MARKET SUSPENSION CHANGE PROPOSALS – DISCUSSION PAPER

FOR DISTRIBUTION TO NEM MARKET SUSPENSION TECHNICAL WORKING GROUP

April 2017

AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

IMPORTANT NOTICE

Purpose

AEMO has prepared this document as a basis for discussion of issues relating to the suspension of the National Electricity Market, and proposals to amend associated rules, procedures or processes.

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EXECUTIVE SUMMARY

This paper discusses potential Rule changes, and, where appropriate, procedure and system changes, arising from the South Australian market suspension from 28 September to 11 October 2016.

It is designed to explain AEMO's views on the changes that could be made to address issues during the suspension, and to seek participant feedback on the soundness of these views. AEMO also welcomes feedback on any issues that should be included but which are not addressed in this paper.

AEMO's *Black System South Australia 28 September 2016 Final Report*[1] recommended investigations into a variety of issues that were highlighted by the length of the market suspension. The focus of those recommendations was on developing proposals to improve things that did not work as well as they might have during the market suspension. This paper is not a holistic review of the market suspension rules.

The changes that AEMO is considering are summarised below. These will be discussed at the market suspension technical working group meeting on Wednesday 19 April 2017.

[1] Available at: http://aemo.com.au/-/media/Files/Electricity/NEM/Market_Notices_and_Events/Power_System_Incident_Reports/2017/Integrated-Final-Report-SA-Black-System-28-September-2016.pdf

Minimum Stable Load

- Allow market response to negative prices, and if this causes a security issue, allow AEMO to intervene using constraints to ensure dispatch to minimum stable load
- AEMO is seeking views on the viability of participants using zero ramp down rates to manage the dispatch of scheduled generation above its minimum stable load

Market Suspension Pricing Regimes

Market Suspension Pricing Schedule

Propose Rule changes that allow:

- Dispatch pricing to be used in a suspended region and, if AEMO deems this is not possible, to use either pre-dispatch pricing (if a failure of the central dispatch process has occurred) or the market suspension pricing schedule.
- AEMO to resume normal dispatch pricing during a period of suspension when it deems conditions permit.

- AEMO to establish a set of principles for dispatch and pricing during a market suspension.
- AEMO to conduct a consultation on the calculation of the market suspension pricing schedule.

- Propose a Rule change advocating market suspension compensation provisions analogous to

- Propose a Rule change to harmonise price scaling during market suspension with other forms of price scaling
- Explore removing all forms of price scaling in the NEM.

Compensation

Price Scaling

CONTENTS

1. MINIMUM STABLE LOAD

1.1 The Issue

There were times during the market suspension when thermal generating units that were required to stay on-line to maintain power system security received dispatch targets below their minimum stable loads.[2] This is a general market issue[3], but was highlighted during the extended market suspension when:

- South Australian wind generation was high and South Australian demand was low.
- AEMO restricted exports from South Australia to Victoria to minimise market distortion in other regions.
- AEMO required a minimum of three synchronous generating units, each of not less than 100 MW, to be on-line at all times for power system security purposes.
- Market suspension pricing may have led to market participants bidding at low prices to maintain dispatch volumes in the knowledge this had no price impact.

The root cause of thermal generating units receiving dispatch instructions below their minimum stable load, even when they are required for system security, lies in the treatment of equal-priced offers in dispatch. NER 3.8.16 states:

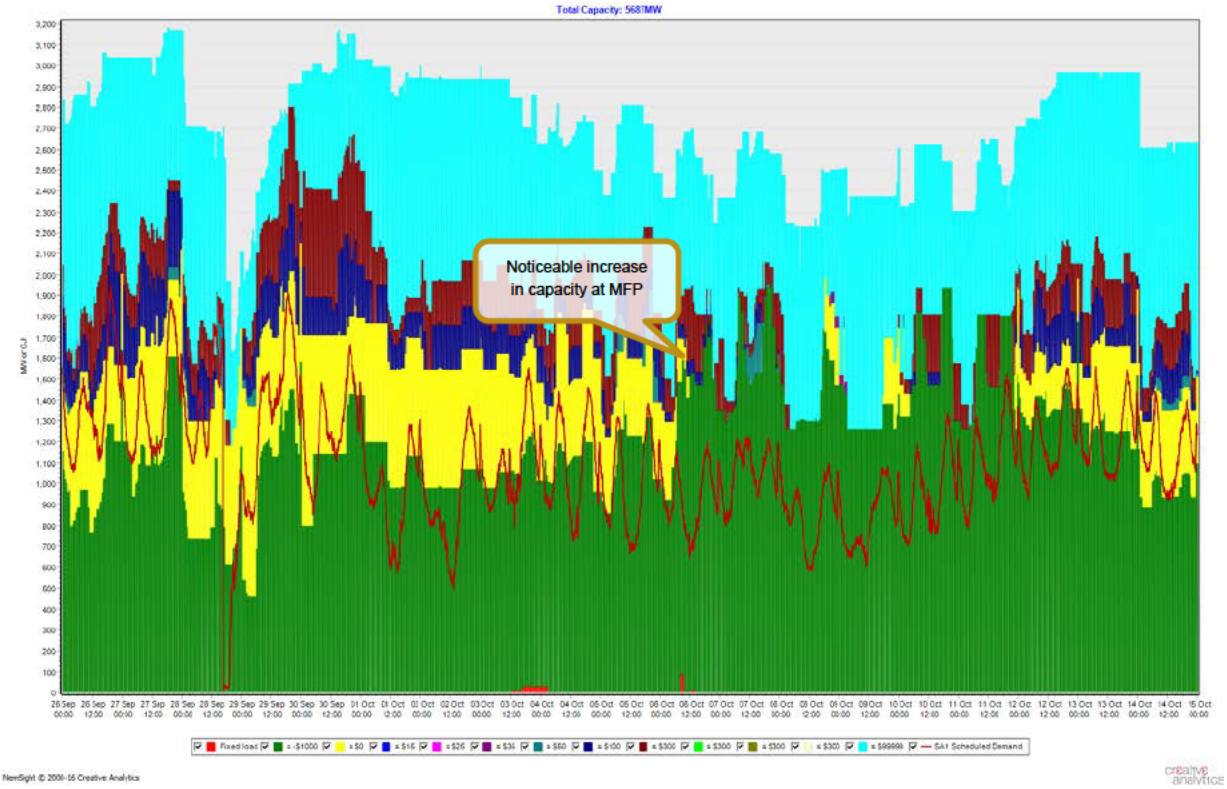
> If there are *scheduled generating units*, *semi-scheduled generating units* or *scheduled loads*, in the same *region*, for which the prices submitted in *dispatch bids* or *dispatch offers* for a particular *trading interval* result in identical prices at their *regional reference node*, then the MW quantities specified in the relevant *price bands* of those *dispatch bids* or *dispatch offers* must be *dispatched* on a pro-rata basis, where this can be achieved without imposing undue costs on any party, or violating other constraints.

In other words, equal-priced offers should be dispatched in proportion to the volumes offered. The dispatch of equal-priced offers usually occurs only if the offers come from different generating units within the same power station, or when multiple generating units offer power at the market floor price (MFP). The minimum stable load issue in South Australia occurred when multiple units offered power at the MFP – see Figure 1.

In South Australia, wind farms commonly offer their entire capacity at the MFP, whereas thermal generators typically offer only their minimum stable load at the MFP. When the sum of the capacity offered at the MFP exceeded South Australian demand, generators had their output targets reduced below the volume offered at the MFP on a pro-rata basis. This led to dispatch targets below the minimum stable load for some thermal generators.

