

Australian Energy Market Commission

## DRAFT RULE DETERMINATION

# National Electricity Amendment (Negative offers from scheduled network service providers) Rule 2013

### Rule Proponent(s)

International Power-GDF Suez (now GDF SUEZ Australian Energy)  
Loy Yang Marketing Management Company

26 September 2013

For and on behalf of the Australian Energy Market Commission

RULE  
CHANGE

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## **About the AEMC**

The Council of Australian Governments (COAG), through its then Ministerial Council on Energy (MCE), established the Australian Energy Market Commission (AEMC) in July 2005. In June 2011, COAG established the Standing Council on Energy and Resources (SCER) to replace the MCE. The AEMC has two main functions. We make and amend the national electricity, gas and energy retail rules, and we conduct independent reviews of the energy markets for the SCER.

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## Summary of draft rule determination

The Australian Energy Market Commission (Commission or AEMC) makes this draft rule determination in relation to the rule change request from International Power – GDF SUEZ Australia (now GDF SUEZ Australian Energy) and Loy Yang Marketing Management Company (LYMMCo) (Rule Proponents) regarding negative offers from scheduled network service providers (SNSPs).

The Commission's draft decision is to make a more preferable rule that provides that SNSP offers must be no less than the *market floor price* as defined in the National Electricity Rules (NER).

The Rule Proponents are concerned that negative offers from SNSPs can cause some generators in the National Electricity Market (NEM) to have an effective offer that is below the market floor price. The Rule Proponents consider this can lead to inefficient outcomes and propose that SNSPs be restricted from making negative price offers.

This draft rule determination will not prevent Hydro Tasmania, together with a negative Basslink offer, from making effective offers below the market floor price into Victoria when constraints between the Latrobe Valley and the Victorian regional reference node bind.

In making this draft rule determination, the Commission has given weight to the original intent of, and the existing rules framework for, the operation of SNSPs; that is, that SNSPs can trade actively on the spot market on an equal basis with generators and scheduled load. In this respect the Commission has not sought to revisit, or develop an assessment framework that seeks to address, the role of SNSPs in the NEM. The Commission considers such a fundamental question to be outside of the scope of this rule change request, which has been prompted by a specific set of circumstances.

The Commission considers that SNSPs should be subject to a price floor. Key market parameters, such as the market floor price, should be contained in the NER and subject to the statutory AEMC rule change process. Prescribing a price floor in the NER provides certainty to market participants with respect to the behaviour of SNSPs and the process for changing this parameter. Certainty in the rules promotes the National Electricity Objective (NEO) through more efficient decision making by participants operating in the NEM and when undertaking investment decisions. This in turn contributes to the efficient operation of and investment in electricity services in the long term interests of consumers.

Given the current role of SNSPs in the NEM, the Commission considers that the existing *market floor price* definition in the NER should apply to SNSP offers. The Commission is satisfied that the draft rule will, or is likely to, contribute to the NEO as it promotes the principle of competitive neutrality and provides greater certainty for market participants around SNSP offers. This is consistent with the existing market design principles in the NEM, whereby different technologies are treated on the same basis. Technology neutrality promotes least cost investment to meet forecast demand,

which results in the efficient investment in and therefore operation of electricity services, in the long term interests of consumers.

As noted above, the Commission's assessment of this rule change gives weight to the original intent of SNSPs and, on this basis, applying the principle of competitive neutrality to determine the price floor is appropriate. If the future role of SNSPs changes in response to a broader review, a different price floor and/or price cap may need to be considered.

The Commission is of the view that the issue raised by the Rule Proponents is primarily related to factors other than negative offers from SNSPs. These are:

- *Market structure:* Hydro Tasmania's dominant position in the Tasmanian wholesale electricity market, combined with the ability to direct Basslink to make negative price offers, allows it to be dispatched ahead of the Latrobe Valley generators. Hydro Tasmania has an incentive to maximise its overall revenue through use of its generation output and income accruing from Basslink.
- *Bidding at times of network constraint:* Hydro Tasmania's incentive to participate in the behaviour raised by the Rule Proponents arises when there is a binding constraint in the Latrobe Valley, which restricts access to the Victorian regional reference node. This constraint can also restrict access into Victoria from Tasmania, as Basslink's mainland connection point is in the Latrobe Valley. In the presence of such a constraint, which usually results in a high Victorian regional reference price, the Latrobe Valley generators and Hydro Tasmania have an incentive to offer their capacity at the market floor price to maximise revenue.
- *Treatment of losses:* Due to the different treatment of losses for generators and SNSPs, Latrobe Valley generation would be dispatched ahead of Basslink when there are network constraints in the Latrobe Valley and bidding behaviour changes, reducing Hydro Tasmania's output into Victoria. Hydro Tasmania overcomes this issue by directing Basslink to offer negative prices. As SNSP offers are effectively additive, Hydro Tasmania is offering the  $-\$1,000/\text{MWh}$  Tasmanian price plus the Basslink offer, which could result in a combined offer of  $-\$2,000/\text{MWh}$  (ignoring losses). This can result in preferential dispatch of Basslink as the Latrobe Valley generators can only offer a minimum price of  $-\$1,000/\text{MWh}$ .

In the Commission's view, it is the combination of the market structure in Tasmania, Hydro Tasmania's agreement with Basslink, bidding behaviour during times of network constraint and the treatment of losses that combine to create the issue raised by the Rule Proponents, not negative bidding by SNSPs per se. In assessing the rule change request, the Commission has noted the issues specific to Basslink as the only current SNSP in the market, but considered the proposed rule in the broader context of the overarching intent of SNSPs in the NEM.

Further, due to the way losses are treated, restricting SNSPs to a price floor of zero would simply reverse the priority of dispatch; when the constraint binds and bidding behaviour changes due to the constraint, Latrobe Valley generators would be

dispatched ahead of imports from Tasmania. As highlighted in some submissions to this rule change proposal, implementing the AEMC's proposed optional firm access model as set out in the Transmission Frameworks Review would address the incentives for generators to bid below cost. This would likely resolve the issue raised by the Rule Proponents.

The Commission is not necessarily of the view that different price caps and price floors for market participant categories should be ruled out indefinitely. However, this would be a substantial change to the existing approach in the NEM and is considered outside of the scope of this rule change. If, as canvassed by some stakeholders, there is a perception that market efficiency could be increased by restricting SNSPs from making non zero offers, then this proposition should be tested in a broader context.

To the extent there is the prospect of future investment in SNSPs, the Standing Council on Energy and Resources (SCER) may wish to consider reviewing whether the current role of SNSPs in the NEM remains appropriate.



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# 1 IPRA and LYMMCo's rule change request

## 1.1 The rule change request

On 11 December 2011, IPRA (now GDF SUEZ Australian Energy) and LYMMCo (Rule Proponents) made a request to the Australian Energy Market Commission (Commission or AEMC) to make a rule to set a price floor of zero for the offers of scheduled network service providers (SNSPs).<sup>1</sup>

SNSPs are currently not subject to a price floor in the National Electricity Rules (NER). The Australian Energy Market Operator (AEMO) sets a floor of -\$1,000 per megawatt hour (MWh) in order to validate offers, which is consistent with that for generators and scheduled load.

The Rule Proponents consider that this is an oversight and, if the proposed rule to set a price floor of zero for SNSPs is not made, a price floor should be prescribed in the rules.

## 1.2 Rationale for Rule Change Request

The Rule Proponents are concerned that negative price offers from SNSPs can cause some generators in the National Electricity Market (NEM) to have an effective offer that is below the market floor price, undercutting other generators when network constraints bind. This is because SNSP offers do not compete with generation offers, but are effectively combined with the exporting region's regional reference price. This is explained further in Chapter 5.

Under certain market conditions, when the exporting region's regional reference price is at the market floor price, combined with an SNSP offer at a negative price, the combined offer can lead to an effective price in the importing region that is below the market floor price. The Rule Proponents are concerned that this leads to inefficient outcomes.

## 1.3 Solution proposed in the Rule Change Request

The Rule Proponents propose to resolve the issue discussed above by making a rule that seeks to restrict SNSPs from making negative offers.

The Rule Proponents' rule change request includes a proposed rule.<sup>2</sup> The proposed rule amends rule 3.8.6A(i) of the NER, which currently states that SNSP offers must not exceed the market price cap, by adding that offers must not be negative. Deletion of

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<sup>1</sup> Note that SNSP or market network service providers (MNSP) are both terms used to describe an unregulated interconnector. Strictly, MNSP is a category of market participant that must register with AEMO, while SNSPs make network dispatch offers. An SNSP must be registered as an MNSP.

<sup>2</sup> IPRA and LYMMCo, Request for Rule Change: Scheduled Network Service Offers, 5 December 2011, p. 10.

rule 3.8.6A(e) is also proposed as this only applies when SNSPs submit negative price offers.

Regardless of whether the rule change request is successful, the Rule Proponents consider that the lack of a lower limit for SNSP offers in the NER is an oversight and that a lower limit should be applied through this rule change process.<sup>3</sup>

#### **1.4 Relevant strategic priority**

This draft rule determination does not relate directly to the AEMC's proposed strategic priorities.<sup>4</sup>

#### **1.5 Commencement of Rule making process**

On 29 March 2012, the Commission published a notice under section 95 of the National Electricity Law (NEL) advising of its intention to commence the rule making process and first round of consultation. A consultation paper prepared by AEMC staff identifying specific issues and questions for consultation was also published with the rule change request. Submissions closed on 3 May 2012.

The Commission received 10 submissions on the rule change request as part of the first round of consultation. They are available on the AEMC website.<sup>5</sup> A summary of the issues raised in submissions and the Commission's response to each issue is contained in Appendix A.

#### **1.6 Extension of time**

On 5 July 2012, the AEMC published a notice under section 107 of the NEL to extend the period of time for publication of the draft determination on this rule change request to 7 November 2013. The extension of time was to allow for further policy analysis to address complex issues raised in the rule change request and submissions.

#### **1.7 Consultation on draft Rule determination**

In accordance with the notice published under section 99 of the NEL, the Commission invites submissions on this draft rule determination, including the draft Rule, by 7 November 2013.

In accordance with section 101(1a) of the NEL, any person or body may request that the Commission hold a hearing in relation to the draft rule determination. Any request

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<sup>3</sup> Ibid, p. 4.

<sup>4</sup> Australian Energy Market Commission, *Strategic Priorities for Energy Market Development, Discussion Paper*, 2013.

<sup>5</sup> [www.aemc.gov.au](http://www.aemc.gov.au)

for a hearing must be made in writing and must be received by the Commission no later than 3 October 2013.

Submissions and requests for a hearing should quote project number ERC0140 and may be lodged online at [www.aemc.gov.au](http://www.aemc.gov.au) or by mail to:

Australian Energy Market Commission  
PO Box A2449  
SYDNEY SOUTH NSW 1235

## **2 Draft Rule Determination**

### **2.1 Commission's draft determination**

In accordance with section 99 of the NEL, the Commission has made this draft rule determination in relation to the rule proposed by IPRA and LYMMCo.

