



## Questions & Responses

AEMO Victorian Planning (AVP) is undertaking this Regulatory Investment Test for Transmission (RIT-T) and Request for Information (RFI) to consider options that enable AVP to meet system strength standards. AVP has prepared this factsheet to provide information on the Project Specification Consultation Report (PSCR) and RFI.

While AVP has taken all reasonable care in the preparation of this document, the information should not be construed as advice.

## Questions & Responses

Questions	Response
<b>General</b>	
<b>Is submission to the PSCR compulsory in addition to the RFI submission or optional?</b>	Submission to the PSCR is optional when making an RFI submission, and vice versa.
<b>Procurement</b>	
<b>Who would AVP seek to contract system strength services from?</b>	AVP will seek to contract potential system strength services which can be provided by synchronous condensers, conventional generators (as is or modified), grid forming solutions and/or other solutions that will allow AVP to meet the system strength standard.
<b>How would potential contracts with system strength service providers be structured?</b>	AVP expects to enter the appropriate network support agreements (NSA)/ non-market ancillary service (NMAS) contracts with system strength service providers. AVP is open to a range of contracting structure proposals (via RFI and any subsequent procurement process submission) including, but not limited to: <ul style="list-style-type: none"> <li>• Availability and/or dispatch charge components</li> </ul>



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	<ul style="list-style-type: none"> <li>• Enablement of solutions to come on-line to provide service when not operating in the energy market.</li> <li>• Financially recognised when facility is operating in the energy/FCAS markets.</li> </ul> <p>Finer details of the network support agreement relating to dispatch and settlement may need to be refined after the AEMC publishes an updated direction on the Operational Security Mechanism (OSM) or any replacement.</p>
<p><b>What duration of contracts will AVP consider?</b></p>	<p>AVP is open to a range of contract durations. In the past, AVP has entered into contracts between 15 and 20 years when new plants are built. This could be much less if the plant already exists, and AVP had entered in contracts between 1- 10 years. Specific agreement term requirements will be assessed as part of the RIT-T and procurement processes.</p>
<p><b>What is the typical framework for existing and comparable NSA/NMAS contracts?</b></p>	<p>Typical contracts are monthly payment in arrears. However, there may be changes in structure based on the final implementation of the OSM and submissions received via the RFI process.</p>
<p><b>There is currently inconsistency in the Rules on NSA/Network support and control ancillary services (NSCAS) excluding system strength services while NSA/NSCAS payments include system strength payments</b></p>	<p>AVP expects that it will enter into agreements with proponent if their solution forms part of the RIT-T preferred option. The structure and form of those agreements will be based on proposals received and subsequent negotiations and may include an annual payment and/or an hourly payment , or other payment structures.</p>
<p><b>How would AVP manage supply chain security noting the tight time frame required for services to ready by?</b></p>	<p>AVP considers that contracting existing conventional generators is one of many possible solutions to meet the system strength requirements by 2 December 2025. It is plausible that the preferred option will consist of a portfolio of solutions and network support agreements, some potentially with existing synchronous generators, synchronous condensers and/or grid-forming battery energy storage systems.</p>



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<b>How would AVP evaluate submissions to the RFI? Are there weightings associated with each prerequisite?</b>	AVP will assess the RFI submission for the suitability for inclusion as an option in the next stage of the RIT-T (Project Assessment Draft Report). This is dependent on how it meets the technical and economic requirements. Further procurement assessments will be undertaken in future procurement stages.
<b>RIT-T</b>	
<b>Which set of network upgrades and timing have been considered?</b>	AVP considered committed, anticipated and actionable projects which impact Victoria, as per <a href="#">2022 System Strength Report</a> .
<b>How important will the timing of project be when assessed against the proposed system strength need, and can a project be available later than December 2025?</b>	AVP is required to meet the system strength standards at all times from December 2025 and will seek to optimise, where possible, the different combination of services through this RIT-T. It is plausible that the preferred option will consist of a portfolio of solutions and multiple network support agreements, so not all proposed solutions are necessarily required to be in service by December 2025.
<b>Can you provide guidance on calculating estimated scope 1 and scope 2 greenhouse gas emissions associated with supplying system strength services for a battery project charging and discharging into the NEM? Should these calculations consider both the construction and operational phases?</b>	The calculations should consider both construction and operational phases. As this is still a developing area, the methodology can be updated during the RIT-T process when further information is provided by the relevant bodies.
<b>Does AVP propose to select options to meet the minimum and efficient level of system strength for all periods or only 99%?</b>	AVP will need to meet the minimum and efficient level of system strength at all times. AVP may choose to contract additional system strength services to be made available during planned outages of contracted system strength services.



