



EXPLANATION OF INTENDED EFFECT

Emerging electricity infrastructure

State Environmental Planning Policy (Infrastructure)

2007

November 2019



Published by NSW Department of Planning, Industry and Environment

dpie.nsw.gov.au

Title: Emerging electricity infrastructure

Subtitle: State Environmental Planning Policy (Infrastructure) 2007

First published: November 2019

Department reference number: DOC19/589242

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1 Emerging electricity infrastructure

New South Wales is fast transitioning towards a modern energy future and the NSW Government is keen to support initiatives that deliver reliable and affordable energy to help households and businesses with their energy bills.

New and emerging energy generation technologies, particularly from solar and wind, has become significantly cheaper in recent years, increasing in popularity from small-scale home rooftop systems to large scale projects. The development of battery storage technologies is starting to play an important role too.

Under the NSW planning system, the development of electricity infrastructure is primarily governed by the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP). The key aim of the Infrastructure SEPP is to facilitate the effective delivery of infrastructure across NSW by providing regulatory certainty and efficiency.

The Department of Planning, Industry and the Environment (DPIE) has identified several opportunities to improve the Infrastructure SEPP to facilitate the efficient delivery of emerging electricity infrastructure in NSW. This Explanation of Intended Effect (EIE) sets out the identified areas for improvement and seeks community input into the proposed means of addressing these.

1.1 Making a submission

You can make a submission on the EIE by completing the online feedback form at:

<https://www.planningportal.nsw.gov.au/draftplans/on-exhibition>

Submissions may address the issues raised in this EIE or provide additional input into how emerging energy infrastructure delivery can be improved in NSW. DPIE will publish a response to submissions following the close of the exhibition and pursue amendments to the Infrastructure SEPP taking into account the submissions received.

You may also contact DPIE at any time with feedback on the Infrastructure SEPP through our website.

2 Planning approvals and emerging electricity infrastructure

The *Environmental Planning and Assessment Act 1979* (EP&A Act), the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) and the Infrastructure SEPP define a tiered planning approval regime for electricity infrastructure in NSW. This ensures environmental assessment is tailored to the scale and type of electricity infrastructure being developed.

Part 3, Divisions 4 and 5 of the Infrastructure SEPP details the planning approval pathways for electricity infrastructure and defines the components of electricity generating works, solar and wind energy systems and transmission networks. The intent is to facilitate the efficient development of electricity infrastructure in NSW.

2.1 Planning definitions

Characterisation of a development is integral to the NSW planning system and involves defining development activity according to its main purpose. Purpose is defined in NSW case law as the ‘end to which land is seen to serve’¹.

Further, the case law provides that ‘the characterisation of the purpose of a use of land should be done at a level of generality that is necessary and sufficient to cover the individual activities, transactions or processes carried on, not in terms of the detailed activities, transactions or processes’². The development of any new land use definition should adopt this approach.

Environmental planning instruments (EPIs) such as State Environmental Planning Policies, the Standard Instrument and Local Environmental Plans use definitions to group classes of development.

For example, the Infrastructure SEPP provides the following definitions in relation to electricity developments in NSW:

- **electricity generation works** – a building or place used for the purpose of making or generating electricity.
- **small wind turbine system** – a system comprising one or more small wind turbines (each of which has a generating capacity of no more than 100kW), each of which feed into the same grid or battery bank.
- **solar energy system** – photovoltaic electricity generating system, solar hot water system or solar air heating system.
- **electricity transmission or distribution network** – includes... above or below ground electricity transmission or distribution lines, bridges, cables poles (etc)... associated telecommunication facilities... and switching station or electricity substations (etc).³

2.2 Planning approval pathways

The next step in characterising development in the NSW planning system is identifying the appropriate planning approval pathways. These pathways are informed by a range of factors including the purpose of the proposed development, the environmental significance of the

¹ *Chamwell Pty Limited v Strathfield Council* [2007] NSWLEC 114

² *Royal Agricultural Society of NSW v Sydney City Council* (1987) 61 LGRA 305 at 310

³ The definition is simplified here for the sake of clarity, for the full definition refer to clause 40 of the Infrastructure SEPP.

development, who the applicant or proponent is, and where the proposed development is to be located.

