

## ESB – System Security Workplan – February 2020

Objective: maintaining a safe and secure power system at least cost for the benefit of all Australians

Priority workstream	Milestone						Progress tracking	
	2020 (Q1-Q2)	2020 (Q3-Q4)	2021	2022	2023	2024	Traffic light	Remaining work
System security services	<p><b>AEMO:</b> (late Feb) Publication of <i>Renewable integration study</i> report</p> <p><b>AEMC:</b> (Mar-Apr) Publication of paper setting out the AEMC’s assessment approach to the development of means to provide system security services</p> <p><b>AEMC:</b> (May-Nov 2020) Assessment and draft rules on synchronous services market rule change request from Hydro Tasmania (relates to both system strength and inertia, as set out in the relevant rows below, and may need to be coordinated with the ESB system services workstream below)</p> <p><b>AEMO:</b> Consultation with industry on proposed NSW-VIC interconnector upgrade</p> <p><b>AEMO:</b> Explore potential arrangements for scheduled generating units to provide additional information to AEMO to assist potential intervention decisions.</p> <p><b>AER:</b> Explore potential arrangements for semi-scheduled plant to be required to continually inform AEMO of any restrictions on their available capacity, including due to physical or ambient conditions and their market intentions.</p> <p><b>AEMO:</b> Consider a rule change request to require large loads of a certain size and type to submit the intent to respond to spot markets. This may be done by requiring these loads to be scheduled loads.</p> <p><b>AEMO:</b> Undertake further analysis of the need for any constraints on scheduled generators changing their commitment and decommitment decisions at short-notice.</p> <p><b>AER:</b> Develop a rule change request for semi-scheduled generators to be obligated to follow their dispatch targets, in a similar manner to scheduled generators.</p> <p><b>AEMO, AEMC:</b> Explore potential changes to compensation arrangements to determine whether compensation should be payable when a generator changes its intentions to commit or decommit at short notice.</p> <p><b>ESB –</b> major workstream under post-2025 project to identify market mechanism to value, procure and schedule essential system services (ESS) into the future</p>		<p><b>AEMO:</b> First General Power System Risk Review (GPSR)</p> <p><b>AEMC:</b> (Q1) final rules on the synchronous services market rule change request from Hydro Tasmania</p> <p><b>AEMO:</b> if applicable, implement outcomes from Hydro Tasmania synchronous services market rule change request</p> <p><b>ESB:</b> Final recommendations from post-2025 project in relation to market mechanisms for ESS.</p>	<p><b>AEMO:</b> Second GPSR</p> <p><b>ESB:</b> implementation of post-2025 market mechanisms for ESS</p>	<p><b>AEMO:</b> GPSR</p> <p><b>ESB:</b> implementation of post-2025 market mechanisms for ESS</p>	<p><b>AEMO:</b> GPSR</p> <p><b>ESB:</b> implementation of post-2025 market mechanisms for ESS</p>		
<b>Technical</b>								
System restart		<p><b>AEMO:</b> (Apr to Sept 2020) Amend SRAS Guideline to reflect changes to the NER</p> <p><b>AEMO:</b> (Sept 2020) Commence procurement of next round of SRAS contracts</p> <p><b>AEMO:</b> Undertake periodic testing of system restart paths</p> <p><b>Reliability Panel:</b> (June to Dec 2020) Review the System Restart Standard to reflect changes to the scope of SRAS under the NER</p>	<p><b>AEMO:</b> (by June 2021) Finalise procurement of SRAS sources</p> <p><b>AEMO:</b> Undertake periodic testing of system restart paths</p>	<p><b>AEMO:</b> Undertake periodic testing of system restart paths</p>	<p><b>AEMO:</b> Undertake periodic testing of system restart paths</p>	<p><b>AEMO:</b> Undertake periodic testing of system restart paths</p>		
Frequency control	<p><b>AEMO:</b> (From Q1 2020) AEMO continues its work on assessing the longer-term needs of the power system, based on a holistic view of inertia, primary and secondary frequency control as well as potential new needs.</p>	<p><b>AEMO:</b> (December 2020) commence proposed changes to generator governor settings for the second tranche of generators (generators &lt;200MW) under the <i>Mandatory primary frequency response</i> rule.</p>	<p><b>AEMO:</b> implement outcomes from <i>Mandatory primary frequency response</i> rule change.</p>	<p><b>AEMO:</b> implement outcomes from <i>Removal of disincentives for PFR</i> and <i>Fast frequency response</i> rule changes.</p>	<p><b>AEMO:</b> implement long-term frequency control arrangements</p>			

