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Dear Mr. Pierce

## **Coordination of Generation and Transmission Investment Options Paper – AEMO Submission**

AEMO acknowledges the Commission's options presented in their paper on Coordination of Generation and Transmission Investment in the National Electricity Market (NEM) and thanks the Commission for the opportunity to respond.

It is clear there is a need to ensure there is a coordinated approach to investment in the NEM as changes continue in the energy market, such as more geographically dispersed supplies and an increase in technologically diverse resources. To encourage a more coordinated approach to generation and transmission investment, the regulatory and planning processes must be adaptable to the changes that continue to unfold and provide the right incentives for the relevant parties. These processes must then result in cost-effective decisions in the long-term interests of consumers.

It is AEMO's view that the regulatory and planning processes must give effect to a system-wide plan that integrates all facets of the energy market including reliability needs, economic considerations as well as public policy requirements. Additionally, the manner in which energy supply is delivered to consumers must be innovative and accommodating of the changes the market is experiencing and will continue to experience. An integrated system-wide plan developed by an independent party that incorporates robust stakeholder consultation and collaboration will achieve this.

Our submission below sets out the process required to effectively deliver the integrated system-wide plan and its interaction with the investment decision making framework.

AEMO would also like to note that the Commission's review is linked to our work with the AEMC, AER and ESB on planning and regulation of the transmission system and interconnection for the COAG Energy Council's December meeting. AEMO looks forward to continued collaboration with these market bodies.

Should you have any questions on the matters raised in our submission, please contact me on (08) 8201 7371.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'David Swift'.

David Swift  
**Executive General Manager Planning and Forecasting**

AEMO SUBMISSION TO COGATI REVIEW

## Executive Summary

It has been widely acknowledged that the energy market has changed from one with predictable demand growth supplied predominantly by coal and gas resources via a transmission network designed from major generation centres. The power system now needs to accommodate more dynamic and technologically diverse plant, including embedded resources that are geographically dispersed to meet varying energy usage patterns that are vastly different to previous decades.

Such a dynamic energy market can be managed through a planning process facilitated by an independent party to deliver an integrated strategic longer-term plan for the system. For the plan to promote truly holistic and optimised development paths, collaboration with the NEM's network planners as well as non-network service providers is important. This will result in a modernised and resilient power system made up of least-cost developments with the long-term interests of consumers in mind.

In AEMO's view, the planning process must be governed by the following objectives:

- **NEM-wide integrated planning:** Determination of the need for national network investment on this basis that incorporates assumptions and data for scenario development which are consulted on with key stakeholders. This includes collaboration with other transmission network service providers (TNSPs) to co-design credible system enhancements that incorporate reliability and economic considerations.
- **Transparency:** Provision of information via disclosure of criteria, assumptions and data underlying the plan to all TNSPs, non-network service providers and jurisdictions.
- **Comparability:** Unbiased and comparable consideration and assessment of network and non-network options, supply side and demand side options and alternative technologies aimed at providing long-term cost effectiveness for consumers to meet the system needs.
- **Avoidance of duplication:** Early engagement and collaboration with stakeholders for a transparent process with comprehensive analysis to support recommendations and removal of duplication for the justification of projects and decision-making.

The above objectives will ensure:

- Seamless identification of system needs and nationally optimised system enhancements to meet those needs at the lowest cost.
- Information asymmetry is overcome through a transparent process conducted by an independent party.
- Risk is minimised during regulatory determinations due to the collaborative approach between the independent planner and NSPs on development of the preferred solutions which incorporates comprehensive analysis.
- A streamlined overall process due to removal of duplication required resulting from robust consultation and collaboration with stakeholders managed by an independent party.

Our submission below outlines the process required to achieve the above objectives in order to deliver efficient and coordinated NEM development in the long-term interests of consumers. It also recognises the linkage between the integration of storage, particularly batteries, with transmission and generation investment in ensuring this is truly coordinated.