EPIs are used to identify the appropriate planning approval pathway for a given development proposal. The approval pathway is intended to apply a level of assessment and decision-making appropriate to the scale and significance of the development. These planning approval pathways⁴ are summarised in Table 1 below:

Table 1 NSW planning approval pathways

Pathway	Description
Prohibited development	Land uses that are not permitted because of likely environmental impacts or inconsistency with the strategic vision for land uses in the broader area.
Exempt development	Small-scale development with only minor impacts on the environment and neighbouring properties that can be developed without the need for any approval or need to notify neighbours. Exempt development must comply with clear, unambiguous rules or development standards.
Complying development	Medium-scale development with low impacts on the environment or neighbouring properties that can be approved via certification. Complying development is required to adhere to clear, unambiguous rules and be assessed by an accredited council or private certifier. If the development complies with the rules, an accredited certifier must approve the development.
Development with consent	Developments that are not prohibited, exempt or complying, are subject to a merit-based assessment. Planning authorities must consider the proposal against relevant planning controls and policies as well as public submissions, strategic planning objectives and land use priorities. The planning authorities may approve (subject to conditions) or refuse the development application. Additionally, development with consent is allocated to different consent authorities (local, regional, or State), based on its potential environmental significance, such as State Significant Development (SSD), State Significant Infrastructure (SSI), or Critical State Significant Infrastructure (CSSI).
Development without consent	In a limited number of cases, activities undertaken by government departments or agencies as part of their everyday responsibilities are able to be determined via self-assessment. Many of these activities are allowed to be carried out under the Infrastructure SEPP. Where the development is likely to significantly affect the environment, the Minister for Planning and Public Spaces becomes the determining authority.

⁴ For more information on the NSW planning system and planning approval pathways please refer to the NSW Parliament's e-brief available at:

<https://www.parliament.nsw.gov.au/researchpapers/Documents/The%20NSW%20planning%20system.pdf>

2.3 Efficient planning definitions and approval pathways for emerging electricity infrastructure

The Infrastructure SEPP defines different types of electricity generating and transmission systems and sets out the available approval pathways for each type. For example, wind and solar electricity infrastructure can follow a number of planning pathways, as illustrated at Appendix A.

To facilitate appropriate electricity infrastructure development, it is important to ensure these definitions and approval pathways remain contemporary, clear, and proportionate.

DPIE continually monitors and reviews the operation of the Infrastructure SEPP to ensure the NSW planning system is efficient in facilitating infrastructure delivery. Updating the SEPP to respond to emerging trends and technologies in electricity infrastructure is vital to the continued uptake of modern electricity generation and transmission systems in response to climate change. This will also contribute to providing secure and affordable electricity for the people of NSW.

3 Electricity storage

Proposal

Amend the Standard Instrument and the Infrastructure SEPP as follows:

- Amend the existing definition for electricity generating works in the Standard Instrument to include electricity storage
- Amend the notes in the Infrastructure SEPP to include the amended Standard Instrument definition
- Amend the Infrastructure's definitions of 'small wind turbines', 'small wind turbine systems' and 'solar energy systems' to include electricity storage
- Amend the definition of the electricity transmission or distribution networks in the Infrastructure SEPP to include electricity storage.

3.1 The electricity challenge

The electricity sector is undergoing a period of significant change. As the market moves away from coal, emerging technologies such as wind, solar and batteries, are increasingly seeking to connect to the grid in ever increasing numbers.

The NSW Government is committed to providing a secure, affordable and modern energy system for the people of NSW by implementing policy settings and programs designed to put downward pressure on energy prices, facilitating private sector investment in energy markets and being proactive about energy technology change.

Electricity storage will play an increasing role in this transition. Modern storage technologies, such as large-scale batteries, are expected to be key to the development of Energy Zones under the NSW Government's *Transmission Infrastructure Strategy 2018*.

Additionally, DPIE's Energy Division has received up to 15 applications for grant funding of standalone battery projects through its \$75 million Emerging Energy Program, pending a detailed assessment process which is currently underway.

However, the NSW planning system does not recognise standalone electricity storage as a land use, which means it cannot efficiently respond to the challenges associated with rapidly advancing technologies and modernising electricity markets.

3.2 Electricity storage and the NSW planning system

Currently, the development of electricity storage systems has been carried out as ancillary development to electricity generating works, such as wind and solar farms, and has not required an independent land use definition. This means that under the current planning framework it is not clear whether development approval for standalone electricity storage systems can be obtained, as it is not defined.

However, as the NSW energy system transitions to emerging technologies, this position is not tenable, and the planning system must be re-aligned with the changing needs of the energy sector. This means ensuring that new and emerging technologies have an appropriate definition within the planning system and an appropriate planning pathway.