The Commission has determined it should not make the proposed rule but instead make a more preferable rule.<sup>6</sup> The Commission's reasons for making this draft rule determination are set out in section 3.1.

A draft of the more preferable rule (draft rule) is attached to and published with this draft rule determination. The draft rule modifies existing rule 3.8.6A(i) by applying the *market floor price* definition in the NEL to SNSP offers. This means, in effect, that SNSPs will be subject to the same lower limit as generators and scheduled load.

### **2.2 Commission's considerations**

In assessing the rule change request the Commission considered:

- the Commission's powers under the NEL to make the draft rule;
- the rule change request;
- submissions received during first round consultation; and
- the Commission's analysis of the ways in which the proposed rule will or is likely to, contribute to the National Electricity Objective (NEO).

There is no relevant Standing Council on Energy and Resources (SCER) Statement of Policy Principles.<sup>7</sup>

### **2.3 Commission's power to make the Rule**

The Commission is satisfied that the draft rule falls within the subject matter about which the Commission may make rules. The draft rule falls within section 34(1)(a)(i) of the NEL as it relates to regulating "the operation of the national electricity market".

Further, the draft rule falls within the matters set out in schedule 1 to the NEL as it relates to Item 7, where the AEMC may make rules with respect to the setting of prices

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<sup>6</sup> Under section 91A of the NEL the AEMC may make a rule that is different (including materially different) from a market initiated proposed rule (a more preferable rule) if the AEMC is satisfied that having regard to the issue or issues that were raised by the market initiated proposed rule (to which the more preferable rule relates), the more preferable rule will or is likely to better contribute to the achievement of the National Electricity Objective.

<sup>7</sup> Under section 33 of the NEL, the AEMC must have regard to any relevant SCER statement of policy principles in making a rule.

for electricity and services purchased through the wholesale exchange operated and administered by AEMO, including maximum and minimum prices.

## 2.4 Rule making test

Under section 88(1) of the NEL, the Commission may only make a rule if it is satisfied that the rule will, or is likely to, contribute to the achievement of the NEO. This is the decision making framework that the Commission must apply.

The NEO is set out in section 7 of the NEL as follows:

“The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to:

- (a) price, quality, safety, reliability and security of supply of electricity;  
and
- (b) the reliability, safety and security of the national electricity system.”

For this rule change request, the Commission considers the relevant aspects of the NEO to be:<sup>8</sup>

- the efficient operation of electricity services; and
- the efficient investment in electricity services.

The Commission is satisfied that the draft rule will, or is likely to, contribute to the achievement of the NEO for the following reasons:

1. Currently, there is no lower price limit for SNSP offers in the NER. Prescribing a lower limit will give certainty to current and potential future market participants with respect to this parameter. It will also ensure that any future changes to the market floor price are subject to the AEMC rule change process.

Greater certainty around the lower limit for SNSP offers, and the process for potential future changes, will increase participants’ confidence in the market arrangements. It will also promote efficiency in the decision making of participants when operating in the market and undertaking investments. This will contribute to the efficient supply of electricity, which is in the long term interests of consumers.

2. By applying the existing *market floor price* definition in the NER to SNSPs, the Commission is employing the principle of competitive neutrality, whereby, to the greatest extent possible, the NER should not advantage one technology above

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<sup>8</sup> Under section 88(2), for the purposes of section 88(1) the AEMC may give such weight to any aspect of the NEO as it considers appropriate in all the circumstances, having regard to any relevant MCE Statement of Policy Principles.

another. This should result in investment in the least cost technology option to meet forecast demand, contributing to efficient investment in and therefore operation of electricity services in the long term interests of consumers.

Applying the principle of competitive neutrality to this rule change request is consistent with the original intent and current role of SNSPs in the NEM, whereby they are able to actively compete in the market by offering non zero prices. To the extent the role of SNSPs may change in the future, it may be appropriate to apply a price cap and/or price floor that is specific to SNSPs.

With respect to competitive neutrality, the Commission notes that this principle should be seen as a framework around which decisions on changes in the NEM are taken, not an outcome of itself. For instance, overall market conditions will influence the relative competitiveness of different generation technologies, not just the consistency of market parameters.

Under section 91(8) of the NEL, the Commission may only make a rule that has effect with respect to an adoptive jurisdiction if satisfied that the proposed rule is compatible with the proper performance of AEMO's declared network functions. The draft rule is compatible with AEMO's declared network functions because it does not affect AEMO's performance of those functions.

## **2.5 More preferable Rule**

Under section 91A of the NEL, the AEMC may make a rule that is different (including materially different) from a market initiated proposed rule (a more preferable rule) if the AEMC is satisfied that, having regard to the issues that were raised by the market initiated proposed rule, the more preferable rule will or is likely to better contribute to the achievement of the NEO.

Having regard to the issues raised in the rule change request, the Commission is satisfied that the draft rule will, or is likely to, better contribute to the NEO. This is because the draft rule promotes the principle of competitive neutrality, whereby, to the greatest extent possible, the NER supports a framework that allows market participants to compete on a level playing field. By not favouring any one technology, investment decisions are made based on economic and commercial factors, supporting the efficient supply of electricity in the long term interests of consumers.

Applying the principle of competitive neutrality to this rule change proposal is consistent with the current role of SNSPs in the NEM, whereby they are able to compete in the spot market with other technologies whose offers are limited by the market price cap and market floor price.

### **3 Commission's reasons**

In assessing the rule change request, the Commission has considered the requirements set out in the NEL. As identified in section 2, the Commission has determined that a more preferable rule should be made. This section sets out the Commission's reasons for proposing to make the draft rule and key features of the draft rule.

#### **3.1 Assessment of issues**

The Rule Proponents are concerned that negative offers from SNSPs can cause generators in the exporting region to have an effective offer that is below the market floor price, undercutting generators in the importing region. This is because SNSP offers do not compete with generation offers, but are effectively combined with the regional reference price of the exporting region.

Under certain market conditions, when the exporting region's regional reference price is at the market floor price, combined with an SNSP offer at a negative price, the combined offer can lead to an effective price in the importing region that is below the market floor price. The Rule Proponents are concerned that this leads to inefficient outcomes.

The Commission considers that the issue raised by the Rule Proponents is primarily related to a number of factors other than the ability of SNSPs to offer negative prices. For instance, it is Hydro Tasmania's dominant position in the Tasmanian wholesale electricity market, combined with its ability to direct Basslink to make negative offers, which allows Hydro Tasmania to be dispatched ahead of Latrobe Valley generators.

Hydro Tasmania's incentive to participate in this behaviour arises when there is a binding network constraint in the Latrobe Valley, which restricts the access of its Tasmanian generation to the Victorian regional reference price from Basslink. When this occurs, Victorian generators, who are also attempting to access the network, have an incentive to offer their capacity at the market floor price to maximise dispatch.

In the presence of a such a network constraint, which usually results in a very high Victorian regional reference price, Hydro Tasmania has an incentive to offer its Tasmanian generation capacity at the market floor price, thereby driving the Tasmanian regional reference price to  $-\$1,000/\text{MWh}$ . Due to the different treatment of losses for generators and SNSPs, the Latrobe valley generators are dispatched ahead of Basslink, reducing Hydro Tasmania's output.

Hydro Tasmania overcomes this issue by directing Basslink to offer negative prices to transport energy. As SNSP offers are additive, in that Basslink's offer is combined with the Tasmanian regional reference price, Hydro Tasmania is able to bid its generation at prices below the market floor price - effectively offering to pay up to  $\$2,000/\text{MWh}$  (ignoring losses) to supply energy into Victoria. This results in preferential dispatch ahead of the Latrobe Valley generators and is a potentially profitable strategy due to Hydro Tasmania's contract position and its rights to Basslink's inter-regional residues.

In the Commission's view, it is the combination of the market structure in Tasmania, Hydro Tasmania's commercial agreement with Basslink, bidding behaviour during times of network constraint and the treatment of losses that combine to create the issue raised by the Rule Proponents, not negative bidding per se. These issues are explained in more detail in Chapter 5.

Given the original intent and current role of SNSPs in the NEM, whereby they are able to actively compete in the market by offering non zero prices, the Commission does not consider that a rule should be made that effectively limits the behaviour of all (including potential future) SNSPs due to the specific situation raised by the Rule Proponents. The Commission considers that, to the extent possible, it should make rules that are general in nature and not in response to a specific set of circumstances.

It is important to note that the Commission is not of the view that a different price cap and/or price floor for different types of market participant, such as SNSPs, could never be contemplated in the future. However, the Commission considers that this would be a fundamental change to the original intent of the SNSP category of market participant and is therefore outside of the scope of this rule change process.

The Rule Proponents also note the lack of a lower price limit for SNSP offers in the NER and consider that a lower price limit should be applied through this process, irrespective of whether the rule change proposal is successful.

Establishing a lower price limit for SNSP offers in the NER will increase the certainty around this parameter for all market participants. It will also align SNSPs with other market participants, whose lower limit offers are restricted by the *market floor price* in the NER, promoting consistency within the rules.

By providing that SNSPs' offers must be no less than the *market floor price*, the Commission is seeking, to the extent possible, to ensure that the NER does not advantage one market participant above another. This is appropriate given the original intent and current role of SNSPs in the NEM.

A rule is required to be made because there is currently no lower price limit for SNSP offers in the NER.

### **3.2 Key features of the draft rule**

The draft rule modifies existing rule 3.8.6.A(i) by providing that SNSP offers must be no less than the *market floor price* as defined in the NER. In doing so, the draft rule makes the price envelope of SNSP offers consistent with that of scheduled generators and scheduled loads.

### **3.3 Civil Penalties**

The draft rule does not amend any clauses that are currently classified as civil penalty provisions under the NEL or National Electricity (South Australia) Regulations. The Commission does not propose to recommend to SCER that the clause amended by the draft rule be classified as a civil penalty provision.

## 4 Commission's assessment approach

This chapter describes the analytical framework that the Commission has applied to assess the rule change request in accordance with the requirements set out in the NEL (and explained in chapter 2).

In assessing the rule change request against the NEO, the Commission has considered whether the proposed rule would, given the current role of SNSPs in the NEM, produce an outcome that, to the extent possible, does not advantage one technology above another. Furthermore, we have considered whether the proposal would lead to greater certainty for market participants and therefore efficiency in decision making.

With this in mind, the Commission has considered the following factors in assessing the rule change request against the NEO:

- **Competitive neutrality**
  - in accordance with the market design principle in rule 3.1.4(a)(3), when making changes to the market rules in Chapter 3 of the NER, there "should be avoidance of any special treatment in respect of different technologies used by *Market Participants*".
- **Certainty**
  - the market price cap and market floor price directly influence participants' behaviour and market outcomes, and should be prescribed in the NER and subject to the AEMC rule change process.