## **1. Options for the transmission planning process**

AEMO believes the current transmission planning process must move away from the assessment of developments on a region-by region, project-by-project basis to one that incorporates (NEM) system-wide planning. This will allow transmission development across the NEM to be optimised and the full benefits of those developments can then be realised. This is particularly important in the current and forecast environment where the supply mix is changing and there is more emphasis on the need to share reserves NEM-wide to manage intermittency.

Additionally, as the NEM environment changes with increased levels of intermittent generation, the importance of information provision becomes more critical in order to operate the power system securely. Subsequently, the requirement for a system-wide plan that collates and coordinates the information from relevant parties becomes equally as critical.

As such, a process that is streamlined, efficient and encourages new technologies and innovative approaches to meet the system needs will result in a system-wide plan that is adaptable to change and ultimately in the long-term interests of consumers.

### **1.1. The Commission's options for transmission planning**

AEMO acknowledges the Commission's four options outlined in their Options Paper. However, AEMO has some concerns with these options which include:

- While the Commission's options reallocate roles, with some options giving a greater role to AEMO, the basic steps in the process reflect the status quo.
- Options 1 and 2 do not give effect to system-wide planning and are likely to result in higher costs due to lack of coordination.
- To give effect to system-wide planning and a more coordinated process, it is necessary to modernise the approach itself.

As such, AEMO has proposed below an alternative option to the transmission planning process, which has features of the Commission's Options 3 and 4.

### **1.2. AEMO's strawman for developing an actionable integrated system plan**

AEMO has developed an alternative option for the transmission planning process based on integrated system-wide planning that seeks to drive the efficient development of the national grid to minimise overall costs while providing secure and reliable supply through the transition. The approach seeks to provide more active consultation early in the process, reduce duplication and provide a smoother path to implementation. The approach seeks to utilise the benefits of both a holistic, national approach through AEMO's involvement and the local expertise of the network service providers. This approach builds on the options presented in the Commission's paper with some refinements and additional detail on the proposed process.

At a high level, an integrated system-wide planning approach is proposed which incorporates the following aspects:

#### **Phase 1 – Development of a long-term strategic plan**

- Assimilation of relevant information to inform scenario development.
  - Broad industry consultation on all inputs is required, seeking to understand industry, technology and cost trends and assess the range of uncertainties over the plan period.

- Consumers need to be actively engaged in the development of the ISP, commencing with early input on customer needs and scenarios for assessment. A formal process for their involvement is necessary and some funding is likely to be required to support the resources needed. The AER's 'Consumer challenge panel' could provide a useful model for consumer engagement in addition to input from Energy Consumers Australia (ECA) and specific representative bodies.
- The process would include early engagement with the AER both to obtain their input and for them to ensure the process is followed.
- Identification of system-wide needs.
  - Joint consultation with TNSPs to obtain local planning expertise,
  - Governments advise of policy needs, and
  - AEMO conducts extensive market modelling using stakeholder input provided.
- Credible network and non-network developments or options that address the need are identified through the ISP process.
- AEMO assesses and defines the developments required (in an unbiased and comparable manner to efficiently meet the identified needs) for the TNSPs to undertake more detailed studies. The existing ISP used a 'least resource cost' assessment to determine the overall solution and undertook a cost-benefit against the 'do nothing' case. The assessment for future ISPs would be based on the investment test, or tests, in place at the time.
- Broad consultation on the draft ISP results would then occur. AEMO would consider and assess feedback received on the draft before finalising and publishing the ISP.
  - Findings are shared with TNSPs for comment as part of the joint planning process prior to publication of final report.
  - The AER is consulted to ensure all issues of concern are properly addressed.

In essence, Phase 1 would eliminate the need for the processes involved in preparing and publishing individual Project Specification Consultation Reports (PSCRs) as part of the current RIT-T process. Importantly, Phase 1 would deliver defensible system-wide needs through robust market modelling analysis, high-level engineering design of options and economic optimisation that incorporates broad consultation, thereby enhancing the current PSCR process.

