



APPLICATIONS FOR EXCLUSION FROM THE VICTORIAN SERVICE INCENTIVES FOR SUPPLY RELIABILITY

**SUPPLY INTERRUPTIONS DUE TO
TRANSMISSION NETWORK INCIDENTS
NOVEMBER-DECEMBER 2008**

Draft Decision

3 April 2009

© Commonwealth of Australia 2009

This work is copyright. Apart from any use permitted by the Copyright Act 1968, no part may be reproduced without permission of the Australian Competition and Consumer Commission. Requests and inquiries concerning reproduction and rights should be addressed to the Director Publishing, Australian Competition and Consumer Commission, GPO Box 3131, Canberra ACT 2601.

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, 24 April 2009.

Submissions can be sent electronically to: aer inquiry@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 also available on the AER's website.

Enquiries about this paper, or about lodging submissions, should be directed to the Network Regulation South branch of the AER on (03) 9290 1446.

Contents

| | | |
|----------|---|-----------|
| 1 | Introduction | 5 |
| 2 | Application by SP AusNet regarding two supply interruption events at Glenrowan Terminal Station on 9 and 11 November 2008..... | 8 |
| 3 | Application by Powercor regarding an outage event at Bendigo Terminal Station on 13 November 2008 | 10 |
| 4 | Application by SP AusNet regarding an outage event at Wodonga Terminal Station on 14 December 2008..... | 12 |

1 Introduction

Powercor Australia Ltd and SP AusNet¹ applied to the Essential Services Commission of Victoria (ESCV) to exclude four supply interruption events due to transmission network incidents between November and December 2008 from the supply reliability service incentive scheme under the ESCV's *Electricity Distribution Price Review 2006–10* (Price Review). These supply interruption events are:

- application by SP AusNet regarding two supply interruption events at Glenrowan Terminal Station on 9 and 11 November 2008
- application by Powercor regarding an outage event at Bendigo Terminal Station on 13 November 2008
- application by SP AusNet regarding an outage event at Wodonga Terminal Station on 14 December 2008.

All events relate to supply interruptions caused by a failure of transmission connection assets, which are exempt events under the service incentive scheme subject to the condition that the supply interruptions were not due to inadequate planning of transmission connection assets on the part of the distribution businesses.²

This paper presents the draft decision on the distributors' applications.

1.1 The role of the Australian Energy Regulator (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 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:

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

¹ The trading name of SPI Electricity Pty Ltd.

² While transmission connection assets are owned and operated by the transmission network service providers (TNSPs), electricity distribution businesses are responsible for the planning and direction of such assets in Victoria.

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 (GSL) 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 interruptions³ 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.⁴

1.3 Exclusions from the service incentive scheme

On application by distributors, the AER (previously the ESCV) 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
- supply interruptions on a day where the unplanned sustained interruption frequency, summed across all network types, exceeds set thresholds.

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

- the relevant event
- the impact of the event on the distribution business's reliability performance
- the proposed extent of the exclusions

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

⁴ At www.esc.vic.gov.au/public/Energy/Consultations/Electricity+Distribution+Price+Review+2006-10/Electricity+Distribution+Price+Review+2006-10.html

- reasons for the exclusions.

The Price Review also requires the AER (previously ESCV) 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 4 cover the details of the applications by the distributors and provide:

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

2 Application by SP AusNet regarding two supply interruption events at Glenrowan Terminal Station on 9 and 11 November 2008

In an application dated 18 December 2008, SP AusNet applied to have the momentary supply interruptions⁵ resulting from the inadvertent operations of feeder protection relays of the No.1 Glenrowan–Benalla (GNTS–BN) 66 kV line at Glenrowan Terminal Station (GNTS) on 9 and 11 November 2008 excluded from the calculation of the S factor and the obligation to make low reliability GSL payments.

The application was made on the grounds 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.

2.1 Description of the events

SP AusNet advised that, at 7:18 pm on 9 November 2008, five 22 kV feeders from Benalla (BN), three feeders from Mansfield (MSD) and one feeder from Merrijig (MJG) zone substations experienced a momentary interruption. A similar incident occurred again at 5:42 am on 11 November 2008.

According to SP AusNet, BN Zone Substation is supplied from GNTS by two 66 kV lines, and MSD and MJG Zone Substations are also supplied from GNTS through BN by one 66 kV line as a radial connection. For both of the incidents, incorrect settings of the No.1 GNTS–BN 66 kV protection equipment caused the No.1 line to trip off when a transient fault on the No.2 GNTS–BN 66 kV line occurred. Supply was restored through the auto-reclosing function of the protection system at GNTS. No supply interruption would have occurred had the inadvertent operation of the protection equipment of the No.1 line not occurred.

The incorrect protection setting was rectified on 12 November 2008 by SPI PowerNet, the transmission network service provider.