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<p><b>For market modelling, what unit commitment rules will be used to guide dispatch outcomes?</b></p>	<p>AVP is continuing to evaluate the appropriate approach to market modelling, and that includes unit commitment rules.</p>
<p><b>System Strength Requirement</b></p> <p><b>Note:</b> The following questions pertain to the System Strength Requirement that AVP is required to meet. It is important to note AVP does not set the requirements. AVP’s obligation is to meet the system strength standards that are set by AEMO under its national system planning functions. Further questions pertaining to the methodology for setting the system strength standard should be directed to AEMO’s System Planning team at <a href="mailto:planning@aemo.com.au">planning@aemo.com.au</a>, and queries pertaining to connections topics should be directed to <a href="mailto:contact.connections@aemo.com.au">contact.connections@aemo.com.au</a></p>	
<p><b>Are system strength needs established based on Step Change scenario from the 2022 ISP?</b></p>	<p>AVP’s obligation is to meet the system strength requirement as set out in the latest System Strength Report. The most recent version is the <a href="#">2022 System Strength Report</a> which is based on the 2022 Integrated System Plan (ISP) Step Change scenario with some modifications.</p>
<p><b>What is the assumed non-IBR generator commitment pattern?</b></p>	<p>As non-IBR generators (such as any new synchronous gas generators) assumed under the ISP’s Step Change scenario are not expected to demand system strength they have not been included.</p>
<p><b>What is the assumed grid forming connections commitment pattern?</b></p>	<p>The <a href="#">2022 System Strength Report</a> outlines the amount of grid following IBR that AVP is required to provide an efficient level of system strength for. In line with the report, AVP has not assumed any grid forming connections as such connections are not expected to demand system strength.</p>
<p><b>To what extent has the need to facilitate critical planned outages been accounted for as part of the minimum or efficient system strength requirements?</b></p>	<p>AEMC in its <a href="#">final determination</a> has excluded the consideration of planned outages in the minimum or efficient system strength standards.</p> <p>Nevertheless as noted in the final determination, AVP will consider critical planned outages on a case by case basis as highlighted in the 2022 System Strength Report (and subsequent System Strength Reports) consistent with evaluation of other network investments for outages.</p>



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<p><b>Is the Hazelwood system strength requirement driven by planned decommissioning of large synchronous generators in Latrobe valley area, or is it a result of an increase in renewable generations?</b></p>	<p>The requirement for system strength at Hazelwood is reflective of the need to meet the minimum three phase fault level for power system security and the efficient level of system strength to provide a stable voltage waveform at connection points for forecasted IBR.</p> <p>AVP as the System Strength Service Provider for Victoria is required to meet this need at all times without assuming any contribution from existing synchronous generation thus the requirement is independent of any generation decommissioning plans</p>
<p><b>What is the main driver (short circuit contribution/ torque contribution) for the system strength requirements set in Victoria?</b></p>	<p>The system strength requirement for Victoria has been set by AEMO System Planning in accordance with the <a href="#">System Strength Requirements Methodology</a>. Fault current contribution is a key part of the minimum fault level requirement as highlighted in the methodology.</p>
<h3>Technical</h3>	
<p><b>For grid following (GFM) inverter to provide a material positive system strength contribution, is it correct to assume that withstand SCR will need to be lower than 1.2?</b></p>	<p>The minimum requirement for a grid-forming (GFM) inverter solution is that the connection does not have an adverse system strength impact, as per the <a href="#">System Strength Impact Assessment Guideline</a> (SSIAG), or result in a reduction in Available Fault Level (AFL), therefore a short circuit ratio (SCR) withstand lower than 1.2 will meet the requirement of not having reduced AFL. However, this only relates to not having a negative impact; thus further assessment in line with the four criteria for stable voltage waveform will be needed to ascertain the positive impact of having these GFM inverters.</p>
<p><b>Is it mandatory to supply technical information that has been requested but not listed in the Technical Parameters table in the RFI Returnable Schedule, such as PSSE / PSCAD models and associated RUG?</b></p>	<p>Provision of such information will assist AVP in comparing the different options, even if it is based on preliminary models. AVP is conscious of the evolving nature of projects therefore anticipates and has accounted for potential changes between the RFI and subsequent procurement processes. AVP would like to reiterate the PSCR and RFI is the first step of the process and</p>