#### Phase 2 – Implementation of the plan

- Detailed options analysis is undertaken by the TNSPs to determine the least-cost solution to meet the identified needs.
  - Detailed project design and costs are completed with assessment of the options through a shortened RIT-T process – Project Assessment Draft Report (PADR) is published.
- Confirmation by AEMO on consistency of the TNSP solution against the ISP result prior to publication of the Project Assessment Consultation Report (PACR).
  - Outcome of the detailed TNSP process is assessed by AEMO to determine consistency with the identified developments through the ISP.
  - Should material differences exist, AEMO incorporates costs and benefits associated with the TNSP's analysis into the subsequent ISP.

- Confirmation on the least-cost investment required for the need is provided by AEMO (as part of our national planning functions) through robust analysis and consultation from previous steps. This reduces duplication and removes the current need for the AER's re-examination on RIT-T applications, for ISP projects.
- Funding the delivery.
  - Investments undertaken by the incumbent TNSP will be subject to the current regulatory approvals process through economic regulation by the AER in a similar manner to contingent projects (which includes input from Consumer Challenge Panel to assist the AER).
  - Approval by the AER of the investment need is not required due to earlier identification of the need undertaken by an independent planner through robust consultation and collaboration with industry.
  - Should a TNSP decline to invest, then an independent party (for example AEMO in our National Planner capacity) proceeds with last resort planning powers to competitively tender the work to all potential parties including the incumbent TNSP.
- Delivery of the solution.
  - TNSP or successful tenderer undertakes detailed costing and planning (including land and easement acquisitions) to deliver the project as per status quo.

Phase 2 streamlines the current RIT-T process as the need for investment would already be justified by an independent party with robust analysis and consultation on inputs and assumptions for modelling through Phase 1.

A more detailed explanation on each of the steps of the alternative approach described above is provided in Appendix 1. Additionally, AEMO's view of the required consultation that will need to be undertaken as part of developing the ISP to deliver a robust overall planning process is provided in Appendix 2.

AEMO strongly believes that the alternative option presented will ensure the national planning framework is optimised to deliver a holistic view on the development needs for the NEM, and we welcome discussion with stakeholders to refine the proposal further.

### **1.3. Integration of the development and approval processes for the ISP into the overall regulatory and planning regime**

Implementing a process for the development of an actionable Integrated System Plan is a major reform to the overall planning and network development regime set out in the Rules. It is proposed that the above process would only apply to the approval of "ISP projects", that is projects which are driven from the national needs. This will ensure the long-term interests of consumers is still at the forefront by integrating the core aspects of the current regulatory and planning processes which encompass:

- The APRs:
  - Regional planning is conducted by each TNSP, that is, future local reliability needs are identified and approved by the responsible network planner.
  - Where the project is not deemed to be an ISP project, the network planner would still have the responsibility to undertake an investment test, where that

investment test might be a revised test, consistent with the ISP approval process but undertaken by the network service provider.

- The ISP:
  - A system-wide plan is developed by an independent planner that incorporates the required information from stakeholders, and in particular, local network planning information from TNSPs. It also identifies the national development need.
  - A streamlined version of the current RIT-T process is conducted including:
    - Developing a range of credible network and non-network options to address the need;
    - Undertaking detailed analysis of each credible option by the relevant regional network planner;
    - Justifying the actual expenditure to the AER who would adjust the regulated revenue allowance to reflect the recommended least-cost solution.
  - Robust consultation throughout the assessment process and comprehensive analysis over the two stages to ensure efficient development of the national network to meet future needs.
- Regulatory determinations:
  - Cost allocation and funding of investments are determined through economic regulation by the AER on investments that result from the ISP where the investments are delivered by each regulated TNSP in a similar manner to the current contingent projects regime.
  - An enhanced consultation process is incorporated into the process, potentially including a funded Consumer Challenge Panel is incorporated to the ISP process similar to that used in the regulatory determination process.

With the above in mind, it is clear that the intention of the alternative option is not to remove responsibility or control from the parties best placed to undertake their respective tasks. Rather, it enables the investment most preferable in the interests of consumers to be delivered via a seamless and coordinated process.

