

Except where specifically stated, references to the Planning and Development Act, Regulation, Territory Plan and other elements of the current planning system in this report relate to the system as of the date of this report (i.e. prior to planning reform changes taking effect).

1.5 Project Methodology

This report has been compiled based on:

- An initial meeting with the Project Working Group and other stakeholders.
- A review of the relevant planning legislation.
- Investigations of policy in other jurisdictions to determine whether there are initiatives that could be informative for the ACT.
- Preparation of worked examples to illustrate how the current system applies to various types of proposals and to identify opportunities for improvement.
- Preparation of conclusions and recommendations based on the information in the report.
- Review of the draft report by members of the project working group.

[1] A community battery 'like a corner store': Is this the future of home energy storage? - ABC News

1.6 Key Considerations

A question for this project to consider is whether the planning system needs to specifically address battery installations.

There is a general acceptance that batteries can help to achieve a zero emissions future and are complementary of the move to greater electrification of energy sources, but there are some concerns about batteries associated with:

- The chemical composition of the batteries
- The potential fire risk
- Noise from cooling systems associated with larger installations
- The physical presence of new infrastructure, potentially in the public domain
- End of life disposal considerations.

Some key considerations are:

- Does the planning system need to address these matters generally for all projects rather than specifically for batteries?
- Are these concerns addressed sufficiently through other legislation?
- Are the existing exemptions that allow for battery installations without planning approval too generous?
- Particularly for larger batteries, should the planning system be identifying where they should be, or is this the role of the network provider?

1.7 Project Working Group

The working group that has been established for this project includes:

- Big Battery Policy Section, EPSDD
- Office of the Coordinator General (Climate Action), CMTEDD
- NextGen program, EPSDD
- Planning System Reform Project, EPSDD
- Climate Change Policy Section, EPSDD
- Impact Assessment, EPSDD
- Merit Assessment, EPSDD
- Territory Plan Section, EPSDD
- Infrastructure Planning, EPSDD
- Utilities Technical Regulator (Access Canberra)
- Leasing Section, EPSDD
- EPA
- Gas Transition Taskforce (EPSDD/CMTEDD)

1.8 Terminology

This report refers to the 'size' of a battery storage system in numerous chapters but there are two ways that the 'size' can be measured.

The first way is by power output. This is the most used number when referring to thresholds for grid connections and utility regulator certificates. The units of measure are Watts, normally kilowatts (kW) or megawatts (MW).

EvoEnergy actually use kVA as their thresholds, which is the real power in kW divided by the Power Factor.

The second way is by energy storage capacity. This is potentially more relevant when considering planning matters because it will relate to the physical size of the battery. The units are normally kilowatt hours (kWh).

The two measures are normally somewhat proportional, in that larger storage batteries tend to have a larger power output capability, but the relationship is not always the same.

For example, a Tesla Powerwall 2 has a power storage capacity of 13.5 kWh and a maximum power output of 5.8 kW.

The Neoen Capital Battery that is under construction in Jerrabomberra in the ACT has a storage capacity of 200 MWh and a power output capacity of 100 MW.

It is noted that in planning documents the difference between these units may not always be appropriately identified.

2 Project Scale

2.1 Three Scales

To describe battery development projects in this report, three different scales have been adopted, these are:

- On Block installations (small)
- Neighbourhood Scale (medium), and
- Utility Scale (large)

These project scales are elaborated below.

In all cases, it is assumed that the batteries are grid connected however the planning implications for gid connected or off grid systems are not significant. The bigger difference comes from the need for grid connected systems to be subject to connection agreements, registrations etc..

2.2 On Block

These are smaller batteries (normally less than 20kW) that support the existing use on a single block of land. They include home batteries but may also include batteries installed on commercial, industrial or community facility sites (such as schools) that can be much larger than 20kW.

They sit behind the meter and are typically owned by the owner of the land. They are generally exempt from requiring planning approval because they are small enough to be attached to a building or fitted within an existing garage or otherwise exempt outbuilding.

Installation of these battery systems is controlled through Australian Standards and legislation or other agreements such as grid connections and utilities regulations.

2.3 Neighbourhood Scale

These are mid-scale batteries with a broad range of sizes.

They come in a very wide range of forms and may be developer or community led projects or led by the network or power supply companies.

Ownership and land tenure models are variable.

Batteries within unit or community titles are also considered in this category for the purpose of this report because of the potentially complex nature of ownership.

Planning approvals are also highly variable and need the greatest clarification (but not necessarily intervention).

Batteries over 5WM that import and export electricity to the grid are required to be registered with the Australian Energy Market Operator (AEMO) as both a load and a generator[2].

Due to the number of variables for these batteries, division into further sub-categories may be necessary for planning considerations.

[2] registering-a-battery-system-in-the-nem.pdf (aemo.com.au)

2.4 Utility Scale

These are Big Batteries with typical size of more than 10MW.

They are generally a stand-alone installation on a dedicated block of land with a direct connection to the high voltage transmission or distribution network.

Their location is often chosen based on proximity to existing zone sub-stations or network connection opportunities.

They are typically owned by power industry specific companies such as generators or network providers.

They are also called grid-scale projects and are the most likely to be considered major utility infrastructure that requires detailed environmental assessment and planning approvals.

Planning approvals for utility scale batteries typically require either a Merit or Impact Track development application in the ACT. They are of a scale that the project would typically engage professional town planning advice to help navigate the approvals requirements.

In other states, they are normally considered by the state planning authority rather than local councils.

Figure 1 – Artist rendering of the Victorian Big Battery (Neoen)

3 Planning Context

3.1 Commonwealth

3.1.1 National Capital Authority

The ACT is divided into three planning jurisdictions:

- National Land (land directly owned and managed by the Commonwealth) and Designated Areas (identified in the National Capital Plan) fall within the planning jurisdiction of the National Capital Authority.
- The Canberra Airport is administered by the relevant Commonwealth Minister under the *Airports Act 1996*.
- The remainder of the Territory falls within the planning jurisdiction of the ACT Government.

The focus of this project is land for which the ACT Government has planning jurisdiction, so projects on National Land, within Designated Areas or the Canberra Airport lease would need to be considered separately.

The Designated Area is primarily focused on the Parliamentary Triangle and the inner hills areas, but also includes other parts of the Territory and the main approach routes.

Identifying the relevant planning jurisdiction is one of the first steps for any project in the ACT.

3.1.2 EPBC Act

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Commonwealth Government's legislation for the protection of matters of National Environmental Significance (including ecological and heritage matters).

Obligations under the EPBC Act apply to all of Australia, so this act remains applicable irrespective of the planning jurisdiction within the ACT.

If a proposal is not likely to have a significant impact on any matters of National Environmental Significance, the proponent can self-assess and no action is required.

Where there is potential for a significant impact, then referral to the Commonwealth is required. The Commonwealth will determine whether the project is:

- Clearly unacceptable (deemed unacceptable impacts and cannot proceed);
- Not a controlled action (maybe subject to particular conditions) and hence no further Commonwealth assessment is required; or
- Is a controlled action and the nature of the assessment that is appropriate.

If the project is a controlled action, there are several possible assessment approaches including assessment via the ACT Government's bilateral agreement, which requires an Environmental Impact Statement (EIS) to be prepared under the Planning and Development Act with the Commonwealth as a referral agency.

This bilateral approach avoids the need for duplicated environmental assessments however it cannot be used where the proposed project straddles planning jurisdiction boundaries (for example, if it is partially on designated land).

Within the ACT, much of the land that has not previously been developed contains ecological species or communities that are listed under the EPBC Act, so it is common for large development projects to require referral under this Act.

The outcomes of an EPBC referral can dictate the required planning approval pathway under the Planning and Development Act, so identification and resolution of any potential EPBC Matters must be addressed early in the process.

EPBC matters are most likely to affect utility scale projects but may be applicable to any project.

3.2 Territory

3.2.1 Planning and Development Act

The object of the Planning and Development Act is to provide a planning and land system that contributes to the orderly and sustainable development of the ACT that is:

- consistent with the social, environmental and economic aspirations of the people of the ACT; and
- in accordance with sound financial principles.

The Act sets out the important elements including:

- the role and function of the Planning and Land Authority
- the Planning Strategy – the ACT Government's long term planning vision for the Territory.
- the Territory Plan – that sets out land use zones, development tables that list assessable and prohibited uses for each zone, and development codes (precinct, zone and general codes) that provide for rules and criteria against which development is assessed.
- Development Approval processes (see Chapter 4)
- Environmental Assessment requirements (see Chapter 7)
- Leases and Licences (land tenure) arrangements.

Relevant parts of these functions are discussed in detail in subsequent chapters of this report.

The Act is accompanied by a Regulation that provides additional details to support some elements and processes from the Act. Importantly, Schedule 1 of the Regulation identifies the forms of development that can be exempt from the requirement for development approval.

A discussion of exemptions and their relationship with battery storage proposals is presented in Chapter 5.

3.2.2 Crown Leases

Territory land is either unleased (with an ACT Government directorate as the custodian) or held by a lessee via a Crown Lease.

The crown lease states the purpose for which the land may be used (for example; residential or shop) and may also contain other lease conditions.

A lessee may not act contrary to their crown lease but may apply to vary the crown lease to add uses or change conditions if the lease remains consistent with the Territory Plan.

3.2.3 Other Legislation

This review has identified up to 15 other ACT Government Acts that may be of relevance to battery storage proposals.

A summary of relevant considerations under these Acts is presented in Chapter 8. In most cases only a small number of these additional acts will be applicable to a particular project, but larger projects may need to address several of them.

Projects that require a Development Approval provide the opportunity for referral agencies to identify approvals under other legislation that will be required for the project to commence. This can be of benefit to a proponent because it helps with overall legislative compliance.

Projects that are exempt from development approval do not benefit from this advice.

4 Planning Approvals

4.1 Development

Under the Planning and Development Act (s7) the definition of Development includes (among other activities):

(a) building, altering or demolishing a building or structure on the land;
(b) carrying out earthworks or other construction work on or under the land;
(c) carrying out work that would affect the landscape of the land;
(d) using the land, or a building or structure on the land;
(e) subdividing or consolidating the land;
(f) varying a lease relating to the land….

On this basis, the installation of a battery would typically constitute development.

It is an offence under the Act to undertake development without approval (s199), but some development is exempt as described in Chapter 4.3 below and elaborated in Chapter 5.

4.2 Definition of Uses

When considering a development proposal, the use of the land needs to be identified.

The proposed use helps to determine whether the proposal is permitted within the applicable land use zone.

Use definitions that are relevant (or potentially relevant) are discussed below.

4.2.1 Ancillary

Ancillary use *means the use of land for a purpose that is ancillary to the primary use of the land.*

Ancillary means associated with and directly related to, but incidental and subordinate to the predominant use.

Household batteries would be considered ancillary to the residential use of the land as would batteries installed on any site to support any other use. Batteries would cease to be ancillary if they are the primary use of a parcel of land.

Ancillary use is permissible in all zones in the Territory Plan and does not have to be specifically identified in the purpose clause of a Crown Lease to be approved. This means that ancillary uses can be introduced without the need for a lease variation.

4.2.2 Major Utility Installation

MAJOR UTILITY INSTALLATION is an umbrella term that includes numerous sub-terms associated with the provision of utility services to the city.

Uses that are included in Major Utility Installation include:

Major electrical sub-station *means switching and transformer equipment handling voltages greater than 66kV.*

Major service conduits *means …, transmission lines having a voltage greater than 66kV, ….*and several other forms of pipes and wires.

Power generation station *means equipment and associated buildings constructed for the generation of electricity utilising gas, coal, renewable energy technology or other fuel sources.*

There is not a sub-use that specifically includes Utility Scale battery installations, but the Neoen Battery at Jerrabomberra ACT has been approved as a Major Utility Installation.

The inclusion of a definition of a Major Battery would provide additional certainty that large battery storage facilities are appropriately approved as Major Utility Installations. If larger facilities are not clearly captured in this definition, there is a risk that they would be identified as an innominate use and hence be automatically impact track assessable.

A threshold scale would need to be identified such as 5MW or connected to 66kV or above. The 66kV threshold matches the definitions of other major electrical proposals such as sub-stations and conduits. The 5MW threshold is suggested as this aligns with the proposal becoming a registered generator.

Specifically identifying Major Battery as a sub-set of Major Utility Installation would potentially limit the locations where they could be installed because Major Utility Installations are not permitted in all zones.

Major Utility Installation is prohibited in all the commercial zones (CZ1 to CZ6).

Major Utility Installation is neither prohibited nor identified as merit track assessable in the following zones (meaning that they may be assessed in the impact track s132):

- Residential (RZ1 to RZ5)
- Community Facility (CF)
- Transport (TSZ1, but Major Service Conduits are separately identified as merit track assessable).

Major Utility Installations are merit track assessable in the following zones:

- Industrial (IZ1 and IZ2)
- Parks and Recreation (PRZ1 and PRZ2)
- Services (TSZ2)
- Non-Urban (NUZ1 to NUZ5)

On Leased Land, the Crown Lease purpose clause also needs to include the proposed use. Any lease that does not include Major Utility Installation would need to be varied to allow a Major Battery to be installed. A lease variation is a form of Development Application and can be combined with an application for the construction of a project.

4.2.3 Minor use

Minor use *means the use of land for a purpose that is incidental to the use and development of land in the zone and includes but is not limited to open space; public car parking; community path systems; shared circulation spaces (such as lift wells, stair wells); minor service reticulation;* ***other utility services*** *that do not exclude other uses from the land; street furniture and the like.*

The 'other utility services' part of this definition would allow neighbourhood scale batteries to be described as Minor Use in most circumstances. The local sub-stations that occupy space in parks and road reserves around Canberra would appropriately be described as minor use.

Minor use is permissible in all zones.

4.2.4 Parkland

Parkland *means the use of land for recreation, conservation or amenity purposes and includes facilities for the enjoyment and convenience of the public, such as kiosks, car parks, shelters, pavilions, public toilets and the like. The term also includes the use of the land for the management of stormwater drainage, for community paths and landscape buffers, and for* ***other minor utility purposes*** *where such uses can be integrated into the open space system. It has unrestricted public access.*

This reinforces the expectation that utility services may be expected to be installed within urban spaces in Canberra if it can be achieved in an unobtrusive manner.

4.2.5 Temporary Use

Temporary Use *means the use of unleased land for a purpose that is temporary in nature and for which a licence may be issued for a maximum term of three years and which may be renewed.*

Temporary use could be considered for proof-of-concept neighbourhood batteries if they would be installed for a short term. The value of this is limited as temporary use does not entitle a development to be exempt from planning approvals unless it is to facilitate another approved proposal (for example, site sheds).

Ancillary or Minor use are more likely to be appropriate terms to describe a neighbourhood scale project.

4.2.6 Service Station

The provision of electric vehicle charging infrastructure would, in most cases be provided as an ancillary use on a site or in a car park, or as minor utility infrastructure in road related areas, however in some locations a dedicated charging facility may be a specific site use.

Existing service station sites have been identified as likely locations and it has been questioned whether electric vehicle charging is permissible under the existing definition.

Service station *means the use of land for the fuelling and/or servicing of motor vehicles, whether or not the land is also used for any one or more of the following purposes:*

a) the sale by retail of spare parts and accessories for motor vehicles;
b) washing and greasing of motor vehicles;
c) installation of accessories;
d) the retail sale of other goods, within an ancillary retail area not greater than 150m² in area;
e) providing toilet facilities, amenities and service for motorists;
f) repairing of motor vehicles (other than body building, panel beating or spray painting); and
g) the hiring of trailers.

The definition provides for the fuelling and or servicing of motor vehicles.

It could be argued that fuelling could include recharging but common definitions of fuel tend towards combustion fuels rather than electrical storage.

It could also be argued that servicing could include recharging as part of routine maintenance, but this is also slightly outside what would normally be considered servicing.

To clarify the opportunity, it would be beneficial to amend the definition to include 'fuelling, charging and/or servicing of vehicles'.