[2] Most thermal generators have an output level below which they have a heightened risk of tripping. This is known as their minimum stable load.
[3] Although during normal market opera ion, a forecast excess of generation dispatched at or below their minimum stable load would suppress prices or even cause negative prices. As sustained operation at negative prices is unviable, the market would respond by de-committing the excess genera ion.

Figure 1: South Australia bids during market suspension



1.2 Options

During a market suspension, prices are not linked to dispatch and so no market signal exists to resolve an excess generation situation. This can result in generation bidding to the MFP to remain in-service but then at times getting pro-rata dispatched below their minimum stable load.

At these times, AEMO's preferred option is to allow participants to remain at their minimum stable load and rebid a zero ramp down rate to override the price-tie dispatch.

The AER's *Rebidding and Technical Parameters Guideline* (February 2017)[4] allows generators to rebid their ramp down rate to zero to avoid being dispatched below their minimum stable load, as long as this can be justified on the basis of a technical limitation.[5] Although this would be effective, it might place an administrative burden on synchronous generators to ensure the zero ramp rate is removed once dispatched above minimum stable load.

AEMO recognises this action might not resolve the underlying excess generation issue, particularly if all generators rebid their ramp down rates to zero, and total minimum stable load exceeds demand. If this causes a system security issue, AEMO would manage using security constraints or, as a last resort, intervene and manage using direction constraints.

Alternative solutions considered by AEMO include:

- automatically creating and applying minimum stable load constraints[6] for scheduled generating units (potentially submitted as part of their dispatch offer) in central dispatch.[7]

[4] https://www.aer.gov.au/wholesale-markets/market-guidelines/rebidding-and-technical-parameters-guideline-2017

[5] More precisely, the Guideline refers to a "minimum safe operating level", which the AER considers the level below which a generating unit would become unstable, after other technical responses have been exhausted (for example, auxiliary firing).

[6] These constraints should have a constraint violation penalty factor (CVP) greater than the CVP applying to tie-breaking constraints, but below the CVP applying to maximum availability constraints. In that way, pro-rating of offers priced at MFP would be violated before a scheduled generating

- modifying the central dispatch process so that scheduled generation priced at the MFP is dispatched ahead of semi-scheduled generation dispatched priced at the MFP.

It would also be technically possible to modify the central dispatch process so that offers priced at the MFP from scheduled generators were dispatched in preference to offers priced at the MFP from semi-scheduled generators. However, the volumes offered at the MFP from scheduled generators are not necessarily equal to their minimum stable loads. For example, a scheduled generator might offer more than their minimum stable load at the MFP to pursue volume after a high-priced dispatch interval. Consequently, this approach would confer an unfair advantage on scheduled generators over semi-scheduled generators.

- AEMO to seek working group view on the viability of participants using zero ramp down rates to manage their dispatch above minimum stable load.
- If this results in a system security issue, AEMO would manage using security constraints or, as a last resort, intervene and manage using direction constraints.

1.3 Working Group feedback – 19 Apr 2017

- Working group agreed with issues identified
- Working group agreed with AEMO's proposal for participants to rebid zero ramp down rate in accordance with AER Rebidding Guidelines, given market suspension period should be relatively short. Note the AER guidelines refer to any time generators get a dispatch target below their MSOL, and not just during market suspension.
- Participants have used this provision in the past [Henry Gorniak, Methsiri Aratchige, Ron Logan]; compliance is difficult but less than the costs of being decommitted.
- Working group agreed that outside market suspension, negative prices would be signal to decommit (for some units, three hours at MFP would be sufficient trigger) [Ron Logan]
- For consistency with the AER Rebidding Guidelines, use term "Minimum Safe Operating Level" (technical limit) rather than "Minimum Stable Load" [Henry Gorniak]
- Working group agreed that AEMO should produce a simple guide to dispatch and pricing during a system black, excluding settlements
- Market transparency issues during SA system black, need to be addressed (eg operational strategy discussion was not open to all market participants) [Ron Logan]
- Distinction between "Minimum Safe Operating Level" and minimum load in the Generator Performance Standard guidelines [Henry Gorniak]
- Suggestion that generator submits MSOL as part of their dispatch offer given it can be dynamic (fast start generators currently submit minimum load in their offer). However, unclear how this would be used – possibly in excess generation calculation [Ron Logan]

unit was dispatched below its minimum stable load, but a slow start scheduled generating unit would be dispatched below its minimum stable load (as it must be at some point) when it was coming on-line.

[7] Schedule 3.1 curren ly collects the maximum output and ramp rate data of individual generating units for offer validation. Minimum stable loads would not be collected for offer validation, so the title of Schedule 3.1 might also need to be adjusted.

2. MARKET SUSPENSION PRICING REGIMES

2.1 The Issue

The NER are often complicated and the market suspension pricing rules are no exception.

Figure 2 shows the decision-making framework for choosing between potential pricing regimes during market suspension, and highlights the path taken in the South Australia black system on 28 September. There are four possible pricing regimes, and these regimes cascade in one direction only, moving steadily further away from real-time dispatch pricing depending on the prevailing circumstances.

The possible pricing regimes are:

- Normal dispatch pricing [NER 3.14.5(c)].
- Pricing based on a neighbouring region [NER 3.14.5(e)], provided that:
    - Dispatch pricing in the suspended region is not possible.
    - Dispatch pricing continues in a neighbouring region.
    - There is an unconstrained interconnector between that neighbouring region and the suspended region.
    - There are no local FCAS requirements in the suspended region.
- Pre-dispatch pricing [NER 3.14.5(h)], provided that:
    - Dispatch pricing or neighbouring-region pricing have already been used during the market suspension.
    - Dispatch pricing and neighbouring-region pricing are no longer practical.
    - A current pre-dispatch schedule exists for the suspended region.
- Pricing based on the market suspension pricing schedule [3.14.5(j)], provided that dispatch pricing, neighbouring-region pricing, and pre-dispatch pricing are not (or are no longer) practical.

Once dispatch pricing is abandoned, the NER prevent a return to any earlier pricing regime, even if the conditions that would permit the earlier pricing regime are restored. For example, during the South Australian market suspension, participants were asked to offer their plant into AEMO's bidding systems and follow dispatch instructions from 5 to 11 October 2016. However, pricing during that period had to continue under the market suspension pricing schedule.

Additional complications include:

- For neighbouring-region pricing, there may be a choice of neighbouring region if the suspended region is connected by unconstrained interconnectors to more than one neighbouring region in which dispatch pricing continues. AEMO's procedure is to select the region whose interconnector flow to the suspended region has the greatest headroom[8]. The test for an unconstrained interconnector is complicated.
- Determining whether a pre-dispatch schedule is current, based on forecast and actual demands, constraints, and plant availabilities.

2.2 Options

AEMO considers that there may be advantages in simplifying the range of potential pricing regimes during market suspension, and to allow AEMO to resume normal dispatch pricing if conditions permit.

[8] Appendix A of System Operating Procedure SO_OP3706 "Failure of Market or Market Systems"

Market suspension is expected to be a rare, brief, and extreme event, and the increased certainty associated with a simpler approach would make it easier to manage.

