

| ESB Consultation Paper                      |   |  | Submissions to Consultation Paper  |   |  | ESB Directions Paper   |  |
|---|---|--|--|---|--|--|--|
| MDI   | Initiative                                      | Description  | IEEFA Interpretation of Positioning in Submission  |   |  | Summary of Stakeholder Comments  | ESB Approach in Directions Paper 5 January   |
|   |   |  | Not Supportive   | Neutral / Further Analysis Needed   | Broadly Supportive   |  |  |
| MDI-A<br>Resource<br>Adequacy<br>Mechanisms | Operating reserve                               | An operating reserve is surplus or unused “spare” megawatts in the National Electricity Market (NEM). An operating reserve mechanism / market would identify, value and trade these reserve megawatts to fulfil grid requirements in times of need. A central buyer would procure and price the reserve capacity. This operating reserve market could operate alongside existing NEM spot and FCAS markets.  | - CS Energy (should consider under ESS MDI)  | - ARENA<br>- UNSW CEEM<br>- Origin Energy (may assist with reliability but not investability) | - AGL<br>- Tilt Renewables<br>- Alinta Energy  | - Key to outline how cost recovery would occur<br>- Cost could be high and de-incentivise demand side participation<br>- Could be considered under ESS MDI<br>- May not deliver enough revenue to de-risk investments                | ESB will continue to explore operating reserve option “to ensure flexible, dispatchable resources are valued in the market and have an incentive to be available when they are needed”.<br><i>Moved into the ESS workstream.</i>   |
|   | Enhanced RRO                                    | The Retailer Reliability Obligation (RRO) is an existing NEM mechanism to incentivise liable entities (retailers and large energy users) to enter a contract to supply their share of expected peak demand, when there is a forecast supply shortfall in NEM regions/time intervals. The RRO has been recently introduced and has been triggered only in South Australia. ESB proposes to “expand/enhance” the RRO through various potential mechanisms. | - UNSW CEEM<br>- AGL (“will produce ...costs and risks”)<br>- CS Energy<br>- Grattan Institute<br>- The Australia Institute<br>- Origin Energy (indirect, unproven)<br>- IEEFA |   |  | - RRO is not yet proven, needs to be experienced and implications understood<br>- May produce unanticipated costs and risks<br>- Modification of RRO will lead to uncertainty<br>- RRO is too indirect and uncertain, overly complex | ESB will continue to explore RRO enhancement and “as part of this, the ESB will reflect on how to address concerns raised by stakeholders regarding the complexity of the Retailer Reliability Obligation (RRO), effectiveness at driving investment, and imposing a high compliance burden”.    |
|   | Decentralised capacity market                   | The decentralised capacity market is another option to prevent supply shortfall. It places obligations on retailers to procure capacity. The capacity could be defined in financial or physical terms. The retailers themselves can define how they will meet the reliability obligations.   | - CS Energy (unlikely to incentivise investment)<br>- Origin Energy  | - Grattan Institute<br>- ARENA (may increase cost to consumers)                               | - Alinta Energy (prefer to include trading mechanism)  | - May increase cost to consumers<br>- Would be disruptive and provide limited price certainty<br>- Need comprehensive consultation   | “The ESB will not consider a decentralised capacity market as a separate competing option but will consider the physical backing required of qualifying contracts as one possible enhancement to the RRO. This approach will ensure possible future reforms are made within the RRO.”            |
|   | Reliability and Emergency Reserve Trader (RERT) | ESB will consider adjustments to the RERT depending on other RAMs implemented.   |  |   | Keep RERT:<br>- Alinta Energy<br>- CS Energy<br>- AGL (reduced role)<br>- IEEFA (reduced role) | - Keep RERT in short term, do not use excessively (as out-of-market mechanism distorts market signals)<br>- Need for RERT will be reduced if operating reserve implemented   | “The planned thermal exit over the next 20 years is significant and the ESB will consider whether the operation of the RERT could be broadened to assist AEMO in procuring sufficient resources at least cost to consumers. The RERT, even if widened ... would remain a last resort mechanism.” |