In this respect, the Commission has not sought to revisit, or develop an assessment framework that seeks to address the role of SNSPs in the NEM. We consider such a fundamental question to be outside of the scope of this rule change request, which has been prompted by circumstances specific to Basslink and network congestion in the Latrobe Valley.

Despite this rule change proposal directly relating to Basslink, and Basslink being the only SNSP in the NEM, the Commission has considered the impacts of the proposed rule more broadly in terms of the current role of the SNSP category of market participant.

In determining the relevant context and scope for the rule change proposal, the Commission has considered the findings of a comprehensive review undertaken by the National Electricity Code Administrator (NECA),<sup>9</sup> which was required under the

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<sup>9</sup> NECA was disbanded on 1 July 2005 when its rule making role was assumed by the AEMC and its regulatory functions by the AER.

National Electricity Code to establish a framework for market participation by non-regulated interconnectors (SNSPs).<sup>10</sup>

NECA determined that non-regulated interconnectors "should be required to be scheduled and be subject to analogous rights and obligations to those applicable to scheduled generators and loads".<sup>11</sup> Further, NECA noted that "managers of scheduled generators and loads are given the right to trade actively on the spot market...non regulated interconnectors would thus be treated identically".<sup>12</sup>

Together with the existing provisions in rule 3.8.6A, which set out the requirements for SNSP dispatch offers, the Commission considers that this evidence supports the conclusion that the active participation of SNSPs, on an equivalent basis to other market participants, was a deliberate decision taken during the establishment of the NEM.

On this basis, and in the absence of a change in policy with respect to the role of SNSPs in the NEM, the Commission considers that the lack of a lower price threshold for SNSP offers in the NEM is most likely oversight.

#### **4.1 Other considerations**

The Commission engaged ACIL Tasman, in conjunction with SW Advisory, to provide an independent report on the calculation of losses for SNSPs. This work was commissioned in response to feedback on the way the AEMC characterised the impact of losses for SNSPs in the consultation paper for this rule change proposal.<sup>13</sup>

SW Advisory and ACIL Tasman's report explains how losses are calculated for SNSPs compared to generators and regulated interconnectors. It also discusses how the calculation and modelling of losses affects the relative dispatch of intra-regional generators compared to inter-regional generation connected by interconnectors or SNSPs.

The report informs the Commission's assessment of the impact of losses for SNSPs in Chapter 5.1.3 and is available on the AEMC website.<sup>14</sup> Detailed analysis of how the calculation of losses impacts the issues raised through this rule change proposal is in Appendix B.

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<sup>10</sup> National Electricity Code Administrator, Transmission and Distribution Pricing Review, Final Report, Chapter 8, June 1999.

<sup>11</sup> Ibid, p. 100.

<sup>12</sup> Ibid, p. 101.

<sup>13</sup> IPRA and LYMMCo, Submission on rule change request, 3 May 2012, p. 1-2; Hydro Tasmania, Submission on rule change request, 7 May 2012, p. 4.

<sup>14</sup> [www.aemc.gov.au](http://www.aemc.gov.au)

## 5 Background and context

An SNSP is an unregulated interconnector that is able to actively participate in the spot market. It can do this by offering different prices to transport electricity. However, depending on its bidding strategy, an SNSP can also act like a regulated interconnector by offering a price of zero. Basslink is currently the only SNSP operating in the NEM and is subject to a number of operating restrictions placed on it by the Tasmanian Government.

This chapter provides context for the assessment of the rule change proposal in Chapter 6 and Chapter 7. It outlines how SNSPs in the NEM operate and earn revenue, discusses how offers are made, and briefly covers how electrical losses can impact dispatch outcomes. Specific restrictions around how Basslink operates are also outlined.

### 5.1 Overview of SNSPs

SNSPs are entitled to the inter-regional residues that accrue across the interconnector. These residues are essentially the difference between the spot prices in the importing and exporting regions, multiplied by the flow across the interconnector (adjusted for losses). SNSPs can therefore be considered to buy energy at the spot price in one region and sell it at the spot price in another region.<sup>15</sup>

When a framework for unregulated interconnectors was introduced in the NEM, they were distinguished from their regulated counterparts by their ability to derive income through participation in the spot market. Consideration was given to whether SNSPs should be able to actively trade in the spot market or whether they should be passive price takers. A pre-NEM working group on entrepreneurial interconnectors concluded that, in order to recover their high fixed costs, SNSPs should be able to actively participate in the market by submitting price/volume offers for the transport of electricity.<sup>16</sup>

#### 5.1.1 How do SNSPs earn revenue?

An SNSP is required to submit a schedule of offers that sets out how much energy it is willing to transport in up to ten different price bands, similar to generators.<sup>17</sup> SNSPs must submit two schedules: one for each direction of flow.

An SNSP's offer represents the price difference between the two regions. The offer reflects the minimum price difference that the SNSP is willing to accept to transport

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<sup>15</sup> The formula for determining the net revenue that an SNSP earns is specified in NER clauses 3.8.6A(g)-(h).

<sup>16</sup> National Electricity Code Administrator, Transmission and Distribution Pricing Review, Working Group on Inter-regional Hedges and Entrepreneurial Interconnectors, Entrepreneurial Interconnectors: Safe Harbour Provisions, November 1998, p. 3-4.

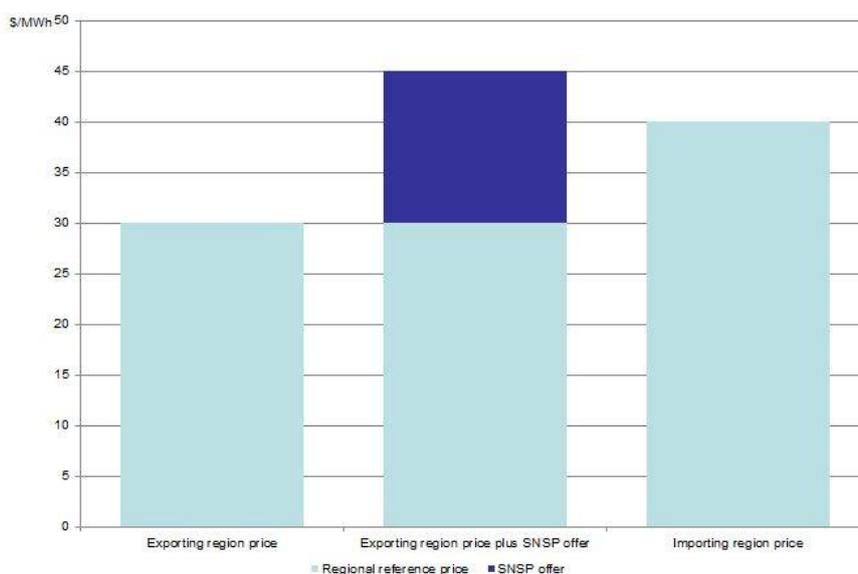
<sup>17</sup> NER clauses 3.8.6A set out the requirements for SNSP offers.

energy. For example, an offer of \$10/MWh to transport 300 megawatts (MW) from region A to region B means that the interconnector will only be dispatched for those 300 MW if the spot price in region B is at least \$10/MWh higher than the spot price in region A.

SNSPs maximise revenue by considering the trade-off between price and volume. Depending on the relative costs and offers of generators in the two adjoining regions, SNSPs can potentially influence the spot price in the importing region by increasing or decreasing flows across the interconnector through offering lower or higher transport bids, respectively.

This is demonstrated in Figure 5.1, which shows the additive effect of an SNSP offer on the exporting region's regional reference price, relative to the importing region's regional reference price. In this instance, due to the positive SNSP offer, generation in the importing region would be dispatched ahead of the SNSP and therefore ahead of generation in the exporting region.

**Figure 5.1 Additive effect of SNSP offers**



SNSP revenue relies on there being a price differential between the two regions that it connects. As prices converge, SNSP revenue reduces. SNSPs can obtain a more secure revenue stream by selling the rights to the revenues that accrue across the interconnector and/or the rights to direct the SNSP's bids. This may be attractive to generators who wish to trade between regions by providing a mechanism to hedge the associated basis risk. Forward selling all or a part of the SNSP's future revenue stream may also be a requirement of its financiers for the investment to occur.

### 5.1.2 Market price cap and market floor price

Rule 3.8.6A sets out the requirements that apply to SNSPs when making a network dispatch offer. Rule 3.8.6A(i) limits the maximum offer that can be made by an SNSP and states that:

*“prices specified in the network dispatch offer must not exceed the market price cap.”*

As noted by the Rule Proponents, there is no lower limit or market floor price in the NER that currently applies to SNSP offers.<sup>18</sup> In order to validate offers from SNSPs, AEMO sets a price floor of -\$1,000/MWh in the National Electricity Market Dispatch Engine (NEMDE). However, while this price floor is consistent with that imposed on scheduled generators and scheduled load, it has no basis in the NER.

### 5.1.3 Electrical losses

Losses in the NEM are treated differently within regions (intra-regionally) and between regions (inter-regionally). Further, inter-regional losses are again treated differently depending on whether the interconnector is regulated or an SNSP. The way losses are calculated can affect the relative dispatch of generation and SNSPs under certain network conditions, such as in the presence of constraints.

ACIL Allen Consulting, in conjunction with SW Advisory, were engaged to prepare a report that explains the approaches used by AEMO to represent losses from generators, interconnectors and SNSPs. This section provides a brief overview of the findings of that report to provide context for the assessment of the rule change proposal in Chapter 6.4. Detailed analysis of this issue is in Appendix B.

#### Overview of the calculation of losses in the NEM

The NEM dispatch model uses an approximate form of a nodal marginal pricing model in that transmission constraints are modelled and losses are approximately modelled. Static marginal loss factors are used for flows within each region, with inter-regional loss equations used for flows between regions.

##### *Intra-regional loss model*

The losses associated with intra-regional generators are indirectly modelled by marginal loss factors, which are used to adjust prices. Within the dispatch process, when dispatching generators to meet the regional demand, generator outputs are treated as lossless.

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<sup>18</sup> IPRA and LYMMCo, Request for Rule Change: Scheduled Network Service Offers, 5 December 2011, p. 4.

### *Inter-regional loss model*

Regulated interconnectors use pre-defined quadratic loss functions to estimate the losses for power transfers from the regional reference node in the sending region to the regional reference node in the receiving region. For regulated interconnectors, losses are explicitly modelled in the dispatch process; that is, output is adjusted, not price.

### *SNSP loss model*

SNSPs use a hybrid model for losses, which is a combination of a linear loss model based on the marginal loss factors of the connecting terminals for within region flows, and a quadratic loss model for flows over the physical SNSP. For SNSPs, the losses are explicitly modelled in the dispatch process. Similarly to the inter-regional loss model, output is adjusted, not price.

ACIL Allen Consulting and SW Advisory found that the different treatment of losses results in a bias in favour of intra-regional generation in the dispatch process when there are constraints affecting both intra-regional generation and a regulated interconnector or SNSP. This is because intra-regional generators are treated as lossless from a dispatch perspective, whereas the dispatch of generators across regions includes losses.

