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CONGESTION MANAGEMENT REVIEW—ISSUES PAPER

Thank you for the opportunity to comment on the *Issues Paper* relating to the *AEMC Congestion Management Review*. In an economically efficient transmission system congestion will occur at some times. What matters to users of the transmission system is the impact of congestion on their ability to produce or consume electricity, revenue and ability to manage risks in secondary markets. Congestion, if persistent provides a signal for new investment in transmission or generation.

Congestion management has two roles to play: 1) Ensuring generation dispatch is efficient and system security is maintained, and 2) Providing a less disruptive alternative to region changes. CS Energy holds that congestion management should be a tool to enhance certainty in the NEM and reduce the risks associated with secondary contract trading.

CS Energy recommends that the Commission should be prepared to consider making different recommendations for each of the four distinct type of transmission constraints identified in Appendix 4 of the issues Paper, viz. Intra-regional constraints affecting the regional reference price, intra-regional constraints not affecting the regional reference price, intra-regional constraints affecting inter-regional flows and inter-regional constraints.

CS Energy is a member of the National Generators' Forum (NGF). The NGF is making a submission on this Issues Paper and CS Energy supports the NGF submission. Appended are detailed additional responses by CS Energy to the questions asked in the Issues Paper document.

Yours faithfully

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Appendix—Detailed responses to Issues Paper questions

1. Do existing constraints have a material effect on the efficiency of the NEM? What is the nature and materiality of these constraints? Why is it that these constraints have not been addressed to date? Are there specific points of congestion that should be addressed in advance of the establishment of a new congestion management regime?

Constraints within the Queensland region do not have a material effect on the efficiency of the NEM. The most significant constraint in Queensland, the Tarong constraint, rarely binds. The Tarong constraint is an intra-regional constraint, which impacts inter-regional flows. The consequence of this constraint binding for southward flow on the QLD to NSW interconnector (QNI) is that NEMMCO will constrain the inter-regional flow to zero, allowing NSW generation to be inefficiently dispatched in preference to Queensland generation. For northward flow Queensland generators have an incentive to bid below cost to maximise dispatch and be settled on the Qld price, which may not necessarily result inefficient dispatch. To date the impact of the Tarong constraint is quite small due to its infrequent occurrence and the near parity of fuel costs between the regions QLD1 and NSW1.

The few constraints occurring entirely within Queensland have not been explicitly addressed to date for three reasons:

- The constraints do not bind sufficiently frequently to have been of concern to participants.
- Queensland is experiencing sufficient new investment in generation and adequate transmission investment. This demonstrates that the market signals associated with congestion are working.
- The only avenue available at the moment for addressing constraints is a region boundary change. A boundary change is extremely disruptive and has dramatic consequences for secondary markets because of issues around inter-regional trading and basis risk.

The constraint between Murray and Tumut in the SNOWY1 region is acknowledged across the entire market as a special case, which should be addressed as a priority. This constraint has been the subject of several Rule change proposals recently. CS Energy believes that the Snowy Hydro proposal to remove the SNOWY1 region and redistribute its generation between NSW1 and VIC1 should proceed in advance of a new congestion management regime. The Murray-Tumut constraint is unique because the constraint binds for significant periods, there is no customer load in the region, only one participant is affected, the proposals have already been consulted on, and the outcome would reduce the number of regions and consequently simplify the NEM and minimise secondary market issues.

2. Given the development of the NEM and the recommendations of reviews undertaken to date, what are the significant priority issues for this Review?

There are three issues that are priority items for this review:

- Maximising the efficient use of existing transmission assets. It is important that TNSPs have suitable incentives to maintain and operate their assets in such a way as to maximize their utility. These should include incentives to schedule outages having appropriate regard to likely market outcomes, and not being overly conservative in rating transmission capacity.
- The Regulatory Test and regulated returns should provide suitable incentives for appropriate investment.
- Constraints should not be completely eliminated. The cost of eliminating all transmission constraints would be prohibitive. In deciding which constraints to eliminate a value must be placed on keeping the market competitive and simple. This value should be added to other benefits in the Regulatory Test assessment. The assessment would use criteria such as:
  - Participation level—more participation is better.
  - Complexity—simpler market structures are better.
  - Secondary markets for risk management—more liquidity is better. The ease of participation in secondary markets enhances risk management.
  - Transparency—easier to understand is better. A simple outcome will have limited opportunity for arbitrage, or taking advantage of complexity, or exploiting participants' lack of understanding.
  - Encourages new entrants and competitive pressure—increased competition is better.