Note that the definition of **Tourist facility** may include a Service Station. By broadening the definition of service station this may open up the opportunity for electric vehicle charging facilities at locations where Tourist facilities are permitted, but traditional service stations may not be encouraged. An example is within the Commercial CZ2 Business Zone that is provided in Town and Group Centres.

Figure 2 – Example of electric vehicle charging (Manufacturing Today)

4.3 Exempt Development

Some development proposals are exempt and can be undertaken without a development application or approval. Chapter 5 provides a summary of the potentially relevant considerations for exempt development for battery storage projects.

Exempt Development (s133) is exempt from requiring approval under:

(a) the relevant development table; (the development tables refer back to s133 & s134 of the Act and section 20 and schedule 1 of the Regulation.)

(b) s134 undertaking an authorised use; (an authorised use is a use permitted by a lease or licence) or

(c) regulation (refer to discussion in Chapter 5).

However exempt development does not include any development assessable in the impact track, so before a proposal can be considered exempt, it must first be confirmed that it does not require Impact Track assessment. Triggers for impact track assessment are discussed in Chapter 7.1.

4.4 Prohibited Development

If a development table identifies a proposed use as prohibited, then a development application cannot be lodged for the proposal (except under some very specific circumstances).

If a proponent believes that a proposal that is prohibited should be considered by the Territory, then the only way to proceed is to advocate for a variation to the Territory Plan.

4.5 Development Tracks

Development applications are considered in either the Code, Merit, or Impact Track.

For code track applications, the rules in the applicable codes must be met without consideration of any of the criteria. Only a small number of proposal types are identified as potentially code track assessable, and these would be unlikely to be applicable to batteries (unless the batteries are a small part of another project).

Relevant considerations for merit track applications include:

- The objectives of the zone
- The rules and criteria of the relevant codes
- Representations from the community
- Advice from referral agencies

The merit track approval process is discussed in Chapter 6.

Merit track assessment is the most likely track for battery storage system proposals unless they include a particular matter that triggers impact track assessment.

Relevant considerations for impact track proposals are similar to merit track proposals but also include:

- The Statement of Strategic Directions in the Territory Plan, and
- An environmental impact assessment.

The Statement of Strategic Directions in the Territory Plan sets out the principles for giving effect to the main object of the Territory Plan under the headings of Sustainable Development, and Spatial Planning and Urban Design.[3]

Impact track proposals are discussed in Chapter 7.

Impact track assessment is similar to state significant development that is identified in other jurisdictions where the nature of the proposal is likely to require greater consideration of design and environmental impacts.

The Planning Reform Project is intending to remove the concept of development tracks but will maintain a requirement for more significant developments to be subject to a higher level of assessment.

[3] Statement of Strategic Directions (link).

4.6 Referral Entities

When development applications are lodged with the ACT Planning Authority they are referred to other government entities for advice.

Any development application that is likely to have a significant impact on a protected matter must be referred to the Conservator of Flora and Fauna.

Other referral requirements are identified in the Planning and Development regulation.

For Merit Track applications, referral entities are:

- The conservator of flora and fauna (if protected trees are potentially affected)
- The custodian of the land
- Any other entity required by the Territory Plan (for example, utility service providers as discussed in Chapter 6.4), and
- The city renewal authority for development in the certain parts of the city.

For Impact Track applications additional referral entities are identified, they are (s26(1)):

- Icon Water Limited
- ActewAGL Distribution (Evo Energy)
- The conservator of flora and fauna
- The emergency services commissioner
- The environment protection authority
- The heritage council
- The director of health policy
- The director of municipal services
- The custodian of the land

It would be possible to adjust the identified referral entities for merit track applications to ensure that, for example, the emergency services commissioner is a referral agency for all development applications containing battery storage above an identified threshold. This could be achieved through either the regulation or the Territory Plan, but it would only capture proposals that are subject to development approval (not exempt).

Adding the requirement to the regulation would ensure that all development applications are referred and would not require additional rules or criteria to be added to all the zone codes.

It is recommended that an additional referral requirement is identified in the regulation for development applications that include battery storage to be referred to the emergency services commissioner and the environment protection authority.

Due to the risk of explosion the Utilities Technical Regulator assesses some Development Applications that are near high pressure gas pipelines. They investigate whether the pipelines are within buffer distances to sensitive uses such as childcare centres.

Given the fire suppression issues battery storage facilities may have, there may be a requirement to separate these facilities by distance from sensitive land activities (such as childcare centres, high density residential developments etc.).

These separation requirements could be achieved by:

- Ensuring that certain applications are referred to the Utilities Technical Regulator for assessment, using the same mechanism described above, but possibly with a higher threshold.
- Including certain battery storage facilities into the Community and Recreation Facilities Location Guidelines General Code with guidance about appropriate co-location opportunities or recommended separation requirements. The benefit of adding these considerations to this general code is that it is considered by all development proposals including estate development plans.

The suggested threshold is 1MW, this is the upper limit for single certificate projects for Utilities Regulator operational certificates and is approximately equal to the combined battery storage of 10 to 15 electric cars.

This threshold would mean that most Neighbourhood and all Utility Scale batteries would be referred.

4.7 Public Notification

Merit and Impact Track development applications are publicly notified, and the planning authority is obliged to consider any representations received.

Making a representation also may entitle the representor to the opportunity to review the planning decision though the ACT Civil and Administrative Tribunal (ACAT).

4.8 Ministerial Support

If a development application raises a major policy issue, would have a significant effect on the achievement of an object of the Territory Plan, or would provide a significant public benefit, the Minister for Planning may direct the planning authority to refer a development application to the Minister to make the decision.

Decisions made by the Minister for Planning are not subject to ACAT review.

While the Minister uses these powers sparingly, they have been used on projects like the Light Rail or the Royalla Solar Farm in the past to give greater certainty to the proponent and ensure the projects are delivered.

The Planning Reform Project is proposing to remove the opportunity for the Planning Minister to make planning decisions, however certain projects will be able to be identified as Territory Significant, with the decision to be made by the Chief Planner.

5 Exempt Development

It is an offence under the Planning and Development Act to undertake development without approval (s199), but some development is exempt from the requirement to get approval. The following provides a summary of the relevant considerations for exempt development under the Planning and Development Act.

Development can be exempt from requiring approval under (s133):

(a) the relevant development table; (the development tables refer back to s133 & s134 of the Act and s20 and Schedule 1 of the Regulation.)

(b) s134 undertaking an authorised use; (this relates to using land in accordance with a lease or licence) or

(c) regulation (refer to discussion below).

However exempt development does not include any development assessable in the impact track (refer to Chapter 7 below).

If a proponent is confident that their proposal does not require a development approval, then they can proceed with the proposal without further planning assessment. It must be noted however that this does not remove the need to comply with other potentially relevant legislation such as the Environment Protection Act, building codes, utilities regulations or other acts, as described in Chapter 8.

5.1 General Criteria

Potential exemptions are identified in the Planning and Development Regulation (Schedule 1).

To be exempt the development must meet the general exemption criteria and be a type of exempt development.

The general exemption criteria include (in paraphrased form):

Criterion 1 - No buildings or structures in easements or utility protection spaces without written permission of the utility owners.

The presence of easements or utility services would need to be checked for any installation. In some cases, written permission could be obtained directly from the relevant asset owners allowing the proposal to remain exempt.

Criterion 2 – Relates to plumbing and drainage clearances AS/NZS 3500. May be applicable but unlikely.

Criterion 4 – The proposal must not contravene any of the following Acts:

- Heritage Act 2004
- Tree Protection Act 2005
- Environment Protection Act 1997 or
- Nature Conservation Act 2014.

Requirements under these Acts may be separately addressed directly with the relevant agencies allowing the proposal to remain exempt. An example in relation to the Tree Protection Act would be obtaining permission for a tree damaging activity for work in the protection zone of a regulated tree direct from the Conservator.

Criterion 5 – Complies with lease or associated agreement.

This is relevant to proposals on leased land. The proponent must ensure that the outcome does not breach any clause in the lease such as the purpose clause, Gross Floor Area (GFA) constraints or other lease conditions. A lease purpose clause does not have to be varied to allow ancillary uses, but if any element of a proposal is contrary to the lease, then a lease variation will be required. A lease variation is a form of development application.

Criterion 7 – No multiple occupancies (not applicable)

Criterion 7A – Must not involve Affected residential premises (Mr Fluffy blocks).

Criterion 8 – Must comply with applicable criteria associated with relevant designated development types (applicable - see discussion of potentially relevant types below.)

Based on concerns about noise, fire risks and community perceptions for larger installations an additional Criterion is recommended to prevent larger batteries from being exempt.

An appropriate threshold for these additional considerations would be 200kW because this is the scale that already triggers Regulated Utility Service Certificates and hence review by the Utilities Technical Regulator. This would prevent this size of battery being installed in basements or warehouses, or as minor utility services without a development application.

Smaller batteries may or may not be exempt depending on whether they are consistent with the other exemption types, but all larger batteries would require a development application.

5.2 Exempt Development Types

The potentially relevant development types for the installation of battery storage, or other useful examples of exempt developments, are:

- Minor Building Works
- Non-habitable buildings and structures
- Community gardens
- Exempt Public Works
- Exempt Development, Schools
- Compliant Single Dwellings
- Exempt Utility Services
- Electric Vehicle Charging Points

Each of these are summarised and discussed below.

5.3 Minor Building Works

Internal Alterations of Buildings are exempt (s1.20) if:

(a) The class of the building does not change under the building code (refer to Table 1 on page 36 for building classifications) and the Gross Floor Area (GFA) for a non-residential building does not increase.
(b) The general criteria are complied with.

This allows for the installation of batteries within existing buildings to be exempt (unless the battery is of a scale that it would change the class of the building or a location that would change the GFA).

The definition of Gross Floor Area excludes basement car parking, so a proposal that converts basement car parking spaces to battery storage would not be exempt, but a proposal that converts existing basement areas that are not car parking to battery storage could be exempt.

ACT Fire and Rescue have expressed concern about battery installations in basements. This exemption could be amended to exclude batteries above a certain size without prior endorsement by Fire and Rescue, but the proposed additional general criterion would also achieve this outcome.

Due to the risk associated with battery fires in basements, it is recommended that additional risk assessment is undertaken to address this specific concern.

Note also that some other minor building works exemptions may be applicable to a battery installation, such as (s1.25) chimneys, flues and vents.

External services (heaters and coolers) are exempt (s1.27) if:

(a) They are not within 1.5 metres of a side or rear boundary and
(b) They do not extend 1.5 metres beyond the roofline or any applicable solar building envelope and
(c) They are not between the building line and the front boundary and
(d) The general criteria are complied with.

A service is defined as a solar water heater, air conditioner or evaporative cooler.

An exemption for external batteries is considered reasonable, and anecdotally it seems that many have previously been installed without a DA. The definition of external service should be expanded to include batteries (noting that a maximum capacity for exempt batteries is also recommended).

External photovoltaic panels are exempt (s1.27A) with very similar conditions to external services.

External switchboards are exempt (s1.28) with no additional conditions beyond the general criteria.

5.4 Non-habitable buildings and structures

Class 10a buildings or structures (sheds and outbuildings that might be used to enclose a battery) are exempt (s1.45) if:

- They are less than 3 metres tall (or 4 metres and below a 30 degree building envelope line from 3 metres above the boundaries), and
- They comply with size limitations (sliding scale starting at 10 m^2 for smaller blocks and increasing with block size) and
- They comply with the setback requirements for the block (10 metres from the front boundary for structures less than 10 m^2 and 15 metres for larger structures), and
- If they are within 1.5 metres of the boundary, they are the only Class 10 building or structure within the boundary clearance zone (note that under some circumstances a second Class 10 structure may exempt under Section 1.41).

This would allow the installation of a 'battery shed' on most blocks without the need for development approval. Once the shed is constructed batteries could be installed inside the shed as minor building work, also without the need for approval.

These exemptions are not limited to residential blocks, and so could potentially facilitate exemptions on community facility or commercial sites potentially for quite large battery installations.

5.5 Community Gardens

In response to a perceived need, and a desire to make it easy to provide a community benefit, the Planning and Development Regulation includes specific exemptions to facilitate the creation of community gardens.

Community gardens can be established within existing school campuses or on unleased territory land under a licence.

The exemptions (s1.74) allow for the construction of class 10a buildings and other ancillary structures that may be necessary (water tanks, shade sales etc). The conditions for the exemptions are similar to the non-habitable building and structure exemptions permissible on leased land (Chapter 5.4).

This provides a model that could be used for exemptions associated with neighbourhood scale batteries on unleased land if they are not exempt under other parts of the regulation and it is considered desirable for them to be exempt.

There are also similar exemptions for outdoor eating spaces on public unleased land for which a licence has been issued, or a permit has been issued under the Public Unleased Land Act 2013, however for these facilities all installations must be removable objects.

5.6 Exempt Public Works

Public Works are exempt (s1.90) if:

(a) The relevant general exemption criteria are met
(b) Any required environmental authorisations or protection agreements under the Environment Protection Act are granted (or not required) (it is generally assumed that these can be obtained if required)

The definition of Public Works includes:

(a) installation or maintenance of street or park furniture;
(Examples include a seat, table, boardwalk, bridge, rotunda, bus stop etc)
(b) maintenance of a road or car park;
(c) construction or maintenance of a footpath, bicycle path, etc.

There are numerous other inclusions and these public works exemptions are often used as the basis for works on unleased land without planning approval, however this exemption does not include anything that would clearly facilitate the installation of battery infrastructure or vehicle charging.

5.7 Exempt Development Schools

On existing school campuses there are numerous exemptions for various works.

New School Buildings and Alterations are exempt (s1.99C) if they are:

(a) Class 3 (dormitory), Class 5 (office) or Class 9b (hall, gym, library, classrooms etc) buildings, and
(b) The building is more than 6 metres from a block in a residential zone, and
(c) Limited in height to 12 metres (or 6 metres within 30 metres of a block in a residential zone).

Batteries could be included in these buildings without planning approval. Due to the sensitive nature of the use, it may be reasonable to limit exemptions on school sites if they include batteries larger than a certain threshold.

A general limit on exempt battery installations above a certain size would also capture batteries on school sites, so a school specific limit may not be necessary.

An exclusion from exemption does not mean that schools cannot have batteries, it means that prior to installation the proposal would be subject to broad scrutiny by referral agencies and the community through the development application process.

5.8 Compliant Single Dwelling

The building or altering of a single dwelling is exempt (s1.100) if:

(a) The dwelling is the only one on the block
(b) A dwelling has previously been developed on the block
(c) The works comply with any rules in the precinct code, and the single dwelling code, and the general exemption criteria
(d) The works are in a residential zone
(e) The neighbours have been notified in accordance with Section 1.19.

This exemption allows for knockdown rebuilds or extensions without planning approval. It would allow for a new or altered dwelling to include batteries without additional assessment.

It is considered reasonable to set an upper limit to the scale of batteries that can be installed in single dwellings in this manner. It is recommended that a 30kWh limit be introduced as a rule in the single dwelling code, with a criteria that allows for larger batteries. 30kW is a generous size and the criteria would allow for larger batteries subject to merit assessment.

There is a similar opportunity for single dwellings to be constructed as exempt development on greenfield sites (s1.100AA).

Sections 1.100A and 1.100AB introduce some additional opportunities for exempt single dwellings on old or greenfield sites respectively where there are minor encroachments into setbacks, building envelopes or private open space requirements and the proposal is supported by an exemption declaration.

5.9 Exempt Utility Services

The following developments may be exempt (s1.103), subject to the general exemption criteria:

(a) Installation of an electricity (or other utility) connection of not more than 50 metres to a consumer's premises
(b) Installation of electricity services approved by an estate development plan
(c) Installation of minor utility infrastructure with a height of not more than 2 metres above natural ground level.
(d) Maintenance of services.

Item b would allow for any scale of battery to be identified and subsequently installed through the Estate Development Process. This would suit a proponent of a neighbourhood scale battery as part of a proposed greenfield housing estate, but it could also be applicable to brownfield estates in the existing urban area (for example, EDPs have been done for re-subdivision of some housing renewal sites along Northbourne Avenue).

