

Draft Decision

APPLICATIONS FOR EXCLUSION FROM THE VICTORIAN SERVICE INCENTIVES FOR SUPPLY RELIABILITY

SUPPLY INTERRUPTIONS JANUARY-FEBRUARY 2009

28 August 2009



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Request for submissions

Interested parties are invited to make written submissions to the Australian Energy Regulator (AER) regarding this paper by the close of business Friday, 25 September 2009.

Submissions can be sent electronically to: aerinquiry@aer.gov.au

Alternatively, submissions can be sent to:

Mr Chris Pattas General Manager Network Regulation South Australian Energy Regulator GPO Box 520 Melbourne VIC 3001

The AER prefers that all submissions be publicly available to facilitate an informed and transparent consultative process. Submissions will be treated as public documents unless otherwise requested. Parties wishing to submit confidential information are requested to:

- clearly identify the information that is the subject of the confidentiality claim
- provide a non-confidential version of the submission in a form suitable for publication.

All non-confidential submissions will be placed on the AER's website at http://www.aer.gov.au. For further information regarding the AER's use and disclosure of information provided to it, see the *ACCC/AER Information Policy*, October 2008 available on the AER's website.

Enquires about this paper, or about lodging submissions, should be directed to the Network Regulation South branch of the AER on (03) 9290 1444.

1 Introduction

CitiPower, Jemena, Powercor, SP AusNet and United Energy applied to the AER to exclude supply interruption events that occurred during January and February 2009 from the supply reliability service incentive scheme under the Essential Services Commission of Victoria's (ESCV) *Electricity Distribution Price Review 2006-10* (Price Review). These supply interruption events are:

- applications by Jemena, SP AusNet and United Energy regarding wide-scale supply interruptions on 29 and 30 January 2009 resulting from load shedding due to a shortfall in generation capacity
- applications by CitiPower, Jemena, United Energy and Powercor regarding wide-scale supply interruptions on 28, 29 and 30 January 2009, and 8 February 2009 under the exclusion criterion for excluding exceptional events where the level of supply interruptions exceeds the threshold for exclusion set out by the ESCV¹
- application by SP AusNet regarding an outage event at South Morang Terminal Station on 4 February 2009 due to the failure of transmission connection assets
- application by Powercor regarding an outage event at Geelong Terminal Station on 26 February 2009 due to the failure of transmission connection assets.

This paper presents the respective draft decisions on the distributors' applications.

1.1 The role of the AER

As part of the transition to national regulation of energy markets, the AER is exercising certain powers and functions previously undertaken by the ESCV. The new responsibilities are conferred on the AER by the operation of the *National Electricity* (*Victoria*) *Act 2005* (NEVA) in accordance with the *Trade Practices Act 1974* and the Australian Energy Market Agreement. The NEVA specifically confers economic regulatory functions, powers and duties on the AER.

The AER is making this draft decision under the ESCV's 2006-10 Price Review and *Electricity Distribution Code* provisions for approving exclusions from the calculation of the S factor and the obligation to make supply reliability guaranteed service level (GSL) payments respectively.

1.2 The ESCV's service (reliability) incentive scheme

The ESCV incorporated a service incentive scheme in the 2006-10 Price Review. The incentives of the scheme are in the form of:

¹ Refer to the *Electricity Distribution Code*, clause 6.3.4 and Table 2.1 of the *Price Review – Volume 2 Price Determination.*

• A service term (S factor) in the price control formula, giving it the form of (1+CPI)(1-X)S

If a distributor provides an average level of reliability above the target levels, then its distribution tariffs will rise in subsequent years. If reliability is worse than the target levels, the tariffs will fall.

• Guaranteed service level payments to customers for low reliability.

Customers are entitled to receive a credit if they experience more than the specified number of sustained or momentary interruptions² in a calendar year, or if they experience a cumulative supply interruption time longer than the specified number of hours.