|   | Interim Reliability Reserve (IRR)               | ESB will consider adjustments to the IRR depending on other RAMs implemented.  | Remove IRR:<br>- Alinta Energy<br>- CS Energy  |   |  | - No need for IRR<br>- Near unanimous opposition by stakeholders to its implementation<br>- Multiple / overlapping backstop mechanisms not required  | n.a.   |

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| <b>MDI-B Ageing Thermal Generation Strategy</b> |   | This section of the ESB paper does not suggest any options to manage the coal plant exits, but rather explores the related risks and requests comments from stakeholders on the risks. ESB proposes to examine, in mid-2021, if any additional measures to manage coal plant exit are needed (apart from those recommended throughout the ESB paper e.g. enhanced RRO, operating reserve etc.). |  |  |   | <ul style="list-style-type: none"> <li>- Centrally coordinated process needed to manage exit</li> <li>- Notice of closure rules should be strengthened / financial obligation introduced</li> <li>- Key risk that plants don't close soon enough to reduce emissions as needed</li> </ul>  | "Further consideration of mechanisms to ensure the orderly exit of thermal plants as they retire from the system – possibly including changes to notice of closure requirements, regulated or negotiated arrangements with thermal plants, and contingent scenario planning." |
| <b>MDI-C: Essential System Services (ESS)</b>   | <b>Operating reserve</b>                | ESB proposes explore options for an operating reserve procured by a spot market with a demand curve framework, with possible additional mechanisms to support investability. An operating reserve mechanism is proposed in both the RAM section and in this ESS section.  |  | <ul style="list-style-type: none"> <li>- UNSW CEEM (need to assess costs of scheme)</li> </ul>   | <ul style="list-style-type: none"> <li>- AGL</li> <li>- Alinta Energy</li> <li>- CS Energy</li> <li>- Origin Energy</li> </ul>  | <ul style="list-style-type: none"> <li>- Operating reserves would assist in meeting large net demand ramps</li> <li>- Will provide greater certainty and efficiency as the value of such services amplifies</li> <li>- Risk that the cost of administration outweighs the benefits and the mechanism dulls scarcity pricing</li> </ul>       | "Being considered via the Infigen Energy and Delta Electricity (Introduction of ramping services) rule changes (further details in accompanying AEMC directions paper)."  |
|   | <b>Primary frequency response (PFR)</b> | Developing arrangements to incentivise primary frequency response (PFR) ahead of the mandatory primary frequency response sunset in 2023.   |  | <ul style="list-style-type: none"> <li>- ARENA</li> </ul>  | <ul style="list-style-type: none"> <li>- Origin Energy (market-based PFR)</li> </ul>  | <ul style="list-style-type: none"> <li>- ARENA: Flexible incentives for PFR are required</li> <li>- Origin: supportive of transitioning to a market-based framework for PFR</li> </ul>   | "Being considered via the Infigen and AEMO rule changes (further details in accompanying AEMC directions paper)."   |
|   | <b>Faster frequency response (FFR)</b>  | Supporting the procuring and co-optimising of faster frequency response (FFR) within the existing NEM framework, with potential for formulation within a demand curve framework.  |  | Holistic review of frequency required: <ul style="list-style-type: none"> <li>- CS Energy</li> <li>- UNSW CEEM</li> <li>- Origin Energy</li> </ul>                     | <ul style="list-style-type: none"> <li>- AGL Energy</li> <li>- Alinta Energy</li> <li>- Tilt Renewables</li> <li>- Ausgrid</li> </ul>   | <ul style="list-style-type: none"> <li>- Fast frequency response is a key system service</li> <li>- Framework for frequency control following contingency events requires a holistic review</li> <li>- Link with FCAS must be understood before progressing</li> <li>- May not be an immediate need to implement a market for FFR</li> </ul> | "Being considered via the Infigen and AEMO rule changes (further details in accompanying AEMC directions paper)."   |