#### **1.4. Implementation of Group 1 projects in the current ISP**

Implementing a process for the development of an actionable Integrated System Plan will require significant changes to the Rules and so take time. The process adopted needs to be based on extensive consultation and, in AEMO's view, would benefit from collaboration across stakeholders to refine the strawman proposed.

In the interim, there are a number of projects, identified in the current ISP as Group 1 projects, which are considered urgent. If the current RIT-T approval processes are left to run, these projects will not be available on the timeline proposed in the ISP. This will mean benefits are foregone and, importantly, the market will be more exposed on the retirement of the Liddell power station.

AEMO therefore considers that an expedited process is required for these specific projects. It is suggested that this could be based on a change or derogation to the Rules providing that these projects are approved subject to them completing elements of the proposed strawman; particularly the Phase 2 arrangements.

## 2. Options for renewable energy zones

AEMO's 2018 ISP has shown that with Australia's wealth of renewable resources, there is little need, at least in the short-term, to build transmission network extensions to access these renewable supplies as plentiful wind and solar resources are available along current and planned transmission flow paths.

Other areas however, rich in renewable resources that are not along these flow paths must be developed in an efficient manner that will lead to a future power system that is robust and resilient. As such, a system-wide approach is particularly important so that the extraneous benefits are captured, such as increasing resilience to ensure system security and reliability, as well as increasing competition through inter-regional trading due to geographical diversity.

### 2.1. Need for coordination of REZs

As discussed in AEMO's submission to the Commission's Discussion Paper, there is a need to provide clarity within the current framework that encourages optimal locational signals for generation, in particular renewable generation.

There are efficiencies to be gained through coordinated REZ development to connect new generators and installing equipment to maintain system security as the supply mix shifts towards a greater penetration of asynchronous plant. Uncoordinated generator developments through many small network connections will result in more expensive and less secure outcomes.

As a result, an integrated system-wide approach is needed, considering wider aspects in the definition and decisions on future power system needs, particularly for the infrastructure to support a REZ. Some of these vital considerations include:

- Identifying future requirements and matching these with efficient major infrastructure development needs:
  - Economies of scale, that is, the scale of infrastructure needs to support the amount of utility and embedded renewables requires a forward view for the power system;
  - A balanced forward view is needed that balances consumer risks from network overbuild against what are quite critical outcomes from under investment;
  - A forward-looking systems approach is needed to meet the requirements for future power system security, reliability, and resilience particularly during next two decades. For example, an optimal solution for one group of projects in a REZ may not be optimal or efficient for the NEM in the longer-term.
- Obtaining multiple value streams from major infrastructure:
  - Should transmission be demonstrably needed to efficiently support a REZ, then it is more beneficial to implement this as part of a broader strategy of transmission corridors that strengthen the network for future needs, strengthen interconnection, and build competition and future interregional trading. This also allows the NEM to utilise cross regional diversity more efficiently.
- Reliability, resilience and operability of the region and NEM:
  - Development of REZ requires particular attention to the resultant aspects for a secure, reliable, resilient power system;
  - Wider risks such as climate, operability of the NEM and dispatchability are required.
- Access to the market and cost allocation for infrastructure:
  - Currently consumers pay for all regulated transmission which can lead to imperfect assignment of total system costs for REZ;
  - Currently there is no access rights for risk assignment.
- Flow on implications:

- Development of large quantities of new generation in REZs has impacts on existing businesses and regional prices;
- A transitional measure needs to be managed and considered to avoid disruptive exits of generation.
- Community implications:
  - Rationalising the infrastructure requirements to support large numbers of projects will help to mitigate potential negative impacts on local communities;
  - Coordination is required with a balanced future view of needs to achieve certain local community objectives.
- Public policy:
  - Broader regional economic and environmental development.
- A supportive investment climate:
  - This includes networks, with security or certainty on future returns on investments to avoid unintentional freeze on regulated investments.

The above points highlight a strong need for renewable energy zones to occur in an optimised and efficient manner that aligns with the national planning process.