  These criteria are consistent with and tend to promote the NEM Objective.

3. What are the key questions the Commission should seek to examine quantitatively as part of the Review? What key factors should the Commission take into account in this modelling analysis?

Questions for which the Commission should seek quantitative answers are:

- How does congestion affect settlement prices for participants?
- What is the effect of the constraints on participant behaviour?
- What is the effect on dispatch efficiency?
- Should generator terms, which can change during a dispatch interval, appear on the right hand side of an Option 4 constraint that limits transmission flow?

Key factors to take into account include:

- Duration of the constraint.
- Regional price during the constraint. For example, if the constraint between Central Queensland and Southern Queensland binds, a bidding war would start. However dispatch inefficiencies are minimal for regional prices below $300 as high cost gas turbines would not participate.

4. Are there any material problems with the 'option 4' approach to constraint formulation to managing system security and reliability? How might such problems be addressed while continuing to maintain system security and reliability?

The Option 4 approach is preferred as acceptable and it maximises NEMMCO's ability to mange system security and leads to efficient dispatch of generation bids. However in some cases the difference between dispatch and settlement arrangements can lead to distorted bidding incentives and inefficient dispatch to manage negative settlement residues.

5. Are there any other problems, other than constraint formulation, with the management of system security in the context of the current congestion management regime? How might any such problems be addressed?

Presently the situation occurs in North Queensland where generators that would be constrained on, to run at prices below their fuel cost, make themselves unavailable. NEMMCO is then required to direct this plant to operate.
The Commission should examine whether a CSP/CSC regime will fix this. Network support payments may be suitable in this type of situation as a proxy for transmission investment. In a case such as this a region boundary change would be a last resort measure because it does not fix the underlying problem.

6. How material are reductions in the dispatch and pricing efficiencies due to binding intraregional constraints under the current arrangements? How can they be quantified?

The losses of efficiency due to binding intraregional constraints are only material when accompanied by high regional prices. Historically such incidents have been of short duration and so there has been little opportunity for the cost to accumulate to any significant extent.
The Commission should quantify the changes in efficiencies due to these constraints by market modelling using typical bidding behaviour and analysis of costs. It would be most appropriate to use the same cost analysis as for the Regulatory Test, i.e. the short run marginal cost data provided by ACIL.

7. How material are the reductions in dispatch and pricing efficiencies due to the management of negative settlements residues under the current arrangements? How can they be quantified?

The present arrangement of curtailing inter-regional flows to prevent negative settlement residues can have a very material impact on the efficient dispatch of generation. The loss of efficiency should be quantified in the same manner as that used for assessing costs and benefits under the Regulatory Test. However, the Commission must develop a methodology for assigning value to energy constrained generation which has a near zero variable cost, i.e. hydro plant.

8. Have the existing arrangements resulted in materially inefficient investments? Could the existing arrangements result in materially inefficient investments in the future? What kind of inefficiencies may result?

There is no evidence to date of inefficient investment as a result of the present arrangements. However it is possible for new generation investment to be placed at a location that increases the level of constraints for existing plant. This could be addressed by providing transmission rights (possibly by a CSC arrangement) to existing plant, but having new generation wait an appropriate period (5 years) before sharing in those rights. There is need to strike a balance between providing effective location signals, and a barrier to new entrants.

9. How well do existing arrangements provide signals for efficient investment over time and locationally using the least-cost technology—generation, network demand side management or non-electricity alternatives?

Generators face a significant issue with committing plant to a constrained part of the transmission network ahead of transmission investment. There is a serious risk that another generator could build plant in a suitable location to eliminate the need for the transmission investment. Additionally, a constraint may only bind for a small portion of time and only have a small impact on the business case. Hence, constraints are a significant factor in determining new plant location under the current arrangements.

10. Does the potential to be constrained-off or constrained-on relative to the regional reference price result in material risks for market participants? How are those risks managed?