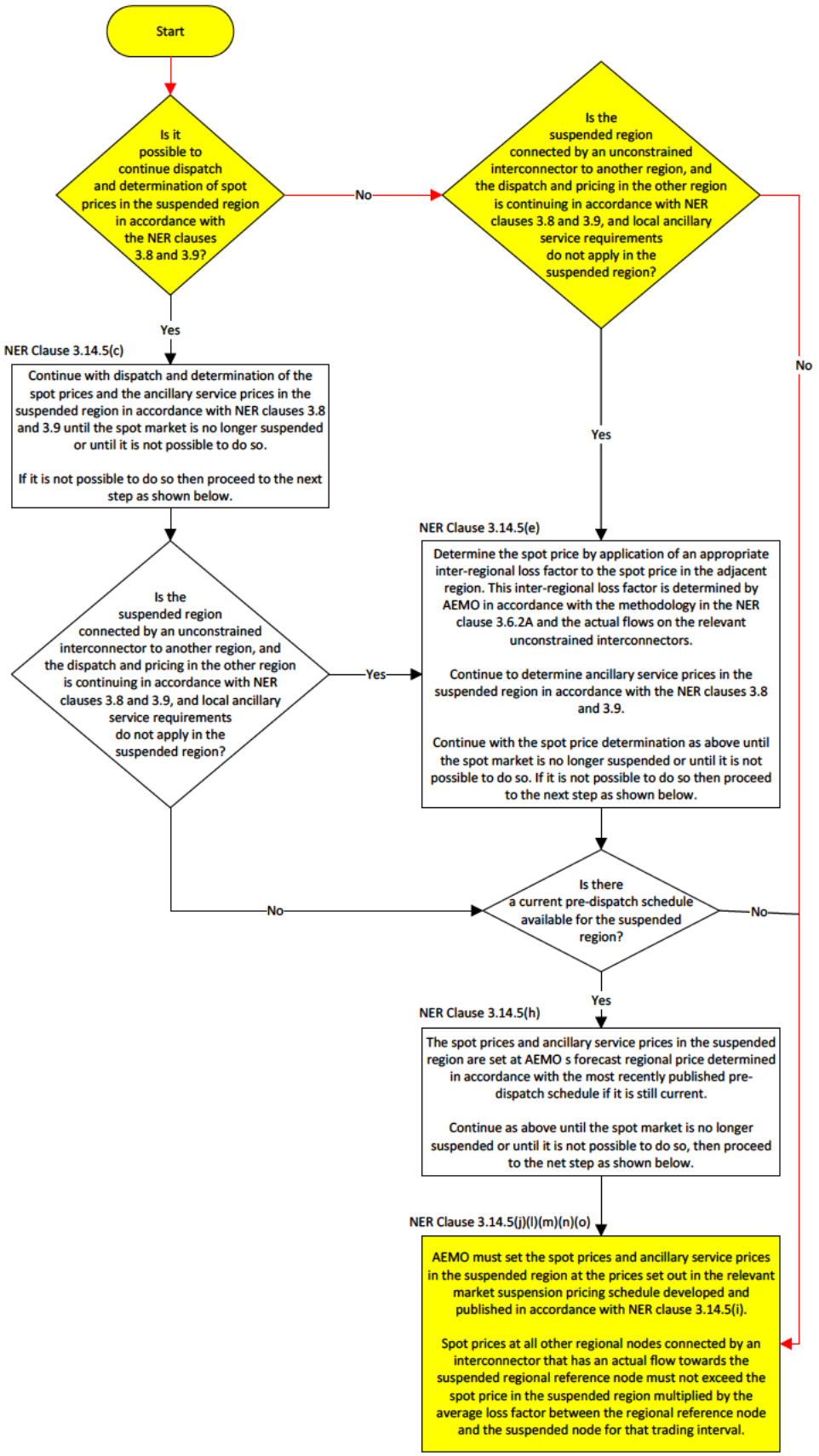
AEMO to propose Rule changes that allow:

- Dispatch pricing to be used in a suspended region or, if AEMO deems this is not possible, to use either pre-dispatch pricing (if a failure of the central dispatch process has occurred) or the market suspension pricing schedule (i.e. remove the option for neighbouring region pricing).
- AEMO to resume normal dispatch pricing when it deems conditions permit

2.3 Working Group feedback – 19 Apr 2017

- Working group agreed with issues identified
- Working group agreed with AEMO's proposal to remove pricing based on adjoining region (given difficulty in assessing which adjoining region to use (using Victoria suspended region as an example)
- Working group agreed with AEMO's proposal to pursue a Rule change to allow AEMO to revert to a higher pricing regime during a market suspension when it deemed conditions permit
- Working group felt that, if AEMO decides to revert to a higher pricing regime during a market suspension (eg from market suspension pricing to normal dispatch) that a minimum one hours' notice (at least two Pre-dispatch runs) should be provided to allow participants time to adjust positions and bids [Henry Gorniak / Methsiri Aratchige]
- There was no discussion of only using Pre-dispatch pricing for a failure of the central dispatch process and to otherwise use the market suspension pricing schedule.

Figure 2: Market suspension pricing logic and the path followed during the South Australian suspension



3. MARKET SUSPENSION PRICING SCHEDULE

3.1 The Issue

During a market suspension, NER clause 3.14.5(j) contemplates that AEMO may need to use market suspension pricing schedules, as occurred during the South Australian system black in September 2016.

NER 3.14.5(l) requires that these schedules contain prices reflecting "reasonable estimate of typical market prices during the periods to which the schedules relate".

The market suspension pricing schedule estimation methodology applies an unfiltered four-week sample of prices for each region. The lack of filtering means that the calculations include any recent price spikes (and, in the case of the energy market, any negative prices). This may be appropriate. For example, it might be reasonable to expect several price spikes within a four-week period during summer, particularly in South Australia or Queensland. However, during the South Australian suspension, it was noticeable that the market suspension pricing schedule contained some extremely high FCAS prices. The high FCAS prices were caused by local regulation FCAS requirements that existed before the market suspension, but were not invoked during the market suspension.

3.2 Options

There are several possible responses to this issue. They include:

- Doing nothing, on the basis that the current calculations provide the best available unbiased estimate of future prices.
- Filtering the prices used to calculate the market suspension pricing schedule to remove outliers.
- Moving from trading interval prices to simpler peak and off-peak prices for each region in the market suspension pricing schedule.

It might be useful to establish a set of objectives or principles for pricing during a period of market suspension to guide the design of the market suspension pricing schedule.

Such principles might include:

- Minimise incentives for disorderly bidding.
- Minimise the need for intervention by AEMO.
- Minimise the impact on non-suspended regions.
- Minimise windfall transactions between participants, thereby minimising risks.

AEMO seeks stakeholder views on these principles.

AEMO would then propose to conduct a consultation on the current estimated price methodology for the market suspension pricing schedule to gauge whether it remains appropriate or can be improved in light of recent experience [NER 3.14.5(l)].

- AEMO to establish a set of principles for pricing during a market suspension.
- AEMO to conduct a consultation on the calculation of the market suspension pricing schedule.

3.3 Working Group feedback – 19 Apr 2017

- Working group agreed with issues identified
- Working group supports automation of market suspension pricing
- Working group suggested that the major risk associated with the current methodology is the potential degree of volatility in the market suspension pricing schedule [Boris Basich]
- During SA market suspension, FCAS prices were volatile, exposing generators with FCAS hedge contracts to high financial losses [Boris Basich]
- Working group agreed that AEMO should explore options, including
  - filtering price outliers (10% and 90%)
  - average peak/off-peak prices
  - average for each season
  - average over rolling 12 month period [Boris Basich]
- Working group agreed with AEMO's proposal to conduct a consultation on the calculation of the market suspension pricing schedule to address these issues.