This issue is discussed further in Chapter 6.4.3 and Appendix B.

## **5.2 Basslink**

Basslink connects Tasmania (at Tasmania's regional reference node at George Town) with the rest of the NEM (at the Loy Yang 500 kV substation in Victoria). It has a continuous rating of approximately 480 MW in either direction, and up to 610 MW from Tasmania to Victoria for limited periods.

### **5.2.1 Structure of Basslink's ownership and operation**

Basslink is currently the only interconnector that operates as an SNSP in the NEM.<sup>19</sup> It is owned by CitySpring Infrastructure Trust and is operated by Basslink Pty Limited (BPL).

Hydro Tasmania and BPL entered into an agreement prior to the commissioning of Basslink called the Basslink Services Agreement (BSA). Under the BSA, Hydro Tasmania pays a fixed fee to BPL in exchange for the variable revenue that accrues across the interconnector. The BSA also gives Hydro Tasmania the right to direct Basslink's offers, subject to the restrictions discussed below.

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<sup>19</sup> Murraylink and Directlink were commissioned as SNSPs but were subsequently converted to regulated interconnectors.

## 5.2.2 Bidding restrictions

The Treasurer for the State of Tasmania has issued two Ministerial Notices<sup>20</sup> that have placed various restrictions on the offers that Hydro Tasmania may instruct Basslink to make, in addition to those set out in the NER. The first Ministerial Notice was issued in July 2005, the second in May 2008.

The restrictions were implemented due to anti-competitive concerns as a result of Hydro Tasmania's dominant position in Tasmania and its ability, through the BSA, to effectively control flows across Basslink.<sup>21</sup> Bidding restrictions and the Ministerial Notices are described in more detail in the consultation paper for this rule change proposal.<sup>22</sup>

The first Ministerial Notice was in operation from July 2005 to May 2008 and prevented Hydro Tasmania from instructing BPL to offer:

- negative transport bids in either direction; or
- positive transport bids for southward flows other than in limited circumstances for technical reasons.

On 4 May 2008, a revised Ministerial Notice was issued that set out the following principles that allowed negative transport bids under certain circumstances:

1. Hydro Tasmania must not instruct BPL to submit a negative bid which applies to power flows across Basslink in either direction or otherwise agree to BPL making a negative bid in either direction for the purpose of producing counter-priced flows.
2. In the event that Hydro Tasmania instructs BPL to submit a negative bid which applies to flows across Basslink, it must only be in appropriate circumstances, which include where the mainland transmission constraints are causing Basslink northerly flow to be reduced.

To summarise the present situation, Hydro Tasmania's Board, in order to meet its obligations under the current Ministerial Notice, prohibits any instructions for negative bids in a northward direction on Basslink, except when the following three conditions are met:<sup>23</sup>

1. the Victorian spot price is higher than the Tasmanian spot price;

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<sup>20</sup> The Ministerial Notices were issued under section 36 of the Electricity Supply Industry Act 1995 (Tasmania).

<sup>21</sup> See ACCC, *Applications for Authorisation, Tasmanian Derogations and Vesting Contract: Tasmania's NEM entry*, 14 November 2001.

<sup>22</sup> AEMC 2012, *Negative offers from scheduled network service providers*, Consultation Paper, 29 March 2012, Sydney, p. 3-5.

<sup>23</sup> Hydro Tasmania, *Enhancements Compliance Plan*, December 2010, p. 3.

2. the Tasmanian spot price is negative; and
3. transmission constraints that affect the Latrobe Valley connection point start to bind.

These are the conditions under which Hydro Tasmania may currently instruct Basslink to offer negative prices in the northward direction.

## 6 Negative bidding by SNSPs

Chapter 6 forms the basis of the Commission's assessment on whether SNSPs should be restricted from making negative offers. It also underpins the Commission's approach to Chapter 7, which addresses whether the NER should be amended to include a price floor that applies to SNSP offers and what the price floor should be.

### 6.1 Background to rule change request

The Rule Proponents are concerned that when Hydro Tasmania instructs Basslink to bid at negative prices in the northward direction, Hydro Tasmania can effectively undercut the market floor price and therefore the price offered by the Latrobe Valley generators. Consequently, Hydro Tasmania can be dispatched in favour of the Latrobe Valley generators, creating an opportunity cost for them associated with lost revenue.

This situation occurs when there is a constraint affecting the Latrobe Valley that is restricting access to the Victorian regional reference node. In this circumstance, generators have an incentive to offer their energy below cost at the market floor price in order to maximise their dispatch. The behaviour can be profitable because the spot price in Victoria will be set by a generator on the other side of the constraint.

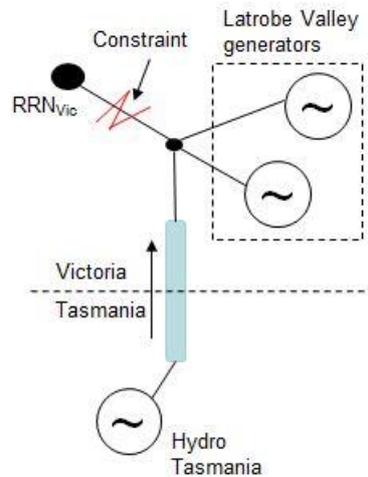
Consequently, if dispatched, generators in the Latrobe Valley will receive the higher Victorian spot price, rather than the negative offer price. While Hydro Tasmania may risk setting the Tasmanian spot price at close to the market floor price, any revenue losses could be offset by its retail contract position in Tasmania and by the revenue that would accrue across Basslink.

If both Hydro Tasmania and Basslink are offered into the market at  $-\$1,000/\text{MWh}$ , then the effective offer price of Hydro Tasmania's energy at the Victorian regional reference node (ignoring losses) is  $-\$2,000/\text{MWh}$ . This is because Hydro Tasmania is effectively offering to pay the market  $\$1,000$  for each MWh of energy it produces, and Basslink is effectively offering to pay the market a further  $\$1,000$  for each MWh it transports.

Therefore, the apparent "cost" of importing energy from Tasmania is  $-\$2,000/\text{MWh}$ , as illustrated in Figure 6.1.

**Figure 6.1 Illustrative example of rule change request issue**

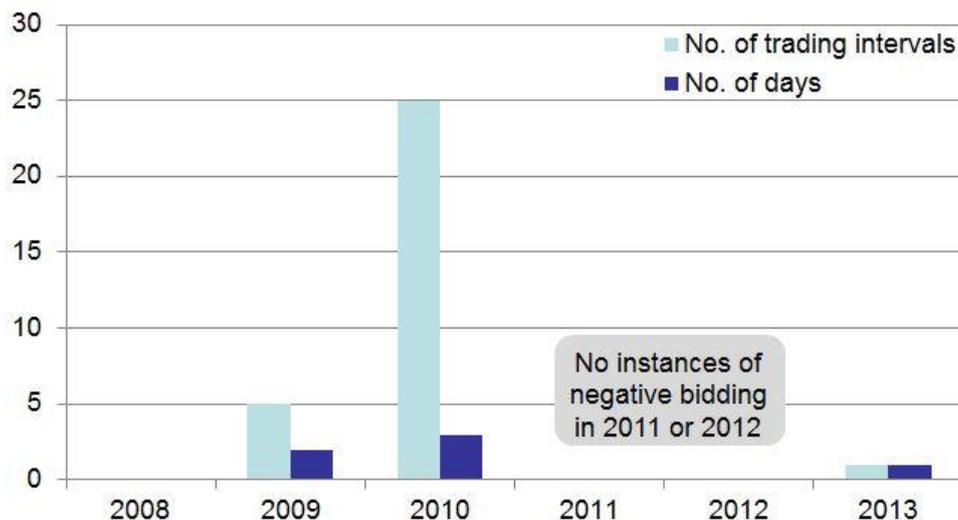
- All generators offer their output at  $-\$1,000/\text{MWh}$  due to a constraint between the Latrobe Valley and the Victorian RRN
- Basslink offers to transport energy northwards at  $-\$1,000/\text{MWh}$
- The cost of supplying  $\text{RRN}_{\text{Vic}}$  from Latrobe Valley generators is  $-\$1,000/\text{MWh}$
- The cost of supplying  $\text{RRN}_{\text{Vic}}$  from Hydro Tasmania is  $(-\$1,000) + (-\$1,000) = -\$2,000/\text{MWh}$ 
  - Hydro Tasmania is dispatched



Hydro Tasmania is required to publish a compliance report each time it instructs Basslink to offer negative prices. Figure 6.2 shows the number of days and trading intervals over which negative offers across Basslink in a northward direction have occurred since 2008, which is relatively infrequently. While this graph provides a broad indication of the materiality of the issue, the Commission notes that it does not incorporate the market value to Victorian generators of not being dispatched.

The AEMC also notes that the extent to which Basslink can displace Latrobe Valley generation is relatively limited, given Basslink's maximum northward capacity of 610 MW compared with around 7,200 MW of Latrobe Valley generation capacity.

**Figure 6.2 Historical instances of negative bidding by Basslink<sup>24</sup>**



<sup>24</sup> Note that in 2008 Hydro Tasmania instructed Basslink to make positive dispatch offers in the southward direction on two occasions.

## 6.2 Rule Proponents' view

The Rule Proponents consider that the current bidding rules distort the market as some generation can be prioritised through “an artefact of the market rules”.<sup>25</sup> They state that the proposed rule change will remove this distortion and ensure that the most efficient generation is dispatched rather than generation which can effectively bid below the price floor.

Furthermore, the proponents claim this would lead to an increase in certainty of dispatch outcomes for generators as they could no longer be underbid by a competitor effectively bidding below the market floor. This certainty in dispatch would lead to improved contract market outcomes.

The only potential cost the Rule Proponents identify is the possibility that AEMO may have to update their validation process. The proponents consider that this is only a minor cost and therefore is likely to be outweighed by the benefits of the rule change proposal.

The Rule Proponents consider there will be no cost to SNSPs as there are no legitimate commercial or technical reasons for SNSPs to offer negative prices.<sup>26</sup>

## 6.3 Stakeholder views

10 submissions were received during the first round of consultation. The Rule Proponents, the Australian Energy Regulator (AER), and TRUenergy (now EnergyAustralia) supported the rule change. Hydro Tasmania, Basslink, the Tasmanian Government, the National Generators Forum (NGF) and Origin Energy did not support the rule change.

Alinta Energy (Alinta) considered that the AEMC should look more broadly at the efficiency effects of allowing SNSPs to offer non zero prices to transport electricity.<sup>27</sup>

### 6.3.1 Submissions: support for the proposed rule change

The AER considered that “Hydro Tasmania dispatch priority over Victorian generators...represents an unfair advantage for Hydro Tasmania and appears to create significant efficiency issues”.<sup>28</sup>

TRUenergy considered that Hydro Tasmania gains preferential treatment, which “defeats the concept of competitive neutrality amongst participants in the NEM”.<sup>29</sup>

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<sup>25</sup> IPRA and LYMMCo, Request for Rule Change: Scheduled Network Service Offers, 5 December 2011, p. 5.