The potential to be constrained on or off is a significant and material risk for generators to manage. At present this risk is managed by reductions in secondary market contract positions. Introduction of new regions would add price risk and mandate management of inter-regional positions and basis risk.

11. Do market participants face problems in managing risk due to the nature of the instruments available, or the liquidity of market for those instruments? If so, how are those problems related to the current approach to congestion management?

Liquidity in the secondary markets is improving all the time. Evidence of this can be found in the narrowing of the spread between bids and offers, the increasing number of MW traded at each reference node and the increasing volume of transactions in the secondary markets.
Constraints that impact the market in a significant way are not frequent and are of short duration, so do not reduce liquidity. It is common practice for generators to hold some reserve capacity to allow for plant breakdowns or constraints, but not both. In general, the probability of a breakdown occurring at the same time as a constraint binding is considered too low to be of concern. Hence creating additional regions would not increase volumes hedged.

12. Are there problems in accessing information to support effective risk management in the context of congestion in the NEM? Is the lack of exchange based trading a problem in this context?

Current arrangements are adequate.

13. Does the current design of IRSR units impact the ability of participants to efficiently manage inter-regional price risk?

The current IRSR unit design is that the units are not firm. This is a serious issue for participants. In addition, the present design makes it difficult to match hedge positions with IRSR unit holdings. As a result of these problems there is a view that most holders of IRSR units use these instruments for speculation rather than hedging.
The current IRSR design is suitable for the current set of regions in the NEM, however if more regions were added and loop flows thereby created the existing arrangements would be wholly inadequate. With additional regions there would be little choice but to abandon the IRSR system and institute something akin to financial transmission rights (FTRs), with auctions to be cleared using a dispatch-type process. There would also be a need for secondary markets in these rights with trading between participants to allow each to accommodate their individual point-to-point requirements.

14. Has the uncertainty regarding regulatory process and decisions created material risks for participants?

Any regulatory uncertainty in an industry where the investment lifetimes are as long as those for generating plant poses a material risk.
Sufficient investment has been occurring on the basis of the current rules and a moratorium on region boundary changes. The expectation of participants is that grandfathering arrangements will protect the interests of those who have invested under the current circumstances. It is essential that participants have certainty that their investments will remain on the same footing into the future.

15. Do market participants face problems in managing risk due to a lack of transparency associated with the current approach to congestion management? If so, what are the nature and materiality of these problems?

Existing arrangements are sufficiently transparent.

16. Are there any additional issues with the current congestion management regime that should be considered as part of the Review? How can the materiality of these concerns be quantified?

All known issues have been raised in this consultation paper.

17. Is this an appropriate characterisation of the current arrangements in the NEM for the purposes of assessing potential improvements to the congestion management regime?

The approach to congestion management outlined in 5.1.2 of the Issues Paper is not quite a true representation of the current situation.
Presently there is a moratorium on region boundary changes. This means that, de facto, the region boundary change criteria in the Rules are not those presently in place. The Commission should consider revising their characterisation of the boundary change criteria to reflect how they actually stand.
Despite the imminent expiration of the derogation under which NEMMCO manages counter price flows, there is clearly an intention in the current market design that counter price flows be managed in some way. This cap should be considered as a feature of the existing approach to congestion management.

18. Is the proposed 'staged approach' to congestion management an appropriate framework? Is it the most effective response to those problems? Is it technically and commercially feasible?

The proposed staged approach is acceptable but it should also allow for the possibility that some constraints are adequately addresses by a constraint management mechanism and never need to progress to a regional boundary change.

19. Has the NEM had material congestion problems which have not been enduring? Is it likely to do so in future?

Presently the Tarong constraint is viewed as material by some participants but is not enduring. Others constraints such as Southwest Queensland and central to south Queensland are also likely to occur over time. However, these constraints will generally be of short duration, as the Tarong constraint is, due to ongoing investment in transmission, generation and load.

20. Are the costs of an interim congestion regime (discussed in greater detail below) clearly lower than the costs associated with region boundary change?

The costs associated with a region boundary change are enormous including the effects of disruption in secondary market and value changes for existing investment. An interim congestion regime will in almost every case be a preferable, lower cost alternative.

21. What triggers should be considered for the introduction of various congestion management tools under a staged approach? Which institutions should be responsible for recommending and approving the introduction of congestion management tools at each stage?