## **2.2. Options for effective coordination of REZs**

AEMO acknowledges the Commission's options presented in their paper to coordinate REZs. However AEMO is of the view that these options do not address fundamental obstacles to coordinate transmission and generation investment, including:

- TNSPs are unwilling to take on speculative risk;
- The absence of a form of right and the presumption of open access make it difficult for parties seeking to share costs and especially costs within the shared network;
- Generators are unwilling to cooperate with their competitors.

Further, the Commission's proposed approaches are already possible under the current framework, yet it is evident that problems persist.

As such, AEMO proposes the following three options for consideration to effectively coordinate REZs:

### **1. A form of access pricing**

The payment of deep connection charges can deter potential investors from certain locations for generation developments. Should a generator proponent decide to connect at a preferable site identified through the ISP, then that proponent would be subject to minimal incremental costs to connect. In contrast, a generator that wishes to connect at a site that has not been identified through the ISP process, would incur additional connection costs.

The objective of this proposal is to encourage generation investment in the right places that takes into account resource availability as well as security and reliability concerns for the network. This option does however require significant changes to the current pricing and access regime in the NEM.

### **2. Tradeable financial access rights**

A tradeable financial access rights regime would not only facilitate improved coordination of generation and transmission investment, but it would also provide efficient generation locational signals that enable existing generators to manage congestion, incentivise efficient bidding and remove negative settlement residues. The success of a tradeable

financial access model however depends on the ability of generators to negotiate financial access. This may be compromised if those negotiations are or have been undertaken with profit-driven, monopoly transmission asset owners.

As such, there is considerable detail that needs to be resolved within the current framework in order to develop a workable tradeable access rights regime.

### 3. A package of non-financial incentives for generation investment

An approach that would not require as many changes to the current framework as the first two options proposed, and would align with the national planning process, is one that incentivises generator proponents in a non-financial manner to locate at favourable sites.

Under this approach, locational decisions made by generators that align with the recommended developments from an actionable ISP process outlined in Section 1.2 above, would streamline the approvals process for potential network augmentations required to accommodate the connecting generator. This would enable a fast-tracked connections process and better coordinate the transmission investment required for generators as a rigorous process to justify the augmentation via a RIT-T type of process would already be partly undertaken.

Another incentive of a more accelerated connections process involves obtaining firm capacity acceptance, at a particular threshold, of a renewable energy zone identified through the ISP. Not only would this accelerate the process due to alignment with the ISP analysis, but it would coordinate connections and therefore reduce the risk of duplicating assets and total costs (that would accrue from investment in adjacent terminals) as connection would instead be through a common 'hub'. AEMO would manage connection information of all generators through a formal and confidential process.

Further, an accelerated approach for connections may also involve connections that propose to connect at ISP-identified renewable energy zones which have State government support. This would allow a smoother passage for typically time-consuming steps of the connections and RIT-T processes such as land and planning approvals and easement acquisitions which would in this case, be approved and justified through local government support.

Although changes would be required to the current framework, AEMO firmly believes the options presented above would remove many of the obstacles in coordinating generator and transmission investment and also better align the connections and access regimes with the planning process in the long-term interests of consumers. We welcome the opportunity to collaborate with the Commission and other stakeholders to discuss and develop these options further in order to reach a design that ultimately delivers the optimal outcome for consumers.

### 3. Treatment of storage

To improve the coordination of generation and transmission investment, AEMO believes storage considerations must be incorporated within the overall framework. With the lower economies of scale associated with battery storage in particular, it is important to ensure the technology is effectively integrated into the market frameworks so that the benefits can be realised.

Unlike other technologies such as wind or solar, the location of batteries is not dependent on the resource itself, however consideration of its locational impact on the requirements for future power system operation is important. Therefore the right locational signals must be provided so that supporting infrastructure required to integrate the technology is coordinated with other developments, and its impact on the power system is managed. This requires a

forward-looking system-wide analysis, and one that is not restricted to the payment of TUOS, to drive efficient investment for consumers.