Further information on the service incentive scheme is contained in the 2006-10 Price Review final decision papers available from the ESCV's website.³

1.3 Exclusion from the service incentive scheme

On application by distributors, the AER may approve exclusions from the calculation of the S factor and from the requirement to make certain GSL payments for supply interruptions due to the following events:

- supply interruptions made at the request of the affected distribution customer
- load shedding due to a shortfall in generation, but not a shortfall in embedded generation that has been contracted to provide network support except where prior approval has been obtained from the ESCV or AER, where relevant
- supply interruptions caused by a failure of the shared transmission network
- supply interruptions caused by a failure of transmission connection assets, to the extent that the interruptions were not due to inadequate planning of transmission connections
- where prior written approval has been obtained from the ESCV or AER, load shedding due to a shortfall from demand side response initiatives
- exceptional supply interruption events where the level of supply interruptions exceeds the threshold for exclusion set by the ESCV, as specified in Table 2.1 of the Price Review – *Volume 2 Price Determination*

The Price Review requires that distributors apply to the AER for such exclusions within 30 business days of an event occurring, identifying:

• the relevant event

 ² Supply interruptions shorter than one minute are classified as momentary interruptions.
³ At

http://www.esc.vic.gov.au/public/Energy/Regulation+and+Compliance/Decisions+and+Determinatio ns/Electricity+Distribution+Price+Review+2006-10/Electricity+Distribution+Price+Review+2006-10.htm.

- the impact of the event on the distribution business's reliability performance
- the proposed extent of the exclusions
- reasons for the exclusions.

The Price Review also requires the AER to provide a statement of reasons on whether it proposes to approve the applications by the distributors, and to consult with stakeholders before making a final decision.

1.4 Structure of this paper

Chapters 2 to 5 cover the details of the applications by the distributors and provide:

- a description of each supply interruption event
- the AER's analysis event
- the AER's draft decision on each event.

2 Applications by Jemena, SP AusNet and United Energy regarding supply interruptions on 29 and 30 January 2009 shortfall in generation capacity

Jemena, (application received 11 March 2009), SP AusNet (3 March 2009) and United Energy (12 March 2009) applied to have the wide-scale supply interruptions that occurred on 29 and 30 January 2009 excluded from the calculation of the S factor and the obligation to make low reliability GSL payments.

The applications were made on the grounds that the sustained supply interruptions were caused by load shedding due to a shortfall in generation and the failure of the shared transmission network. The applications were received within 30 business days of the supply interruption events.

2.1 Description of the events

All distributors noted the extreme weather conditions on 29 and 30 January 2009, where temperatures in Melbourne exceeded 43 degrees Celsius on each day, resulting in higher power usage, network faults and the need for load shedding.

Jemena advised that, on 29 January 2009, SP AusNet's Transmission Control Room, acting under instruction from the National Electricity Market Management Company (NEMMCO),⁴ directed Jemena to begin load shedding at 3.18pm due to the tripping of the Basslink interconnector, which removed 730 MW of power transfer capacity from the transmission grid. The total load shed by Jemena was approximately 37 MW through 9 distribution feeders, resulting in supply interruptions to 18,022 customers. The impact of the event on Jemena's performance indicators was an unplanned system average interruption duration index (SAIDI) figure of 3.35 minutes and a SAIFI figure of 0.059.

SP AusNet advised that it was directed by NEMMCO to shed 67.05 MW of load on 29 January 2009 and 70.06 MW on 30 January 2009. The load shedding events caused sustained interruptions to 67,779 customers over the two days and resulted in a SAIDI figure of 3.58 minutes and a SAIFI figure of 0.11.

United Energy advised that it was directed by NEMMCO to shed 67.5 MW of load on 29 January. The load shedding event caused sustained interruptions to 26,755 customers and resulted in a SAIDI figure of 13.73 minutes and a SAIFI figure of 0.0429.

2.2 AER's analysis

As outlined in NEMMCO's Power System Incident Report,⁵ extreme weather conditions on 29 and 30 January 2009 in Victoria and Tasmania resulted in high demands in Victoria and the unavailability of the Basslink interconnector. This combination, coupled with the progressive reduction of the availability of a number of

⁴ NEMMCO's functions have been transferred to the Australian Energy Market Operator (AEMO).