## ESB – System Security Workplan – February 2020

	<p>AEMO will consider issues such as:</p> <ul style="list-style-type: none"> <li>• Ability to cover coincidental ramps in VRE</li> <li>• Locational and temporal requirement for faster contingent frequency response</li> <li>• The role of advanced inverter capabilities</li> </ul> <p>AEMO’s assessment will consider the system needs under various operating conditions, as well as the available technology capabilities during this time.</p> <p>This analysis will determine the characteristics of the frequency services that will be required and inform the development of service specifications for market/incentive-based mechanisms. The co-optimisation of these service specifications with energy dispatch will also be considered. AEMO will work with market participants to trial capabilities under these anticipated network conditions. AEMO will update their progress on this work through staged reporting in relevant publications.</p> <p><b>AEMO:</b> (by April 2020) Consultation with industry on the development of the primary frequency response requirements (PFRR)</p> <p><b>AEMO:</b> (April 2020) complete review of the Market ancillary service specification and implementation of changes to the parameters for valuation of the relevant market ancillary services to support the delivery of primary frequency response under normal operating conditions when the system frequency is within the normal operating frequency band.</p> <p><b>AEMO:</b> (May 2020) complete review of the Causer pays procedure to align with proposed changes to the NER through its rule change request, <i>Removal of disincentives to primary frequency response</i>. Timing subject to change, pending outcome of the AEMC’s assessment of the <i>Removal of disincentives to primary frequency response</i> rule change request. [Likely delayed]</p> <p><b>AEMO:</b> (June) Publication of interim PFRR</p>	<p><b>AEMO:</b> implement outcomes from <i>Mandatory primary frequency response</i> rule change.</p> <p><b>AEMO:</b> (Q4 2020) AEMO reports on the requirement to add or amend performance objectives for frequency control in the NEM</p> <p><b>AER:</b> commence reporting on FCAS outcomes.</p>	<p><b>AEMO:</b> implement outcomes from <i>Removal of disincentives for PFR</i> and <i>Fast frequency response</i> rule changes, including reform or replace ‘causer pays’ procedure to incentivise primary frequency response</p> <p><b>AEMO:</b> Coordinate operational frequency control trials to inform future frequency control arrangements</p> <p><b>AEMO:</b> (Dec) Publish final PFRR</p> <p><b>AEMO:</b> if applicable, implement outcomes from <i>Frequency services from small generating units rule change request (expected)</i>.</p> <p><b>AER, AEMO:</b> if applicable, implement outcomes from <i>semi-scheduled rule change request</i></p>	<p><b>AEMO:</b> Monitor system frequency performance and refine incentive mechanism settings and target system frequency performance</p>				
System strength	<p><b>AEMO:</b> (late Feb) publish paper on system strength issues and N-W Victorian shortfall</p> <p><b>AEMO:</b> (Q1) Tender for the provision of system strength services in NW VIC</p>	<p><b>AEMO:</b> Annual publication of system strength and inertia shortfalls</p>	<p><b>AEMO:</b> Annual publication of system strength and inertia shortfalls</p> <p><b>AEMO:</b> (Jan 2021) Address system strength shortfall in NW VIC</p> <p><b>AEMO:</b> if applicable, implement outcomes from Hydro Tasmania synchronous services rule change request</p>	<p><b>AEMO:</b> Annual publication of system strength and inertia shortfalls</p>	<p><b>AEMO:</b> Annual publication of system strength and inertia shortfalls</p>	<p><b>AEMO:</b> Annual publication of system strength and inertia shortfalls</p>		
Voltage	<p><b>ESB:</b> Investigation of voltage behaviour across the NEM’s low-voltage network</p>							