NEMMCO should be charged with monitoring the system and the market and recommending the implementation of a congestion management tool. A consultation on the recommendation should then occur to decide if the congestion management tool should be implemented. Thus, NEMMCO monitors and recommends a review, and the AEMC undertakes the consultation. Alternatively, a review could be triggered at the request of the affected participants.
In setting the triggers for a review of the need to introduce a congestion management tool for a particular constraint the "system normal" and "maintenance outage" conditions should be treated differently. The trigger for a review of the need for a congestion management tool can be time based or based on the shadow price of the constraint. The basis for introducing a congestion management tool to manage a constraint should be strictly efficiency; i.e. cost based, not market price based.

22. What role should region boundary changes play in managing congestion, particularly in a staged response? How much emphasis should be placed on that role?

Changes to region boundaries must be considered as an absolute last resort and then only undertaken if it can be shown to provide a material benefit over an alternative constraint management regime, such as a CSP/CSC arrangement.

23. Is the economic boundary change criterion proposed in the MCE region boundary Rule change proposal consistent with the staged approach to congestion management? What further efficiency gains would be realised from region boundary change, after the introduction of an interim congestion management tool?

The MCE proposal is consistent with the staged approach to congestion management. Further efficiency gains from changing the region boundaries following the introduction of a suitably defined congestion management tool are likely to be small. However, there is a role for the boundary review process if too many congestion management instances lead to a complex and effectively unworkable system from the point of view of participants.

24. To what extent will firming-up IRSRs facilitate inter-regional trade? What is the best approach to firming up IRSRs and how would this work?

Firming up the IRSRs is desirable, and the best method to achieve this would be via the implementation of CSP/CSC arrangements, which would also take into account the behaviour of participants. The other issues around the IRSRs are physical, and any attempt to make a party bear these physical risks will only result in an overly conservative approach to setting the number of units sold.

25. Is there a need to review the case for the 'option 4' constraint formulation approach in the context of this Review? If so, what would be advantages and disadvantages of moving away from an 'option 4' approach to constraint formulation?

The option 4 formulation has been generally accepted as the optimum constraint formulation. There is, therefore, no need to move away from the accepted optimum.

26. What would be the effect of ceasing NEMMCO intervention to manage counter price flows? To what degree does this depend on other factors such as the region boundary criteria and process?

In the absence of a mechanism like the CSP/CSC regime counter price flows can result in significant negative settlement residues and expose NEMMCO to excessive financial risks. The recent review of funding for negative residues from auction proceeds should allow a higher, more manageable trigger to be set for NEMMCO's intervention.

27. How should negative settlements residues be funded? Should the current process of offsetting negative residues with positive residues within the current billing week be continued or changed?

Negative residues should be funded from auction proceeds.

28. Are constrained-on payments an appropriate solution to generators being paid regional reference prices less than what they offer? If so, what principles should apply for determining the size of payments, who should apply them and how should they be funded?

Payments should be made to constrained-on generators. The payments would be best determined using the same method applied to compensate generators who are directed by NEMMCO to operate. Preferably the rate should be predetermined and set for a period.

29. Would the funding of constrained on payments be likely to introduce a material financial risk for participants making the payments? How could this risk be managed?

Customers who benefit from the generating plant being constrained-on should also pay for this service. Predetermined rates for the constrained-on plant and the affected customers would help in mitigating the risk and provide clear economic signals for transmission or generation investment.

30. Would there be merit in extending the existing NSAs as a congestion management tool in the NEM? If so, how should such arrangements be implemented?

In North Queensland NSAs are used to ensure the reliability of supply and have been determined to be a less expensive option than investment in transmission. These types of arrangements remain suitable as a congestion management tool so long as the negotiated payments are competitive with transmission or generation investment. The NSA process could be improved by allowing a tender process, which includes the option for new entrants to construct suitable plant.

31. Should NCAS support contracts be used to enhance transmission network capability? If so, who should offer these contracts?

NCAS support contracts are presently being used to enhance transmission and TNSPs are the counterparty to these agreements. There is no reason to change this.

32. Is there merit in having TNSPs responsible for procurement of NCAS, rather than NEMMCO, so that NCAS forms a part of the Network Services? If so, how should this be arranged?