⁵ Available on the AEMO website at: <u>http://www.aemo.com.au/reports/232-0128.html</u>

Victorian generators, resulted in a substantial generation capacity shortfall, which led to NEMMCO directing Victorian distributors to shed load to some customers in order to maintain system security.

The AER considers that, based on the analysis below, the load shedding events were exceptional and met the following exclusion criteria:

- supply interruptions caused by a failure of the shared transmission network
- load shedding due to a shortfall in generation, but not a shortfall in embedded generation that has been contracted to provide network support except where prior approval has been obtained from the AER.

The reasons for these decisions are set out below:

- 1. Regarding the exclusion criterion of supply interruptions caused by a failure of the shared transmission network, the AER considers that:
 - The supply interruptions were the result of a shortfall in generation, primarily due to the tripping of Basslink, which is part of the shared transmission network.
 - The failure of Basslink resulted in the separation of the Victorian power system from Tasmania. This reduced the capacity of the shared transmission network to receive energy from generation sources outside Victoria in order to meet the energy demands at the transmission connection points of Victorian distributors.
- 2. The AER considers that the supply interruptions were the direct result of load shedding due to a shortfall in generation, and therefore meet the exclusion criterion of load shedding due to a shortfall in generation.

2.3 Draft decision

The AER proposes to approve each application from Jemena, SP AusNet and United Energy for the sustained supply interruption events as a result of load shedding on 29 and 30 January 2009, where applicable, to be excluded from the calculation of the S factor and the obligation to make low reliability GSL payments.

3 Applications by CitiPower, Jemena, United Energy and Powercor—wide-scale supply interruptions on 28, 29 and 30 January 2009, and 8 February 2009

Jemena (application received 11 March 2009), CitiPower (11 March 2009), United Energy (12 March 2009) and Powercor (11 and 18 March 2009) applied to have the wide-scale supply interruptions that occurred on 28, 29 and 30 January 2009, and 8 February 2009 excluded from the calculation of the S factor and the obligation to make low reliability GSL payments.

The applications were made on the grounds that the unplanned sustained interruption frequency, summed across network types, for the 24-hour periods on 28, 29 and 30 January 2009, and 8 February 2009 exceeded the respective exclusion thresholds for each distributor under the service incentive scheme, as contained within the 2006-10 Price Review, *Final Decision Volume II*. The applications were received within 30 business days of the supply interruption events.

3.1 Description of the events

All distributors noted the extreme weather conditions on 28, 29 and 30 January 2009, where temperatures in Melbourne exceeded 43 degrees Celsius on each day, resulting in higher power usage, network faults and the need for load shedding.⁶

Powercor also advised that Victoria experienced extreme temperatures over an extended period leading up to 8 February 2009,⁷ with temperatures in Melbourne reaching a record 46.6C on 7 February 2009. The impact of the 7 February 2009 "Black Saturday" bushfires on the Victorian transmission network was a gradual reduction of capability in areas east, north and north-east of the state, and caused the destruction of electrical infrastructure and resulted in the need for load shedding.

Table 3.1 summarises the impact of the events on the distributors' SAIFI performance measure compared with the exclusion threshold as set by the Price Review.

⁶ Detailed information on the issues with the power system during this heatwave event is available from AEMO's website at: <u>http://www.aemo.com.au/reports/232-0128.html</u>

⁷ Powercor provided the Bureau of Meteorology's *Special Climate Statement 17* report to support this claim.

Table 3.1

Date	Distributor	Customer Interruptions	Unplanned SAIFI	Daily SAIFI exclusion thresholds
28-Jan-09	United Energy	62,692	0.1005	0.1000
29-Jan-09	CitiPower	38,588	0.1285	0.0660
	Powercor	75,479	0.1103	0.1100
30-Jan-09	CitiPower	91,878	0.3059	0.0660
	Jemena	128,655	0.424	0.1200
	Powercor	347,805	0.5083	0.1100
	United Energy	64,538	0.1034	0.1000
8-Feb-09	Powercor	243,802	0.356	0.1100

CitiPower advised that, on both 29 and 30 January 2009, SP AusNet's Transmission Control Room, acting under instruction from (NEMMCO), directed CitiPower to begin load shedding. On 29 January 2009, CitiPower shed 58.2 MW of load which resulted in 32,531 customer supply interruptions. Load shedding commenced at 3:17pm, with load restored by 4:30pm. Additionally, 6,057 customers were affected by heat related distribution network outages. On 30 January 2009, CitiPower shed 353 MW of load which resulted in 89,252 customer supply interruptions. Load shedding commenced at 3:04pm, with load restored by 8:29pm. An additional 2,626 customers were affected by heat related distribution network outages.