Estate Development Plans are subject to pre-DA agency circulation that would allow for referral agencies to make comment on the appropriateness of any proposed battery.

After circulation the EDP is then lodged as a development application.

At this stage there are no guidelines as to the required information to be provided in an EDP for a neighbourhood battery. A guideline needs to be jointly developed by the relevant referral agencies (possibly as part of an overall update of the Guidelines for the preparation of Estate Development Plans, May 2009). The expected minimum information requirements would be the proposed size and location of the battery to be shown on a utility services master plan.

Neighbourhood scale batteries are being installed at Ginninderry having been included in the Estate Development Plan.

For Item c, minor utility infrastructure is not specifically defined.

Within the Territory Plan, **Minor service reticulation** means the water supply, sewerage, stormwater and gas pipe reticulation, electricity lines and telecommunication cables which are normally located in road easements or easements within leases.

Given that the terminology is different it would be reasonable to assume that minor utility infrastructure has a broader definition than minor service reticulation, and could be taken to include the junction boxes, and other ancillary infrastructure.

Given that Major Utility Installation is defined as an umbrella term and there are definitions for Major substations, Major service conduits etc, it would be reasonable to assume that any utility services that do not meet the definitions for major utilities would be minor utilities.

On this basis, batteries that are part of the minor utility infrastructure network (that are not more than 2 metres tall) could be considered exempt.

If controls are required in relation to appropriate site location or other considerations, then this would need to be addressed via specific definitions or amendments to this exemption. This is already being addressed as part of the planning reform project as described below.

5.10 Exempt Utility Services (Planning Reform)

The Consultation Draft of the Planning (Exempt Development) Regulation 2022 proposes changes to the definitions of exempt minor utility services.

The definition is clarified to have:

- A maximum plan area of 15 m^2 (approximately the size of a single car parking space)
- A maximum height of 3 metres

Under the current definition there is no maximum plan area, so this potentially limits the scale of the minor utilities that can be exempt.

The height limit is increased from 2 to 3 metres.

An additional condition is also proposed, requiring the proponent to give 7 days notice to the occupier of residential blocks within 100 metres of the development prior to commencing work.

These reforms are considered to provide suitable clarity to the exemption for battery storage.

5.11 Electric Vehicle Charging Point

Electric vehicle charging points on a block are exempt (s1.113) if:

(a) They comply with the general exemption criteria, and
(b) Electricity services are already connected to the site, and
(c) Each charging point is not taller than 2.5 metres or more than 2 m^2 in plan area, and
(d) AS/NZS 60079.10 (Explosive atmospheres) is complied with, and
(e) The proponent has a statement of compliance from ActewAGL Distribution (Evo Energy) if it includes 1 or more fast chargers or 3 or more regular chargers
(f) If the block already has 3 or more chargers, the proponent has a statement of compliance from ActewAGL (Evo Energy)

Note that road reserves and some government surface car parks are not on blocks, so charging points in these areas would not be exempt under this clause, but they might meet the definition of minor utility infrastructure discussed in Chapter 5.9.

For example, a typical local or group centre has parking provided on the street and there are examples in town centres too. Figure 1 illustrates the block plan at the Ainslie Shops where most of the parking, and hence the logical place for the provision of charging infrastructure, is provided in Edgar Street, not within a block.

Figure 3 – blocks plan at Ainslie Shops

A similar example is present in relation to the parking in Keltie Street in Woden Town Centre. The parking there is near the Woden library and would be a very good location for public charging infrastructure.

There is no apparent reason to differentiate between chargers on a block or in a road reserve, so it is recommended that the reference to 'on a block' be removed from this exemption.

There is no upper limit to the number of fast chargers that can be installed as exempt development. There is some concern that multiple vehicles fast charging simultaneously heightens the risk of fire and that a concentration of electric vehicles effectively represents a large storage battery. It would be appropriate for large charging installations to be subject to agency and public review through a development application. The recommended threshold is 10 fast chargers.

5.12 Summary of Exemptions

There is not a simple answer to which proposals are exempt and which ones need planning approval as the exemptions are dependent on the placement of the battery on the site, and other constraints that may be present.

If a proposal is not exempt, then a Development Application will be needed. This will add some time and cost to the project, but the benefit is that the project will be subject to scrutiny by referral agencies and the community, and any potential issues can be raised during the design and assessment phase, rather than trying to be addressed retrospectively.

The chart below (Figure 4) identifies the types of projects discussed in this report on the left side of the figure, indicates potential exemption pathways by way of colour coded arrows through the middle, and also notes the requirement for all exempt development to meet the general criteria.

Proposals that do not meet the requirements associated with one of these pathways will require development approval.

Some proposals may be able to consider several different pathways.

Note that this chart represents an illustrative summary and more detailed considerations may be required for any specific proposal.

On the chart the exemption associated with external services is shown as a possible pathway reflecting current practice but this should be clarified as per the recommendation.

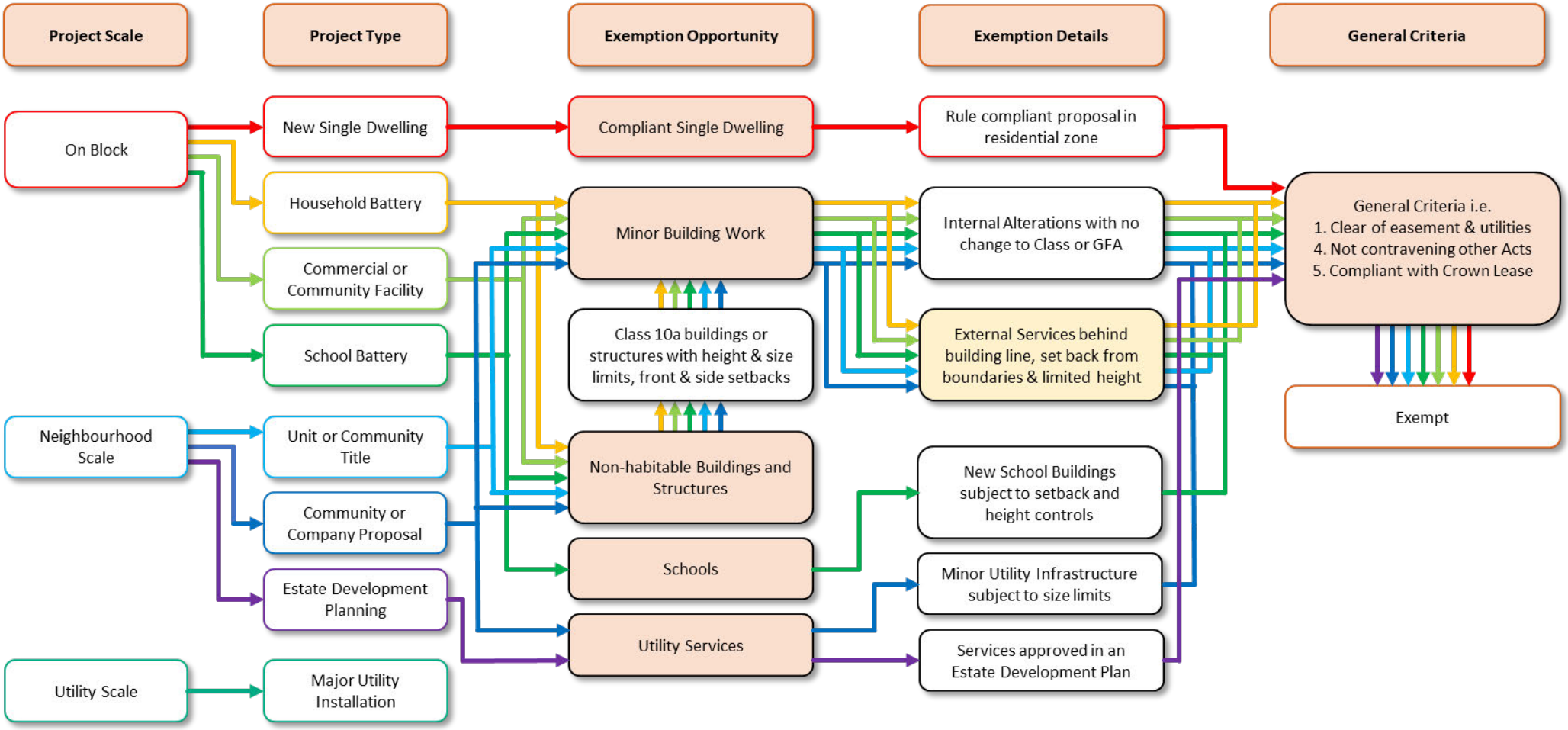

Figure 4 – Illustration of possibly exempt developments

6 Merit Track Proposals

6.1 Zone Objectives

Within the Territory Plan each land use zone has a Zone Development Table that includes a statement of objectives for the zone.

When development applications are assessed, the decision maker must take into consideration the objectives of the relevant zone (s120).

Consideration of zone objectives would be most relevant to Utility Scale battery proposals, as Neighbourhood and On-Block proposals that would typically be ancillary or minor uses do not impact on the ability to use the land in a manner consistent with the general objectives.

Utility Scale proposals, where the primary use of the land is for energy storage, may be considered inconsistent with the objectives of some zones such as residential or commercial land use zones, but this would need to be tested for individual proposals. This would be clarified by amending the definition of Major Utility Infrastructure to include Major Batteries, which would then make them prohibited in some zones and subject to Impact Track assessment in some others (but remain merit track in the most appropriate zones).

Redrafting of objectives to specifically address battery storage (either to support or limit installations) is not considered warranted.

6.2 Zone Development Tables

The Zone Development Table for each land use zone identifies uses that are exempt, code, merit or impact track assessable and uses that are prohibited in the zone.

For the uses that are most relevant to battery proposals:

Ancillary Use and **Minor Use** are merit track assessable in all zones unless the proposal is exempt or requires Impact Track assessment (refer to Chapters 5 and 7 respectively).

MAJOR UTILITY INSTALLATION is merit track assessable in some zones, prohibited in some zones and not specifically identified in some zones. Being not specifically identified results in it being in the impact track if it is proposed. (refer to discussion in Chapter 4.2.2)

6.3 Precinct Codes

The Territory Plan contains codes against which development proposals are assessed.

There is a hierarchy of codes with precinct codes taking precedence over zone codes which take precedence over general codes to the extent of any inconsistency. If a site is also subject to special conditions under the National Capital Plan, then these conditions take precedence over precinct codes.

There are three types of precinct code:

- Concept Plans – that apply the principles and policies from a relevant structure plan to a future urban area. The requirements are typically flexible and would not prevent the installation of battery storage in association with the development of the land in a future urban area (either as capital works infrastructure or as part of an Estate Development Plan).
- District Precinct Maps and Codes – that provide planning controls for non-urban areas within each district (for example clearance zones around critical infrastructure).
- Suburb Precinct Maps and Codes – that apply block or location specific planning controls relating to the unique nature of a locality (for example height controls for a particular group centre). There are also precinct codes for Northbourne Avenue and the Inner North that apply to localities but do not follow suburb boundaries.

In some cases, Precinct Codes provide for additional merit track assessable uses or prohibited uses in particular locations.

Precinct codes also identify blocks that may be subject to bushfire risk or subject to noise from external sources.

There are very few controls in precinct codes that would affect battery proposals (although they would need to be checked for any proposal), but controls could be included for clearance zones around utility scale batteries if this was considered desirable.

Changes to precinct codes are affected through a variation to the Territory Plan, a process that typically takes 12 months or more.

6.4 Zone Development Codes

The Territory Plan includes the following Zone Development Codes

- Residential Zones (for RZ1 to RZ5)
- Commercial Zones (for CZ1 to CZ6)
- Industrial Zones (for IZ1 & IZ2)
- Community Facility (CF)
- Parks and Recreation (For PRZ1 & PRZ2)
- Transport and Services (for TSZ1 & TSZ2)
- Non-Urban (for NUZ1 to NUZ5)

There are also three other development codes that apply to specific types of development, these are the:

- Single Dwelling Housing
- Multi Unit Housing
- Estate Development

These codes follow a similar format with Parts within the code applying across all of the subject zones, or to specific zones or areas (for example, additional controls for CZ6 in the commercial zones code).

Within the parts the controls are divided into Elements. The elements are typically common across codes, however this is not always the case. Common elements include: Buildings, Subdivision, Demolition, Environment etc.

The intent of the planning controls is to achieve the objectives of the zone and to maintain the amenity of the area for adjoining land users. This means that they focus on the external appearance of the proposal and its relationship to the streetscape rather than the internal details and workings. There are controls to ensure the amenity of the future users of the building (for example, to encourage solar access) but most of these types of controls are left to the building codes to be addressed as part of the Building Approval process rather than planning approval.

There are controls that relate to the provision of waste management services and collection as these can have a material impact on the amenity of the site and interaction with the streetscape, but there are few controls that relate to other utility connections and services (other than to ensure that they do not detract from the streetscape).

Under the Element Utilities, a common mandatory rule is:

“A statement of compliance from each relevant utility provider (for water, sewerage, electricity, stormwater and gas) is provided, which confirms that the location and nature of earthworks, utility connections, proposed buildings, pavements and landscape features comply with utility standards, access provisions and asset clearance zones.”

This rule appears in all the above Zone Development Codes with the exception of the Residential Zones Code. For residential proposals this is a mandatory rule in the multi-unit housing development code. This means that all development applications (except for single dwellings) must be supported by the electricity utility provider.

For estate development proposals, the proposal is subject to pre-DA agency circulation which includes the utility service providers, and the estate development code also requires the proposed reticulation of electricity to be endorsed by ActewAGL (Evo Energy).

The utility providers can dictate the nature of information they required to provide a statement of compliance. This could include information about the inclusion of batteries in the development.

When proposed as part of a development, the installation of batteries would be similar to the installation of a sub-station. There are no planning controls that directly relate to sub-stations, rather they are managed through the control of building facades and general utility requirements.

As discussed in Chapter 4.6 , if it is considered desirable for all development applications that include batteries above a certain size to be referred to ACT Fire and Rescue for endorsement, then a control could be added to the appropriate development codes, but it is suggested that a more elegant solution would be to amend the referral agencies identified in the Planning and Development Regulations.

6.5 General Codes

There are 13 General Codes in the Territory Plan. A Development Application must address the relevant codes.

1. **Parking and Vehicular Access General Code**
   This code is not directly relevant to the provision of batteries within developments, however it does provide guidance on the types of parking that are to be included in a development proposal (such as motorbike parking, accessible parking etc) and it is highly likely that the provision of electric vehicle parking spaces will be required and controlled by this code. Given that electric vehicles typically have battery capacities more than 60kWh and are increasingly likely to provide vehicle to grid connectivity options, the installation of electric vehicle charging points can quickly result in the defacto installation of a large battery. This would need to be considered in any future updates to this code.
2. Bicycle Parking General Code – not relevant.
3. Access and Mobility General Code – not relevant.
4. Crime Prevention through Environmental Design General Code – not relevant.
5. **Community and Recreation Facilities Location Guidelines General Code**
   This guideline provides recommendations for the location of common community facilities such as schools, childcare centres, community centres, places of worship and the like. It is most relevant to estate planning but can also inform individual development applications.
   For each use type the location guideline identifies opportunities for co-location or constructive relationships, and it also identifies uses that should be separated from each other. If there is an agreed need identified to separate utility or community scale battery projects from sensitive uses for planning reasons, then this would be an appropriate location to include controls.
6. Communications Facilities and Associated Infrastructure General Code – not relevant
7. Signs General Code – not relevant
8. Water Use and Catchment General Code – not relevant.
9. Home Business General Code – not relevant.
10. **Waterways: Water Sensitive Urban Design General Code**
    Not relevant. Proposals would need to meet the requirement of the code, but the controls do not specifically relate to the provision of battery storage.
11. **Planning for Bushfire Risk Mitigation General Code**
    The focus of this code is the protection of residential development in bushfire prone areas. The code should be updated to make it explicitly clear that any development (not just residential development) in a bushfire prone area will be referred to ESA for review and endorsement. This would include battery proposals.
12. Residential Boundary Fences General Code – not applicable.
13. **Lease Variation General Code**
    The lease variation general code would only be applicable to proposals on leased land that seek to include battery storage as a primary use (ancillary uses do not need to be identified on the crown lease). This would typically be utility scale projects only.
    The lease variation general code requires proponents to demonstrate that their land is suitable for the proposed use. The test for suitability includes:
    - no unreasonable increase in level of noise for the occupants of dwellings on the block or on adjoining land
    - no unreasonable risk to occupants of the block through any contamination of the block or on adjoining land.