4. COMPENSATION

4.1 The Issue

The rules have compensation provisions for participants who operate at a loss during administered pricing [NER 3.14.6]. However, there are no analogous provisions in the market suspension pricing rules, despite the fact that the market suspension pricing schedule could reflect prices which provide generators little or no incentive to offer to supply power voluntarily.

Because the prices in the market suspension pricing schedule are known in advance, generators who are not willing to supply at those prices can bid unavailable and seek compensation if they are directed. However, AEMO regards the use of directions as a last resort, which should not in any way be incentivised by the market rules. The administration of directions both operationally and in terms of compensation is complex and resource-intensive, and can also have undesirable market outcomes. .

4.2 Options

- AEMO to propose a Rule change advocating market suspension compensation provisions analogous to the administered pricing compensation provisions.

4.3 Working Group feedback – 19 Apr 2017

- Working group agreed with issue identified
- Working group agreed with AEMO's proposal for a Rule change to introduce market suspension compensation provisions analogous to the administered pricing compensation provisions
- During SA market suspension, there was a great deal of goodwill from participants during the first few days. Unsure of the extent that allowing compensation would incentivise normal bidding behaviour during market suspension [Boris Basich]
- In relation to administered price cap compensation, what dispatch offer is used? [Henry Gorniak].

  AEMO's response:
  The NER and AEMC's APC compensation guidelines were updated in September 2016 to remove the reference to "dispatch offer" (which was ambiguous) with a new criteria based on net losses over an entire "eligibility period". The "eligibility period" starts from the first trading interval when the spot price is set by the administered price cap or administered floor price, until the last trading interval of that day.

5. PRICE SCALING

5.1 The Issue

When a region has its original energy price capped, floored or otherwise overridden, there are provisions in the Rules that require scaling of that energy price into adjoining regions. These provisions relate to the application of the market price cap and floor[9], administered price cap and floor[10], market price cap override[11] and the market suspension price override[12].

These Rules, developed at a time when negative inter-regional settlement residues were paid for by settlement residue unit holders, aimed to improve the firmness of the settlement residue unit as an inter-regional hedge instrument. These Rules were complemented by a general requirement for AEMO to manage the accumulation of negative inter-regional settlement residues at other times through constraints[13].

In July 2010, the Rules changed so that TNSPs in the downstream region became liable for negative inter-regional settlement residues, with the aim of further improving the firmness of the settlement residue unit, increasing competition in the inter-regional contract market, and removing AEMO's residual funding risk[14]. In conjunction with this, the threshold at which AEMO would intervene to manage accumulated negative settlement residues was increased from -$6,000 to -$100,000[15].

However, the price scaling provisions in the Rules remained unchanged, resulting in an inconsistent treatment in managing the accumulation of negative residues whereby:

- **During cap or override events**, the scaled-back price for upstream regions prevents any accumulation of negative residues, but also prevents the subsequent triggering of automatic negative residue management constraints that attempt to scale-back inter-regional flows[16] while ensuring consistent dispatch and pricing. Price scaling can cause losses for upstream generators dispatched above the scaled price[17], potentially giving rise to compensation claims under the Rules[18] or (in the case of market suspension, where there is no compensation) the threat of withdrawing capacity to ensure being directed and receiving direction compensation.
- **At other times,** some accumulation of negative residues is allowed before automatic negative residues management constraints attempt to scale-back inter-regional flows to manage further accumulation while ensuring consistent dispatch and pricing.

Notwithstanding this inconsistency, if price scaling provisions were to be retained, there remain a number of other inconsistencies between the price scaling provisions for market suspension and other price scaling provisions in the NEM.

[9] NER 3 9.5(c) and 3.9.6A(c)
[10] NER 3.14.2(e)(2) and (e)(4)
[11] NER 3 9.5(c)
[12] NER 3.14.5(h) and (m)
[13] NER 3 8.1(b)(12) and 3.8.10(c)(5)
[14] Because settlement residue payments to unit holders were floored to zero, and any residual negative residue liability not covered by auction proceeds was carried forward into future auctions
[15] From 1 July 2010
[16] Noting that this constraint will be overridden to maintain power system security and reliability
[17] For example, during the dispatch interval ending 0625 hours on 4 October 2016, power was flowing from Queensland through New South Wales and Victoria to South Australia. Under the existing Rules, because the South Australian market was suspended, prices in Queensland, NSW and Victoria were all scaled from around $150/MWh to just over $60/MWh. Put another way, over 19,000 MW of demand was repriced to less han half its original value due to a flow of just over 100 MW from Victoria to South Australia.
[18] NER 3.14.6

For example:

- The trigger for price scaling during market suspension is "actual flow" towards a suspended region, whereas for other forms of price scaling, the trigger is "energy flow".[19,20]
- There is no provision for price scaling if energy flows are away from the suspended region.[21]
- Price scaling during market suspension is applied to spot prices, whereas other forms of price scaling are applied to dispatch prices.[22]
- Price scaling during market suspension refers to flows on an "*interconnector*", whereas other forms of price scaling refer to flows on "a *regulated interconnector*".[23]

5.2 Options

AEMO considers there is potential to remove all price scaling during market suspension or any other price cap, floor or override event. This would allow AEMO to manage the accumulation of negative settlement residues through the use of automated negative residue management constraints while maintaining consistent dispatch and pricing. The Rules for funding negative inter-regional residues have shifted the liability from settlement residue unit holders and AEMO to downstream TNSPs, but the price scaling rules have not reflected this change.

If price scaling during market suspension is retained, then AEMO proposes that it be harmonised with other forms of price scaling in the NEM, so that:

- Price scaling is based on dispatch prices rather than trading prices.
- Price scaling occurs only between regions connected by regulated interconnectors.
- The trigger for price scaling is target flow rather than actual flow, since target flows set prices in the neighbouring region.

Harmonising all forms of price scaling in the NEM would also remove an obstacle to automating market suspension pricing in real time. Automating market suspension pricing in real time would reduce manual workload and the attendant risk of human error during an extended market suspension.

- AEMO to propose a Rule change to harmonise price scaling during market suspension with other forms of price scaling
- AEMO to explore removing all forms of price scaling in the NEM.

5.3 Working Group feedback – 19 Apr 2017

- Working group agreed with issues identified with inconsistent price-scaling treatment in Rules
- Working group agreed with AEMO's proposal for a Rule change to harmonise price-scaling, and to allow market suspension pricing on a dispatch interval basis to facilitate automation

[19] NER 3.14.5(e), (m) versus NER 3.9.5(c), 3.9.6A(c), 3.14.2(e)(2), and 3.14.2(e)(4).
[20] NER 3.14.5(m) also seems to envisage connection between the suspended region and a neighbouring region by only one interconnector. South Australia is connected to Victoria by two interconnectors: Heywood and Murraylink. Furthermore, flows on these two interconnectors are often in opposing direc ions.
[21] This was not an issue during the South Australian market suspension because exports from South Australia were suppressed by constraints. However, it may not be feasible to restrict exports from a larger suspended region while maintaining power system security.
[22] NER 3.14.5(e) and 3.14.5(m) versus NER 3.9.5(c), 3.9.6A(c), 3.14.2(e)(2), and 3.14.2(e)(4).
[23] NER 3.14.5(e) and 3.14.5(m) versus NER 3.9.5(c), 3.9.6A(c), 3.14.2(e)(2), and 3.14.2(e)(4).