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	will continue to refine the options available as the RIT-T progresses.
<b>Is there a minimum duration requirement for battery storage solutions?</b>	AVP has not specified a minimum duration requirement for battery storage solutions as long as the battery storage solution is capable of providing system strength services as required and the proponent of the solution is capable of proving so.
<b>Would AVP be able to release more prescriptive technical specification baselines a proponent can then check the technology against to ensure eligibility?</b>	At this stage AVP does not plan to release more prescriptive technical specifications.
<b>What specific criteria is used to demonstrate that a service can support the minimum fault level requirements (criteria 1 for non-network option). AEMO's <a href="#">voluntary specification</a> for grid forming inverters (GFM) presents qualitative capabilities (core + additional) for a GFM. Can AVP please outline which key capabilities are required for each location in relation to this criteria?</b>	<p>The criteria are as outlined in the RFI Returnable Schedule in the Technical Parameter section describes the fault current contribution (of various fault types) &amp; duration at the point of connection. AVP views GFM facilities having these core capabilities to be advantageous, and consideration for the additional capability of having current capacity above continuous rating (i.e. having short-term current overload capability) may be beneficial.</p> <p>AVP does not expect significant variation in the type of capabilities required for different locations.</p>
<b>What specific criteria is used to demonstrate that a service can support a stable voltage waveform (criteria 2 for non-network option). AEMO's <a href="#">voluntary specification</a> for grid forming inverters (GFM) presents qualitative capabilities (core + additional) for a GFM facility. Can AVP please outline which key capabilities are required for each location in relation to this criteria?</b>	Due to the different capabilities of different non-network solutions, AVP will be seeking evidence of a solutions' capability to ensure stable voltage waveform by meeting the four criteria as outlined in the <a href="#">System Strength Requirements Methodology</a> in addition to the technical parameters being requested for in the RFI. Evidence can be provided in the form of simplified network test results similar to what is shown in the weak grid operation and system strength support section in the Voluntary Specification. The core capabilities as outlined in the specification does cover most of the requirements in ensuring a stable voltage waveform so it will be advantageous to meet the specification.



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	AVP does not expect significant variation in capabilities required for different locations.
<b>Why is the proposed network equivalent solution at Hazelwood large from 2025, when Latrobe Valley IBR forecast only takes off from 2029?</b>	The proposed network equivalent solution at Hazelwood is to meet both minimum fault level requirements and efficient level of system strength. The minimum fault level requirements exist today, but are only presented from 2025 when the new standard is required to be met, and are flat throughout the forecast period. Any growth in the system strength requirement over the forecast period is due to forecast IBR connections.
<b>Will AVP provide a network model so that a proponent can model requirements?</b>	Network models in PSSE can be requested via Data Request. Due to the nature of PSCAD models, AVP will not be able to share any PSCAD network models.
<b>Has AVP tested sensitivities where the level of forecast IBR is lower or higher than established in the 2022 System Strength Report?</b>	AVP has not tested for either higher or lower than forecasted IBR from what has been established in the <a href="#">2022 System Strength Report</a> .
<b>Other</b>	
<b>Will there be changes to the System Strength Unit Price from this RIT-T?</b>	The System Strength Unit Price will be revised at the end of the System Strength Charging Period which is 30 June 2028, and is proposed to be reviewed every five years thereafter.
<b>How does AVP pay for system strength services?</b>	System Strength services contract costs will be recovered through the Victorian Transmission Use of System charge and system strength charge paid by connecting parties.

## Where can I find more information?

See AEMO's website for the [Victorian System Strength requirement Regulatory Investment Test for Transmission \(RIT-T\)](#) and accompanying [Request for Information \(RFI\)](#). Please refer to the [System Strength Framework FAQ](#) for any questions on the framework.