<sup>26</sup> IPRA and LYMMCo, Request for Rule Change: Scheduled Network Service Offers, 5 December 2011, p. 8.

<sup>27</sup> Alinta Energy, Submission on rule change request, 3 May 2012.

<sup>28</sup> AER, Submission on rule change request, 1 May 2012, p. 1.

### 6.3.2 Submissions: reasons for not supporting the proposed rule change

Hydro Tasmania considered:<sup>30</sup>

1. it is inappropriate to impose a blanket ban on negative bidding by SNSPs as;
  - a "fundamental premise" of SNSP viability is that they are able to compete efficiently with generators in the spot market to recover their investment;
  - the rule change would devalue SNSPs' expected revenues, affecting their ability to enter into contracts to underpin investments; and
  - there is no benefit to consumers - the rule change does not meet the NEO.
2. even if a ban is imposed, Basslink should be exempt due to the fact that:
  - Basslink can only bid negative in specific circumstances due to a Ministerial Notice in place that places restrictions on bidding behaviour; and
  - the rule change would decrease flow across Basslink from low to high priced regions, potentially to the point of counter-priced flows - this would have implications for contracting from Tasmania to Victoria.

Basslink argued that negative bidding is an appropriate mechanism by which SNSPs strategically provide offers to ensure dispatch, particularly at times of high regional arbitrage.<sup>31</sup>

Basslink, the Tasmanian Government and Origin considered that changing the threshold for SNSPs would discriminate between technology types, which is inconsistent with fundamental principles of the NEM.<sup>32</sup> The Tasmanian Government considered that the proposed rule change would discourage investment in SNSPs, diminishing the NEO.<sup>33</sup>

The Tasmanian Government and the NGF considered that there were no efficiency gains to be made from the rule, and therefore it should not be made.<sup>34</sup> The Tasmanian Government also raised sovereign risk as an issue, as the rule change would apply retrospectively to Basslink.<sup>35</sup>

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<sup>29</sup> TRUenergy, Submission on rule change request, 13 April 2012, p. 2.

<sup>30</sup> Hydro Tasmania, Submission on rule change request, 7 May 2012.

<sup>31</sup> Basslink, Submission on rule change request, 3 May 2012, p. 2.

<sup>32</sup> Basslink, Submission on rule change request, 3 May 2012, p. 3; Tasmanian Government, Submission on rule change request, 15 May 2012, p. 1; Origin Energy, Submission on rule change request, 3 May 2012, p. 2.

<sup>33</sup> Tasmanian Government, Submission on rule change request, 15 May 2012, p. 1.

<sup>34</sup> Tasmanian Government, Submission on rule change request, 15 May 2012, p. 2; NGF, Submission on rule change request, 3 May 2012, p. 2.

<sup>35</sup> Tasmanian Government, Submission on rule change request, 15 May 2012, p. 1.

### 6.3.3 Other issues

The AER considered the rule change may represent an appropriate short term solution to the problem highlighted by the rule change proposal.<sup>36</sup> However, an enduring solution should be considered as part of the AEMC's Transmission Frameworks Review (TFR).<sup>37</sup>

The AER and AEMO considered that a number of models covered by the AEMC in the TFR have the potential to provide a solution the issue raised by the Rule Proponents.<sup>38</sup>

Alinta put forward that the AEMC should expand its analysis to look at the wider inefficiencies created by allowing SNSPs to transport electricity for any price other than zero. Alinta considered that the additive effect of SNSP bidding conflicts with the competitive intent of the NEM as it masks generators' offers. Moreover, Alinta argued that there seems little "commercial incentive for an MNSP to bid positive or negative in the NEM where the primary revenue incentive is to accrue price differentials between regions."<sup>39</sup>

## 6.4 Analysis

In addition to the ability to offer negative prices, the Commission has identified three factors that we consider contribute to the issue raised by the Rule Proponents. These are:

1. Tasmanian market structure and Hydro Tasmania's commercial agreement with Basslink;
2. bidding behaviour during times of network constraint; and
3. calculation of losses.

Each of the above factors will be discussed in the context of the rule change proposal, which is to restrict SNSPs from making negative price offers.

A focus for the Commission is on the extent to which resolving any of these factors would address the issue raised by the Rule Proponents, including the ability of the issue to be resolved through a change to the NEM, and the proportionality of any solution relative to the issue raised by the Rule Proponents.

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<sup>36</sup> AER, Submission on rule change request, 1 May 2012, p. 2.

<sup>37</sup> More information on the TFR is available on the AEMC website: [www.aemc.gov.au](http://www.aemc.gov.au).

<sup>38</sup> AER, Submission on rule change request, 1 May 2012, p. 2; AEMO, Submission on rule change request, 10 May 2012, p. 1.

<sup>39</sup> Alinta Energy, Submission on rule change request, 3 May 2012.

### 6.4.1 Market structure

Hydro Tasmania is able to effectively bid below the market price floor in the Latrobe Valley when network constraints bind because it has sufficiently high market share to transiently set the Tasmanian regional reference price at the market floor price and, through the BSA, direct Basslink to offer negative prices. This means that Hydro Tasmania is able to be preferentially dispatched ahead of the Latrobe Valley generators when the Latrobe Valley transmission constraint is binding.

As noted by the Electricity Supply Industry Expert Panel, Hydro Tasmania's dominant generation position in Tasmania provides it "with the ability to set spot prices at any level, and at any time, it wishes".<sup>40</sup> Given this, Hydro Tasmania can effectively control two out of the three Ministerial Notice conditions discussed in Chapter 5.2.2, namely that the Tasmanian regional reference price be negative and that the Victorian regional reference price to be above the Tasmanian regional reference price. The third condition - that the Latrobe Valley transmission constraints start to bind - is the reason for participating in the behaviour raised by the Rule Proponents.

In addition to having the ability to effectively set the Tasmanian regional reference price, Hydro Tasmania, through the BSA described in Chapter 5.2.2, directs Basslink's offers to transport electricity across the interconnector. For instance, when the Latrobe Valley constraint is binding, Hydro Tasmania has an incentive to direct Basslink to make negative offers to ensure dispatch priority ahead of the Latrobe Valley generators. As discussed above, the additive nature of SNSP offers will ensure that this occurs.

From the Commission's perspective, the relevant point is that the current structure of the Tasmanian wholesale electricity market, which is dominated by Hydro Tasmania, combined with the existence of the BSA, allows Hydro Tasmania's offers to be prioritised over generators in the Latrobe Valley. It therefore appears that, if Hydro Tasmania was not the dominant generator in Tasmania and/or the BSA did not exist, all other things being equal, this situation would most likely not occur.

Recommending changes to the Tasmanian market structure is outside the scope of the AEMC's rule making power. Similarly, recommending changes to commercial agreements, such as the BSA, due to competition and/or efficiency concerns is also outside of the AEMC's rule making power. We note that monitoring compliance with the provisions of the *Competition and Consumer Act 2010 (Cth)*, which electricity market participants are subject to, is the remit of the Australian Competition & Consumer Commission.

While Basslink is currently the only SNSP in the NEM, the Commission is mindful that this rule change proposal would impact any future SNSPs. Therefore, while the Tasmanian electricity market structure and BSA appear to contribute to the issue raised by the Rule Proponents, resolving it through a blanket restriction on the bidding

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<sup>40</sup> Electricity Supply Industry Expert Panel, An independent review of the Tasmanian electricity supply industry, Final Report, Volume 1, March 2012, p. vi.

behaviour of SNSPs would be disproportionate. This is because it would imply a significant change to the original intent and current role of SNSPs in the NEM.

The Commission also considers that rules should be general in nature and not specific to a circumstance or market participant.

#### **6.4.2 Bidding behaviour during times of network constraint**

Broadly speaking, the existing regional model for the NEM facilitates efficient outcomes. This is because, in the absence of network constraints, generators have an incentive to make broadly cost-reflective offers. However, when intra-regional congestion occurs and constraints start to bind, this model begins to break down and generators bid below cost to increase the likelihood of being dispatched.

The nature of generators' bidding changes during times of network constraint because generators located behind constraints know that the price they receive will be set by higher-cost generation elsewhere and therefore can make low or negative offers. Such generators will instead offer capacity at a price which maximises their revenue (i.e. the regional reference price multiplied by output), such as the market floor price of -\$1,000/MWh.

When all constrained generators in a region price their offers at the market floor price, these generators will be dispatched ahead of inter-regional generation provided by regulated interconnectors. This is because, even if the inter-regional generation was priced at the market floor price, the different treatment of losses results in a bias in favour of intra-regional generation (as outlined in Chapter 5.1.3).

Imports from Basslink compete with Latrobe Valley generators for limited network capability whenever flows to the Victorian regional reference node from the Latrobe Valley are constrained. In effect, by having the capability to direct Basslink to make negative offers when the Tasmanian regional reference price has reached the lower limit, Hydro Tasmania is able to bid below the Latrobe Valley generators during a constraint. This results in Hydro Tasmania being preferentially dispatched.

In principle, the issue identified by the Rule Proponents could be mitigated by implementing a general solution to transmission access during network constraints, such as the optional firm access model identified by the AEMC through the TFR.<sup>41</sup>

Under the optional firm access model, generators would have the option of buying firm access rights to transmission networks to manage congestion risk. These financial rights would take the form of compensation payments generally funded by generators without such rights. This would mean that, where a network constraint was restricting access to a regional reference node, generators with firm access rights would be financially compensated if access to the network was curtailed, providing an incentive to offer cost-reflective bids.

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<sup>41</sup> See AEMC 2013, *Transmission Frameworks Review*, Final Report, 11 April 2013, Sydney. We note that the optional firm access model is currently being considered by SCER in a broader context.

Further, generators who do not buy firm access rights take the risk that when network constraints bind, they may be paid their offer price rather than the regional reference price. This reduces the incentive to bid at the market price floor as generators who offer negative prices may end up paying the market to generate.

### 6.4.3 Loss calculation for SNSPs

As identified in Chapter 5.1.3, the different treatment of losses for generators, regulated interconnectors and SNSPs in the dispatch process can affect their relative dispatch in the presence of constraints. This results in a bias in favour of intra-regional generation in the presence of a network constraint affecting both intra-regional generation and a regulated interconnector or an SNSP.

For a generator, losses are calculated by applying the marginal loss factor to adjust the offer price. This is different to SNSPs, where output is adjusted by the marginal loss factor. These approaches are equivalent in the absence of a binding network constraint. In the presence of an intra-regional constraint, there is price separation between the connection point and the regional reference node, with the losses valued at the regional reference price. This means that losses for a generator are ignored, while losses from an SNSP are penalised.

In the presence of a binding constraint, NEMDE will decrease the cost of dispatch by reducing the power from the SNSP (to decrease losses) and increase the output from the generator to restore the supply/demand balance.