An advantage in NEMMCO continuing to procure these services is that the availability and price could conceivably be managed by the dispatch algorithm.

33. What would be the best way of funding NCAS payments and how should this be implemented?

NCAS payments would best be funded by the TNSPs passing these costs on through TUOS.

34. Is the allocation of CSCs a necessary element of a CSP/CSC regime, or would it be practical to introduce CSPs without simultaneously allocating CSCs?

The purpose of a constraint management regime is to encourage efficient dispatch behaviour without the disruption, cost and risks associated with a region boundary change. The failure to allocate CSCs at the time a CSP regime is enacted would make the arrangement unpalatable to participants.

35. If CSCs are a necessary component, what is the optimal way to allocate CSCs? What effect will this have on the ability to introduce CSPs rapidly and flexibly?

CSCs must be allocated to existing participants prior to the start of any arrangements for congestion management where CSCs are used. It is likely that whatever method of allocation is used will be controversial, and CS Energy believes that allocating CSCs pro rata on installed capacity is the fairest and simplest method. Pro rata allocation to existing capacity would also provide locational signals to new entrants in the situation where they do not receive CSCs in a certain location because they make the constraint worse. However, it is not reasonable for the initial allocation of CSCs to be in perpetuity. To allocate CSCs forever would not allow for changes to market circumstances, and would be a barrier to new entrants. A compromise would be to allocate CSCs to new generation entrants after five years of operation. These arrangements would permit a CSP/CSC regime to be introduced rapidly because the financial impact on existing participants would be minimal. For this reason a CSP/CSC scheme would be preferable to restricting transmission flows to control counter price flows.

36. Is it important to the design of a congestion management regime whether or not CSCs are firm? If so, what issues should the AEMC consider in reaching a view on the appropriate nature of CSCs?

Presently the situation behind an intra-regional constraint is non-firm access to the transmission volume. Non-firm CSCs would be consistent with the current practice of incurring volume risk, but no price risk behind constraints. Investment in transmission is the only way to increase the volume of transmission flow—artificial external funding may improve the financial position of affected parties, but it does not address the underlying problem of constrained transmission paths.

37. How should the process of region boundary change be coordinated with the allocation of CSCs under a staged approach to congestion management?

Region boundary changes should only be used as a last resort, and be implemented with sufficiently long lead times to allow participants to adjust their hedge and IRSR positions. A region boundary change represents a substantial shock to the secondary markets and steps must be taken to ensure the disruption is minimised to the greatest extent possible.

38. How can the Commission best draw on the partial Snowy CSP/CSC trial to evaluate the costs and benefits of the use of CSP/CSCs? How can the Commission best draw on the Snowy CSP/CSC trial to consider modifications to the proposed design of CSPs and CSCs?

The Snowy CSP/CSC trial should be assessed by looking at:

- Was dispatch during the trial efficient?
- Did participants have the correct market incentives?
- Was the IRSR firmed up to the extent that it was independent of bidding behaviour?
- Did the trial prevent or reduce the accrual of negative settlement residues?
- To what extent was the market disrupted by the trial?

In examining the Snowy CSP/CSC trial the Commission should be mindful that the trial was only properly implemented on the Tumut side of the constraint. Therefore caution must be exercised in drawing any conclusions that rely on data or effects at the Snowy-Vic interconnector.

39. Are there any additional congestion management tools that should be considered as part of this Review? How would these tools be implemented? How would they interact with other aspects of the congestion management regime? What would be the effect of such tools on participant behaviour and market outcomes?

CS Energy has no suggestions for specific additional tools. However, for any tool that is being considered the two most important considerations are: that the implementation is simple; and market disruption should be minimised.

40. Which, if any, of the congestion management issues identified in this paper could be considered on a stand-alone basis? Which issues need to be considered together to ensure a comprehensive and consistent congestion management regime?

The region boundary change proposed by Snowy Hydro should be considered on a stand-alone basis and the decision on that Rule change should not depend on this review. The Snowy Hydro proposal eliminates a region and so the disruption will be low. Further, the removal of a region will tend to simplify the market as a whole, and reduce the risks for inter-regional trading. Finally, only one participant is significantly affected, and that is the participant requesting the change. For these reasons the Snowy Hydro proposal should proceed independent of this review.