As such, AEMO is supportive of a holistic review on the integration of storage and other emerging technologies which must be factored into improving coordination between generation and transmission investment. This will ensure system-wide planning is effective to deliver least-cost energy to consumers. We look forward to collaborating with stakeholders on this matter going forward.

#### **4. Conclusion**

There is no doubt that in order for the coordination of generation and transmission investment to improve going forward, changes to the current regulatory and planning frameworks will be required. It is evident that generators need incentives and better locational signals to build in favourable areas and the transmission planning process needs to better align with generation development so that consumers do not bear high costs of disorderly NEM development.

To effectively adapt to, and keep up with, the transforming energy environment, the changes required to the frameworks that underpin NEM development must not be undertaken via a piecemeal approach. Rather, a holistic system-wide perspective must be applied so that NEM development is truly optimised and delivers the maximum benefit to consumers in the long-run.

As such, AEMO is of the view that the Commission's options set out in their paper to address the current issues with the transmission planning process and future REZ development do not go far enough. Additionally, we believe that effective coordination of generation and transmission investment must incorporate the integration of storage and other emerging technologies in a broader manner, rather than focussing merely on their classification for TUOS payment. Therefore in response, we have presented above alternative options and our views to be considered by the Commission and other stakeholders which we believe will deliver the outcomes necessary in the long-term interests of consumers.

AEMO welcomes engagement with all parties to discuss our alternative options further and we look forward to continued discussions and collaboration with the AEMC, AER and ESB to recommend the best way forward for inclusion in the ESB's review of transmission planning and interconnection.

## Appendix 1 – AEMO’s ‘strawman’ proposal for development and implementation of integrated system planning

#	Stage in process	Description of roles	Proposed consultation	Deliverable
<b>PART A – DEVELOP PLAN</b>				
1	<b>Scenario development</b>	<ul style="list-style-type: none"> <li>AEMO develops scenarios and inputs (including demand forecasts and generation technology costs), based on broad industry consultation.</li> <li>Draft scenarios and inputs will be published and consulted on prior to their finalisation.</li> <li>AER observes working groups and consultation process to ensure process is followed.</li> <li>The provision of a Consumer Challenge Panel (CCP) similar to the AER’s model may be beneficial</li> <li>ECA provides resources to consumer representatives to provide expert input</li> <li></li> </ul>	<ul style="list-style-type: none"> <li>AEMO obtains transparent independent expert input (eg from CSIRO)</li> <li>AEMO consults on assumptions workbook as part of ISP consultation document</li> <li>AEMO holds workshops on scenarios, inputs and assumptions</li> <li>Additional specialised consultation via Forecasting Reference Group, Market Modelling Working Group (open to all interested parties)</li> </ul>	
2	<b>Identify needs</b>	<ul style="list-style-type: none"> <li>Governments determine public policy needs and advise AEMO via a formal COAG process.</li> <li>AEMO identifies NEM-wide reliability needs through the ESOO.</li> <li>TNSPs identify intra-regional reliability needs through their TAPR process.</li> <li>Results of TNSP TAPR process are rolled into AEMO process via joint planning.</li> <li>AEMO identifies system security and risk resilience needs (for instance risks associated with bushfires). Short-term (5-year) system security gaps are met through the existing NSCAS process, while longer-term needs are addressed through the ISP implementation process.</li> <li>AEMO assesses projected future costs of congestion and identifies system bottlenecks.</li> </ul>	<ul style="list-style-type: none"> <li>TNSPs consult on local reliability needs via TAPRs</li> <li>AEMO consults on identified needs via ISP consultation document (see step 4)</li> <li>Additional specialised consultation via Forecasting Reference Group, Market Modelling Working Group (open to all interested parties)</li> </ul>	<ul style="list-style-type: none"> <li>TNSP: TAPRs (input to ISP modelling)</li> <li>Governments: Instructions to AEMO (input to ISP modelling)</li> </ul>

