19 March 2019

Andrew Grear  
Executive Director  
Planning and Heritage  
Department of Environment, Land, Water and Planning  
PO Box 500 East Melbourne VIC 8002  
via email

Dear Andrew

**Draft Solar Energy Facilities – Design and Development Guidelines**

Reference is made to the *Draft Solar Energy Facilities – Design and Development Guidelines* (‘the draft Guidelines’) currently under development by the Department of Environment, Land, Water and Planning (‘DELWP’).

The Australian Energy Market Operator (‘AEMO’) is the independent, not-for-profit organisation responsible for managing and maintaining energy security for all Australians. We are responsible for operating Australia’s largest gas and electricity markets and power systems, including the National Electricity Market (‘NEM’) and interconnected power system in Australia’s eastern and south-eastern seaboard.

AEMO is also responsible for planning and directing improvements on the shared Victorian electricity transmission network (usually 220 kilovolts (‘kV’) and higher) to ensure that the network continues to meet power system security needs and delivers safe and reliable electricity to consumers, at the least cost.

Across the NEM, including Victoria, generators (including grid scale solar energy facilities) that wish to connect to the declared shared network, are required by the National Electricity Rules (‘NER’) to seek the approval of AEMO prior to the connection of any new, or the modification of any existing, transmission infrastructure.

We understand the purpose of the draft Guidelines is to inform stakeholders, including Responsible Authorities, communities and developers, about relevant policy and approval processes relating to grid scale solar energy facilities (‘grid scale solar’). AEMO welcomes the opportunity to make comment about the draft Guidelines that relates to the Planning Policy Framework (‘PPF’), the Victorian Planning Provisions (‘VPP’) as well as the NER.

**PPF and VPP**

1. Terminal stations

   Where grid scale solar connects to the existing transmission network, it is necessary to construct new terminal stations or modify existing terminal station infrastructure. The approval of terminal stations, as ‘Utility Installations’, are subject to the relevant use and development considerations of the underlying zoning and overlays that apply to the land where the terminal station is proposed.

   Careful consideration should be given to the approval requirements relevant to establishing terminal stations, as well as maintenance, repair and modifications undertaken as part of ongoing and regular operation of the terminal stations themselves.
Ordinarily, the zoning of land should reflect the predominant use and character of the surrounding area however, the specific nature of terminal stations and their function within the transmission network make the utilisation of the Special Use Zone (‘SUZ’) more appropriate.

While the draft Guidelines focus on the relevant sections of the PPF and VPP, particularly Clause 53.13 Renewable Energy Facility, grid scale solar applications should be accompanied by a proposal to rezone any new terminal station site.

NER

2. 2018 Integrated System Plan

The 2018 Integrated System Plan (ISP) released by AEMO in July 2018 provides a 20-year forecast for the NEM transmission system. The 2018 ISP identified five Renewable Energy Zones (REZs) in Victoria where clusters of large-scale renewable energy, including solar energy facilities, could benefit from optimised development. Clarifying existing wording in the draft Guidelines to contextualise the ISP, and highlight the identified REZs, may assist proponents. Appendix A suggests wording to this effect.

3. Early engagement with AEMO and the Transmission Network Service Providers

The NER requires proponents of grid scale solar to interface with both AEMO and Network Service Providers (‘NSPs’). While the requirements of the NER are independent of the Planning and Environment Act 1987 (‘the Act’), early engagement by developers with AEMO and the NSPs is prudent to ensure that the existing transmission network, any likely constraints, loss factors or transmission infrastructure required to complete the connection into the network is well understood.

Both AEMO and NSPs have obligations under the NER to prepare annual reports relating to the Declared Shared Network (‘DSN’). Early notification of future connections, during the approval process under the Act, would also greatly assist both AEMO and the NSPs with the orderly and proper management of the DSN. Accordingly, grid scale solar applications under the Act should be accompanied by written evidence of engagement with both AEMO and the relevant NSP.

The clarification of the draft Guidelines to ensure that the information better aligns to the current NER may assist the relevant parties as well as benefit preliminary due diligence undertaken for grid scale solar. Appendix A suggests wording to this effect.

AEMO thanks you for the opportunity to contribute to the draft Guidelines and would be pleased to contribute to any updates of current as well as future guidelines relating to electricity generation and transmission.