    These controls help to ensure that unsuitable development does not occur in potentially sensitive locations.
    An application to vary a lease is a form of development application that may also incur a lease variation charge that is proportional to the value of the increased development rights associated with the varied lease.

The Planning Reform Project is likely to result in a significant rearrangement of these general codes, but the overall policy requirements are expected to be similar.

6.6 Consultation Requirements

Pre-DA community consultation is mandatory for some projects, including:

- Residential of 3 or more storeys and 15 or more dwellings
- Gross Floor Area of building of 5000 m^2 or more or 7000 m^2 across multiple buildings
- Building height over 25 metres
- Removal of concessional status of a lease
- An Estate Development Plan
- Any project that is required to present to the Design Review Panel.

There are some exemptions provided in the regulations (for example, industrial areas and some future urban areas (FUA)).

At the time of this report, the Planning Reform Project is consulting on the option of making pre-DA consultation non-mandatory but encouraged where appropriate.

Presentation to the National Capital Design Review Panel (NCDRP) is mandatory for some projects, including:

- Proposal with 5 or more storeys.
- Proposed shop of more than 2000 m^2 in certain zones.

It is unlikely that a development for a battery would trigger the need for either pre-DA community consultation or presentation to the National Capital Design Review Panel (unless it was part of a larger project).

The community can comment on proposals during DA assessment and proponents may choose to undertake pre DA community consultation voluntarily too.

6.7 Document Requirements

The Planning and Development Act identifies the minimum requirements for a development application (s139), including information or documents addressing the relevant rules and relevant criteria.

To assist applicants, EPSDD publish the 'Minimum Documentation Requirements for Lodgement of a Development Application'[4]. This is a check list of information that may be required to address the relevant codes and to satisfy the requirements of referral agencies. If specific information is required about applications that include batteries, it could be included on this form, but this would only be guidance and not carry any statutory power unless it was specifically related to updated rules or criteria in the Territory Plan.

6.8 Public Notification

All merit and impact track DA's are publicly notified giving the community the opportunity to review and comment.

Any submissions received must be considered by the decision maker.

6.9 Post Approval Requirements

Development approval does not remove the need for compliance with other legislation.

Following approval, proponents may need other licences or certificates prior to commencing work or operation of the facility.

If the proposal is on unleased land, a licence may be required to occupy the land. The planning and land authority may grant a licence (s303) subject to agreement by the Conservator. The licence must be for a defined period.

A description of requirements associated with other legislation is presented in Chapter 8.

[4] Minimum documentation requirements for lodgement of a development application (act.gov.au)

7 Impact Track Proposals

7.1 Triggers

The impact track applies under the following circumstances (s123):

(a) the development table identifies impact track (similar list of circumstances as b to e listed below), or
(b) the proposal is of a kind in Schedule 4 (refer to discussion below) or
(c) the Planning Minister makes a declaration under s124 that impact track applies (not likely to be applicable) or
(d) the Health Minister makes a declaration under s125 (not likely to be applicable) or the relevant development table does not provide for the development as per s132 (i.e. Major Utility Installation in Residential Zones)
(e) the Commonwealth Minister requires bilateral assessment for the EPBC Act (may be applicable for larger scale projects).

If a proposal is in the Impact Track, it cannot be exempt development.

Schedule 4 of the Act, parts 4.2 (Activities) and 4.3 (Areas and Processes) identify types of development that are in impact track, as discussed below.

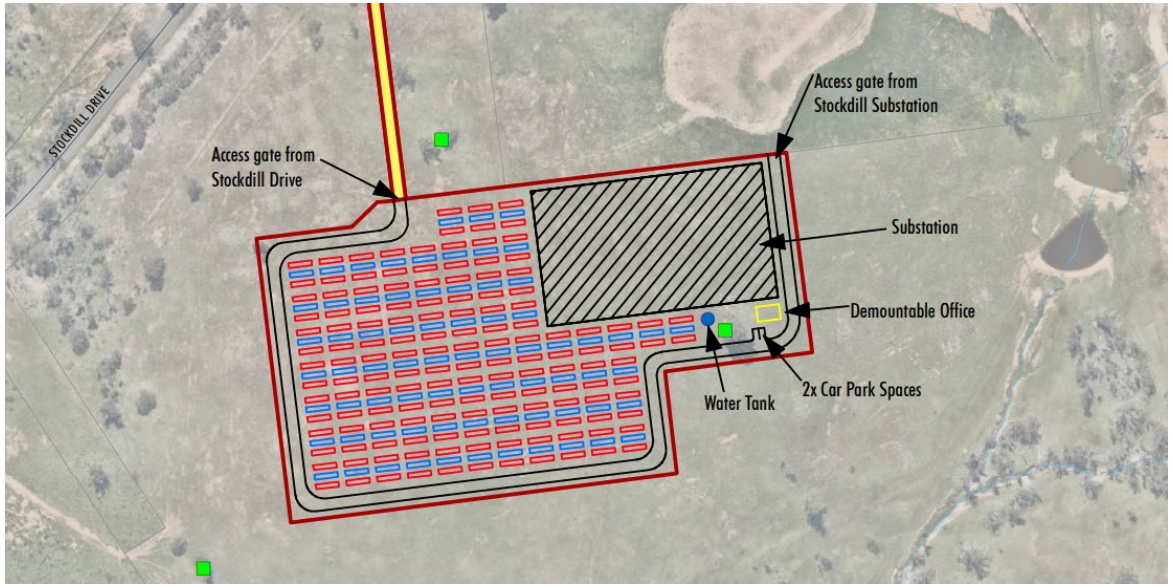

Figure 5 – Territory Battery Concept Plan, currently undergoing impact track assessment (Application for EIS Scoping Document, Umwelt)

7.2 Activities (Part 4.2)

Part 4.2 identifies certain activities that are in impact track such as building airports or waste management facilities. Activities that may be relevant to proposals for battery storage are discussed below.

7.2.1 Transmission lines

A proposal that involves electricity transmission line construction, including additions or realignment works, outside an existing easement or exceeding 500 m in length, that are intended to carry underground or above-ground transmission lines with a voltage of 132kV or more.

Any battery storage proposal that will connect to 132kV power that is not directly connected to an existing line or sub-station will trigger impact track assessment.

7.2.2 Electricity Generation

An electricity generating station (other than a coal electricity generating station) including gas, wind, hydroelectric, geothermal, bio-material, solar power or co-generation—

(i) that is capable of supplying—

(A) the amount of electrical power prescribed by regulation (10MW for Gas, 20MW for renewables); or

(B) if no amount is prescribed—4MW or more of electrical power; or

(ii) in a location or of a kind or nature prescribed by regulation.

Battery storage of electricity is not generation, but it is often treated similarly to generation proposals because it has the capacity to provide power into the grid.

If it is desirable for battery installations above a certain threshold to be assessed in the impact track, this trigger could be modified slightly to include 'generation or storage' and a threshold identified in the regulation.

If a threshold is to be set, then a simple storage or output capacity threshold may be too simplistic as battery chemistry can be a significant factor in the potential for environmental impact, however a threshold that takes into consideration battery chemistry would be too complex to develop and manage.

Utility scale batteries approved within the ACT to date have not been considered generation for the purpose of this trigger and hence have not been in the impact track unless other triggers have been relevant.

EPSDD Environment Protection Policy have suggested a threshold of 30MW for impact assessment, but this is considered too low.

The impost of impact track assessment and hence an Environmental Impact Assessment (that typically takes 12 months to complete) on a project of this scale may significantly impact the economics of the proposal and would not necessarily bring additional value to the process.

Given that the merit track approvals process for the 100MW Big Canberra Battery (Neoen) at Jerrabomberra has been generally accepted as appropriate, it is suggested that a relatively high threshold should be set for impact assessment.

150MW is recommended as the threshold as this would capture the largest projects, that have the greatest potential environmental consequences in the impact track, leaving smaller projects to be adequately assessed in the merit track.

It is expected that many projects that are proposed at this scale would be in the impact track anyway due to the need for 132kV powerlines, or the potential impacts on ecological matters.

7.2.3 Petroleum Storage

A proposal for construction of a petroleum storage facility with a storage capacity greater than 500kL of petroleum products.

Petrol contains approximately 32 MJ/litre, which equates to approximately 9 kWh of energy. A 500 kL fuel storage depot therefore contains approximately 4,500 MWh of energy.

This trigger is included in this report because petroleum storage is energy storage that in some ways is analogous to batteries, however it is also more volatile and much more likely to leak, so it makes sense that large facilities be in the impact track. The risks associated with battery storage are still being learned, but at this stage they are understood to be less than petroleum.

7.2.4 Hazardous Chemicals

A proposal that involves storage of the placard quantity of a Schedule 11 hazardous chemical (as defined in the Work Health and Safety Regulation 2011) on land, or in a building or structure on the land, that, immediately before the commencement day, was not registered as premises in the placard quantity register, unless the authority produces an environmental significance opinion indicating that the proposal is not likely to have a significant adverse environmental impact.

Schedule 11 identifies hazardous chemicals such as flammable liquids, self-reactive substances, self-heating substances of various categories or types, or combinations of these substances.

It is not clear whether a large quantity of batteries could be the subject of this trigger and the determination may relate to the battery chemistry associated with a particular proposal. This lack of clarity is problematic for proponents who must determine whether they need to complete an EIS before lodging a development application.

Further consultation with EPSDD impact track assessment, EPA and Worksafe is recommended to provide guidance on this potential trigger.

7.3 Areas and Processes (Part 4.3)

Part 4.3 identifies areas and processes that require impact track assessment due to the potential footprint of the proposal.

7.3.1 Listed Species or Communities

A proposal that is likely to have a significant adverse environmental impact on a listed species or ecological community, unless the conservator of flora and fauna provides an environmental significance opinion.

This would be applicable to any project with a footprint that has the potential to either directly or indirectly impact on these matters. It is most likely to be applicable to larger projects, but could be applicable to any scale of project in a sensitive area.

7.3.2 Clearing Native Vegetation

Clearing more than 0.5 ha of native vegetation (or 5.0 hectares within a Future Urban Area) in a native vegetation area, unless the conservator of flora and fauna provides an environmental significance opinion.

This would only be likely to be applicable to the largest of projects, for example the clearance footprint for the 100 kW Neoen Battery at Jerrabomberra is approximately 1 hectare (but at that site the vegetation is not native).

7.3.3 Development in a Reserve

Development in a reserve that is not minor public works, unless the conservator of flora and fauna provides an environmental significance opinion.

The applicable reserves are limited to wilderness areas, national parks, nature reserves and catchment areas as identified in the Nature Conservation Act and Regulation. The area boundaries are identified as overlays in the Territory Plan.

This trigger is unlikely to be applicable to battery projects but it is possible given there are other utility installations throughout or adjacent to Canberra Nature Park. In most cases larger infrastructure (such as Black Mountain or Mt Ainslie zone substations) are located just outside the reserve boundary.

7.3.4 Water Supply Catchments

Significant adverse impacts on water supply catchment, water use purpose, or prescribed environmental value.

Unlikely to be applicable to battery projects which are unlikely to be proposed within Canberra's water supply catchment areas.

7.3.5 Water Extraction

Environmentally significant water extraction or consumption.

Unlikely to be applicable to battery projects.

7.3.6 Heritage

Significant adverse impact on registered heritage place or objects, unless the heritage council provides an environmental significance opinion.

Any larger project that will be disturbing previously undeveloped ground needs to be supported by a recent heritage survey. There is a reasonable probability that larger battery projects would have an impact on aboriginal heritage places or objects, however these may not be registered. In these cases, the proposal does not necessarily trigger impact track assessment, but approvals would be required under the Heritage Act.

7.3.7 Contaminated Land

Work on sites that are on the register of contaminated sites unless the authority provides an environmental significance opinion

Individual projects need to check this register. If this is the only trigger, it is likely that an environmental significance opinion would be granted.

7.3.8 Research Sites

Proposal, other than on land in an existing urban area or a future urban area, with the potential to adversely affect the integrity of a site where significant environmental or ecological research is being conducted by a government entity, a university or another entity prescribed by regulation.

Individual projects need to check this trigger, however it is unlikely to be an issue for battery storage proposals.

7.3.9 Greenhouse Gas Emissions

Proposal with annual greenhouse emissions greater than 1000 tonnes.

Not applicable to battery storage proposals as they will be utilising renewable energy as a power source.

7.4 Impact Track Development Application

The development application process for an impact track proposal is the same as for a merit track proposal (see Chapter 6), with the exception that the application must be accompanied by either a completed EIS or an exemption.

7.5 ESO

In some cases, if a project triggers the requirement for an EIS a relevant government agency may provide an Environmental Significance Opinion (ESO) that states that the project is not likely to have a significant adverse environmental impact. Potentially relevant triggers from Schedule 4, Part 4.3 that may be subject to an ESO include:

- Item 1 – Impact on listed species or communities.
- Item 2 – Clearing native vegetation
- Item 3 – Development in a reserve
- Item 6 – Heritage
- Item 7 – Contaminated Sites

A proponent can apply for an ESO using Form 1M, the same form that is used to apply for a s211 exemption or an EIS scoping document as described below.

For example, a project may be proposing to clear just over 0.5 hectares of native vegetation, hence triggering item 2, but the native vegetation may be a heavily grazed monoculture of unimproved native pasture that is of limited ecological value.

Importantly, if an ESO is provided, that trigger is no longer applicable to the project and, if there are no other reasons for the project to be assessed in the impact track, then it becomes a merit track proposal (and may also be able to be considered exempt).

7.6 S211

The intention of Section 211 is to recognise that some projects or development sites are subject to multiple environmental assessments and an EIS to support a development application may not provide any further value to the decision-making process.

Section 211 allows the Minister to recognise previous assessments that are less than 5 years old and grant an exemption to the Development Application from being accompanied by a completed EIS.

For example, if a Territory Plan Variation has just been completed to rezone land for urban development, the plan variation may have been supported by an assessment under the EPBC Act and been subject to a comprehensive planning study to inform decisions about the appropriateness of development at that location. Both the Territory Plan Variation and the EPBC Referral are subject to public and agency review processes, so it would be unlikely that an EIS would identify new information. While the physical works to commence the urban development may trigger an EIS, the Minister may grant an exemption.

S211 exemptions have been granted for specific projects such as the solar farm at Williamsdale, and 132kV powerline works at Williamsdale and Molonglo.

S211 exemptions have also been granted for broad greenfield development areas at Molonglo Stage 2, Molonglo Stage 3 and Ginninderry Stage 2.

There is a perception in the community that s211 exemptions allow proponents to avoid environmental impact assessment rather than the recognition of assessments that have previously been completed. In response, changes to the Act have made the s211 process include public notification and other requirements making them more onerous and the process is now very similar to undertaking an EIS.

Proponents of impact track scale battery projects that are within the Molonglo or Ginninderry s211 areas may be able to rely on these exemptions to support their project (assuming the exemptions address the relevant triggers), otherwise they are most likely to need to complete an EIS.

The Planning Reform Project is proposing to remove the option for a proponent to seek an exemption from the Planning Minister for the need for environmental assessment.

7.7 EIS

If a proposal is in the impact track and is not the subject of an ESO or s211 exemption, then an EIS must be completed and must accompany the development application.

The EIS process takes 12 months or more to complete but can be much longer depending on the matters to be addressed, so most proponents explore opportunities to avoid doing an EIS where possible. This time impost also means that an EIS should only be required for projects where this is a potential for significant environmental impact that is not already addressed through a merit track development assessment.

The EIS process is relatively well documented and understood. In the case where an EIS is being prepared to also address EPBC Matters under the Bilateral Agreement, then the Commonwealth will be a referral agency for the scoping process and the final EIS will also be referred to the Commonwealth Minister for a decision.