|   | <b>Inertia</b>                          | In the intermediate to longer term, the ESB aims to move to a demand curve spot market-based procurement mechanism.   | <ul style="list-style-type: none"> <li>- Ausgrid (prefer NSP provision and/or bilateral contracts)</li> <li>- UNSW CEEM (prefer structured procurement)</li> <li>- Tilt Renewables (prefer centrally planned procurement)</li> </ul> | <ul style="list-style-type: none"> <li>- Grattan Institute (finalise AEMC work first)</li> <li>- CS Energy (prefer bilateral contracts / delay spot market)</li> </ul> | <ul style="list-style-type: none"> <li>- Alinta Energy</li> <li>- Origin Energy (pathway to real time market is needed – inertia could be procured through FFR market)</li> </ul> | <ul style="list-style-type: none"> <li>- Need to finalise AEMC work first</li> <li>- Spot market for inertia may introduce problems: prioritise FFR to reduce op. inertia requirements</li> <li>- Important that all options are considered for the provision of these services</li> <li>- Limited scope for competition</li> </ul>          | "Developing operational scheduling mechanisms to schedule system strength and inertia via the Delta Electricity (Capacity commitment mechanism for system security and reliability services) and Hydro Tasmania rule changes."  |

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|   | <b>System strength</b>   | The intermediate term arrangements for the structured procurement of system strength services will include consideration of: TNSP provision of system strength, Bilateral forward contracting between AEMO and providers, Mandatory technical limits.  | <ul style="list-style-type: none"> <li>- Grattan Institute – need to finalise AEMC work</li> <li>- Tilt Renewables – centrally planned procurement</li> <li>- Ausgrid – NSP / bilateral contracts</li> <li>- CS Energy – standards / regulations</li> <li>- Origin Energy – centrally planned procurement, responsibility on AEMO</li> </ul> |  |   | <ul style="list-style-type: none"> <li>- Need to finalise AEMC work first</li> <li>- System strength and reactive power should be procured through standards / regulations – not spot market mechanisms</li> <li>- Limited scope for competition</li> <li>- Unlikely to be able to move to real time market</li> </ul>                            | “Network Service Provider structured procurement provision of system strength – being considered via the TransGrid rule change.”   |
| <b>MDI-D: Scheduling and Ahead Mechanisms</b> | <b>1. Unit Commitment for Security (UCS)</b>   | The UCS process is based on an analytical tool that seeks to give AEMO an enhanced ability to identify and address security and reliability shortfalls in the operational pre-dispatch timeframe (equivalent to up to 40 hours ahead). UCS would support scheduling system services under contract (rather than a spot market) and systemise how AEMO issues directions to market. | <ul style="list-style-type: none"> <li>- CS Energy (“claims of unit commitment problems are incorrect”)</li> </ul>   | <ul style="list-style-type: none"> <li>- The Australia Institute</li> <li>- Grattan Institute (“will do no harm”)</li> <li>- AGL (“more work needs to be done”)</li> </ul>                       | <ul style="list-style-type: none"> <li>- Alinta Energy</li> <li>- UNSW CEEM</li> <li>- Ausgrid</li> <li>- Tilt Renewables</li> <li>- Origin Energy</li> </ul> | <ul style="list-style-type: none"> <li>- UCS tool could provide a more holistic, thorough, and transparent assessment of power system requirements</li> <li>- UCS will provide more structured &amp; systematic guidance to AEMO on identification of system security and reliability shortfalls</li> <li>- More work needs to be done</li> </ul> | “Use the operational timeframe rule changes on synchronous services (Delta and Hydro Tasmania) to progress development of the UCS.”  |