## ESB – System Security Workplan – February 2020

	ESB: Initiatives to manage minimum operating demand (to be considered at 20 March COAG EC)							
Inertia		AEMO: Annual publication of system strength and inertia shortfalls	AEMO: Annual publication of system strength and inertia shortfalls  AEMO: if applicable, implement outcomes from Hydro Tasmania synchronous services rule change request	AEMO: Annual publication of system strength and inertia shortfalls	AEMO: Annual publication of system strength and inertia shortfalls	AEMO: Annual publication of system strength and inertia shortfalls		
Operating reserves			AEMO: if applicable, implement outcomes from the Operating reserves rule change request.					
Resilience			AEMO: implement outcomes from GPSR rule change  AEMO: implement outcomes from protected operation rule change  AEMO: implement outcomes from market suspension flexibility rule change					
<b>Regulatory</b>								
System restart	AEMC: (2 April 2020) Publish final determination on System restart services, standards and testing rule change							
Frequency control	<p>AEMC: (26 March 2020) publish final determination on the consolidated <i>Mandatory primary frequency response</i> and <i>Primary frequency response requirements</i> rule changes.</p> <p>AEMO: Q2 2020 AEMO evaluates the requirement to submit a rule change request to:</p> <ul style="list-style-type: none"> <li>• allow Small Generation Aggregators to classify small generating units as market ancillary service generating units for the purposes of providing market ancillary services, and</li> <li>• to clarify that Market Ancillary Service Providers can satisfy their obligations to provide market ancillary services through enabling small generating units.</li> </ul> <p>This action will be informed by the outcomes of the NEM virtual power plant trial program.</p> <p>AEMC: (April - May 2020) Scoping of options for the <i>Removal of disincentives to primary frequency response</i> rule change request. This will consider approaches to incentivise and reward the provision of frequency control services. Stakeholder engagement will include meeting with the technical working group for the Primary frequency response rule changes, as well as broader stakeholder engagement through release of a directions/options paper.</p> <p>AER, AEMO: Develop a rule change request to support semi-scheduled plant being more like scheduled participants by changing their operating behavioural envelope.</p>	<p>AEMC: (September 2020) draft determination on the <i>Removal of disincentives to primary frequency response</i> rule change request.</p> <p>AEMC: (December 2020) final determination on the <i>Removal of disincentives to primary frequency response</i> rule change request.</p> <p>AEMC: Fast frequency response rule change (expected): Combine with <i>Removal of disincentives for PFR</i> rule change.</p> <ul style="list-style-type: none"> <li>• Stakeholder consultation paper Q2 2020</li> <li>• Draft determination Q3 2020</li> <li>• Final determination Q4 2020.</li> </ul> <p>AEMC: Q3 2020 if applicable, commence AEMO rule change on frequency services from small generating units (expected).</p> <p>AEMC: if applicable, commence AER rule change request on semi-scheduled generators (expected)</p>	<p>AEMO/AEMC: Options analysis building on final determination of <i>Removal of disincentives to primary frequency response</i> rule change request</p> <p>AEMC: Q1 2021 if applicable, draft determination on <i>Frequency services from small generating units</i> (expected).</p> <p>AEMC: Q3 2021 if applicable, final determination on <i>Frequency services from small generating units</i> (expected).</p> <p>AEMC: if applicable, draft and final determination on semi-scheduled rule change request</p>	<p>AEMC: Assess future rule changes on frequency control arrangements</p> <p>Reliability Panel: Review of the frequency operating standard and updates the standard consistent with the target system frequency performance as defined by AEMO.</p>	NER mandatory requirement to provide primary frequency response sunsets (4 June 2023)			

## ESB – System Security Workplan – February 2020

System strength	<p><b>AEMC:</b> (12 March 2020) Publish discussion paper for the <i>Investigation into system strength in the NEM</i></p> <p><b>AEMC:</b> Initiate consultation on system strength rule change request (expected)</p> <p><b>AEMC:</b> (May 2020) Initiate consultation on synchronous services market rule change request from Hydro Tasmania</p>	<p><b>AEMC:</b> (Aug 2020) Publish draft report for the <i>Investigation into system strength in the NEM</i></p> <p><b>AEMC:</b> (Nov 2020) Publish final report for the <i>Investigation into system strength in the NEM</i> and (if applicable) draft determination on rule change request</p> <p><b>AEMC:</b> (Nov 2020) draft rules on the synchronous services market rule change request from Hydro Tasmania</p>	<p><b>AEMC:</b> (Q1) publish final determination on system strength rule change request</p> <p><b>AEMO:</b> if applicable, implement outcomes from the system strength rule change request</p>					
Voltage	<p><b>ESB:</b> Possible reforms to Governance of DER device standards (to be considered at 20 March COAG EC)</p>	<p><b>AER:</b> (July 2020) DER integration expenditure consultation and final guidance. Objective is to define capex assessment approach.</p>	<p><b>AEMO:</b> DER standards on voltage</p>					
Inertia	<p><b>AEMC:</b> (May 2020) Initiate consultation on synchronous services market rule change request from Hydro Tasmania</p>	<p><b>AEMC:</b> (Nov 2020) draft rules on the synchronous services market rule change request from Hydro Tasmania</p>	<p><b>AEMO:</b> implement outcomes from Hydro Tasmania rule change request</p>					
Operating reserves	<p><b>AEMC:</b> (Q2 2020) Commence consultation and assessment of Operating reserves (expected) rule change request</p>	<p><b>AEMC:</b> (Q4 2020) Draft determination on Operating reserves (expected) rule change request.</p>	<p><b>AEMC:</b> (Q1 2021) final determination on Operating reserves (expected) rule change request</p>					
Resilience		<p><b>AEMC:</b> Commence consultation on GPSR rule change request (expected)</p> <p><b>AEMC:</b> Commence consultation on protected operation rule change request (expected)</p> <p><b>AEMC:</b> Commence consultation on market suspension flexibility rule change request (expected)</p>	<p><b>AEMC:</b> Draft determination and final determination on GPSR rule change request (expected)</p> <p><b>AEMC:</b> Draft determination and final determination on protected operation rule change request (expected)</p> <p><b>AEMC:</b> Draft determination and final determination on market suspension flexibility rule change request (expected)</p>					