Accordingly, there is an immediate need to create an appropriate planning approval pathway for standalone electricity storage systems. As such, it is proposed that the Infrastructure SEPP be amended to:

1. Include electricity storage within the existing definition for electricity generating works and electricity transmission networks.

Defining storage as part of existing infrastructure definitions is an efficient means for including this type of development into the NSW planning system as it simply includes this type of development into existing planning approval pathways and associated development standards.

This means that wherever an electricity generating work can currently be developed, so too can an electricity storage system.

Additionally, the existing approval pathways can place conditions and constraints on development to ensure that suitably safe technologies with appropriate risk mitigation systems are developed, protecting NSW communities from unsafe and unordered development.

It also ensures that development is restricted to locations in prescribed zones that will allow the development of electricity storage systems without risking inappropriate development.

2. Provide a development without consent planning approval pathway for, or on behalf of, public authorities in prescribed rural, industrial and special use zone land for standalone electricity storage systems along transmission and distribution networks.

Public authorities are required to consider the environmental impacts of their development activities under Part 5 of the EP&A Act. This is a suitable planning approval pathway for storage systems associated with the electricity transmission network.

4 Residential and commercial electricity storage

Proposal

Amend the Infrastructure SEPP to enable electricity storage systems associated with solar and wind energy systems to be exempt development if installed in accordance with the manufacturer's specifications.

4.1 Electricity storage and exempt development

Currently, Part 3 Division 4 of the Infrastructure SEPP defines the components of small-scale solar energy systems and provides the following planning approval pathways based on capacity thresholds:

- Systems with a capacity of 10 kW or less are exempt development
- Systems with a capacity between 10 kW and 100 kW are complying development⁵

The intent of these provisions⁶ is to facilitate the efficient installation of solar energy systems in NSW. It can be considered, based on the NSW installation data⁷, that this policy intent is being achieved.

The technology being used in the development of solar energy systems is rapidly advancing and batteries for solar energy systems, which are currently not explicitly addressed in the NSW planning system, are becoming a vital component for such systems.

In facilitating the development of batteries for small-scale energy systems, the planning system must ensure batteries are sited and installed correctly to mitigate health and safety risks as well as risks to responders to emergency situations.

DPIE believes the health and safety risks associated with commercially available batteries used for small-scale solar energy systems are well known and can be appropriately managed if installed in accordance with manufacturer's specifications.

It is proposed that the Infrastructure SEPP be amended to ensure efficient exemptions while maintaining effective mitigation of these risks.

⁵ Note: for a solar energy system to be considered exempt development it must satisfy a number of predetermined development controls related to visual amenity, positioning and orientation, elevation, heritage and adhere to Australian standards and manufacturers specifications. For more details refer to clause 39 of the [Infrastructure SEPP](#).

⁶ Note: the current framework may change if the proposal in section 5 of this paper progresses.

⁷ Australian PV Institute, Mapping Australian Photovoltaic installations, August 2019, <https://pv-map.apvi.org.au/historical#4/-25.80/138.34>

5 Thresholds for solar energy systems

Proposal

Examine the use of electricity generating thresholds as a development control for solar energy generating systems.

5.1 Thresholds as development control

The Infrastructure SEPP uses the following electricity generating thresholds to determine the planning approval pathway for solar energy systems:

- A system that generates 10kW or less is exempt development
- A system that generates between 10kW and 100kW is complying development
- A system that generates over 100kW is development with consent in prescribed rural and industrial zones and prohibited in residential zones.⁸

These thresholds are used as a development control to limit the environmental impact of a solar energy system, as electricity generating capacity is a proxy for the number of photovoltaic panels and environmental footprint.

Technology for renewable energy systems is rapidly evolving⁹, and DPIE is aware that system output capacity can occur with less environmental footprint or impact - solar energy systems may need less photovoltaic panels, and therefore take up less space, to produce the same amount of electricity.

This may mean that imposing upper thresholds on system capacity is no longer an appropriate development control. As such, DPIE is seeking community input into a proposal to remove the capacity thresholds for exempt and complying development and have all solar energy systems being developed under the exempt development planning approval pathway.

This proposal will significantly increase the efficiency of the regulatory system governing the installation of solar energy systems. However, there may be a loss of direct development control on the environmental footprint of system. As such, DPIE is interested in community input into whether this is a problem, or whether the other setback and amenity development controls¹⁰ and requirements for systems to be developed in accordance with building standards and manufacturers specifications¹¹ within the Infrastructure SEPP are sufficient to prevent inappropriate development.