There is provision in the Planning and Development Act for a Development Application to be lodged concurrently for notification with a Draft EIS with the intention of reducing overall assessment time, however this approach has not proven to be successful because:

- Normally for the purpose of an EIS a project is only at concept design stage because the proponent does not want to invest in more detailed design before there is certainty that the project can be supported on environmental grounds.

- The environmental assessment often results in the need to modify the concept proposal to ensure appropriate environmental protections are in place.
- If the Development Application needs to be materially amended after the EIS has been completed, then the amendment to the application triggers re-notification and this results in a similar decision timeframe to the lodgement of the DA after the EIS was completed.

An EIS scoping document has been issued for the Territory Battery Energy Storage project proposed by Neoen Australia. The project is for a large scale battery of up to 300 megawatts near Stockdill Drive in Belconnen. The Commonwealth Government identified that the action is a controlled action and that the project is to be assessed under the Bilateral Agreement. The project is required to be assessed in the Impact Track because it is to be assessed under the Bilateral Agreement, and because it triggers items 1 & 2 in Part 4.3 of Schedule 4 of the Planning and Development Act.

The benefit of the EIS process is that it includes the preparation of a preliminary risk assessment that enables a wide range of risks to be considered. The scoping application for the Neoen battery at Stockdill Drive addressed matters including end of life management of materials for example.

7.8 Discussion

There are a number of reasons why it might be suggested that large batter proposals should be subject to impact track assessment, but the preparation of an EIS is a substantial impost on a project so impact track should only be required if there is a significant risk to the environment about which an EIS would assist the decision making.

Potential risks associated with large batteries include:

- Fire risk
- End of life waste streams
- Noise

These matters are or could be addressed through the Merit Track development application process with the appropriate rules and criteria, hence the recommendation that only very large batteries are automatically placed in the impact track.

7.9 Significant Development

The Planning Bill 2020 (Consultation Draft) proposes to change the system of Merit and Impact Track developments to a single track, but with some proposals being identified as Significant Development. A proposed development would be identified as significant if it requires:

a) an estate development plan, or
b) consultation with the design review panel, or
c) an environmental impact statement.

Significant development is similar to the current Impact Track. The types of projects that require an environmental impact statement are being carried through to the new legislation with minimal change.

The referral entities for significant developments are defined in the draft Planning (General) Regulation. For significant development that requires an EIS, the entities include:

- ActewAGL Distribution (EVO Energy),
- Conservator of flora and fauna,
- Emergency services commissioner
- Environment protection authority
- Heritage council
- Director general of health policy
- Director general of municipal services

This is similar to the current referral requirements for Impact Track assessment.

Significant development is subject to longer public notification and decision making timeframes.

8 Other Legislation

8.1 Introduction

Obtaining planning approval (where required) is only part of the process of installing a battery.

There are numerous other Acts that are potentially applicable within the ACT. These acts need to be considered for any proposal irrespective of whether planning approval is required.

The list below presents a summary of some of the acts and their requirements.

The purpose of this list is to identify that some matters that need to be controlled in relation to battery installations may be best addressed through other legislation and the related regulations, policies, or guidelines.

8.2 Building Act 2004

The Building Act regulates buildings and building work. It provides the definitions of buildings and structures used in the Planning and Development Act.

Certain types of buildings are exempt from building approval, including small class 10a buildings (up to 3 metres tall and 25 m^2 in area) including sheds and outbuildings that could be used to house small to medium scale batteries.

Other buildings require 'building approval' which requires construction and use to be in accordance with the building code.

The link to building codes is important as these codes continually evolve.

New provisions are being proposed to enable Class 2, and 5 to 9 buildings (refer to Table 1 on page 36 for building classifications) to be easily retrofitted with distributed energy resources (DER) including photovoltaic panels, battery storage and electric vehicles. The changes are intended to "future proof" buildings for retrofitting facilities, which are likely to become business-as-usual equipment for commercial buildings in future. The provisions do not require EV charging equipment, but are designed to make it easier to install such equipment as EVs become more common.[5]

The proposed updates to Part J9 (formerly J8) include expanding where sub-metering is required to include collecting the energy data related to the use of distributed energy resources such as PV, EV and battery storage systems as part of the broader energy data consumption.

They also introduce provisions designed to make retrofit of distributed energy equipment easier over the life of a building. The provisions require space to be left on electrical distribution boards and for cable trays to connect distribution boards to car park spaces in Class 2 buildings. Class 2 buildings will also be required to install charge control devices to ensure EVs will only be charged when there is available electrical capacity in the building. Without this requirement, Class 2 buildings would be required to size their electricity supply to support 100% of car parking spaces being used to charge EV at times of peak demand. This would at least double the required electrical supply capacity for the building.

[5] Summary of changes.pdf (abcb.gov.au)

Classification	Definition
Class 1a	Single dwelling house
Class 1b	Boarding or guest house, hostel with a total floor area not exceeding 300m2 and not more than 12 occupants
Class 2	A building containing 2 or more sole-occupancy unit each being a separate dwelling
Class 3	A residential building which is a place of long term or transient living for a number of unrelated persons eg backpacker accommodation, guest house, hostel or boarding house; residential part of a hotel or motel; residential part of a school; accommodation for the aged, children or people with a disability; residential part of a health care building which accommodates staff; a residential part of a detention centre
Class 4	A dwelling in a building that is class 5, 6, 7, 8, or 9 if it is the only dwelling in the building
Class 5	An office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9
Class 6	A shop or other building for the sake if goods by retail or the supply of services direct to the public
Class 7a	Carpark
Class 7b	Storage or display of goods or produce for wholesale
Class 8	A laboratory, or a building in which a handicraft or process for the production, assembling, altering, repairing, packing, finishing or cleaning of goods or produce is carried on for trade, sale, or gain
Class 9a	Health-care building
Class 9b	Assembly building including trade workshop, laboratory or the like in a primary or secondary school, but excluding any other parts of the building that are of another class
Class 9c	Aged care building
Class 10a	Non-habitable structure being a private garage, carport or shed
Class 10b	Structure such as a mast, antenna, fence, retaining wall or free standing wall or a swimming pool
Class 10c	Private bushfire shelter

Table 1 – Building Classifications

Consultation on the changes raised the question of whether existing fire safety provisions are sufficient for carparks where EVs are parked. It was noted that EVs present a different type of hazard should they be involved in a fire within the building. An Australian Building Codes Board Investigation found the risk profile of a car park filled with 100% EV is equivalent to a carpark filled with 100% of conventional vehicles. On this basis no changes to existing fire safety provisions are proposed for carparks at this time. The board has committed to continue to monitor this issue as further information arises.

It is noted that this conclusion is quite different to the caution urged by ACT Fire and Rescue in relation to batteries in basements, hence a recommendation for further investigation of this risk.

The actual proposed updates to part J are listed below.

- J1P4 Renewable energy and electric vehicle charging [New for 2022] A building must have features that facilitate incorporation of renewable energy and electric vehicle charging equipment.
- J9D3 buildings over 2500 m^2 must have energy meters configured to enable individual time of use energy data recording of on-site battery systems (and a range of other electrical infrastructure).
- J6D5 electrical switchboard to contain empty three-phase circuit breaker slots for a battery system.

In addition to adopting the Building Code, the Building Act allows the Minister may make an Australian Capital Territory Appendix to the Building Code of Australia.

Disallowable instrument DI2019-175 introduces an appendix in accordance with the Act. It includes modifications to Section J related to Energy efficiency including clauses related to:

- ACT JV1 NABERS Energy for Offices
- ACT JV2 Green Star
- ACT JV3 Verification using a reference building
- Specification JVb Modelling parameters
- ACT J5.9(a) Space heating

This suggests that if the ACT wanted to include additional controls for Building Approvals that would relate to battery storage or electric vehicles they could be done through this appendix.

The Act also provides the mechanism for the Minister to make sustainability guidelines (s143) for the sustainable use of materials in building.

The examples given in the Act relate to the use of rainforest timber, but this might provide the opportunity for certain battery chemistries to be controlled, or technologies with known end of life recycling opportunities to be favoured.

8.3 Climate Change and Greenhouse Gas Reduction Act 2010

This act promotes the development of policies and practices to address climate change, sets targets to reduce greenhouse gas emissions and provides for monitoring and reporting in relation to the targets.

This act supports the development of relevant policy that is encouraging the uptake of battery storage, but it is not really the place for battery specific regulations.

8.4 Community Title Act 2001

The Community Title Act provides for the establishment and administration of community title schemes in the ACT.

A community title scheme consists of:

- a master plan
- a management statement
- the constituent documents for the body corporate
- the by-laws of the body corporate.

A community title scheme must include:

- 1 or more lots that are common property; and
- 2 or more lots that are not common property.

The planning and land authority may refuse a community title scheme proposal if the proposal relates to a single building or single set of physically related buildings with no, or limited, external open space (s10(2)). This scenario would be better suited to a Unit Title scheme (refer to Chapter 8.11).

Upon the registration of a community title, a body corporate is established (s30).

There is an important difference between unit title body corporates and community title body corporates. A community title body corporate may establish and operate a business on the common property or, with the owner's agreement, on a lot in the scheme that is not common property (s35(2)), if the business:

- is related to use and enjoyment of the common property, and lots in the scheme that are not common property, by owners or occupiers of lots in the scheme; and
- is not conducted outside the scheme land; and
- does not prevent the reasonable use and enjoyment of the scheme land by the owners or occupiers of lots in the scheme

This provides the opportunity for the body corporate to own and operate a community battery, or enter into agreement with a third party to do the same. It is more flexible than the opportunities afforded to the body corporate of a unit title development (see chapter 8.11).

Within a Community Title an easement exists for a lot in a community title scheme against other lots in the scheme for supplying utility services to the lot and establishing and maintaining utility infrastructure reasonably necessary for supplying the utility services (s71).

The existence of these easements is also potentially relevant to the development and connection of community batteries.

8.5 Dangerous Substances Act 2004

The purpose of this Act is to protect the health and safety of people, and to protect property and the environment from damage, from the hazards associated with dangerous substances (s6). This includes:

- to eliminate the hazards associated with dangerous substances
- if it is not reasonably practicable to eliminate the hazards—to minimise as far as reasonably practicable the risks resulting from the hazards
- to allocate responsibilities to people in relation to dangerous substances
- to regulate dangerous substances, including by providing for authorisation, licensing, notification and registration schemes for dangerous substances.

If certain types of battery chemistry were deemed to be dangerous then they could be managed by this Act.

8.6 Environment Protection Act 1997

The objects of this Act include:

- protect and enhance the quality of the environment
- prevent environmental degradation and risk of harm to human health
- require people engaging in polluting activities to make improvements
- achieve effective integration of environmental, economic and social considerations in decision-making processes
- facilitate the implementation of national environment protection measures
- provide for the monitoring and reporting of environmental quality on a regular basis
- ensure that contaminated land is managed
- coordinate activities needed to protect, restore or improve the ACT environment

The Act establishes the Environment Protection Authority (EPA) with various responsibilities including maintaining the register of contaminated sites (see impact track trigger at 7.3.7).

This Act also allows for the development of environment protection policies that currently include Contaminated Sites, Hazardous materials and Noise polices that set limits that will be relevant to battery storage proposals.

The EPA also has a strong interest in the ACT Government's Separation Distance Guidelines for Air Emissions, but these are not identified as a policy under the Environment Protection Act, rather they are identified as guidelines to aid in the assessment of development proposals under the Planning and Development Act.

The Environment Protection Act identifies the need for Environmental Protection Agreements and Environmental Authorisations for certain activities. These are relevant to the consideration of some exemptions for planning approval (see Chapter 5).

Schedule 1 of the Act identifies Class A activities (requires environmental authorisation) and Class B activities (requires either authorisation or an environmental protection agreement). Authorisations and agreements may include specific conditions relating to the ongoing operation, maintenance or monitoring of a proposal. This provides the opportunity for the EPA to impose conditions on battery storage proposals that are Class A or Class B activities.

The generation of electricity by a *scheduled generating unit* under the national electricity rules, (clause 2.2.2, under the National Electricity Law) is identified as a Class A activity.

The National Electricity Rules[6] that govern the national electricity market under the National Electricity Law identify a scheduled generating unit (used in the production of electricity) that has a rating of 30MW or greater.

However, interim arrangements for utility scale battery technology require the registration of systems of 5MW or more to be registered as both scheduled Generators and Market Customers[7][8]. This interim arrangement appears to effectively lower the threshold for an Environmental Authorisation to 5MW for battery systems but this may not have been tested in practice.

The environment protection policies for Noise are most likely to affect proposals for larger battery storage systems. The noise associated with cooling fans needs careful consideration.

One of the significant issues with managing noise is that once a facility is installed, if it is exceeding the noise limits it can be difficult to police and rectify. This is an issue for the planning system generally that is not specific to battery storage.

Development applications are referred to the EPA and they can make comment on potentially noisy proposals, but exempt proposals can be built without interaction with the EPA if they do not need a protection agreement or authorisation. This means that the EPA may not get the chance to remind proponents of their obligations in relation to noise (or other EPA policies) before the project is complete.

The Territory Plan includes requirements for proposals that include known noisy uses (such as clubs and restaurants) to include a noise management plan as part of the application. The EPA may request a noise management plan for other proposals to demonstrate compliance with the relevant noise policies.

[6] National Electricity Rules | AEMC

[7] Interim arrangements for Utility Scale Battery Technology (AEMO) 20/03/2018 (link)

[8] registering-a-battery-system-in-the-nem.pdf (aemo.com.au)

8.7 Heritage Act 2004

The Heritage Act provides for the recognition, registration and conservation of places and objects of natural and cultural significance.

The Act establishes the Heritage Council to manage the objectives of the Act.

A proponent of a battery storage system must address any heritage requirements irrespective of whether the proposal is exempt development or subject to development assessment.

One of the general exemption criteria notes that exempt development must not contravene the Heritage Act.

Heritage listings may apply to objects or places ranging in scale from single dwellings, to large precincts and include both Aboriginal and European heritage. A proponent of any proposal must check whether there are heritage matters to consider.

8.8 Nature Conservation Act 2014

This Act makes provision for the protection, conservation, enhancement and management of nature in the ACT and for the management of reserves.

The director-general must appoint a Conservator of Flora and Fauna to (among other things) develop and oversee policies, programs and plans for the effective management of nature conservation in the ACT

The Act establishes the Parks and Conservation Service.

The Act requires the Minister to make lists of threatened native species, threatened ecological communities and key threatening processes (such as the removal of hollow bearing trees). These inform the thresholds for impact track assessment under the Planning and Development Act.

The conservator must prepare a draft action plan for each relevant species, relevant ecological community and key threatening process.

The Act also makes it an office to harm native flora and fauna without a nature conservation licence or subject to other specific circumstances.

Projects that potentially impact listed matters may require assessment in the Impact Track.

Irrespective of planning approval a licence may be required if native flora or fauna will be affected by a proposal.

8.9 Public Unleased Land Act 2013

This Act is Intended to protect the amenity and natural value of public unleased land but also facilitates the use of unleased land.

It provides a mechanism for people to apply to do work on unleased public land (this is separate to any approvals required under the Planning and Development Act).

It also introduces a 'public unleased land permit' (s40) that authorises (subject to conditions) the holder to exclusively use stated public unleased land:

- at a stated time (the permitted time); and
- for a stated activity (the permitted activity).

Permits are only issued to 'suitable persons' proposing to undertake 'suitable activities'. The application process includes requirement to support the decision making including details of the activity, location, risk assessments etc. This may include public consultation.

A person commits an offence if they:

- use public unleased land (without a work approval); and
- do not hold a public unleased land permit authorising the use, (or a licence under the Planning and Development Act s303, or the Nature Conservation Act).

The director-general must not issue a public unleased land permit for longer than 3 years, although a renewed permit may be issued upon application.

This puts a limit on the certainty of tenure for these permits and is likely to make them unattractive for battery storage projects that are likely to be seeking longer certainty of tenure.

Battery storage projects would be more appropriately served by licences under section 303 of the Planning and Development Act.