Jemena advised that, on 30 January 2009, NEMMCO directed 360 MW of load to be shed in Victoria due to the limited capacity available from the Basslink interconnector. NEMMCO issued further instructions to shed up to 1200 MW of load from the western side of Melbourne. The load shed in Jemena's distribution area started at 6.28pm and affected 8 zone substations with 126,579 customers experiencing supply interruptions. An additional 2,076 customers experienced supply interruptions due to network faults.

Powercor advised that, on both 29 and 30 January 2009, SP AusNet's Transmission Control Room, acting under instruction from NEMMCO, directed Powercor to begin load shedding. On 29 January 2009 Powercor was directed to shed 82 MW of load which resulted in 54,186 customer supply interruptions. Load shedding commenced at 3:05pm, with load restored at 4:31pm. An additional 21,293 customers were affected by heat related distribution network outages. On 30 January 2009 Powercor was directed to shed 830 MW of load which resulted in 329,932 customer supply interruptions. Load shedding commenced at 3:00pm, with load restored at 12:26am. An additional 17,873 customers were affected by heat related distribution network outages.

United Energy advised that, on 28 January 2009, extreme temperatures increased demand and caused network faults, resulting in 62,692 customers experiencing supply interruptions. United Energy reported that on the day there were approximately 26 distribution substation faults and supply was interrupted to the Rosebud and Sorrento

zone substations for 40 minutes. On 30 January 2009 NEMMCO, via SPI PowerNet, directed United Energy to shed 53 MW of load which resulted in 46,894 customer supply interruptions. Load shedding occurred at 3:02pm, 3:49pm and 4:46pm. An additional 17,645 experienced supply interruptions due to network faults driven by the high load demand.

Powercor advised that, on 8 February 2009, a cool change coupled with light rain resulted in pole fires across the Powercor distribution network. Isolated lightning strikes on electrical lines were also observed. Weather related distribution network outages interrupted supply to a total of 17,203 customers. In addition NEMMCO, via SPI AusNet, directed Powercor to shed 337MW of load which affected a further 226,599 customers and resulted in a total of 9,675,024 customer minutes off supply. The overall network SAIFI was 0.356, which is higher than Powercor's exclusion threshold.

3.2 AER's analysis

The basis on which the distributors' sought exclusions, some of which are already included under other criteria, is that the unplanned sustained interruption frequency for the applicable 24 hour period exceeded the threshold for exclusion set out by the ESCV.⁸

The AER notes that the exclusion criterion for exceeding the relevant daily SAIFI thresholds under the Price Review does not distinguish between the supply outages outside of distributors' control (such as load shedding due to generation shortage) and those supply outages that are within the control of distributors (such as equipment failures and storm damages). Hence, distributors are entitled to count all supply outages in any calendar day as part of their claims for exclusion under this exemption criterion. However, it should be noted that the performance indicators of any exempted day will be substituted by the average daily performance for the calculation of the S factor.

Future refinement of the exclusion arrangement

The AER considers that the exclusions under the major event day concept is to limit the risk to the distributors with respect to exceptional widespread supply interruption events, which cannot be effectively managed by the reasonably expected resource capacity of the distributors. Hence, exclusions under this category should be limited to the kinds of supply interruptions normally expected by the distributors that require substantive physical resource, in particle field personnel, to restore supply. As supply interruptions due to transmission network failures and load shedding events do not require substantive resource to restore supply, these types of supply interruptions should not be included in determining whether a specific day is qualified as a major event day.