In the context of the rule change proposal, if Hydro Tasmania instructs Basslink to offer \$0/MWh, the loss mechanism means that Basslink is ramped back towards zero, even if the Tasmanian price is at the market floor price. If Hydro Tasmania directs Basslink to make an offer that is sufficiently negative, this counters the loss mechanism that reduces Basslink flows and can give Basslink flow preference.<sup>42</sup>

In their report to the AEMC on the calculation of losses, ACIL Allen Consulting and SW Advisory suggested two potential alternative models: modelling generator losses in NEMDE and a full network model. The consultants were asked to discuss the most effective way to calculate losses in the NEM generally, not just in response to the issue raised by the Rule Proponents.

#### *Model generator losses in NEMDE*

Under this approach, losses would be accounted for by using a generator's marginal loss factor to scale output, rather than price. This would mean that a MW leaving Basslink and a MW from a Latrobe Valley generator would be treated the same.

In the context of the rule change proposal, the Commission does not consider this approach would solve the issue raised by the Rule Proponents, as the dispatch

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<sup>42</sup> Note that a similar but less obvious issue arises when a constraint affects imports on a regulated interconnector and a generator.

outcome would still favour imports from Tasmania over Latrobe Valley generation in the presence of a constraint in the Latrobe Valley (see Appendix B for an example). It would also be a disproportionate response, as it would require changing the loss calculation methodology for all generators in the NEM.

#### *Full network model*

Using a full network model, with explicit network limits and dynamic losses, losses would be recalculated every five minutes based on actual network flows. Assuming Basslink flow is in the northward direction and the Latrobe Valley constraint is binding, this model would again favour imports from Tasmania over Latrobe Valley generators (see Appendix B).

In addition to not addressing the issue raised by the Rule Proponents, implementing a full network model would require substantial changes to the NEMDE, be costly for market participants and is a disproportionate response to the issue raised in the rule change proposal.

#### **6.4.4 Negative bidding**

Restricting SNSPs from making negative offers would most likely resolve the issue raised by the Rule Proponents. This is because Basslink would be unable to make negative offers to counteract the effect of losses on the dispatch process. However, the Commission does not consider this response to be proportional, as it would restrict the behaviour of all current and future SNSPs in the NEM and may not be consistent with the principle of competitive neutrality.

As outlined in Chapter 4, the Commission has not sought to revisit, or develop an assessment framework that seeks to address, the role of SNSPs in the NEM. We consider such a fundamental question to be outside of the scope of this rule change proposal, which has been prompted by circumstances specific to Basslink and network congestion in the Latrobe Valley area.

Instead, the Commission has considered this rule change proposal in the context of the original intention of the framework for the operation of SNSPs. As outlined in Chapter 4, evidence suggests that non-regulated interconnectors were intended to be scheduled by the market operator and that, consistent with generation and scheduled load, SNSPs should be given the right to trade actively on the spot market.

Given the existing provisions in rule 3.8.6A, which set out the requirements for SNSPs to make dispatch offers, the Commission considers that this evidence supports the conclusion that the active participation of unregulated interconnectors was a deliberate decision taken during the establishment of the NEM. This finding is reinforced by fact that the rules currently set out a specific requirement for SNSP offers when negative prices are employed.<sup>43</sup>

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<sup>43</sup> Rule 3.8.6A(e).

As a broad principle, the Commission considers that rules should not be made in response to a specific action or circumstance. The rule as proposed by the Rule Proponents may solve this particular issue. However, in doing so, the participation of one category of market participant - not just the SNSP in question - would be limited. The role of SNSPs in the NEM, as originally intended, would also change.

The Commission also notes that because of the way losses are treated, restricting SNSPs to a price floor of zero would simply reverse the priority of dispatch. In the event where the Latrobe Valley constraint binds and generators bid at, or close to, the market price floor, Latrobe Valley generators would be dispatched ahead of Hydro Tasmania.

## **6.5 Conclusion**

The Rule Proponents are concerned that negative offers from SNSPs can cause some generators to have an effective offer that is below the market floor price, undercutting other generators.

The Commission considers that the issue raised by the Rule Proponents is not a direct consequence of the ability of an SNSP to make negative offers. Rather, additional factors specific to the only SNSP currently operating in the NEM also contribute. These are: Hydro Tasmania's dominant position in the Tasmanian electricity market; the commercial agreement between Hydro Tasmania and Basslink that permits the former to direct the latter's offers; bidding behaviour during times of network constraint; and the treatment of losses.

Given the current role of SNSPs in the NEM, whereby they are able to actively compete in the market by offering non zero prices, we do not consider that a rule should be made that effectively limits the behaviour of all (including potential future) SNSPs due to this specific situation.

The Commission's draft decision is that SNSPs will not be restricted from making negative price offers.

## 7 SNSP market floor price

As outlined in Chapter 5.1.2, there is no lower limit or market floor price in the NER that currently applies to SNSP offers. In order to validate offers from SNSPs, AEMO sets a price floor of  $-\$1,000/\text{MWh}$  in NEMDE.

Noting the Commission's draft decision in Chapter 6 that SNSPs should not be restricted from making negative offers, this chapter assesses whether a rule should be made to include a price floor that applies to SNSP offers and what the price floor should be.

### 7.1 Rule Proponents' view

The Rule Proponents note that SNSP offers are subject to an upper limit of the *market price cap*, but are not subject to any lower limit in the NER. IPRA and LYMMCo consider the absence of a lower limit for SNSP offers in the rules to be an oversight and "that this should be remedied, irrespective of the success of this proposal".<sup>44</sup>

### 7.2 Stakeholder views

Submissions from the Tasmanian Government and Hydro Tasmania discuss the merits of implementing a price floor for SNSP offers.

The Tasmanian Government noted that it is unclear where the authority for AEMO to constrain SNSPs' bids to  $-\$1,000/\text{MWh}$  comes from and that, should AEMO require a limit on negative bids for the operation of NEMDE, a floor of " $-1 \times \text{market price cap}$  could be considered".<sup>45</sup>

Hydro Tasmania considered that implementing a price floor for SNSP offers would not advance the NEO as "the outcome would be indifferent from a customer perspective".<sup>46</sup>

### 7.3 Analysis

The Commission's analysis is split into two parts. The first addresses whether a price floor for SNSP offers should be in the NER. As this is answered positively, the second considers what level the price floor should be set at.

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<sup>44</sup> IPRA and LYMMCo, Request for Rule Change: Scheduled Network Service Offers, 5 December 2011, p. 10.

<sup>45</sup> Tasmanian Government, Submission on rule change request, 15 May 2012, p. 2.

<sup>46</sup> Hydro Tasmania, Submission on rule change request, 7 May 2012, p. 5.

### 7.3.1 Should the NER contain a floor price for SNSP offers?

The Commission considers that key market parameters that directly influence participants' behaviour in the NEM, such as the market price cap and market floor price, should be contained in the NER and be subject to the statutory AEMC rule change process.

With no existing lower limit for SNSP offers in the rules, there does not appear to be any legal constraint on the minimum offers of SNSPs.<sup>47</sup> Implementing a market floor price provides certainty to current and potential future market participants with respect to the behaviour of SNSPs in the NEM. Improved certainty supports efficient decision making and contributes to the NEO by promoting the efficient operation of and investment in electricity services.

It is important to note that the Commission's consideration of this matter extends past simply establishing a price floor in the NER. Of equal weight is the certainty provided to market participants through ensuring that any future changes to any SNSP market floor price will follow the AEMC rule change process.

Given the original intent was for SNSPs to trade actively on the spot market on an equal basis with generators (as outlined in Chapter 6.4.4), and that the rules currently set out a specific requirement for SNSP offers when negative prices are employed,<sup>48</sup> the Commission considers that the lack of a lower price limit in the NER is an oversight and should be rectified.

Furthermore, in terms of consistency across each category of market participant, the Commission's view is that there is no obvious reason why there should not be a price floor in the NER for SNSPs, when there is for other market participants.

### 7.3.2 What level should the price floor be set at?

Upon establishing that a rule should be made to establish a price floor for SNSP offers in the NER, the Commission considered what would be an appropriate level for this parameter. The Commission considers that the existing *market floor price* definition in the NER should apply to SNSP offers.

As outlined in Chapter 4, our assessment approach took into account the principle of competitive neutrality, whereby, to the extent possible, the proposed rule would not advantage one technology above another. This market design principle is set out in the NER under rule 3.1.4(a)(3). Importantly, competitive neutrality should be seen as a framework around which decisions on changes in the NEM are made, not an outcome of itself. For instance, while all generators have the same price cap and price floor, the relative competitiveness of different technologies depends on market conditions.

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<sup>47</sup> As noted above, AEMO operationally restricts SNSP offers to a lower limit of -\$1,000/MWh.

<sup>48</sup> Rule 3.8.6A(e).

The Commission has also given weight to the original intent of SNSPs when they were introduced in the rules. In this respect, and as outlined in Chapter 4 and Chapter 6, the Commission has not sought to revisit, or develop an assessment framework that seeks to address, the role of SNSPs in the NEM. We consider such a fundamental question to be outside of the scope of this rule change proposal, which has been prompted by a specific set of circumstances.

Given that the original intent was for SNSPs to compete on an equal basis with generators and scheduled load, and be subject to the same rights and obligations applicable to generators, the Commission is not, at this time, convinced of the merits of establishing a price floor that is unique to SNSPs. We consider that any such change would alter the role of SNSPs in the NEM and should be the subject of a wider ranging review.

The Commission notes that in the specific circumstance raised by the Rule Proponents, Hydro Tasmania appears to be able to use its position in Tasmania, in conjunction with its agreement with Basslink, to be dispatched ahead of the Latrobe Valley generators under certain network conditions. Nonetheless, the Commission considers that the ability for SNSPs to offer negative prices is not the primary driver of this situation (as outlined in Chapter 6).

Fundamentally changing the operation of the SNSP category of market participant would be a disproportionate response to the issue raised by the Rule Proponents and outside of the scope of this rule change request. If, as canvassed by Alinta,<sup>49</sup> there is a perception that overall market efficiency could be increased by restricting SNSPs from making non zero offers, then this proposition should be tested in a broader context and subject to a future review.

Finally, it is important to note that the Commission is not necessarily of the view that different price caps and price floors for market participant categories should be ruled out indefinitely. However, this would be a substantial change to the existing approach in the NEM and is considered to be outside of the scope of this rule change process.

## 7.4 Conclusion

Establishing a lower price limit for SNSP offers in the NER will increase certainty around this parameter for all market participants during times of network constraint. By applying the existing *market floor price* definition to SNSP offers, the Commission is seeking to ensure that the NER, in the absence of a sound NEO reason for doing so, does not advantage one market participant above another in the way that they are able to make offers. This is appropriate given the original intent and current role of SNSPs in the NEM.