8.10 Tree Protection Act 2005

The object of this act is to protect trees and the urban forest within the urban area.

Protected trees may be either registered trees or regulated trees.

Registered trees are individually registered and may not be harmed or removed (unless the registration is first cancelled).

Regulated trees are living trees on leased land that meet certain size thresholds. These trees may only be harmed (including works within their protection zone) or removed with permission from the conservator, or as approved in accordance with a development application.

The proponent of any proposal on leased land that has the potential to affect a protected tree must either seek advice from the conservator directly, or prepare a development application.

A Draft Urban Forest Bill was publicly notified in May 2022 and will replace the Tree Protection Act when it is finalised. The bill proposes protections for trees on public land as well as leased land, reducing the size thresholds for protection of trees and tree replacement policies in the event that permission is granted to remove trees.

8.11 Unit Titles Act 2001 & Unit Titles (Management Act) 2011

The Unit Titles Act provides for the subdivision of land into units, unit subsidiaries and common property. Upon registration of a units plan, an owners corporation is established.

The Unit Titles (Management) Act provides for the management of a units plan by an owners corporation. The owners corporation holds the common property on behalf of the unit holders and must give them reasonable use of it.

On common property the owners corporation can grant or vary easements but they may not transfer, sublet or mortgage, at law or in equity, its interest in the common property (s20). It is generally understood that this section prevents the owners corporation from dealing with third party installations/ownership of battery or solar storage facilities.

Unlike the body corporate for a Community Title Scheme (see Chapter 8.4), the owners corporation for a Unit Title must not carry on a business except in the exercise of its functions (s71).

An owners corporation may, however, approve the installation of sustainability or utility infrastructure on common property if satisfied that the long term benefits outweigh the costs. The owners corporation may derive income from the infrastructure to pay back the cost of the installation or the cost of utilities used or provided to the corporation.

Owners corporations could install battery storage within common areas, but they cannot be owned by a third party.

The installation would be subject to any relevant planning controls.

8.12 Utilities (Technical Regulation) Act 2014

This Act relates to the safe, reliable and efficient delivery of regulated utility services which include:

- a utility service under the Utilities Act 2000, part 2 (see Chapter 8.12)
- more than 200kW but less than 30MW of electrical generation (or export) capacity
- the supply of electricity from an electricity network to premises
- the provision of a district energy service.

An unlicensed regulated utility (who provides a regulated utility service under this Act, but is not required to be licensed under the Utilities Act 2000) must apply to the technical regulator for an operating certificate (s43).

An application must include information about the utility's:

- capacity to ensure the safe, reliable and efficient delivery of regulated utility services; and
- promotion of the long-term serviceability of regulated utility networks and regulated utility services; and
- promotion of design integrity and functionality of regulated utility networks; and
- capacity to ensure the safe and reliable operation and maintenance of regulated utility networks and regulated utility services

The certificate is granted under s46 of the Act.

There are two types of operating certificate:

- The Design and Construct Operating Certificate is granted before the construction and normally ends upon completion and commissioning.
- The Provision of Service Operating Certificate is granted to a utility that is ready to commence providing the service. It will cover the testing, operation and maintenance of the facility and may be granted with conditions.

For solar or battery systems with combined export potential between 200kW and 1MW, a single operating certificate covering both the design and construct and provision of service may be granted before construction. The operating certificate may contain conditions that will need to be complied with to ensure that relevant stages of work are completed within a set timeframe.

For electrical generators of 200KW to 1MW the application for an operating certificate can be made by the licensed electrician undertaking the installation or the building owner and only need to be accompanied by a basic maintenance schedule, inverter testing program, emergency plan and single line diagram.

For generators of 1MW to 30MW the application is required to be accompanied by a Regulatory Plan (for both the design and construct certificate and the provision of service certificate).

The regulatory plan should consider the design, construction, operation and maintenance of the service, and identify key milestones within this process. The plan should identify the entities involved with the utility service and demonstrate the suitability of any key staff for their identified role. The plan needs to provide evidence, for example, details of engineering design, safe work method systems, maintenance schedules, and environmental control plans. The regulatory plan should be completed by the owner, engineering consultant or engineering contractor delivering the project and be endorsed by an independent certifier.

Operating certificates may contain conditions that are specific to the utility service being provided and usually relate to operational/maintenance requirements of the facility[9].

The act also provides for the creation of technical codes for the regulation of utility networks and once approved, the codes are enforceable under the Act.

There is a technical code for electricity service and installation rules, metering, distribution supply standards, transmission supply and management of network assets.

This act makes it an offence to interfere with a regulated network or make an unauthorised connection to a network.

8.13 Utilities Act 2000

This Act regulates the provision of services by certain utilities.

For this Act, each of the following is a utility service:

- the distribution of electricity through an electricity network;
- an electricity connection service;
- the capacity to generate 30MW or more of power connected to an electricity network;
- the transmission of electricity through an electricity network.

A person must not provide a utility service except in accordance with a licence.

TransGrid operates the electricity transmission network across NSW and the ACT and Evoenergy operate the electricity distribution network in the ACT.

Connections to the transmission network must be negotiated with TransGrid.

Embedded generation connections to the distribution network must be negotiated with Evoenergy. There are four categories of connection that have different technical requirements[10]. The categories are:

- Micro (up to 10kW single phase or 30kW three phase)
- Low Voltage (up to 1.5MW)
- High Voltage (up to 5MW)
- Registered Generator (more than 5MW and registered within the NEM)

The technical requirements associated with connection approval provide the opportunity for Evoenergy to reference various standards and guidelines and to impose their own requirements.

The requirements also enable Evo Energy to meet their obligations to register all Distributed Energy Resources with AEMO[11].

Under the Act, the Minister may exempt a person from the requirement for a licence in relation to a utility service.

Disallowable instrument DI2021–237 provides an exemption to Capital Battery Pty Ltd from the requirement for a licence in relation to the capacity to generate 30MW or more of power connected to an electricity network.

This exemption is given to Capital Battery to operate a 100MW/2-hour stand-alone battery energy storage system at Jerrabomberra.

The exemption is granted subject to Capital Battery holding an operating certificate under section 46 of the Utilities (Technical Regulation) Act 2014.

The exemption suggests that under this Act, battery storage is treated as a generator.

[9] Operating Certificates – A Guide for providers of Unlicensed Regulated Utility services (act.gov.au)

[10] Embedded generation - Evoenergy

[11] AEMO | DER Register Reference Information

8.14 Waste Management and Resource Recovery Act 2016

This Act provides for the minimisation of waste and the recovery, recycling and re-use of resources.

The objects of this Act are to:

- manage waste according to the following hierarchy:
  - minimise the generation of waste;
  - maximise the recovery and re-use of resources;
  - minimise the amount of waste that goes to landfill; and
- support innovation and investment in waste management; and
- promote responsibility for waste reduction; and
- promote best-practice waste management.

The objects of this Act are to be achieved by taking into account the following principles (s9):

- the inter-generational equity principle;
- the polluter pays principle;
- the precautionary principle;
- the proximity principle;
- the waste minimisation principle.

This act would be relevant to the consideration of end of life waste streams from battery storage proposals. The trigger to develop a waste management plan is in the development application process, so would only be relevant for projects that trigger planning approval.

Larger proposals that are assessed in the merit and impact track may be required to prepare a waste management plan to address the construction and operational waste streams in accordance with the 'Development Control Code for Best Practices Waste Management in the ACT 2019"[12]. Appendix 2 of the code identifies best practice considerations, including concepts such as Life Cycle Assessment, but it is predominantly focussed on buildings.

8.15 Water Resources Act 2007

This act is for the sustainable management of water resources in the ACT.

Compliance with the act is a condition for exempt development.

Of potential relevance to a large battery storage proposal is the need for a waterway works licence for the construction of associated infrastructure if it happens to cross a waterway.

A waterway work licences is not required if the activity is being undertaken in accordance with an environmental authorisation or protection agreement under the Environment Protection Act.

8.16 Work Health and Safety Act 2011

The Impact Track trigger relating to Hazardous Chemicals references storage of the placard quantity of a Schedule 11 hazardous chemical as defined in the Work Health and Safety Regulation 2011.

Schedule 11 identifies quantities of self-reactive substances type A to F (in different quantities), or self-heating mixtures category 1 or 2, or unstable chemicals, or any combination of the above.

Further investigation is recommended as to whether a battery storage facility could potentially be identified as a Schedule 11 facility.

[12] DCC Best Practice Waste Management Consultation

9 Case Studies

9.1 Introduction

This chapter of the report reviews the typical approval requirements for a proposed battery for each of the notional scales of battery discussed in this report.

The intention is to present a concise summary of requirements for different types of projects, and to enable conclusions to be drawn as to whether the planning system is interacting with them appropriately.

9.2 On Block Battery

The chosen case study is for a grid connected Battery Installation at the JACS Tuggeranong Police Station in Greenway.

The project is inspired by a request for tender (64391-RFT-084) notified by the ACT Government in March 2020.

A battery capacity of 250kWh storage and 200kW export potential is assumed.

Following the logical order of planning considerations presented in this report:

- The land is not national land or designated land, so the ACT Government has planning jurisdiction (Chapter 3.1.1).
- The land is previously developed and in an urban area. There are no matters of National Environmental Significance so there is not requirement for an EPBC Act referral (Chapter 3.1.2).
- The batteries are to balance the loads associated with the police station, so the use is appropriately described as Ancillary (Chapter 4.2.1).
- The batteries will be installed in a small new outbuilding that meets the requirements for exempt development (Chapter 5.4)
- The proposal is not of a type that requires Impact Track assessment. Due diligence on the site has identified that the site does not contain ecological values, is not heritage listed or contaminated etc. (Chapter 7). This means that the proposal may be merit track assessable or may be exempt.
- The proposal meets the General Exemption Criteria, noting that it is on leased land but there are no regulated trees or easements to be impacted (Chapter 5.1) and it meets the requirements for Non-habitable buildings and structures (Chapter 5.4).

It is therefore concluded that the proposal is exempt from requiring planning approval and can proceed subject to compliance with all other regulatory requirements.

This is a relatively large installation, and it is considered appropriate for installations of this scale to be subject to review by referral agencies and the community, hence the recommendation that a new general exemption criteria be established that sets a maximum battery size that can be exempt. The recommended size is 200kW.

Other legislative requirements that would need to be addressed include:

- Ensuring the outbuilding is below the threshold for Class 10a structures to require building approval.
- Ensuring that any relevant Environment Protection Policies are met, particularly Noise.
- The battery is between 200kW and 30MW so requires an operating certificate from the Utilities Technical Regulator.
- The system will require a Low Voltage connection agreement from Evoenergy.

These certificates and agreements are considered to provide sufficient additional scrutiny of batteries of this scale.

9.3 Neighbourhood Scale

For neighbourhood batteries, three case studies are described to illustrate the variability that might be applicable to these mid scale proposals.

9.3.1 Estate Development Planning

The scenario contemplated is a 1MW battery designed as part of the utility network of a new suburb. The planning of the suburb was recently approved via an Estate Development Plan.

The scenario is inspired by the proposed installation of a series of neighbourhood batteries at Jacka in north Gungahlin.

The installation of the battery is *minor use* along with the other infrastructure that will service the suburb.

The estate development plan has addressed all matters related to planning jurisdiction, EPBC matters, ecological, heritage, contamination, trees etc.

The approval of the estate development plan has involved community consultation and referral of the plans to relevant entities.

Further planning approvals are not required because the proposal meets the definition of exempt utility services (Chapter 5.9).

Approvals under the Environment Protection, Heritage, Nature Conservation and Tree Acts have all been addressed in association with the development of the estate.

The project also needs to consider:

- Land tenure for the owners of the battery, either as a lease or a licence (s303) under the Planning and Development Act.
- Building approval (pending scale of the structures)
- Relevant Environment Protection Policies, particularly Noise.
- Operating Certificates from the Utilities Technical Regulator
- Low Voltage Network Connection agreement from Evoenergy.

The estate development process includes a development application and is considered to provide sufficient scrutiny to the proposal and additional planning input is not warranted. For this reason, the recommended additional general exemption criteria limiting exempt batteries to 200kW would not apply to batteries approved as part of an EDP.

The EDP process could be enhanced by updates to relevant general codes and guidelines to be clear about the level of information required to support the installation of batteries as part of an estate development plan approval.

9.3.2 Community or Company

In this scenario an independent organisation is seeking to install a 500kW battery on unleased land in an established suburb. The site is in parkland near an existing sub-station.

As the battery is over 200kW it is a regulated utility under the Utilities Technical Regulation Act and will need operating certificates.

The use is *minor use*, which is permissible in the zone.

Depending on the details of the site and the installation, the proposal may be exempt utility services (minor utility infrastructure less than 2 metres above ground). This would also be dependent on compliance with the general exemption criteria including compliance with tree protection, heritage and nature conservation acts etc.

The proposed changes to exemptions identified in the consultation draft of the Planning (Exempt Development) Regulation 2022, would mean that this proposal would be unlikely to be exempt, as it would have a footprint of more than 15 m^2.

The recommended upper limit on exempt battery storage would also apply to this project, making it clear that a development application would be required.

Tenure of the land would most appropriately be resolved with a licence under s303 of the Planning and Development Act. The issuing of this licence would enable the assessment of the suitability of the land for the proposed purpose.

A low voltage grid connection agreement would also be required.

9.3.3 Unit Title Batteries

The scenario is for a 100kW battery to be installed in the basement of an existing 20 unit development in Kingston.

The works are inside the building and hence are exempt minor building works (Chapter 5.3). An existing storage and services space is to be used for the installation (rather than basement car parking), so the GFA of the building will not change. The use is *ancillary* to the ongoing residential use of the building.

The owners corporation may install the system (as sustainability infrastructure) on common property.

They also need to consider

- Building approval (for a 2 hour fire rated enclosure)
- Low Voltage Network Connection agreement from Evoenergy.

In this scenario, there may be some concerns about an installation of this nature in the basement of an existing building without due consideration for changes in fire risk management.

This could be resolved by clarifying exemptions to exclude batteries in basements, or to have ACT Fire and Risk to work with Evoenergy on the requirements for network connections.

The recommended solution is to limit exemptions for all battery projects to 200kW so that larger projects are subject to review, but smaller installations can remain exempt. The expectation is that building codes and EvoEnergy connection requirements will address other risks adequately.

9.4 Utility Scale

The scenario considered is a 100MW installation similar to the projects proposed by Neoen at Jerrabomberra or Belconnen.

Projects of this scale are assumed to engage the services of specialist consultants who can help to navigate the approval requirements.

The process for considering planning approval for a Utility Scale Battery in the ACT is notionally set out in Figure 1 below. The figure presents a simplified summary as there are additional processes that may need to occur in particular circumstances.

The figure illustrates the array of different approval pathways that may be required, with the most complex across the top and the least complex towards the bottom.

The least complex outcome does not require EBPC referral and does not trigger impact track assessment, and therefore only requires a merit track development application. This was the case for the proposal at Jerrabomberra.

The most complex outcome is a controlled action under the EPBC Act resulting in either a direct assessment under that Act or an assessment under the Bilateral Agreement, addressed through an EIS under the Planning and Development Act (and Impact Track DA). This is the case for the Belconnen proposal.