|   | <b>2. System service ahead scheduling</b>  | This option builds on the UCS and establishes an ahead market to facilitate the trading and scheduling of system services ahead of real time.  | <ul style="list-style-type: none"> <li>- CS Energy</li> <li>- Grattan Institute (“not a priority”)</li> <li>- UNSW CEEM (“would largely favour thermal plants”)</li> <li>- Origin Energy</li> </ul>  | <ul style="list-style-type: none"> <li>- The Australia Institute</li> <li>- Ausgrid</li> <li>- Tilt Renewables (“no compelling justification”)</li> <li>- Alinta Energy (“premature”)</li> </ul> |   | <ul style="list-style-type: none"> <li>- Options 2 and 3 are premature, and how they might coordinate with ESS markets is not obvious</li> <li>- “Not a priority”, “not clear it is needed”</li> <li>- Would largely favour thermal plants &amp; their limited operating envelopes</li> </ul>   | “Consider ahead scheduling of system services first through the rule changes related to synchronous services markets (Delta and Hydro Tasmania), and more generally after new system services markets (including system strength, fast frequency response, operating reserves) have been defined.” |
|   | <b>3. Integrated ahead market</b>  | An integrated ahead market would incorporate energy trading and the co-optimisation of energy and system services in the ahead market design.  | <ul style="list-style-type: none"> <li>- Grattan Institute (“not a priority”)</li> <li>- CS Energy</li> <li>- UNSW CEEM (“would largely favour thermal plants”)</li> <li>- Origin Energy</li> </ul>  | <ul style="list-style-type: none"> <li>- The Australia Institute</li> <li>- Ausgrid</li> <li>- Tilt Renewables (“no compelling justification”)</li> <li>- Alinta Energy (“premature”)</li> </ul> |   | <ul style="list-style-type: none"> <li>- Options 2 and 3 are premature, and how they might coordinate with ESS markets is not obvious</li> <li>- “Not a priority”, “not clear it is needed”</li> <li>- Would largely favour thermal plants and their limited operating envelopes</li> </ul>   | “Continue to develop the concept of voluntary ahead scheduling of energy and services, assessing the potential size of additional resources that could be brought into the market before proceeding with more detailed design work.”   |
|   | <b>4. Compulsory ahead market (ESB does not wish to proceed with this option)</b>  | All energy and system services are scheduled ahead and co-optimised to the extent possible (i.e. market functions as above). However, this option requires all resources to participate in the ahead market (it is mandatory) and the ahead schedule can be physically binding even for services that have real-time spot prices.  | <ul style="list-style-type: none"> <li>- AGL</li> <li>- ARENA</li> <li>- Alinta Energy</li> <li>- CS Energy</li> <li>- UNSW CEEM</li> <li>- Tilt Renewables</li> </ul>   |  |   | <ul style="list-style-type: none"> <li>- Not supportive of mandatory ahead market design</li> <li>- Would largely favour thermal plants and their limited operating envelopes</li> </ul>  | No comment   |
| <b>MDI-E: Two-Sided Markets</b>               | Long term approach towards two-sided market arrangements is suggested by ESB, including emphasising opportunities for customers to | <ul style="list-style-type: none"> <li>- Grattan Institute (unclear case for further policy)</li> </ul>  | May support but further analysis and details needed:   | Directionally supportive:  | <ul style="list-style-type: none"> <li>- Analysis of consumer demand &amp; potential flexibility is needed (especially large loads)</li> </ul>                | MDI-E and MDI-F have been combined into “demand side participation” workstream.   |  |



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|   |  | participate in the market, revising current mechanisms for scheduling, dispatch and forecasting and increasing opportunities available to traders to enter into the market and provide new services.   | action/ AEMC wholesale DR rule is recent)                                  | - Australian Aluminium Council<br>- Ausgrid<br>- CS Energy<br>- Origin Energy<br>- UNSW CEEM (Combine DER+2SM)<br>- AGL<br>- Alinta Energy        | - The Australia Institute | - Key to keep up with technological change & new business models<br>- Further policy action may not be needed at this point<br>- Further analysis needed   | Multiple focus areas outlined in the Directions Paper including reducing cost and variability, participation and choice, improving access, addressing uncertainty and consumer protections.   |