The Commission's draft decision is that a lower price limit for SNSP offers should be prescribed in the NER and should be the *market floor price* as defined in the NER.

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<sup>49</sup> Alinta Energy, Submission on rule change request, 3 May 2012.

To the extent there is the prospect of future investment in SNSPs, SCER may wish to consider reviewing whether the current role of SNSPs in the NEM remains appropriate.

## Abbreviations

AEMO	Australian Energy Market Operator
BSA	Basslink Services Agreement
Commission or AEMC	Australian Energy Market Commission
NECA	National Electricity Code Administrator
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective
NER	National Electricity Rules
Rule Proponents	IPRA (now GDF SUEZ Australian Energy) and LYMMCo
SCER	Standing Council on Energy and Resources
TFR	Transmission Frameworks Review

## A Summary of issues raised in submissions

Stakeholder	Issue	AEMC Response
Australian Energy Market Operator	The concerns raised by the Rule Proponents are similar to those being raised through the AEMC's Transmission Frameworks Review. Package 2 or package 4 of the Transmission Frameworks Review presents an opportunity to resolve these issues in the long term (p. 1).	SCER is currently considering the Transmission Frameworks Review recommendations.
Australian Energy Regulator	An enduring solution to the problem highlighted by the Rule Change Proponents should be considered as part of the Transmission Frameworks Review (p. 2).	As above, SCER is currently considering the Transmission Frameworks Review recommendations.
Alinta Energy	Alinta Energy suggests that the AEMC expand its analysis to look at the wider inefficiencies created by allowing SNSPs to transport energy at any price other than zero (p. 6).	Examining whether the current role of SNSPs remains appropriate is outside of the scope of this rule change proposal. To the extent there is the prospect of future investment in SNSPs, SCER may wish to consider reviewing whether the current role of SNSPs remains appropriate, given some of the issues raised in submissions.
Basslink	<p>Rule change proposal is a disproportionate response aimed at the only SNSP in the market and one that may have lasting consequences for future interconnector investment (p. 4).</p> <p>SNSP owners should be allowed to recover the substantial investments through mechanisms open to every scheduled participant type (p. 2).</p>	<p>In assessing the rule change request, the AEMC has noted the issues specific to Basslink, but considered the proposed rule in the broader context of the overarching intent of SNSPs in the NEM.</p> <p>Given the current role of SNSPs in the NEM, the AEMC does not consider that a rule should be made that effectively limits the behaviour of all (including potential future) SNSPs.</p>
Hydro Tasmania	A blanket ban on negative bidding by SNSPs cannot be specifically targeted at Basslink and would have to be justified even if Basslink were	As noted above, the AEMC has considered the proposed rule in the broader context of the overarching role of SNSPs in the NEM.

Stakeholder	Issue	AEMC Response
	<p>exempt (p. 2).</p> <p>Restricting negative bidding would remove one tool with which SNSPs have to maximise their revenues and minimise risks in the market. Making the proposed rule would make it less likely that SNSPs will be built (p. 8)</p> <p>Making the proposed rule would introduce sovereign risk to all future SNSP developers. This would likely introduce unacceptable risks to developers and reduce the likelihood of future SNSP projects in the NEM (p. 9).</p> <p>Introducing a lower limit for SNSP offers would not advance the NEO as the outcome would be indifferent from a customer perspective (p. 5).</p>	<p>As noted above, given the current role of SNSPs in the NEM, whereby they can actively compete with generators and scheduled load, the AEMC does not consider that a rule should be made that restricts this behaviour.</p> <p>Sovereign risk is not an issue in this instance as the draft determination is not proposing a retrospective change to the effective operation of SNSPs.</p> <p>The AEMC considers that a lower limit on SNSP offers should be prescribed in the NER and that this should be the existing <i>market floor price</i> definition. The reasons are outlined in Chapter 7.</p>
IPRA and LYMMCO	<p>Clarified the effect of losses on the rule change proposal when the Latrobe Valley transmission constraint is binding, which was discussed in the AEMC consultation paper (p. 1).</p> <p>Noted that while the price impacts of negative bidding is possibly a wealth transfer, the effect can be costly and pose risks that cannot be managed effectively (p. 3).</p>	<p>The AEMC has addressed the issue raised around the calculation of losses in Chapter 6.4.3 and in Appendix B. A consultant's report on the subject has also been published on the AEMC website with this draft determination.</p> <p>The AEMC notes that restricting Basslink from making negative price offers would effectively reverse the order of dispatch. This is due to the different way that losses are calculated for generators and SNSPs.</p> <p>The AEMC considers that, given the infrequent number of trading intervals where Basslink has made negative price offers in the northward direction, and the capacity of Basslink relative to the much larger capacity of the Latrobe Valley, restricting the ability of the SNSP category of market participant to make negative offers is a disproportionate response to the issue. Further analysis is in Chapter 6.4.4.</p>

Stakeholder	Issue	AEMC Response
National Generators Forum	Fundamental issue is whether generators should own/control transmission or SNSPs; and whether there is too great a concentration of generation in Tasmania. Recognise that these issues should be considered by legislators and competition regulators, not the AEMC (p. 2).	As noted by the National Generators Forum, recommending changes to market structure, ownership and/or commercial agreements is outside of the scope of the AEMC's rule making power.
Origin Energy	<p>Rules that discriminate between technology types are likely to discourage investment and lower the options available for intra and inter-regional electricity supply (p. 1).</p> <p>Origin does not support the rule change proposed by the Rule Proponents as "imposing discriminatory bidding restrictions on SNSPs runs counter to the principle of competitive neutrality" (p. 2).</p>	The AEMC has determined not to make the proposed rule and to make a more preferable rule that imposes a lower price limit of the existing <i>market floor price</i> on SNSP offers. Therefore, the principle of competitive neutrality has, to the extent possible, been supported through this draft determination.
Tasmanian Government	<p>No reason to treat SNSPs and generators differently as both are attempting to maximise dispatch during periods of high prices.</p> <p>Any change in the rules ex-post the investment in Basslink would manifest a regulatory risk to the detriment of Basslink and would be deterrent to any and all other investors in major infrastructure in the NEM (p. 1).</p> <p>Tasmanian Government is of the view that if a floor price for SNSPs is required, then -1*market price cap could be considered (p. 2).</p>	<p>The AEMC has given weight to the original intent of, and the existing rules framework for, the operation of SNSPs in the NEM. That is, that SNSPs can trade actively on the spot market on an equal basis with generators and scheduled load.</p> <p>This draft rule determination is not making any significant changes to the operating rules for SNSPs; therefore, there is no regulatory risk associated with the Basslink investment as a result of this draft rule determination.</p> <p>The AEMC considers that SNSPs should be subject to a price floor. Key market parameters, such as the market floor price, should be contained in the NER and subject to the statutory AEMC rule change process. Given the current role of SNSPs in the NEM, the existing <i>market floor price</i> definition in the NER should apply to SNSP offers. The reasoning is</p>

Stakeholder	Issue	AEMC Response
		outlined in Chapter 7.
TRUenergy	<p>Supports the rule change proposal as does not consider that the Basslink Services Agreement should allow a particular market participant to gain preferential treatment over another.</p> <p>Recognise the effect of the rule change proposal would be to change the category of SNSP market participant, but considers this should not be an impediment as there are no other proposed SNSPs (p. 2).</p>	<p>In assessing the rule change request, the AEMC has noted the issues specific to Basslink as the only current SNSP in the market, but considered the proposed rule in the broader context of the overarching intent of SNSPs in the NEM.</p> <p>The AEMC is aware that this rule change proposal would impact any future SNSPs and considers that resolving the issue raised by the Rule Proponents through a blanket restriction on the bidding behaviour of SNSPs would be disproportionate. This is because it would imply a significant change to the original intent and current role of SNSPs in the NEM.</p> <p>To the extent there is the prospect of future investment in SNSPs, SCER may wish to consider reviewing whether the current role of SNSPs remains appropriate, given some of the issues raised in submissions.</p>

## **B Significance of the treatment of losses in the draft rule change determination**

### **B.1 How does the treatment of losses relate to the rule change proposal?**

The issue identified by IPRA (now GDF SUEZ Australian Energy) and LYMMCo (Rule Proponent) relates to the dispatch offers that a scheduled network service provider (SNSP) can make when it is competing with a generator. This is particularly relevant in the presence of a transmission network constraint that limits the combined output of one or more generators and an SNSP. Under this scenario, the generators and the SNSP behind the network constraint have an incentive to offer their capacity at as low a price as possible in order to maximise their dispatch, and hence their revenue. The incentive to make very low offers is particularly strong when there is a high price at the associated regional reference node (RRN). This phenomenon is often referred to as "below-cost bidding".<sup>50</sup>

In a situation of below-cost bidding, a generator is limited to submitting an offer that is no lower than the market price floor (with reference to its RRN), currently set at  $-\$1,000/\text{MWh}$ . Conversely, an SNSP's offer is with reference to a price difference between the importing and exporting regions. The lower limit for an SNSP's offer is not limited by the rules, although AEMO imposes the limit of  $-\$1,000/\text{MWh}$  for operational reasons. This means that when there is a negative price in the exporting region, the combined exporting generator and SNSP offer can be lower than the generators offering their output at the market floor price in the importing region. As discussed later in this appendix, the dispatch offers from generators and SNSPs are also affected by the presence of transmission losses, particularly in the presence of a transmission constraint.

The Rule Proponents cited the Latrobe Valley as the only current example in the NEM of a below-cost bidding associated with an SNSP. Basslink, the only SNSP in the NEM, is connected in the Latrobe Valley at the same location as many of the Victorian generators. Basslink and the Latrobe Valley generators can be behind a constraint in the Victorian network that restricts their access to the Victorian RRN. The presence of high demand and a restriction on the output of many Victorian generators can lead to a high price at the Victorian RRN, which incentivises Basslink and the Latrobe Valley generators to engage in below-cost bidding in order to increase their revenue.

The situation of Basslink is further complicated by the structure of Basslink and the Tasmanian market structure (as discussed in Chapter 5 of the draft rule determination). Hydro Tasmania is both able to:

- transiently set the price in Tasmania to the market floor price as it operates the majority of Tasmanian generators; and

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<sup>50</sup> Below-cost bidding was analysed as part of the AEMC's Transmission Frameworks Review.

- direct Basslink’s dispatch offers.

This effectively gives Hydro Tasmania the ability to offer the output of its Tasmanian generators into the Latrobe Valley at -\$2,000/MWh, if the impact of losses is ignored. This gives Hydro Tasmania an advantage through the NEM dispatch process over the Latrobe Valley generators when there is a network constraint between the Latrobe Valley and Melbourne.