- Working group disagreed with the option of price-scaling from adjoining downstream region into suspended region, given issues identified in section “market suspension pricing regimes” and the potential for “flip-flopping” from one regime to another based on flow direction [Ron Logan]
- Working group want more impact analysis from AEMO on the option to remove all price-scaling, particularly where security constraints override the automated negative residue management process during a prolonged administered pricing period (although this happens now) [Ron Logan]

Minutes

MEETING:	AEMO Market Suspension Technical Working Group Meeting #2
DATE:	Friday, 8 May 2015
TIME:	1.00 pm – 3.00 pm (AEST)
LOCATION:	Video and Teleconference; Melbourne – Level 22, 530 Collins Street Melbourne (Boardroom) Sydney – Level 2, 20 Bond St Sydney (Boardroom) Brisbane – Level 10, 10 Eagle Street Brisbane (Fraser Room)
TELECONFERENCE:	Toll free: 1800 055 132 Conference ID: 34863194

ATTENDEES:

NAME	COMPANY / DEPARTMENT
Laura Walsh (Chair)	AEMO
Michael Sanders	AEMO
Ross Gillett	AEMO
Tjaart Van Der Walt	AEMO
Basilisa Choi	AEMO
Kirsty Camilleri	AEMO
Sarah-Jane Derby	AEMC
Claire Rozyn	AEMC
Joanna Gall	AER
Rebecca Macgregor	AER
Boris Basich	AGL
Henry Gorniak	CS Energy
Ron Logan	ERM Power
James Googan	Origin Energy
Jonathon Dyson	Greenview Strategic Consulting
Steve Frimston	Engie

APOLOGIES:

NAME	COMPANY / DEPARTMENT
Chrys Chandraraj	Alinta
Craig Oakeshott	AER
David Scott	CS Energy
Chris Deague	Engie
Methsiri Aratchige	Origin Energy
Rick Haines	Woolnorth Wind

1. Proposed Rule changes and Operating Procedure changes

Michael Sanders discussed the proposed Market Suspension Rule changes in four areas:

1. Simplify the choice of pricing regimes:
    a. eliminate neighbouring-region pricing
    b. use pre-dispatch pricing if AEMO systems failure and pre-dispatch is current
    c. use market suspension pricing schedule if black system, or otherwise impossible to price and dispatch the market normally and pre-dispatch is not current
2. Ability to revert to normal dispatch pricing, regardless of whether the market remains suspended due to jurisdictional direction
3. Harmonise price scaling rules during market suspension with existing price scaling rules for MPC/MFP, APC/AFP
4. Permit participant compensation during market suspension, similar to existing rules for compensation during administered pricing

Michael noted that changes to operating procedures would be consequential to the Rule change and were not discussed at this meeting.

The Group broadly supported the proposed rules, and provided the following comments:

1. Simplify the choice of pricing regimes

The Group broadly supported the proposed rules at the previous meeting. No further feedback at this meeting.

2. Ability to revert to normal dispatch pricing

The Group broadly supported the proposed rule at the previous meeting. Feedback at this meeting:

- Rules should clarify that AEMO cannot return to Pre-dispatch pricing after pricing using the Market Suspension Pricing Schedule [Ron Logan]

3. Harmonise price scaling rules

The Group broadly supported the proposed rules at the previous meeting. No further feedback at this meeting.

4. Permit participant compensation

The Group broadly supported the proposed rules at the previous meeting. No further feedback at this meeting.

The Group also supports a review of the calculation of the Market Suspension Pricing Schedule [Ron Logan, Steve Frimston, James Googan]

2. Proposed 'Guide to Market Suspension' AEMO webpage

Ross Gillett discussed the proposed "Guide to Market Suspension in the NEM" webpage.

The Group broadly supported the proposed webpage, with the following feedback:

Resumption of Spot Market

- Group noted that the estimated time for resuming the spot market could be better communicated
- Should the Rules or AEMO Operating Procedure prescribe a minimum notice period[1] (eg 4 hours), a target resumption time (eg 0400 hrs) or allow AEMO to consider market readiness criteria in consultation with participants? This might include allowances for plant start-up times, avoiding periods of rapid demand changes, avoiding cumulative price threshold exceedance. [Boris Basich/Ron Logan]
- The pre-requisites for resuming the spot market should be defined in AEMO Operating Procedure [Henry Gorniak]
- Group questioned the need to extend a market suspension if "AEMO is satisfied that there is minimal possibility of suspending the market within the next 24 hours due to the same cause"[2].
    - AEMO: this avoids market uncertainty due to prematurely shifting back to normal pricing then re-applying market suspension pricing
- If the market is suspended for reasons within AEMO's control (for example, due to AEMO IT failure) then the minimum notice period could be reduced [Boris Basich]

Communications during Market Suspension

- Remove reference to "Emergency Messaging System" as no longer used [Tjaart, Henry Gorniak]

Dispatch Instruction versus Direction

- During the SA market suspension, one wind farm thought that AEMO was directing them rather than requesting they following dispatch instructions. AEMO should clarify the difference between operating under suspension and directing [Jonathan Dyson]

[1] NER 3.14.4(d) requires that AEMO provide advance notice of the time at which the spot market is to resume, but does not specify any minimum notice period or other market readiness criteria.
At the previous meeting, some Group members considered a minimum one hours' notice (at least two Pre-dispatch runs) should be provided to allow participants time to adjust positions and bids

[2] Defined in AEMO Operating Procedure SO_OP_3706 - Failure of Market or Market Systems

    - AEMO has developed a standard script to be used when AEMO issues a direction to a participant under NER 4.8.9 , which will be consistent with participant notice to the directed participant [Tjaart van Der Walt]
- Group questioned whether an instruction to deliver non-market ancillary service (eg system restart) is a direction.
    - AEMO: unless under an SRAS contract, this is a direction

3. Proposed Market Systems changes

Ross Gillett discussed proposed market systems changes relating to automating the existing manual process, including:

- Automatically publish market notices on the commencement of a market suspension, the resumption of the spot market and what suspension pricing regime to apply
- Automate the manual suspension pricing process where practical, aligning with other automated price revision processes for MPC, MPC Override and Administered Price Capping/scaling)
    - Market Suspension prices would be overridden by an MPC Override (if active) and then capped by an Administered Price Cap (if active)
- Create new Estimated Price Schedule tables in the NEM database (internal) and automatically calculate schedule weekly or on change
- Create new Estimated Price Schedule reports and automatically publish weekly or on change to participants and the AEMO website
- Create new Estimated Price Schedule tables in the participant database and automatically update using the above reports
- Create and automatically update to the AEMO website a summary of prospective prices from the relevant Estimated Price Schedule and Pre-dispatch Scheduled (if selected) for suspended regions
- Suppress the automatic monitoring for manifestly incorrect inputs during a market suspension, potentially for all regions (to be advised)
- Fixes to ensure consistent reporting of market suspension price revision flags

Ross agreed to circulate a summary of the proposed changes prior to the next working group meeting.