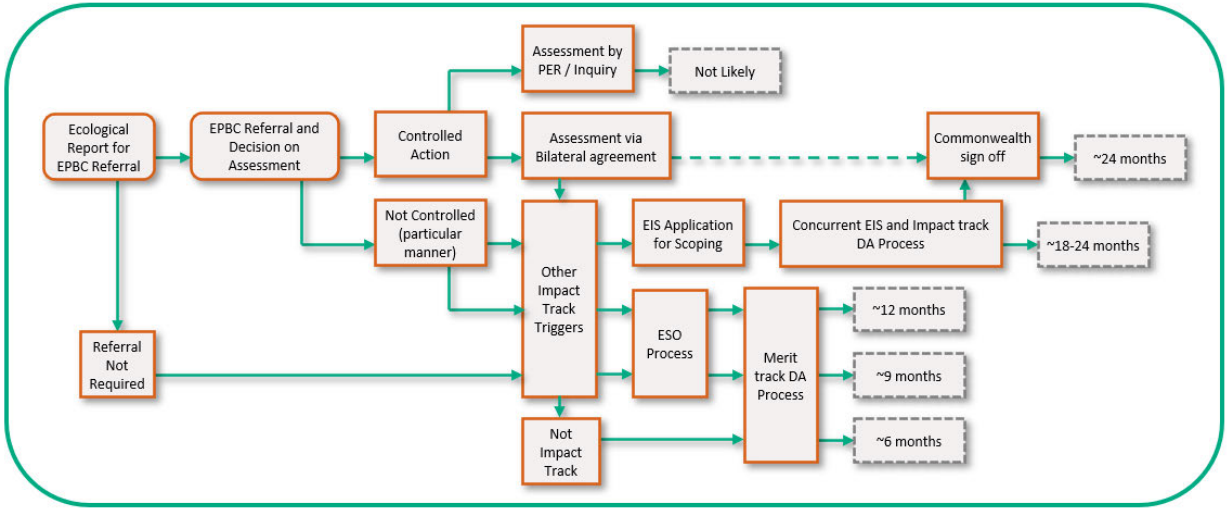

Figure 6 – Planning Approvals for significant projects.

The key steps for utility scale proposals are:

- Confirm planning jurisdiction. For this report, it is assumed that proposals are within the planning jurisdiction of the ACT Government.
- Check for EPBC referral requirements as this can dictate the approvals process under the Planning and Development Act, particularly if an assessment under the Bilateral Agreement is proposed.
- Determine whether impact track assessment is required.

Following planning approval it is likely that projects of this scale will require additional approvals under other legislation such as heritage clearances, environmental protection agreement or authorisation etc.. These need to be addressed on a project-by-project basis.

The project will also need to consider:

- Building approvals for structures as appropriate.
- Licencing or exemption under the Utilities Act.
- If exempt under the Utilities Act, operational certificates under the Utilities (Technical Regulation) Act.
- High Voltage or Registered Generator connection agreement with Evoenergy.

The approvals process provides sufficient opportunity for all relevant considerations to be addressed and is proportional to the likely impact associated with the project.

10 Comparative Study

10.1 Introduction

The purpose of this chapter is to review practices in other jurisdictions to determine whether there are policies that have been developed that can inform the decisions of the ACT Government.

The information presented has been collected via conversations with duty planners in local councils, specialist planners in state planning authorities, reviews of available information on web sites and information provided by EPSDD to inform the research for this project.

The review is not exhaustive but allows general conclusions to be drawn.

There is a considerable practical difference between most jurisdictions in Australia and the ACT, in that most other jurisdictions have both local councils and a state government. In these locations planning approvals for most applications are assessed by the local government, but proposals that go beyond certain thresholds become state significant and are handed to the state level planning authority to assess.

10.2 Victoria

In Victoria the Minister for Planning is responsible for planning permit applications for energy generation facilities that are 1 megawatt or greater. The Minister is also responsible for planning permit applications for utility installations that send or distribute electricity, such as powerlines, or that store electricity if the installed capacity is 1 megawatt or greater, such as battery storage.

The Victorian Department of Environment, Land, Water and Planning (DELWP) provides information about large scale batteries and energy storage.

The Victorian Government's Renewable Energy Action Plan released in July 2017 resulted in the support of two large battery projects:

- the 30MW/30MWh Ballarat Energy Storage System and
- the 25MW/50MWh battery co-located with the Gannawarra Solar Farm (near Kerang in NW Victoria).

Public fact sheets are provided to describe these projects. In terms of potential local impacts, the fact sheets state:

"Modern large-scale batteries use purpose-built containers that can be painted, positioned and screened effectively for minimal visual impact.

Lithium ion technologies favoured in Australia have no noticeable vibration, no emissions, and negligible close proximity sound.

Each container is individually environmentally controlled with its own monitoring and fire suppression systems.

Each facility has industry emergency management plans that have procedures for potential disturbances and hazards, including approaching bushfires."[13]

At the smaller end of the scale, Solar Victoria is a sub-organisation within DELWP that provides rebates for solar batteries to eligible applicants, and additional rebates for people who elect to participate in a virtual power station. In addition to the means testing associated with the eligibility criteria, proponents must obtain pre-approval from their Distributed Network Service Provider (DNSP) to safely connect a battery to the grid. All installers must be accredited. There are no other 'approval' requirements identified in the fact sheets or information pages.

[13] Title (energy.vic.gov.au)

The virtual power plant program allows for the subsidy of up to 2000 households to join the network. The intention is to optimise the use of renewable energy from the connected solar panels and batteries. It is a pilot program that will run for two years to June 2022[14].

Interestingly, there is a policy in Victoria that effectively bans embedded networks (not embedded generation), but this has been subject to review and is likely to change[15].

Within the Melbourne area, a provision has been inserted into the State Policy Planning Framework for the protection of green wedges in Metropolitan Melbourne (cl 11.01R). The provision seeks to protect these green wedges from 'inappropriate development' but also provides opportunities for renewable energy generation. The Victorian Department's Planning for Melbourne's Green Wedges and Agricultural Land Consultation published in 2020 notes that renewable energy generation facilities currently require a planning permit in green wedges, with wind facilities the exception. The report notes that:

- Renewable energy generation facilities offer opportunities for using land for infrastructure services while remaining compatible with green wedge and peri-urban values. Site selection and local context is key in this regard. There may be opportunities to re-use sites where amenity has been adversely affected (e.g. redundant landfills) for renewable energy generation.

While this example applies to renewable energy generation, it has the potential to apply to energy storage.

At a local council level, an example of specific policy is provided in the Moreland Planning Scheme that has introduced provisions focusing on renewable energy generation. Clause 19.01-1L introduces a strategy for energy supply in Moreland to:

- Encourage **precinct scale** energy supply that can be shared between developments, including low emission and gas free technologies that support a transition towards electrification.

A similar strategy is outlined for Metropolitan Melbourne in the MPS:

- Facilitate the uptake of renewable energy technologies on a **site-by-site and neighbourhood level** during the master planning of new communities and in green wedge and peri-urban areas.

Clause 15.02-1 (Environmentally Sustainable Development) of the Moreland Planning Scheme requires consideration 'as relevant' of a Sustainable Design Assessment (using BESS, STORM or other methods) for residential, non-residential and mixed-use developments. When using BESS, points are awarded for energy savings and renewable energy systems, including:

- Renewable Energy Systems for mixed-use, multi-residential and non-residential developments: points are awarded when the solar power system (or other, non-solar system) provides 5% of the annual energy consumption of the building class it supplies.
- For houses and townhouses, points are awarded when the solar photovoltaic system provides 30% of the annual energy consumption of the building class it supplies.

While similar controls could be applied in the Territory Plan and expanded to include onsite battery storage, controls relating to energy efficiency have generally been left to the building code.

More explicit energy reduction targets are provided in the Fisherman's Bend Urban Renewal area where it is expected that developments should achieve a 20 per cent improvement on current National Construction Code energy efficiency standards.

This provides a potential model for consideration in the ACT. The Water Sensitive Urban Design (WSUD) code prescribes reductions in water use compared to a base case, it would be possible to introduce an energy related general code that requires outcomes in terms of energy use. This would be likely to include incentives for the adoption of battery storage but, like the WSUD code it would need to acknowledge the efficiencies of delivering at a neighbourhood or district scale.

[14] Virtual Power Plant (VPP) pilot program | Solar Victoria

[15] Ban of embedded networks in Victoria - Technical update - MinterEllison

10.3 South Australia

South Australia has a subsidised home battery scheme to encourage uptake.

A set of minimum technical requirements for battery systems are in place to ensure the batteries are safe, reliable, and capable of being linked into a virtual power plant. Battery installers must be accredited.

The ability to aggregate home battery systems - either now or in the future - creates opportunities to address network issues and smooth loads by balancing peak power demands.

Households can choose whether their home battery system operates as part of a virtual power plant.

South Australia's Virtual Power Plant was unveiled in 2018 jointly by the South Australian government and Telsa. The program was designed in phases to demonstrate the viability of a virtual power plant to reduce energy costs for households and support the energy grid in ways that could reduce energy costs for all South Australians.

The trial phases involved 1,100 Housing SA properties being fitted with solar and battery storage systems. Installations under the trial phases were completed in 2019 and evaluation is ongoing.

The South Australian Government actively promotes solar and battery storage systems. They provide the following advice to potential consumers:

"The performance of batteries can change depending on the temperature around them. Understand the installation requirements for your battery so you can put it in the right location:

- Batteries need a location or enclosure that has adequate insulation and plenty of ventilation. In Australia, a battery enclosure should ideally be located on the south or east-facing side of a building.
- Do not install batteries in living areas of a property. Outside is safest, but some batteries can be installed in areas like sheds, garages, cellars or laundries.
- Protect the battery and its enclosure from vermin, pets and children. Never store anything on top of or against the battery or its enclosure, as it may cause an electrical fire" [16].

In South Australia, solar PV systems and batteries must be installed by a licensed electrician, who should provide an electronic certificate of compliance (eCoC) within 30 days of the system being connected.

Grid-connected or stand-alone battery system installations must comply with all relevant requirements and standards referenced in AS/NZS 3000 Wiring rules.

Other standards may be applicable. The South Australian Government's Office of the Technical Regulator (OTR) monitors and regulates the safety and technical standards for grid-connected PV installations and battery systems.

The OTR also provides advice about basic safety checks for solar PV and battery storage systems for consumers.

In addition to Australian Standards, grid-connected solar installations must also be installed according to the installation rules of the distribution network operator, SA Power Networks. These requirements are detailed in SA Power Networks' service and installation rules.

Information on arranging for the connection of a solar system to SA Power Networks' network, including the technical installation requirements, can be found on SA Power Networks' embedded generation page. This is similar to the information and requirements provided by Evoenergy for embedded generation [17].

[16] SA.GOV.AU - Solar photovoltaic systems and battery storage (www.sa.gov.au)

[17] Embedded generation - Evoenergy

The South Australian Government also provides Programs for businesses, but these do not specifically include battery storage systems. There is also the Building Upgrade Finance Program run by Climate Smart that could potentially fund battery installations.

The planning system in South Australia includes a series of State Planning Policies[18] and the Planning and Design Code[19]. The threshold for assessment at the state level is 5MW.

State Planning Policy 12 (Energy) identifies that as new technologies such as battery storage, evolve there is a need to provide policies that are sufficiently flexible to allow for creative and innovative responses to energy demand and supply.

The planning system also plays a role in reducing the impacts of energy infrastructure, including visual amenity, health, noise, public safety and maintenance. Therefore, there is also a need to ensure that the creation of renewable energy infrastructure is carefully designed and located.

Regional plans are required to identify the appropriate location and types of infrastructure needed for future energy requirements. Plans should also identify and protect future strategic infrastructure facilities and associated infrastructure requirements to support growth, new technologies and changing demands.

The Planning and Design Code defines 'renewable energy facility' as:

land and/or water used to generate electricity from a renewable source such as wind, solar, tidal, hydropower, biomass and/or geothermal.

This use may also include:

- any associated facility for the storage and/or transmission of the generated electricity;
- any building or structure used in connection with the generation of electricity.

The definition specifically includes battery storage facility.

Proposals for infrastructure and renewable energy facilities are subject to performance outcomes that specifically mention battery storage including:

- Vegetation buffers to reduce adverse visual impacts
- Managing bushfire risks
- Co-location with substations where practicable.

Interestingly, Schedule 13 in the Planning, Development and Infrastructure (General) Regulations provides for an exemption from approval for battery storage facilities larger than 25MW. The exemption is available for State agency development and only on a site identified by the Minister and published in the Gazette.

This exemption has been used twice, (for the Hornsdale and Torrens Island battery projects) and requests for exemption for other projects have been rejected on numerous occasions.

[18] State_Planning_Policies_for_South_Australia_-_23_May_2019.pdf

[19] Planning and Design Code - 28 April 2022 - Version 2022.7

10.4 Queensland

The Queensland planning system was not part of the targeted review, however advice about home and small commercial battery systems provided by Worksafe in Queensland was found during the review and provides useful contrast to the highly positive information provided by other organisations.

Worksafe advise installers that battery energy storage systems (BESS) for homes or small commercial buildings are a serious safety risk if incorrectly installed, potentially leading to:

- electric shock
- fire
- flash burns
- explosion
- exposure to hazardous chemicals.

Any business installing a BESS must ensure the safety of their workers. The BESS must be safely installed and commissioned. In addition installers will need to pass on information to their customer so they can continue to keep it safe and be able to safely shut it down.

Installers must have the appropriate safe systems of work, and the appropriate technical expertise, training and competence for installing this technology.

When designing a battery system they must, take into consideration their knowledge and experience, applicable standards, industry guidelines for best practice and the manufacturer's recommendations. Installers should also think about:

- the physical size required for the installation
- **necessary building modifications, which may need local council approval**
- the type of electrical switching and protection devices, cable sizes, inverter size and the overall reliability and compatibility of the various electrical components
- compatibility with an existing solar PV system or local electricity grid
- whether the system will export electricity to the local grid to maximise tariff returns
- a suitable emergency plan that the customer can manage.

When considering the location of the BESS components in a domestic installation, the designer/installer should conduct a risk assessment to address the risks of the battery technology being used in that location. At a minimum, AS/NZS 3000 (the wiring rules) and the supplier (the manufacturer/importer) instructions for installation should be followed. All BESS installations should restrict access by untrained people, children, pets or vermin.

Before a proponent installs a BESS, they should think about:

- any building codes applicable to batteries (national and local) and changes to floor loadings
- whether the location complies with the manufacturer's recommendations to protect the system from weather and extreme heat, light and temperature, which may reduce performance or the life span of the system
- how any electrolyte spills will be captured to avoid exposure to hazardous chemicals and damage to equipment or the environment
- using the correct fire-rated walls to avoid the spread of fire, should it occur
- allowing suitable access to the area during installation and maintenance work
- ways to achieve adequate ventilation
- protecting it from being hit by vehicles or other objects in the yard.

10.5 Western Australia

Battery Energy Storage Systems (BESS) are being installed in increasing numbers in electricity distribution networks, homes, remote area power supplies and commercial/industrial installations. Electrical contractors may be asked to recommend and quote for a BESS or install, commission and test a system designed or selected by others. The BESS may or may not form part of a solar photovoltaic (PV) installation. It is important installers familiarise themselves with the systems and relevant safety requirements prior to doing work on BESS.

Building and Energy (a division within the Western Australian Government's Department of Mines, Industry Regulation and Safety) has prepared a guidance document to alert electrical contractors and electricians to the safety issues associated with BESS. The guiding principle is one of careful design and specification of equipment for each specific installation to achieve the highest practicable standard of "safety in design". This is the responsibility of all parties providing the equipment to the customer.[20]

BESS equipment must be installed by licensed electrical contractors if it forms part of an electrical installation or operates at 120V DC or greater.

The Clean Energy Council's publication Grid-Connected Energy Systems with Battery Storage provides comprehensive requirements for its accredited installers. The Australian Energy Storage Council (ESC) has also produced a Guide for Energy Storage Systems (refer to Chapter 10.8).

[20] Battery Energy Storage Systems (BESS) | Department of Mines, Industry Regulation and Safety (commerce.wa.gov.au)

10.6 New South Wales

The NSW government has several policies and projects related to battery storage.

The Priority Assessment Program accelerates projects that are either early in the assessment process or that may have been 'stuck' in the planning system for some time. Projects identified for the program are case managed through to determination under a 'Service Charter' between the department and the proponent.

The goal is to speed up the process by providing ways to resolve issues. These issues may include oversight, scheduling and risks. Two battery storage facilities have benefitted from the priority assessment program.

- Stubbo Solar Farm (determined) Development of a 400 MW solar farm with energy storage and associated infrastructure.
- Great Western Battery Energy Storage System (near Lithgow) Development of a 500 MW battery energy storage facility with associated infrastructure.