The Rule Proponents sought to rectify this perceived advantage for Hydro Tasmania by limiting the allowable dispatch offers from SNSPs to be no lower than \$0/MWh. While this would appear to give Hydro Tasmania and the Latrobe Valley generators the same effective lower limit for their offers, it can be shown that this is not the case due to the presence of losses and how they are represented in the National Electricity Market Dispatch Engine (NEMDE).<sup>51</sup>

The manner in which losses are treated and their associated impact on NEM dispatch is examined in this Appendix. Further explanation of the impact of losses is also available in the accompanying report by ACIL Tasman, in conjunction with SW Advisory.<sup>52</sup>

## **B.2 How are generator and SNSP losses treated in the NEM dispatch process?**

While the dispatch of generators and SNSPs in the NEM is primarily determined by their dispatch offers and constraints, the treatment of losses in the transmission network also influence their dispatch.

Transmission losses in the NEM are modelled in the NEMDE using marginal loss factors (MLFs) that represent the impact of the losses. AEMO calculates and publishes the MLFs annually.<sup>53</sup>

The manner in which MLFs are modelled in NEMDE and the associated AEMO market systems vary between the following situations:

1. losses associated with the transfer of energy from a generator’s connection point to the associated RRN;
2. losses associated with the transfer of energy through a SNSP between the RRNs in adjacent regions; and

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<sup>51</sup> NEMDE is the software used by AEMO to determine the dispatch of the NEMDE generators and SNSPs. It is based on a linear program algorithm with an objective function of maximising the value of spot market trade, which is equivalent to minimising costs energy bids and offers, offers for power transfers by SNSPs and dispatching ancillary service offers.

<sup>52</sup> “Calculation of Losses for Scheduled Network Service Providers”, prepared for the AEMC by SW Advisory and ACIL Tasman, 13 June 2013.

<sup>53</sup> The most recent list of MLFs calculated by AEMO, at the time of preparing this Draft Determination, are available in “List of regional boundaries and marginal loss factors for the 2013-14 financial year”, AEMO, Version 1.1, 30 May 2013.

3. losses associated with the transfer of energy through a regulated interconnector between the RRNs in adjacent regions.

This rule change assessment needs to consider the impact on dispatch of treating the losses associated with generators differently to the losses associated with transfers on a SNSP.

### **B.2.1 Treatment of losses for generators**

The losses for a generators are not directly modelled in NEMDE. Rather, the dispatch offers made for a generator are adjusted by dividing the original offers by the MLF for that generator, ie:

adjusted offer price = original offer price / MLF

Thus the total cost to the objective function in NEMDE of dispatching Y MW of a generator's offer is:

$Y \times \text{adjusted offer price} = Y \times \text{original offer price} / \text{MLF}$

If the generator is dispatched for Y MW and the spot price for that trading interval is  $P_{RRN}$  then the revenue received by the generator would be:

settlements revenue =  $(P_{RRN} \times \text{MLF}) \times Y$

That is, for each unit of its output the generator would receive the spot price  $P_{RRN}$  adjusted for transmission losses by multiplying it by the associated MLF.

The implication of this approach is that the regional demand in NEMDE is not adjusted for the impact of the generator's output on transmission losses. Rather, the impact of transmission losses is treated purely as a price scaling effect, that is, the RRN price is scaled by the MLF.

### **B.2.2 Treatment of losses for a scheduled network service**

The transmission losses associated with an SNSP can be divided into the following components:

1. inter-regional losses between the SNSP's connection points; and
2. intra-regional losses associated with the flow of power from the SNSP's connection point to the associated RRN.

In the case of Basslink, the first component of transmission losses corresponds to the losses within Basslink itself, ie between the two Basslink connection points. These

inter-regional losses are assumed to vary with the square of the flow on Basslink and are modelled as if they occurred at the connection point in the exporting region.<sup>54</sup>

The second component of transmission losses correspond to the intra-regional losses between the Latrobe Valley connection point for Basslink and the Victorian RRN. Note that there are no intra-regional losses in Tasmania associated with Basslink because the Basslink connection point in Tasmania is also the Tasmanian RRN.

While a flow into Victorian on Basslink has an equivalent impact on the Victorian transmission losses to the output of a generator in the Latrobe valley, it is not possible to represent these losses in the same manner within NEMDE. Rather, if Basslink delivers a quantity of power  $Y$  MW at the Latrobe Valley connection point, NEMDE will assume that  $Y \times \text{MLF}$  is delivered to the Victorian RRN. This means that NEMDE values this energy at  $P_{\text{RRN}} \times (\text{MLF} \times Y)$ , where  $P_{\text{RRN}}$  is the price at the Victorian reference node.<sup>55</sup>

The revenue received by Basslink for its imports into the Latrobe Valley is treated the same way as the revenue for a generator, ie:

$$\text{settlements revenue} = P_{\text{RRN}} \times (\text{MLF} \times Y)$$

### **B.3 What is the impact of SNSP losses and how does it affect the draft rule change determination**

The issues identified by the rule change proponent relate to whether the current rules and market structures favour imports via Basslink over the output from Latrobe Valley generators during periods of below-cost bidding, associated with a constraint in the transmission network in the Latrobe Valley.

The Rule Proponent proposes a change to the rules to prevent SNSPs making a negative dispatch offer. On the surface this would mean that both the output of the Latrobe Valley generators and import via Basslink would be offered at the market price floor of  $-\$1,000/\text{MWh}$ , if the Tasmanian price was also set at the market floor price.

The actual dispatch of an SNSP within NEMDE is more complicated than simply considering the price at the exporting regions reference node and the SNSP's dispatch offer. The dispatch is also impacted by:

1. the different treatment of intra-regional losses associated with SNSPs compared to losses for generators; and
2. inter-regional losses between the SNSP's connection points that varies with the square of the power transfer

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<sup>54</sup> A more detailed description of the treatment of SNSP losses is provided in the report "Calculation of Losses for Scheduled Network Service Providers", prepared for the AEMC by SW Advisory and ACIL Tasman, 13 June 2013.

<sup>55</sup> NEMDE also places a cost of the transfer from values the export from

This additional complexity needs to be considered when considering the likely impact of the proposed rule change to prevent SNSPs from making negative dispatch offers. The two important questions that need to be considered are:

1. what are the implications of SNSP losses if the proposed rule was made?
2. what are the implications if SNSP and generator losses were to be treated in the same way?

These questions are considered in turn in the next two sections.

#### **B.4 What are the implications of SNSP losses if the proposed rule was made?**

If the proposed rule was made then it would mean that Latrobe Valley generators would be dispatched ahead of imports from Basslink in the presence of below-cost bidding as a result of a network constraint and a high price at the Victorian RRN. This would occur because the different treatment of intra-regional losses associated with SNSPs compared to losses associated with generators.

The significant difference in NEMDE between the treatment of the output of generators and an SNSP behind a constraint is that the output of a SNSP is scaled by the MLF, whereas the output of the generator is not scaled. The MLF for Basslink and the Latrobe Valley generators is approximately 0.97, therefore, for every 1 MW imported on Basslink only approximately 0.97 MW is assumed to reach the Victorian RRN. The approximately 0.03 MW difference between the power entering the Victorian transmission network and the power assumed to reach the RRN is valued at the price at that RRN.<sup>56</sup> During periods of high price at the Victorian RRN, the losses of approximately 3 per cent are a significant bias against imports from Basslink.

Under the current rules, Basslink is able to make a negative offer that is able to more than overcome the bias caused by the treatment of Basslink intra-regional losses. Should the proposed rule be made, Basslink would no longer be able to overcome this bias and the output of Latrobe Valley generators would be favoured in NEMDE.

#### **B.5 What are the implications if SNSP and generator losses were to be treated in the same way?**

The issue identified by the Rule Proponents was whether the Latrobe Valley and Tasmanian generators should be competing on the same basis. The proponent's proposed rule, by limiting the dispatch offers for SNSPs, attempts to remove the ability for the combined Tasmanian generator and Basslink dispatch offer to be lower than the

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<sup>56</sup> This bias against SNSPs is discussed in more detail in section 3.13 of the report "Calculation of Losses for Scheduled Network Service Providers", prepared for the AEMC by SW Advisory and ACIL Tasman, 13 June 2013. Note that the report expresses the bias in terms of the constraint's shadow price, rather than a portion of the import being treated as a loss at the RRN. These two explanations are equivalent.

allowable dispatch offer for a Latrobe Valley generator. However, as shown in the previous section, the impact of the treatment of losses associated with a generator and an SNSP means that the proposed rule would not equalise their associated dispatch offers, rather it would favour Latrobe Valley generators.

### **B.5.1 Treating generator and SNSP losses in the same manner**

A potential alternative approach would be to change the treatment of losses associated with generators and SNSPs to be the same. In a report prepared for the AEMC, ACIL Tasman, with SW Advisory, considered two possible methods to achieve this:

1. Representing losses associated with generator in the same way as losses associated with SNSPs.
2. Including a full model of the transmission network in NEMDE.

Under the first option, the dispatch of all generators would be changed so that their output was scaled in NEMDE using the MLF. This would mean that a portion of the power (1-MLF) from the generator would not reach the associated RRN and this would be seen as a variation of the regional demand. Note that the generators' dispatch offers would not need to be scaled as they are currently.

Under the second option, a full network would be included within NEMDE. This would mean that network losses and the associated impact of loss factors would be recalculated each 5 minute dispatch interval when NEMDE runs. This would therefore mean that all losses, including those associated with generators and SNSPs, would be treated in the same way.

Both of the above alternative loss calculation models would require significant development costs. In addition, market participants and other stakeholders would need to make modifications to their systems. Furthermore, changes to the operation of NEMDE, and the specification of some input and output variables, would add complexity for AEMO, market participants and other stakeholders when understanding dispatch outcomes.

### **B.5.2 Implications for treating generator and SNSP losses in the same manner for Basslink**

The two proposed approaches would treat losses in the Victorian transmission network that are associated with imported power from Basslink in the same manner as losses associated with the output of Latrobe Valley generators. However, if adopted, this would not have the desired effect of treating imports from Basslink on the same basis as the output of Latrobe Valley generators.

While the losses in the Victorian transmission network associated with imports from Basslink and the output of Latrobe Valley generators could be treated in the same way, the imports from Basslink are also associated with the losses within Basslink itself.

Within NEMDE, these additional losses are valued by at the price at the Tasmanian RRN.

For an input of 600 MW from Basslink, the marginal Basslink loss would be approximately 0.121 MW per 1 MW incremental change in Basslink imports. This means that imports into the Latrobe Valley from Basslink would be priced at -\$1,121/MWh if the Tasmanian price was at the price flow. This is significantly lower than the allowable dispatch offer for a Latrobe Valley generator of about -\$970/MWh.<sup>57</sup> Therefore, even if Basslink was unable to make a negative offer, making the treatment of losses in the Latrobe Valley the same for both generators and SNSPs would still favour imports from Basslink, provided the price at the Tasmanian RRNs was at or near the market floor price.

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<sup>57</sup> The lowest dispatch offer that a generator is allowed to make for generator is -\$1,000/MWh once it has been referred to the RRN. With a MLF of approximately 0.97 for the Latrobe Valley generators, this means the lowest offer is approximately -\$970/MWh.