The Group provided the following feedback:

Market Notices

- Group suggested that an AEMO webpage link to the proposed ‘Guide to Market Suspension’ could be included in market notices relating to market suspension

Price Revision Sequence

- MPC Override price should not override market suspension pricing [Boris Basich]
    - Ross Gillett clarified the automated process would only do this if AEMO applied an MPC Override, and this might be required if normal dispatch pricing were underway during a market suspension period. This will be clarified in AEMO Operating Procedure SO_OP_3706 - Failure of Market or Market Systems

4. Way Forward

Laura Walsh outlined way forward:

- AEMO to update the proposed Rule changes (to clarify that AEMO cannot return to Pre-dispatch pricing after pricing using the Market Suspension Pricing Schedule) and circulate to working group before next meeting
- AEMO to update the proposed 'Guide to Market Suspension' AEMO webpage to reflect discussion, and circulate to working group before next meeting

5. Other Business

- During SA system black, bad quality SCADA MW for an SA wind farm disconnected from the network was (by design) substituted by its previous dispatch target, resulting in market distortion [Jonathon Dyson]
    - AEMO proposes to include the following statement on the proposed AEMO webpage:

      "During a market suspension, generating unit SCADA MW data published by AEMO might be unreliable and substituted by the unit's previous dispatch target"

6. Next Meeting

9.00 am – 12.00 pm (AEST)
Wednesday 7 June 2017

Minutes

MEETING:	AEMO Market Suspension Technical Working Group Meeting #3
DATE:	Wednesday, 7 June 2017
TIME:	9.30 am – 12.00 pm (AEST)
LOCATION:	Video and Teleconference; Melbourne – Level 22, 530 Collins Street Melbourne (Wattle Room) Sydney – Level 2, 20 Bond St Sydney (Boardroom) Brisbane – Level 10, 10 Eagle Street Brisbane (Fraser Room)
TELECONFERENCE:	Toll free: 1800 055 132 Conference ID: 35038922

ATTENDEES:

NAME	COMPANY
Laura Walsh (Chair)	AEMO
Michael Sanders	AEMO
Ross Gillett	AEMO
Brian Nelson	AEMO
Basilisa Choi	AEMO
Kirsty Camilleri	AEMO
Boris Basich	AGL
Henry Gorniak	CS Energy
Ron Logan	ERM Power
Methsiri Aratchige	Origin Energy
Jonathon Dyson	Greenview Strategic Consulting
Chrys Chandraraj	Alinta

APOLOGIES:

NAME	COMPANY
Tjaart van der Walt	AEMO
Sarah-Jane Derby	AEMC
Craig Oakeshott	AER
Joanna Gall	AER
David Scott	CS Energy
Chris Deague	Engie
Steve Frimston	Engie
James Googan	Origin Energy
Rick Haines	Woolnorth Wind

1. Welcome / Confirm Agenda / Previous Minutes

Laura Walsh (AEMO) welcomed participants to the third Market Suspension Working group session and the agenda was confirmed. The group noted and accepted the minutes from the previous meeting held on 12 May 2017.

2. Proposed Rule changes

Michael Sanders ran through the summary of proposed rule changes included in the meeting pack, noting changes since the previous meeting. The proposed rule changes include:

- Simplify the choice of pricing regimes during market suspension.
- Allow the possibility of a return to dispatch pricing while the market is still suspended
- Harmonising price scaling with other price revision processes
- Introduce compensation during market suspension

The Group agreed to all the proposed Rule changes, however there was subsequent discussion on the use of Pre-Dispatch pricing:

Use of Valid Pre-dispatch Schedule for Pricing during Market Suspension

The current Rules permit the use of the most recently published pre-dispatch schedule for pricing during a market suspension, if it was still current. **Michael** noted there were complications in selecting the appropriate pre-dispatch schedule, given a SCADA failure will likely adversely affect the outcomes of the most recently published pre-dispatch. AEMO proposed a further change to the Rules to specify that the most recently published valid pre-dispatch schedule be used. AEMO would still need to assess whether that pre-dispatch schedule was still current, based on changes in demand[1], constraints and generator availability as defined in AEMO System Operating Procedure SO_OP3706.

Ron Logan commented that the most recently published pre-dispatch schedule pricing would be unlikely to remain current for more than one hour given the market can move quickly. **Ron** also noted there were no threshold values defined for changes in constraints and generator availability, and the threshold values for demand change were defined elsewhere in AEMO System Operating Procedure SO_OP3710, and perhaps should be brought into System Operating Procedure SO_OP3706.

Ross Gillett noted that the demand change thresholds are used by RTO to trigger an update of demand forecasts during normal market operation, and might be too narrow to apply during a market suspension, perhaps resulting in premature rejection of the Pre-dispatch pricing option.

Chrys Chandraraj questioned whether the pre-dispatch schedule, if not current, would still be useful for dispatch.

[1] Thresholds themselves defined in AEMO System Operating Procedure SO_OP3710

Reversion from the Market Suspension Price Schedule to Pre-dispatch Pricing

Michael Sanders confirmed the proposed Rule change whereby if AEMO's IT systems failed and AEMO was unable to use dispatch pricing then the pre-dispatch schedule would be used, and if the pre-dispatch schedule was no longer current, AEMO would use the Market Suspension Pricing Schedule. **Michael** then discussed a further Rule change, to prevent AEMO reverting from the Market Suspension Price Schedule to Pre-dispatch Pricing, to address a concern from the previous meeting.

Methsiri Aratchige agreed that AEMO should not revert from pricing using the Market Suspension Price schedule to Pre-dispatch pricing.

Brian Nelson commented that AEMO should have some flexibility and discretion in determining which pricing schedule to use, noting the current Rules are very prescriptive in this area and this caused issues during the previous SA market suspension event. To this end, **Brian** proposed that the Rules should only describe the high-level principles for pricing during market suspension, and move the details of what pricing to use from the Rules into a set of pricing guidelines.

Ron Logan commented that AEMO should not have complete discretion, but should make their pricing decision within a framework developed in consultation with the market.

Brian agreed that the pricing guidelines would be developed in consultation with the market, striking a balance between flexibility for AEMO and participant expectations.

Boris Basich, Methsiri Aratchige and **Chrys Chandraraj** also agreed with this approach.

Postscript to Meeting

AEMO has since re-considered the use of Pre-dispatch pricing during a market suspension, given the issues raised in working group:

- Difficulty in determining whether the Pre-dispatch is still current
- Relatively limited period that the Pre-dispatch schedule, if used, would remain current
- Potential confusion in market about what pricing regime would apply

AEMO now proposes a Rule change, to remove both adjoining region pricing and Pre-dispatch pricing during a market suspension, simplifying the choice to only normal dispatch pricing or the Market Suspension Pricing schedule. The simplification also means that a pricing guideline is not required.

3. Proposed 'Guide to Market Suspension' AEMO webpage

Ross Gillett discussed changes to the proposed "Guide to Market Suspension in the NEM" webpage since the previous meeting.

Ross discussed the addition of the following paragraph to the guide:

> *Market Data Quality*
>
> During a market suspension where AEMO receives unreliable metering data for power system quantities used in central dispatch, AEMO may reject this data and automatically substitute it prior to publication with last good data, estimated data from alternate sources, manually replaced data or (in the case of generating unit MW) the previous dispatch target.

Ross noted the new paragraph addresses a concern raised by **Jonathon Dyson** at the previous meeting. During the SA system black event in September 2016, a wind farm operator was unaware that AEMO had automatically substituted its unit's SCADA output data (deemed bad quality) with its previous dispatch target. This resulted in confusion, because the wind farm was disconnected, yet its output was indicating a non-zero dispatch target that reflected the AWEFS wind forecast. This misleading SCADA data was also used in AEMO's settlements and FCAS regulation causer pays processes.

Ross clarified that the automatic validation and substitution process also applies to scheduled generation, not just semi-scheduled wind farms.

Ron Logan commented that the market systems should have flagged that data as invalid.

Jonathon Dyson suggested that AEMO publish additional information to the market on the quality of SCADA data used in Dispatch. **Ross Gillett** agreed to organise an offline discussions to develop the business case to implement this in AEMO market systems.

Resumption of Spot Market

Ross Gillett discussed the addition of the following paragraph to the guide:

> AEMO will provide a minimum one hours' notice before resuming the spot market to allow an orderly transition to normal pricing, or sooner if the market is suspended due to a failure of AEMO's central dispatch process.