Also in NSW, a new 500 megawatt battery has received planning approval, helping Liddell Power Station's transformation into a renewable energy hub. The project's proponent, AGL, has advised that the battery will be constructed in stages, with the first stage expected to be operational by 2023.

Within the planning system, regional plans are prepared. They acknowledge the role that battery storage will play within the electricity network. For example, in the Illawarra Shoalhaven Regional Plan 2041 an innovative approach to sustainability and resilience will be prioritised as places are developed or revitalised. Councils will incentivise and promote the value of neighbourhood and building design that encourages the take up of solar photovoltaic systems, battery storage, virtual power plants, and water efficiency measures.

In 2020, Infrastructure SEPP, Division 4, 'Electricity generating works or solar energy systems' was amended to provide a planning pathway for industrial scale batteries by adding 'electricity storage' to the definitions of 'electricity generating works' and 'electricity transmission or distribution networks'. At the same time, the amendment removed capacity thresholds for some solar energy system provisions.

At that time, household scale solar battery systems were relatively new technology, without agreed standards to guide compliance.

There was no development assessment pathway for batteries associated with household scale solar energy systems under the Infrastructure SEPP. Consequently, their installation requires a development application, adding time and cost to the installation process.

Further amendments to the Infrastructure SEPP are now proposed [21].

A development considered to have minor or no impacts on the environment can be classed as exempt development. The proposed amendment will include household scale solar battery systems as exempt development under Division 4 Electricity generating works or solar energy systems (clause 39) of the Infrastructure SEPP.

Development consent will not be needed if installation meets all development standards.

[21] Proposed Infrastruture SEPP amendments: Electricity generating works or solar energy systems - Explanation of Intended Effect (amazonaws.com)

The NSW standards for exemption are:

1. AS/NZS 5139.2019 Electrical installations – Safety of battery systems for use with energy conversion equipment.

The Standard sets out general installation and safety requirement for solar battery systems.

The safety of battery systems for use with power conversion equipment follows a different format to other electrical standards. Compliance with the Standard will ensure the implementation of appropriate control measures.

2. Clean Energy Council approved with only listed batteries installed.

A lithium-based battery system and battery energy storage system are listed as meeting the standards under Clean Energy Council's Battery Assurance Program. This includes meeting the Australian and international standards of the lithium battery safety standard of AS IEC 62619:2017.

3. Accredited person to install the solar battery system

Battery installation and design must be undertaken by someone appropriately accredited by the Clean Energy Council. The Council accreditation program recognises electricians who have undertaken the necessary training to take care of the installation.

4. Notify Fire and Rescue NSW

Prior to installation, households must notify Fire and Rescue NSW that a solar battery system will be installed.

5. Maximum number of batteries

Each household can only install one solar battery system at a maximum of 20kW to be considered as exempt development. Installation over this amount will require development consent, due to fire hazard considerations.

The proposed amendment will provide an efficient pathway for households wanting to install a solar battery system. Installation not meeting these standards requires development consent.

The average household battery capacity ranges from 6kW to 13kW.

The standards acknowledge the danger of batteries (especially lithium batteries) that are not installed used and looked after properly.

Furthermore, batteries must be a located in a safe place, such as a well ventilated area or away from sources of heat, including direct sunlight

10.7 Australian Government

The Australian Government 'Your Home' advisory web site, which provides 'Australia's guide to environmentally sustainable homes' includes information about Batteries[22]. The information covers safety risks and installation standards, as well as consumer advice.

There is no information about planning approvals as this is considered to be a state matter.

[22] Batteries | YourHome

10.8 Non Jurisdictional

Standards Australia has published a new standard, Electrical Installations – Safety of battery systems for use with power conversion equipment (AS/NZS 5139:2019), for battery installations.

The Clean Energy Council has produced a Guide to Installing a Household Battery Storage System[23]. For grid connected household systems there is an assumption that town planning approvals are not required. It's only in cases where people are considering to go off grid that they warn 'Your solar system will need to be large enough to meet your power needs and your battery will need to be able to cover your requirements at all times, including peak periods. In most cases, this means that you will need very large solar and battery storage systems. Large systems can present extra challenges, including their physical size, town planning regulations and grid connection requirements'.

The Best Practice Guide: Battery Storage Equipment – Electrical Safety Requirements 2018[24] (the guide) and the associated Battery Storage Equipment – Risk Matrix, have been developed by industry associations involved in renewable energy battery storage equipment, with input from energy network operators, private certification bodies, and other independent stakeholder groups and individuals, as well as consumer and electrical safety regulators.

The guide is intended to provide a minimum level of electrical safety criteria that could be applied to lithium-based battery energy storage equipment and is the result of collaboration from system manufacturers, certifiers, safety regulators and industry bodies.

This guide covers battery storage equipment with a rated capacity of equal to or greater than 1kWh and up to and including 200kWh of energy storage capacity.

The National Fire Protection Association is an American association that has produced a Standard for the Installation of Stationary Energy Storage Systems (NFPA 855) that provides the minimum requirements for mitigating the hazards associated with energy storage systems. This is a useful reference standard for ACT Fire and Rescue but has no statutory standing in the ACT.

[23] battery-storage-guide-for-consumers.pdf (cleanenergycouncil.org.au)

[24] Battery Safety Guide – Battery Safety Guide

11 Conclusions and Recommendations

11.1 Conclusions about Batteries

Battery installations are becoming a common part of our utility service network.

The underlying technology and the economics of them are changing rapidly, so policies need to remain relatively flexible.

There are several analogies that can be used to consider the planning system and the installation of utility infrastructure. In many cases, batteries can be compared to the installation of substations in the electrical network, or water storage points in our water supply system. In each case, they come in a range of sizes and each size has a useful contribution to make in the distribution of services either at a utility, neighbourhood, or local scale. Each scale also requires a different level of planning assessment.

When considering changes to the planning system there are two philosophies that are considered helpful:

- We should make the least number of changes possible to achieve the outcome that we need. This is to avoid creating new problems or imposing unnecessary requirements on proponents.
- We should understand the problems that we are trying to resolve and focus our solutions on these proportional to the scale of the problem.

In the case of battery installations, the potential problems are risks to users and adverse impacts on the community, primarily related to noise and the possibility of fire. There are also lesser concerns relating to visual impact and other matters.

The risks associated with battery fires are relatively unknown. A useful analogy is the design expectations around flooding. Typically, the stormwater system is designed for a 1% ARI event (1 in 100 year), because this strikes a balance between reasonable risk and reasonable cost. This works for stormwater where the risks are well known given that we have more than 100 years' worth of rainfall data (albeit changing due to climate change). With new battery technologies however the risk profile would be like trying to predict a 1 in 100 year storm event based on just 5 years' worth of rainfall data. It is statistically possible, but the level of uncertainty is much higher. We must acknowledge that we do not know the risks and must act cautiously and appropriately at this time.

Further, current batteries may be flammable and potentially toxic, but it is likely that this will change, so policies need to be able to evolve with the technology.

The current arrangement from a planning perspective is that small scale batteries are exempt, large scale batteries trigger planning approval with a scale of assessment proportional to their potential impact, and medium scale batteries are not specifically catered for.

This arrangement is generally consistent with other jurisdictions.

The wide range of options for mid-scale battery developments makes them more complex to resolve and not well understood in any of the planning jurisdictions that were contacted.

It is also important to acknowledge the existing requirements against which batteries are assessed for the purpose of other legislation so that duplication of assessment does not occur.

A summary of key thresholds is presented in Figure 4 below. The figure presents a logarithmic scale of battery size increasing from left to right (grey bar in the middle). Across the top the figure presents the scales of project discussed in this report (on block, neighbourhood, utility). It then presents some examples of installations to give some relative size perspective. Reference policies are identified to illustrate the different thresholds that are used.

Under the battery size bar, the thresholds that are relevant to the Utilities Technical Regulator and EvoEnergy connection agreements are shown.

At the bottom, the recommendations of this report (see Chapter 11.2) that relate to specific thresholds are shown to place them in perspective.

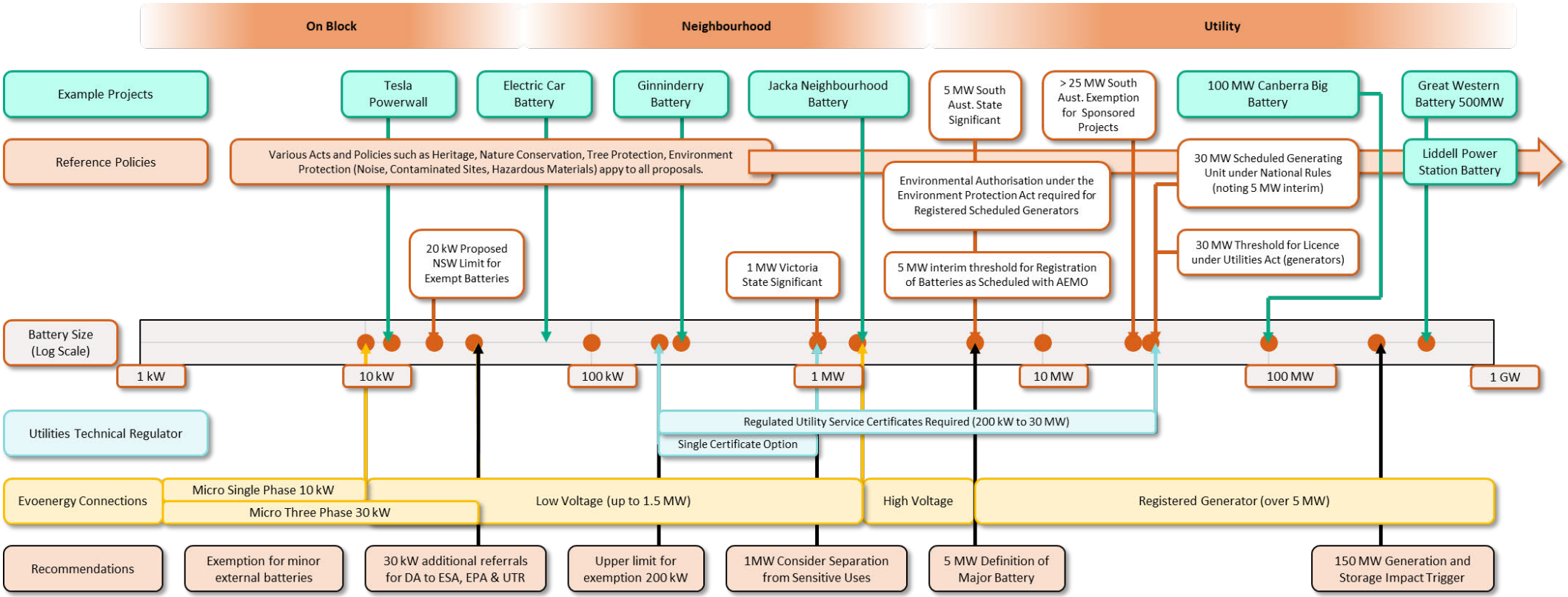

Figure 7 – Logarithmic Battery Size chart with key thresholds and policies identified.

11.2 Recommendations about Batteries

Based on the information gathered in the preparation of this report, the following recommendations are provided for consideration.

1. Introduce a new definition for Major Battery, with a threshold capacity of 5MW or grid connection of 66kV or above, under the umbrella term of Major Utility Installation. This would clarify the planning pathway for utility scale projects.
2. Modify the regulations to identify additional referral agencies for development applications that include batteries above a threshold to be determined by notifiable instrument. The additional agencies would be the EPA, Emergency Services Commissioner and the Utilities Technical Regulator. The initial threshold should be 30kW (the upper limit of EvoEnergy micro connections) but this could be updated as knowledge and technology improve. This would ensure that the risks posed could be assessed early in the process.
3. Introduce a new General Criterion for exempt development that applies to all battery storage proposals except those installed as part of an approved Estate Development Plan. The Criterion should set the upper limit for exempt battery storage at 200kW.
4. EPSDD, the Utilities Technical Regulator and ACT Fire and Rescue should develop an agreed position on whether the separation of larger battery systems (1MW or above) and potentially sensitive receivers is best regulated through the planning system or utilities regulation and implement changes accordingly. If it is agreed that the planning system is the preferred approach, incorporate additional requirements into the Territory Plan relating to the relative location of batteries and potentially sensitive community facilities. The detail of the requirements, such as which facilities present a co-location opportunity and which should be separated, would need to be subject to additional consideration. In the current Territory Plan these controls could sit within the Community Facilities Location Code, but this may change with the Planning Reform Project.
5. Undertake additional risk assessment and review in relation to the provision of battery storage systems and vehicle charging infrastructure in basements, noting the concerns expressed by ESA and the requirements incorporated into the 2022 building codes.
6. Modify the exemption for External Services (heaters & coolers) to include battery storage systems.
7. Introduce a rule in the Single Dwelling Code to limit batteries to 30kW (the upper limit of a micro three phase EvoEnergy connection) to limit the opportunity for exempt single dwellings containing oversized batteries. Provide a criteria to allow merit based assessment of larger batteries if proposed.
8. Update the Bushfire Risk Mitigation General Code to make it clear that battery storage proposals in bushfire prone areas will be referred to ACT Fire and Rescue for endorsement.
9. Modify the Trigger for the need for an Environmental Impact Statement to include electricity generation and storage, but in doing so, set the threshold for battery storage high to avoid unnecessary impact track assessment (i.e. 150MW).
10. EPSDD, EPA and Worksafe to develop an agreed position as to whether a battery project could trigger impact assessment based on the Hazardous Chemicals trigger and clarify the planning system accordingly.
11. Update the Guidelines for Preparing Estate Development Plans to provide guidance on the information requirements for battery storage proposals. Minimum requirements should be size and location.
12. If the Territory is seeking to achieve energy use reduction targets beyond the building code requirements, introduce an energy reduction general code (modelled on the WSUD code) that requires a reduction in use compared to a base case.

11.3 Conclusions about Electric Vehicle Charging

Like batteries, electric vehicle charging comes in several forms. In its simplest and most common form it consists of a domestic power point used to slowly charge a car, typically overnight.

At the other end of the spectrum are high voltage DC chargers designed to fast charge cars, normally in publicly accessible locations, more comparable to service stations than car parks.

There are also a range of facilities in between that provide AC and DC charging at various rates and may provide for vehicle to grid capability as well.

The transition to electric vehicles is considered inevitable, however the optimum arrangements for ownership models and charging infrastructure are much less certain. The timing of the change is also somewhat uncertain.

Retrofitting of buildings with charging infrastructure, particularly those that have been unit titled, is challenging. In response, the 2022 updates to the building codes include requirements for buildings to be EV charging ready.

There are different requirements for different types of chargers. An array of high speed chargers for public use will have a very different peak load and load profile than an equivalent number of slow chargers.

In some circumstances load management may be required, as foreshadowed in the building code.

Concerns have been raised about the risks associated with charging cars in building basements, and the concentration of cars effectively forming a large battery storage unit.

As noted in Chapter 8.2 the Australian Building Codes Board have undertaken a risk assessment and consider that the risks associated with electric cars are not materially different to petrol vehicles.

Changes to the planning system that could be contemplated to cater for electric vehicle charging, include:

- Encouragement of the provision of charging facilities, aligned with the updated building code.
- Clarify the definitions to facilitate the provision of chargers
- Broaden the existing exemption to include chargers in the public domain
- Limitations on the number of fast charging points that can be exempt.

11.4 Recommendations about Electric Vehicle Charging

Based on the information in this report and the conclusions drawn above, the following recommendations are made in relation to Electric Vehicle Charging Infrastructure.

1. Modify the definition of Service Station to include the “fuelling, charging and/or servicing of vehicles”. This is to clarify that the sites can be used as charging locations.
2. Modify the existing exemption for vehicle charging to remove ‘on block’ to allow chargers to be installed in the public domain as exempt development.
3. Be aware that changes to the Territory Plan that require a provision of vehicle charging effectively bring large batteries with them. Currently the exemptions require endorsement by ActewAGL (Evo Energy) for multiple charging points. A threshold should be introduced to also require endorsement by other entities.
4. Introduce an upper limit of 10 fast chargers to the exemption to ensure that larger installations are appropriately reviewed.