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3	<b>Identify credible options that address the need, including non-network options and incremental upgrades to existing plant</b>	<ul style="list-style-type: none"> <li>Results of TNSP TAPR process are rolled into AEMO process via joint planning.</li> <li>AEMO, in consultation with TNSPs, identifies the credible options that could meet the identified needs through the ISP process.</li> <li>AEMO undertakes process to explore non-network options and incremental upgrades that permit existing plant to meet identified needs (eg reconductoring). AEMO operates open door policy for proponents of potential non-network options. AEMO undertakes public consultation on non-network options as part of ISP planning process.</li> </ul>	<ul style="list-style-type: none"> <li>TNSPs consult on credible options via TAPRs</li> <li>AEMO consults on credible options, including potential non-network options, via ISP consultation document (see step 4)</li> </ul>	<ul style="list-style-type: none"> <li>TNSP: TAPRs (input to ISP modelling)</li> </ul>
4	<b>Consult on inputs, assumptions &amp; methodology</b>	<ul style="list-style-type: none"> <li>AEMO consults on the outputs of stages 1-3, including assumptions and scenarios, identified needs and initial credible options.</li> <li>ISP consultation document includes as attachments:             <ul style="list-style-type: none"> <li>Draft scenarios &amp; assumptions workbook</li> <li>Draft ISP methodology</li> </ul> </li> <li>Documents shared with TNSPs for comment prior to publication as part of joint planning process.</li> <li>The AER provides oversight of process to be satisfied it meets guidelines.</li> <li>ECA provides resources to consumer representatives to provide expert input.</li> </ul>	<ul style="list-style-type: none"> <li>AEMO publishes ISP consultation document, seeks stakeholder views.</li> <li>AEMO holds public forum on ISP consultation paper.</li> </ul>	<ul style="list-style-type: none"> <li>AEMO: ISP consultation document</li> </ul>
5	<b>Assess developments required to efficiently meet identified needs</b>	<ul style="list-style-type: none"> <li>Using outputs of stages 1-4, AEMO undertakes NEM wide modelling and analysis to determine which combination of the initial credible options most efficiently meets identified needs.</li> <li>AEMO defines the development needs (e.g. to increase transfer capacity between two regions by a given amount) for more detailed investigation by TNSPs.</li> <li>ISP may identify non-network options, enhancements to existing assets as a proposed development need.</li> <li>Findings are shared with TNSPs for comment as part of joint planning process prior to publication of draft report.</li> </ul>		
6	<b>Consult on draft ISP results</b>	<ul style="list-style-type: none"> <li>AEMO publishes draft ISP, seeks stakeholder views.</li> <li>ISP draft report includes as attachments:             <ul style="list-style-type: none"> <li>Scenarios &amp; assumptions workbook</li> <li>ISP methodology.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>AEMO publishes draft ISP, together with document describing points raised in submissions and AEMO's response</li> </ul>	<ul style="list-style-type: none"> <li>AEMO: ISP draft report</li> </ul>

		<ul style="list-style-type: none"> <li>ECA provides resources to consumer representatives to provide expert input</li> <li>AER observes to ensure Rules requirements are met.</li> </ul>	<ul style="list-style-type: none"> <li>AEMO seeks stakeholder views on draft ISP</li> <li>AEMO consults with the AER to ensure all issues of concern are properly addressed</li> <li>AEMO holds public forum on draft ISP</li> </ul>	
<b>7</b>	<b>Finalise ISP</b>	<ul style="list-style-type: none"> <li>AEMO updates ISP modelling to reflect outcomes of consultation process, publishes final ISP.</li> <li>Findings are shared with TNSPs for comment as part of joint planning process prior to publication of final report.</li> <li>AER observes to ensure Rules requirements are met.</li> </ul>	<ul style="list-style-type: none"> <li>AEMO publishes final ISP together with decision document describing points raised in submissions and AEMO's response</li> </ul>	<ul style="list-style-type: none"> <li>AEMO: ISP final report</li> </ul>