Boris Basich noted that a Torrens Island unit start up takes at least four hours, adding there should be a guideline to clarify the pre-requisites before the spot market can be resumed.

Henry Gorniak and **Ron Logan** agreed that at least two pre-dispatch runs should be published before AEMO resumes the spot market, as discussed in previous meetings. However, to allow a sufficient window for these to occur, they suggested that AEMO should provide an absolute minimum of two hours' notice.

The Group agreed, and the guide and associated AEMO System Operating Procedure SO_OP3706 will be updated to include a **two hour** minimum notice requirement.

Emergency Messaging System

Ross Gillett proposed the removal of the following paragraph from the guide as it was no longer valid:

> In the event of failure of the normal Market Notice message system, AEMO will communicate with registered participants using the AEMO Emergency Messaging System.

The Group agreed.

Next Steps

Ross is aiming to publish the "Guide to Market Suspension in the NEM" webpage by end of June 2017.

4. Proposed Market Systems changes

Basilisa Choi ran through the presentation provided in the meeting pack which explains the proposed market system changes. **Basilisa** advised that AEMO is aiming to implement these changes before summer.

The Group agreed to automate market suspension pricing based on the proposed Rule changes to be submitted by AEMO.

The following aspects of the proposed market system changes were discussed:

Market Notices

Boris Basich suggested that the 'market notice type' should be reviewed to include specific notices for market suspension, specifically for when the spot market is to be resumed, so participants can automate their processes and set up alarms. **Basilisa** agreed to assess the existing notice types and the request to introduce a new type**.**

Bypassing of automatic MII detection process for all Regions

AEMO proposed that the automatic MII detection process be bypassed for all NEM regions during a market suspension, not just for suspended regions, owing to the complexity and cost of systems implementation.

Ron Logan and **Chrys Chandraraj** expressed a strong preference to only bypass MII in suspended regions, not in all regions. On the other hand, **Jonathon Dyson** and **Henry Gorniak** felt the cost of implementation would outweigh the benefit.

Ron questioned whether there is the chance a genuine MII could get through in regions that aren't subject to market suspension. **Basilisa** noted there was a possibility. **Ross** added that the Rules do allow AEMO some discretion in whether to apply the automated MII process, and that AEMO has other processes in place to monitor inputs and declare scheduling errors, albeit not in "real-time".

Ron pointed out that there has been occasions where scheduling errors were picked up participants rather than AEMO, adding that not all scheduling errors identified by AEMO were reported. **Ross Gillett** confirmed this, noting AEMO applied an internal "wholesale market impact" materiality threshold before deciding to report a scheduling error. **Laura Walsh** commented that AEMO is considering a Rule change to address this, to ensure more transparency in the reporting of scheduling errors.

Negative Residue Management (NRM)

Basilisa Choi explained one of the benefits of automating market suspension pricing was the significantly reduced (but not eliminated) incidence of false triggering of NRM constraints. **Bas** added that NRM can be incorrectly triggered by Pre-dispatch prices, which may be adversely affected during a market suspension.

Jonathon Dyson asked whether the negative residues were calculated during an intervention pricing based on outcomes from the intervention pricing run or the dispatch run, and whether this design would impact the effectiveness of NRM. Specifically, whether there could be a situation where generators respond to dispatch targets resulting in interconnector flows that worsen negative residues, but the NRM constraint is managing residues based on prices and interconnector flows from the "what-if" intervention pricing run.

Basilisa Choi advised that, during intervention pricing, the NRM process uses prices from the "what-if" intervention pricing run, but interconnector flows from the dispatch run.

If intervention pricing was in a downstream region, the prices for that region in the "what-if" run would tend to be higher than prices in the dispatch run, and interconnector imports in the dispatch run would tend to be lower than in the "what-if" run – hence less likely to incur negative residues than if no intervention pricing. The opposite would tend to occur if intervention pricing was in an upstream region.

If the region with intervention pricing was downstream of a suspended region, the NRM process would correctly manage negative residues. If that region was upstream of a suspended region, negative residues would be managed by price scaling into upstream region.

Use of MPC Override

Basilisa Choi discussed the use of MPC Override during a market suspension, noting this could occur for involuntary load shedding in a suspended region if normal pricing were in effect or the region was suspended due to an AEMO IT failure.

Ron Logan and **Henry Gorniak** raised a concern with AEMO setting price to MPC using the MPC Override during an AEMO IT failure resulting in prolonged delays in publishing those prices, hence not providing a timely signal for the market to respond, and potentially causing significant hedging losses.

After the meeting, **Ron Logan** qualified that AEMO could apply an MPC Override in a region suspended due to an AEMO IT failure if AEMO were able to continue to publish prices in real time.

Next Steps

AEMO agreed to clarify the use of MPC Override during an AEMO IT failure in its Operating Procedure.

5. Way Forward

Laura Walsh outlined the way forward:

- **Rule changes**: AEMO is proposing to make further changes, to also remove Pre-dispatch pricing. Once agreed by the Group, AEMO will proceed to draft a Rule change proposal for submission to AEMC in late July as an urgent Rule
- **Guide to Market Suspension Webpage:** update to include minimum two hours' notice, and update AEMO operating procedure to include factors to be considered before resuming the spot market
- **Market System Changes:** further discussion required on market notice types, MII monitoring, NRM and procedures for MPC override during an AEMO IT failure
- **Publication of SCADA quality:** AEMO will develop business case, in conjunction with the Group

Considering some of the above outstanding matters, the Group agreed that another meeting was required.

6. Next Meeting

A fourth meeting will be organised for 9am to 11am EST on Wednesday 29 June 2017

Minutes

MEETING:	AEMO Market Suspension Technical Working Group Meeting #4
DATE:	Thursday, 29 June 2017
TIME:	9.30 am – 10.30 am (AEST)
LOCATION:	Video and Teleconference; Melbourne – Level 22, 530 Collins Street Melbourne (Boardroom) Sydney – Level 2, 20 Bond St Sydney (Boardroom) Brisbane – Level 10, 10 Eagle Street Brisbane (Heron Room)
TELECONFERENCE:	02 8602 3007

ATTENDEES:

NAME	COMPANY
Laura Walsh (Chair)	AEMO
Michael Sanders	AEMO
Ross Gillett	AEMO
Basilisa Choi	AEMO
Kirsty Camilleri	AEMO
Sarah-Jane Derby	AEMC
Joanna Gall	AER
Rebecca McGregor	AER
Boris Basich	AGL
Henry Gorniak	CS Energy
Steve Frimston	Engie
Ron Logan	ERM Power
James Googan	Origin Energy
Chrys Chandraraj	Alinta

APOLOGIES:

NAME	COMPANY
Brian Nelson	AEMO
Tjaart van der Walt	AEMO
Sujeewa Rajapakse	AEMO
Craig Oakeshott	AER
David Scott	CS Energy
Chris Deague	Engie
Jonathon Dyson	Greenview Strategic Consulting
Methsiri Aratchige	Origin Energy
Rick Haines	Woolnorth Wind

1. Welcome / Confirm Agenda / Previous Minutes

Laura Walsh (AEMO) welcomed participants to the fourth Market Suspension Working group session and the agenda was confirmed. The group noted and accepted the minutes from the previous meeting held on 7 June 2017.