Should you wish to discuss the submission further, please contact [Contact Information]

Yours sincerely
### Appendix A – Response to draft Guidelines

<table>
<thead>
<tr>
<th>Section</th>
<th>Draft Guidelines</th>
<th>Suggested Wording</th>
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<tbody>
<tr>
<td>3 (p.8)</td>
<td><em>Suggest introductory paragraph about transmission system</em></td>
<td>Under the National Electricity Rules, the Victorian electricity transmission network (the ‘declared shared network’ usually operating at 220 kV and above but includes some 66 kV lines) is planned by the Australian Energy Market Operator (AEMO). AEMO does not own any transmission infrastructure in Victoria or the NEM. In Victoria the transmission network is owned, operated and maintained by licensed Transmission Network Service Providers (TNSPs), including AusNet Services, TransGrid and Powercor.</td>
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<td>3 (p.8)</td>
<td>Proximity to the existing electricity network and spare connection capacity available at the anticipated connection point are highly important considerations for solar energy facilities.</td>
<td>Proximity to the existing transmission network, any connection capacity available at the anticipated connection point, and existing network constraints and requirements are critical considerations for new facilities, including solar energy facilities. It is prudent to discuss network capacity and potential constraints with the connecting Network Service Provider (NSP) at the earliest possible opportunity. NSPs are obliged to provide open access to the network, and therefore, are currently unable to provide firm access for generators. Time-series market modelling may assist with initial feasibility assessments.</td>
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<tr>
<td>3 (p.8)</td>
<td>The Integrated System Plan, which the Australian Energy Market Operator (AEMO) released in July 2018, identified five Renewable Energy Zones in Victoria. The Zones are areas where clusters of large-scale renewable energy, including solar energy facilities, can be developed through coordinated investment in electricity transmission and generation. The five Zones identified highlight for renewable energy proponents where AEMO is proposing infrastructure planners prioritise their network upgrades, and a high-level</td>
<td>AEMO’s 2018 Integrated System Plan (ISP) is a 20-year strategic transmission infrastructure development plan designed to assess and coordinate future investment and development in transmission and generation around the NEM. The 2018 ISP identified five Renewable Energy Zones in Victoria where clusters of large-scale renewable energy, including solar energy facilities, could benefit from optimised development. Proponents may</td>
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<td>Timeline for their delivery, which may guide decisions about future project placement.</td>
<td>Wished to consider the ISP together with other relevant information during preliminary planning investigations.</td>
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<td>Further information on existing electricity network constraints can be identified using the interactive maps on the Australian Energy Market Operator (AEMO) website. Additional information is also available from the relevant electricity distribution business (Powercor and SP AusNet) planning reports.</td>
<td>Further information on existing transmission network constraints can be identified using the interactive planning maps on the AEMO website. Additional information is also available from the planning reports released by the NSPs (Citipower, Jemena, Powercor Australia, AusNet Service and United Energy Distribution).</td>
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<td>Any electricity generation facility anticipating connection to the NEM (including solar energy facilities) will be required to submit a grid connection application in accordance with the National Electricity Rules. In Victoria, transmission level (large scale) connection applications are administered by the Australian Energy Market Operator (AEMO) while smaller scale (typically below 10 MW) connections are administered by the local electricity business. To find more information about Victoria’s electricity network, consult the AEMO brochure on Electricity infrastructure in your community. A developer of a solar energy facility will be required to identify a point of connection if connecting to the NEM.</td>
<td>Any solar energy facility seeking connection to the NEM must have a connection request approved by AEMO in accordance with the National Electricity Rules. More information on the connection process is available from AEMO here. AEMO strongly encourages both pre-feasibility and enquiry engagement before a connection application is formally lodged. A developer of a solar energy facility will be required to identify a point of connection if connecting to the NEM.</td>
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<td><strong>Suggest insertion of second paragraph</strong></td>
<td>Solar energy facilities seeking connection to the NEM should familiarise themselves with the existing transmission network and identify any likely constraints, loss factors or infrastructure that may be required. Due diligence may include discussions with AEMO and the relevant NSP together with review of key strategic documents produced by both AEMO and the NSPs.</td>
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<td><strong>Suggest insertion of additional bullet point</strong></td>
<td>Written confirmation, from AEMO and the relevant NSP, acknowledging an intention to connect to the NSP.</td>
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<tr>
<td><strong>AEMO connection agreement</strong></td>
<td>AEMO connection agreement to the transmission network</td>
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