| <b>MDI-F: Valuing demand flexibility &amp; integrating DER</b>                        |  | The priority for the Post-2025 program is to integrate DER into the considerations for market design. This includes “setting up technical and regulatory arrangements, ensuring opportunities for efficient DER participation, define aggregators and market participants, develop participation requirements, compliance, and enforcement arrangements, develop market design options.  | - Alinta Energy (“premature to devote resources”)                          | Directionally supportive but further analysis & details needed:<br>- CS Energy<br>- Origin Energy (need to identify gaps)<br>- AGL<br>- UNSW CEEM |                           | - Removing barriers to DER and demand response participation can provide large opportunity<br>- Key to assess practical considerations<br>- Starting point for DER integration should be identify gaps outside of existing work outside of ESB process   | MDI-E and MDI-F have been combined into “demand side participation” workstream. Multiple focus areas outlined in the Directions Paper including reducing cost and variability, participation and choice, improving access, addressing uncertainty and consumer protections. |
| <b>MDI-G: Transmission Access &amp; Coordination of Generation &amp; Transmission</b> | <b>Interim arrangements for development of REZs (short term)</b> | Stage 1 seeks to build on the planning arrangements in the ISP. It is proposed that the jurisdictional planning body in a region should be responsible for undertaking planning for the priority REZs (per ISP). This will include detailed assessment of REZ and breakdown into sequence of connection hubs. For Stage 2, the ESB is considering developing a framework for the implementation of hubs within the REZ and providing interim access reform arrangements to support market investment in these hubs (work on this is underway). |  | - Australian Aluminium Council<br><br>Framework for REZ implementation is important:<br>- Tilt Renewables<br>- Origin Energy                      |                           | - Premature implementation of too many REZs risk increasing costs to consumers<br>- Better coordination of transmission and generation investment could be achieved through national framework for REZs  | The ESB is pursuing the following initiatives:<br>- Actioning the ISP<br>- Implementing and delivering REZs   |
|   | <b>Transmission access reform (incl CoGATI) (longer term)</b>    | Improve locational signals to generators and efficiently manage congestion through locational marginal pricing (LMP) and financial transmission rights (FTRs).   | - Grattan Institute<br>- Origin Energy<br>- Tilt Renewables<br>- UNSW CEEM | - AGL<br>- Alinta Energy (delay CoGATI)<br>- CS Energy (delay CoGATI)   |                           | - CoGATI / LMP-FTR may conflict with other RAMs so should be introduced later than 2025<br>- MDI should be integrated with AEMC reforms<br>- LMP and FTR do not address the real issues: marginal loss factors and curtailment already provide the signals for generators<br>- CoGATI is creating delays in RE project development | The ESB is pursuing the following initiatives:<br>- Enhancing and supplementing congestion information<br>- Transition pathways to whole of system access solution<br>- Developing a location marginal pricing and financial transmission rights solution                   |

### Submissions Reviewed and Link to Submission

| Respondent and Link to Submission            |
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| <a href="#">AGL</a>                          |
| <a href="#">Alinta Energy</a>                |
| <a href="#">ARENA</a>                        |
| <a href="#">Australian Aluminium Council</a> |
| <a href="#">Ausgrid</a>                      |
| <a href="#">CS Energy</a>                    |
| <a href="#">Grattan Institute</a>            |
| <a href="#">IEEFA</a>                        |
| <a href="#">Origin Energy</a>                |
| <a href="#">The Australia Institute</a>      |
| <a href="#">Tilt Renewables</a>              |
| <a href="#">UNSW CEEM</a>                    |