2. Proposed Rule changes

Michael Sanders ran through the summary of proposed rule changes included in the meeting pack, noting changes since the previous meeting. The proposed rule changes include:

- Simplify the choice of pricing regimes during market suspension.
- Allow the possibility of a return to dispatch pricing while the market is still suspended
- Harmonising price scaling with other price revision processes
- Introduce compensation during market suspension

With regards to the pricing regimes, it has been agreed that neighbouring-region pricing and pre-dispatch pricing be removed from the rules. The default choice during market suspension will be dispatch pricing and if that is unable to be achieved, market suspension schedule pricing will be used.

AEMO will also submit a rule change to allow the return to dispatch pricing from market suspension schedule pricing while the market is still suspended.

If the rule change is successful the conditions around this will be clarified and included in the relevant operating procedure SO_OP3706, as well as the notification period AEMO will use prior to changing pricing regimes. This working group will be used as a sounding board for any changes to the procedure. Meanwhile AEMO will update the procedure SO_OP3706 to correctly reflect the current rules and clarify current processes.

The **Group** endorsed this approach and the proposed rule and procedure changes.

3. 'Guide to Market Suspension' AEMO webpage

Ross Gillett discussed changes to the proposed "Guide to Market Suspension in the NEM" webpage since the previous meeting.

Ross advised that this guide should be available on the AEMO website by 7 July 2017.

Resumption of Spot Market

As agreed at the previous meeting, the proposed webpage will state that "AEMO will provide a minimum two hours' notice before resuming the spot market to allow an orderly transition to normal pricing, or sooner if the market is suspended due to a failure of AEMO's central dispatch process."

Boris Basich repeated his comment from previous meetings that in the event that the market is suspended and market suspension pricing occurs for more than one week, it would

take more than two hours for its gas plant to return to service from cold. **Henry Gorniak** agreed this would be an issue for some generation.

Ross noted that AEMO would consult with this working group to clarify the conditions and notice requirements for changing pricing during a market suspension and will capture this in the SO OP3706, following the rule change as described above.

Emergency Messaging System

Ross pointed out that the statement "In the event of failure of the normal Market Notice message system, AEMO will communicate with registered participants using the AEMO Emergency Messaging System" has been removed from the web guide.

Henry Gorniak commented that the discontinuation of the "Whispir" emergency messaging system was a backward step, adding that the ability to communicate with the market in the first 4 to 6 minutes of a power system emergency was critical.

Ron Logan asked what communications AEMO would use in the event that the market notice system was not working. **Ross** will confirm whether the correct method would be email, and whether a distribution list is in place.

4. Proposed Market Systems changes

Basilisa Choi ran through the presentation provided in the meeting pack which explains the proposed market system changes.

The following aspects of the proposed market system changes were discussed:

Market Notices

At the last working group meeting, **Boris Basich** suggested that the 'market notice type' should be reviewed to include specific notices for market suspension, specifically for when the spot market is to be resumed, so participants can automate their processes and set up alarms. **Basilisa** advised that this is currently being worked on with the AEMO IT team and any changed will be communicated to participants.

Bypassing of automatic MII detection process

Basilisa advised that AEMO has changed the approach to MII following the **Group's** recommendations. The new proposed design is to only bypass MII detection for suspended regions (that are not under normal dispatch pricing). This design is currently being developed with the AEMO IT team, and it is hoped that it can be delivered by the end Nov 2017. If this design cannot be achieved on-time, the default position would apply (that is, no change to current design and continue to monitor all regions in the NEM).

Pricing for intervals affected by MII

Basilisa also confirmed that, under the current automated design, if AEMO rejects all prices for dispatch intervals affected by a MII and brings forward prices from the last good interval, price scaling into upstream regions would not subsequently occur. **Basilisa** added that, under the proposed market system changes, the brought-forward prices for suspended regions would be automatically overwritten by prices from the market suspension pricing

schedule, but there would be no price scaling of those prices into upstream regions with their brought-forward prices.

Basilisa noted that the MII price revision rule under NER 3.9.2B(e) does not refer to price scaling. However, it does refer to pricing in accordance with NER 3.9.2(h), which in turn refers to suspension pricing for the trading interval under NER 3.14.5 which includes price scaling under NER 3.14.5(m).

Basilisa agreed to confirm the requirement under the Rules.

Henry Gorniak sought to clarify how many MII "Subject to Review" instances occurred during the SA black system event last year and **Ross Gillett** advised that there were "quite a few". **Laura Walsh** added that these created a large amount of confusion during last year's event.

Boris Basich confirmed that he had no concerns with the proposed market system change in this area.

There have been participant questions raised offline about the review of the methodology for calculating market suspension pricing schedules. **Basilisa** confirmed that the proposed market system changes are expected to be implemented before this summer, however the review of the methodology is a separate project to be progressed after summer.

MPC Override

Basilisa confirmed that AEMO would only apply an MPC override for a suspended region if normal dispatch pricing is underway. Therefore, where the market suspension pricing schedule is being used (for example, in the event of an AEMO IT failure), there will be no MPC override.

Basilisa agreed to confirm the requirement under the Rules.

Administered Pricing

Boris Basich asked how AEMO would calculate the cumulative rolling price (used for triggering administered pricing) for a suspended region with market suspension pricing. **Ross Gillett** advised that, under the proposed market system changes, the cumulative rolling price would include also market suspension prices.

Ron Logan asked if administered pricing is underway (because the cumulative rolling price exceeds the CPT) and the price from the market suspension pricing schedule exceeds the APC, would the APC limit the market suspension price. As discussed in previous meetings, **Basilisa** confirmed that is the proposed design.

Boris Basich questioned whether allowing the APC to limit the market suspension price, but not allowing the MPC Override to overwrite the market suspension price, was consistent.

Basilisa agreed to confirm the requirement under the Rules.

Post-Script to Meeting:

AEMO has since reviewed the Rule requirements for applying MPC Override, APC and pricing for MII-affected intervals during a market suspension.

Under NER 3.9.2B(e), AEMO must bring-forward prices into MII-affected dispatch intervals and recalculate the spot price for the relevant trading interval in accordance with NER 3.9.2(h). NER 3.9.2(h) then makes this recalculated spot price subject to suspension pricing under NER 3.14.5, which includes price scaling under NER 3.14.5(m). Therefore, AEMO is currently required to apply scaling of a suspension price into an upstream region regardless of whether that region's spot price is a result of brought-forward MII-affected dispatch prices.

Under NER 3.9.2(e)(1), AEMO can only apply an MPC override if the central dispatch process is able to forecast a load deficit. If the central dispatch process were able to do this, there would be no reason to suspend the market and the pricing requirements are mutually exclusive. Hence, to comply with the Rules, AEMO must not apply an MPC override during market suspension pricing.

NER 3.9.2(e)(4) and (h) require AEMO to separately limit dispatch price to the APC, and apply market suspension pricing, respectively. The only way these provisions can effectively work together is for the APC to reduce the suspension price, if it is lower.

Ron Logan suggested the proposed Rules include a clarification that the APC prevails over prices based on the market suspension pricing schedule.

5. Way Forward

Laura Walsh outlined the way forward:

- AEMO is currently drafting the (urgent) rule change submission and is aiming to submit within the next couple of weeks.
- The 'Guide to Market Suspension in the NEM' webpage should be live by 7 July 2017.
- AEMO is aiming to implement the proposed market system changes by end November 2017, subject to the above Rule clarifications (for MII price scaling, MPC override and APC) and will keep the Group informed of any changes. **Joanna Gall** of AER offered to assist in this area.

Henry Gorniak suggested adding the proposed changes to the agenda of the next NEMW-CF and SMF meetings.

Laura Walsh closed the meeting, and thanked all group members on behalf of AEMO for their valued contributions towards this project.