By contrast, in its national Service Target Performance Incentive Scheme (STPIS) the AER has specified that supply interruptions outside of distributors' control must be claimed separate from those under the control of the distributors.

⁸ Refer to the *Electricity Distribution Code*, clause 6.3.4 and Table 2.1 of the *Price Review – Volume 2 Price Determination*.

3.3 Draft decision

The AER proposes to approve the applications by CitiPower, Jemena, Powercor and United Energy for the wide-scale supply interruption events of 28, 29 and 30 January 2009, and 8 February 2009, where applicable, from the calculation of the S factor and the obligation to make supply reliability GSL payments, given they exceed the respective exclusion thresholds in the current Victorian scheme.

4 Application by SP AusNet for outage event at South Morang Terminal Station on 4 February 2009

On 16 March 2009, SP AusNet applied to have the outage event at the South Morang Terminal Station (SMTS) excluded from the calculation of the S factor and the obligation to make low reliability GSL payments. This was due to the incorrect tripping of the 220/66 kV B3 Transformer at the SMTS. The incident occurred on 4 February 2009 and caused the sustained outage of the Thomastown (TTS)-Kilmore South (KMS)-Seymour (SMR)-Rubicon A (RUB A)-Murrundindi (MDI)-Kinglake (KLK)-Doreen (DRN)-SMTS 66 kV sub-transmission loop.

The application was made on the ground that the supply interruptions were caused by a failure of transmission connection assets. The application was received within 30 business days of the supply interruption event.

4.1 Description of the event

SP AusNet advised that, on 4 February 2009, the TTS-KMS-SMR- RUB A-MDI-KLK-DRN-SMTS 66 kV sub-transmission loop lost supply due to the incorrect protection operation at SMTS of the B3 220/66 kV transformer. This resulted in 22 feeders fed from 6 zone substations being off supply for up to 74 minutes.

According to SP AusNet, the incident occurred due to a car colliding with the SMTS-TTS-DRN 66 kV No.2 line outside TTS in High street Thomastown. As a result of the incident the SMTS-DRN No.2 66 kV circuit breaker tripped and locked out, while at the same time the B3 Transformer 66 kV circuit breaker opened and resulted in a deenergisation of the 66 kV Bus at SMTS. This caused a sustained interruption for 30,416 customers supplied from DRN, SMR, KMS, KLK, and RUB A zone substations. The impact of the event of SP AusNet's performance indicators was a SAIDI figure of 2.04 minutes and a SAIFI figure of 0.05.

SP AusNet advised that a post incident investigation revealed that the protection setting of the B3 transformer was incorrectly applied.⁹ The incorrect time setting resulted in inaccurate protection discrimination between the sub-transmission feeder and the B3 transformer, and the operation of the back up leakage relay on the 66 kV Bus at SMTS.

Consequently, the TTS-KMS-SMR-RUB A-KLK-DRN loop had to be supplied from TTS, but the KMS feeder CB at TTS opened on overload and resulted in the loss of the entire loop.

4.2 AER's analysis

The criterion which SP AusNet sought exclusion requires:

⁹ Zone 3 timer time delay setting.

Supply interruptions cause by a failure of transmission connection assets, to the extent that the interruptions were not due to inadequate planning of transmission connections.

The AER has previously established that:

The transmission connection assets can be considered to have failed if the connections do not have sufficient capacity to meet the demand for electricity. In assessing whether a supply interruption event is qualified for exclusion under this exclusion criterion, the following matters should be taken into consideration:

- The cause of the loss of transmission system capacity the event should not be excluded if the primary cause was due to any act or omission by the distributor
- Whether there should have been sufficient built in capacity redundancy to enable supply interruptions to be avoided.

The AER has examined the information provided by SP AusNet and considers that:

- The supply interruptions were caused by the incorrect setting of the B3 transformer at SMTS, which forms part of the transmission connection assets at the terminal station.
- The event was outside the control of SP AusNet.
- The AER notes that the TTS-KMS-SMR-RUB A-MDI-KLK-DRN-SMTS 66 kV sub-transmission loop is of standard industry design for the supply area type, and that there were no line capacity issues at the time of the event. Hence, it considers that there is no evidence to suggest that SP AusNet failed to adequately plan for the transmission connections at SMTS regarding the sub-transmission network.