<b>PART B – IMPLEMENT PLAN</b>				
<b>8</b>	<b>Identify and consult on options to meet development needs identified in the ISP in order to determine the “best” option.</b>	<ul style="list-style-type: none"> <li>TNSPs undertake detailed options analysis to determine the least cost solution to meet each of the development needs identified in the ISP.</li> <li>Detailed options analysis should include consideration of non-network options and incremental enhancements to existing plant.</li> <li>TNSPs evaluate and select from competing solutions and resources such that all types of resources are considered on a comparable basis.</li> <li>TNSP adopts ISP development needs, scenarios and market modelling (unless there are demonstrable reasons why the parameters should change). In this assessment, the rest of the ISP is assumed to proceed, and the TNSPs are only testing the immediate investment decision. Options must include non-network options where appropriate.</li> <li>Extensive engineering design and consultation is included in this step. TNSP publishes draft and final report but not PSCR.</li> <li>ECA provides resources to consumer representatives to provide expert input.</li> <li>AER observes to ensure Rules requirements are met.</li> </ul>	<ul style="list-style-type: none"> <li>TNSP publishes draft options analysis, seeks stakeholder views</li> <li>TNSP holds public forum on draft options analysis.</li> <li>TNSP publishes final report together with decision document describing points raised in submission and TNSP's response</li> </ul>	<ul style="list-style-type: none"> <li>TNSP: Draft and final options analysis</li> </ul>

9	<b>Assessment on consistency of TNSP solution with the ISP</b>	<ul style="list-style-type: none"> <li>• AEMO assesses whether the outcome of the TNSP process is consistent with ISP identified need, the overall national network development and the assumed costs in the ISP.</li> <li>• If the outcomes of the TNSP process are not materially different to ISP assumptions, TNSPs can invest in the preferred option (which could be a non-network option).</li> <li>• If AEMO assesses that the outcome of the TNSP process is likely to materially change the published ISP outcome, AEMO incorporates costs and benefits associated with TNSP's preferred option into the subsequent ISP.</li> </ul>		<ul style="list-style-type: none"> <li>• AEMO: Confirmation that the TNSP solution aligns with the ISP</li> </ul>
10	<b>Regulatory determination on costs</b>	<ul style="list-style-type: none"> <li>• If AEMO confirms consistency between the TNSP's solution with the ISP and determines that the project should proceed</li> <li>• The TNSP has limited time to decide whether it will deliver the solution as a regulated investment.</li> <li>• If regulated: the AER determines forecast capital expenditure in accordance with the methodology currently applied to contingent projects without having to justify the need for investment. CCP provided to assist the AER to provide input on behalf of consumers</li> <li>• If the TNSP declines to deliver the solution: investment proceeds via last resort planning powers by AEMO (as national planner) via a contestable process open to all parties including the incumbent TNSP</li> </ul>	<ul style="list-style-type: none"> <li>• AER undertakes similar consultation process as for contingent projects to determine regulatory allowance if the incumbent TNSP proceeds with the investment.</li> <li>• AEMO conducts consultation in accordance with current competitive tender process for delivery of the solution if incumbent TNSP declines to invest</li> </ul>	<ul style="list-style-type: none"> <li>• AER: Decision to amend revenue determination</li> </ul> <p>or:</p> <ul style="list-style-type: none"> <li>• Revenue requirement is determined by the competitive tender process</li> </ul>
11	<b>Undertake detailed costing and planning, and implement the investment</b>	<ul style="list-style-type: none"> <li>• TNSPs or successful tenderer undertake detailed project costing and planning for the investment. For a network investment this will include obtaining land easements and environmental approvals; developing functional specifications for the assets and ordering / procuring the equipment.</li> <li>• TNSPs or successful tenderer implement the investment - either building and commissioning the transmission investment; or finalising contracts with the non-network provider.</li> </ul>	<ul style="list-style-type: none"> <li>• As per status quo.</li> </ul>	<ul style="list-style-type: none"> <li>• TNSP or successful tenderer: Delivers solution.</li> </ul>

## Appendix 2 – Consultation plan for the ISP process

# Integrated System Plan

## CONSULTATION ON AN ACTIONABLE PLAN



AEMO SUBMISSION TO COGATI REVIEW