⁸ Note: for a solar energy system to be considered exempt development it must satisfy a number of predetermined development controls related to visual amenity, positioning and orientation, elevation, heritage and adhere to Australian standards and manufacturers specifications. For more details refer to clause 39 of the [Infrastructure SEPP](#).

⁹ The CSIRO provides an example of how technological change is outpacing the use of upper capacity thresholds as a development control for solar energy systems, August 2019, <https://www.csiro.au/en/Research/EF/Areas/Solar/Photovoltaics?ref=/CSIRO/Website/Research/Energy/About-Solar-power/Photovoltaics>

¹⁰ Refer to clause 39(3) of the [Infrastructure SEPP](#).

¹¹ Refer to clause 20 of the [infrastructure SEPP](#).

6 Photovoltaic systems for large residential and public infrastructure projects

Proposal

Amend Clauses 34(8), and Clause 36(3)(b) of the Infrastructure SEPP to remove the 100kW upper threshold for photovoltaic solar energy systems in residential zones and for public authority works.

6.1 Removing upper limits

The Infrastructure SEPP currently imposes an upper limit of:

- 100kW on photovoltaic solar energy systems within residential zones in NSW; and
- 100kW on photovoltaic solar energy systems that are installed by or on behalf of a public authority on any land, without development consent.

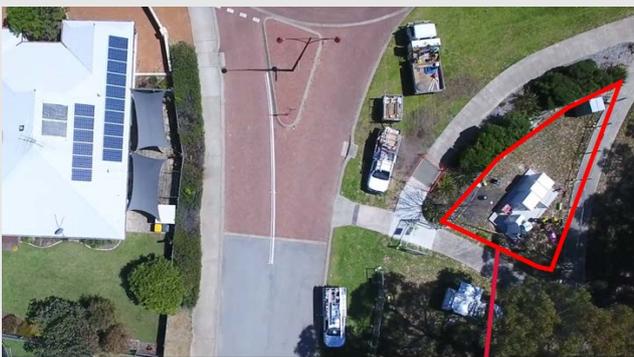
The limits, particularly within residential zones, were included in the Infrastructure SEPP largely to avoid inappropriately large solar farms in residential zones.

However, the limits will become an increasingly unnecessary hinderance as they effectively prevent large residential developments such as apartment buildings and retirement villages, and public infrastructure such as sewage treatment plants from fully offsetting their electricity demands with on-site photovoltaic systems.

With the unprecedented popularity of photovoltaic systems and their associated battery systems (as shown in the case study below) and technology advances that have resulted in more powerful systems in smaller packages, the existing limits are no longer an efficient regulatory tool.

As such, it is proposed to remove the upper limits for photovoltaic solar energy systems from the Infrastructure SEPP while maintaining protection against inappropriately large developments through the existing assessment process undertaken by planning authorities.

Case study: PowerBank Trial Western Australia



Western Power is currently trialling a 105kW (420kWh) electricity storage system, known as PowerBank, in Meadow Springs, Western Australia. The battery draws power from 52 residential solar energy systems.

This system allows for storage of excess solar energy from each resident for \$1 a day. Residents can then draw up to 8 kWh from this excess storage during peak periods where access to sunlight is reduced resulting in a flattened demand and supply cycle

7 Wind monitoring towers

Proposal

Remove the 30-month time limit for wind monitoring stations associated with wind farm developments as exempt development and replace it with a requirement that the development is subject to the windfarms planning approval status.

7.1 Time restrictions on exempt development for wind monitoring stations

Under the Infrastructure SEPP, wind monitoring stations associated with wind farm developments are exempt from the need to obtain development consent for a period of 30-months, after which they are to be removed, or authorised by development consent. This time limit ensures monitoring towers are removed if the corresponding wind farm development is not progressed or refused consent.

Wind farm developments require data collected by wind monitoring stations to determine the suitability of a location and to assess the feasibility of a proposed wind farm. The stations are also required for ongoing verification of the performance of wind farms, once constructed.

Once a viable location for a wind farm development has been identified, the preparation of a development application to obtain approval for the farm requires more than 30-months from preparation to determination by the planning authority. This can lead to a situation where a monitoring station might need to be demolished, only to be reinstalled after approval is obtained. As such, the time limit represents a regulatory inefficiency.

To address this, DPIE proposes to remove the 30-month time limit for wind monitoring stations associated with wind farm developments, as they are deemed to have minor environmental impact.

However, to ensure that the monitoring stations are not left in perpetuity it is proposed that the Infrastructure SEPP require their removal if the wind farm development application is not progressed, withdrawn or refused.