The AER concludes that the supply interruptions were caused by a failure of the transmission connection assets and that these supply interruptions were not due to inadequate planning of the transmission connection assets at SMTS.

4.3 Draft Decision

The AER proposes to approve the application by SP AusNet for the supply interruptions at South Morang Terminal Station due to the incorrect setting of the B3 transformer protection equipment at SMTS on 4 February 2009 to be excluded from the calculation of the S factor and the obligation to make low reliability GSL payments.

5 Application by Powercor for outage event at Geelong Terminal Station on 26 February 2009

On 31 March 2009 Powercor applied to have the outage event at Geelong Terminal Station (GTS) due to the tripping of the 66kV Bus No.4 excluded from the calculation of the S factor and the obligation to make low reliability GSL payments. The incident occurred on 26 February 2009 and caused the outage of the GTS-Waurn Ponds (WPD) 66kV line.

The application was made on the grounds that the supply interruption was caused by a failure of transmission connection assets. The application was received within 30 business days of the supply interruption event.

5.1 Description of the event

Powercor advised that, on 26 February 2009, the GTS 66kV Bus No.4 tripped due to the inadvertent cutting of an in-service control cable associated with the Bus No.4 protection by an SPI PowerNet (the transmission network service provider) contractor. This event resulted in the tripping of four 66kV feeders exiting GTS including Powercor's GTS-Australian Cement Limited (ACL) 66kV feeder. Therefore all supply was lost to ACL and WPD zone substations which resulted in an interruption of supply to 27,974 customers.

The Powercor system configuration was abnormal at the time of the event as one leg of the 66kV loop was out of service due to work being completed to connect a new zone substation at Blue Circle Geelong (BCG) into the existing WPD-ACL 66kV loop. Powercor advises that based on SPI PowerNet's incident report the interruption occurred as a result of SPI PowerNet's contractor cutting the incorrect cable during decommissioning activities on the retired 3-4 Bus Tie circuit breaker control circuits within the GTS; activities that were unrelated to Powercor's network augmentation. Loadings on the Powercor system were within plant ratings prior to the supply interruption event.

The impact of the event on Powercor's performance indicators was:

•	Urban Unplanned SAIDI Urban Unplanned SAIFI	0.96 0.037
•	Rural Unplanned SAIDI Rural Unplanned SAIFI	1.11 0.043
•	Network Unplanned SAIDI Network Unplanned SAIFI	1.05 0.041

5.2 AER's analysis

The criterion under which Powercor sought exclusion requires:

Supply interruptions caused by a failure of transmission connection assets, to the extent that the interruptions were not due to inadequate planning of transmission connections.

As discussed in section 4.2, the AER considers that the transmission connection assets can be considered to have failed if the connections do not have sufficient capacity to meet the demand for electricity. In assessing whether a supply interruption event is qualified for exclusion under this exclusion criterion, the following matters should also be taken into consideration:

- The cause of the loss of transmission system capacity the event should not be excluded if the primary cause was due to any act or omission by the distributor.
- Whether there should have been sufficient built in capacity redundancy to enable supply interruptions to be avoided.

The AER has examined the information provided by Powercor and considers that:

- The supply interruptions were caused by the cutting of the incorrect cable during decommissioning activities on the retired 3-4 Bus Tie circuit breaker control circuits within the GTS by a contractor working for SPI PowerNet, the transmission network operator, which tripped the 66kV Bus No.4.
- The event was outside the control of Powercor
- The AER notes that the GTS-WPD 66kV line is of standard industry design for the supply area type, and that there were no line capacity issues at the time of the event. Hence, it considers that there is no evidence to suggest that Powercor failed to adequately plan for the transmission connections at GTS regarding the 66 kV line.

5.3 Draft decision

The AER proposes to approve the application by Powercor for the supply interruptions at Geelong Terminal Station due to the tripping of the No.4 66kV Bus on 26 February 2009 to be excluded from the calculation of the S factor and the obligation to make low reliability GSL payments.