The two incidents resulted in two momentary interruptions to 18,431 customers, representing a network MAIFI of 0.061 interruption per average customer of SP AusNet's network.

2.2 AER's analysis

The criterion under which SP AusNet 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.

⁵ A momentary interruption means that electricity supply is interrupted by less than one minute in duration.

The ESCV 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 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 considers that the ESCV's assessment methodology is appropriate, and for the purpose of providing a consistent outcome under the existing service incentive scheme, the AER adopts this assessment methodology for analysing distributors' applications for exclusion of supply interruptions due to failure of transmission connection assets.

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

- The supply interruptions were caused by the incorrect settings being applied to the protection equipment, which forms part of the transmission connection assets at the terminal station.
- The event was outside the control of the distributor, SP AusNet.
- Benalla Zone Substation has duplicate supplies from GNTS, consistent with the normal practice in terms of network redundancy for zone substations. There is no evidence to suggest that SP AusNet failed to adequately plan for the transmission connections at GNTS.

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 GNTS.

2.3 Draft decision

The AER proposes to approve the application by SP AusNet for the momentary supply interruptions resulting from the inadvertent operations of feeder protection relays of the No.1 GNTS–BN 66 kV line at Glenrowan Terminal Station (GNTS) on 9 and 11 November 2008 to be excluded from the calculation of the S factor and the obligation to make low reliability GSL payments.

3 Application by Powercor regarding an outage event at Bendigo Terminal Station on 13 November 2008

On 29 December 2008, Powercor applied to have the supply interruptions at Bendigo Terminal Station (BETS) due to incorrect operation of the protection equipment of the BETS-CTN (Charlton) 66 kV line at the terminal station excluded from the calculation of the S factor and the obligation to make low reliability GSL payments. The incident occurred on 13 November 2008 and caused sustained outage of the BETS-CTN 66 kV line.

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.

3.1 Description of the event

Powercor advised that, on 13 November 2008, a three phase fault occurred on the BETS-CTN 66kV line resulting in a sustained interruption of supply to Powercor's Charlton Zone Substation (CTN) and the 8,131 customers connected to CTN. At the time lightning was noted in the area. The nature of the fault on the line would have resulted in a momentary interruption to the zone substation CTN through the auto-reclose function of the feeder protection equipment, as subsequent patrol and events indicated no permanent damage to the line. However, a sustained interruption was experienced due to a configuration (setting) error of SPI PowerNet's feeder protection relay at BETS.

The effect of the protection setting error was to inhibit effective re-energisation of supply to the BETS-CTN line for this type of transient fault. Instead of a momentary outage, this incident resulted in a sustained outage of 70 minutes.

The Powercor system configuration was normal at the time of the event and loadings were within plant ratings.

According to Powercor, the transmission network service provider, SPI PowerNet, has confirmed that the feeder protection equipment configuration for the BETS-CTN 66kV line has now been reconfigured to include an auto-reclose function.

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

- Rural Unplanned SAIDI 1.235
- Rural Unplanned SAIFI 0.018
- Network Unplanned SAIDI 0.802
- Network Unplanned SAIFI 0.012

3.2 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 2.2, 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 incorrect settings of the feeder protection equipment at BETS, which forms part of the transmission connection assets at the terminal station.
- The event was outside the control of Powercor.
- Charlton Zone Substation supplies power to Powercor's customers in rural Victoria. It is Powercor's normal practice to supply remote rural communities such as Charlton with a single radial sub-transmission feeder from a single transmission connection. There is no evidence to suggest that Powercor failed to adequately plan for the transmission connections at BETS.

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 BETS.

3.3 Draft decision

The AER proposes to approve the application by Powercor for the supply interruptions at Bendigo Terminal Station due to incorrect operation of the protection equipment of the BETS-CTN 66 kV line on 13 November 2008 to be excluded from the calculation of the S factor and the obligation to make low reliability GSL payments.

4 Application by SP AusNet regarding an outage event at Wodonga Terminal Station on 14 December 2008

On 12 January 2009, SP AusNet applied to have the supply disruptions resulting from the de-energisation of the 22 kV No.2 Busbar of SPI PowerNet's Wodonga Terminal Station (WOTS) on 14 December 2008 excluded from the calculation of the S factor and the obligation to make low reliability GSL payments.

The application was made on the grounds 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, at 12:34 pm on 14 December 2008, a fault occurred at the 22 kV cable termination compartment of the 330/66/22kV No.2 transformer circuit breaker panel. This caused an outage of the 330/66/22kV No.2 Transformer and the 22 kV No.2 Busbar. As a result, the three 22 kV feeders connected to the WOTS 22 kV No.2 Busbar went off supply for up to 68 minutes in duration.

The incident resulted in sustained interruptions to 2,294 customers connected to the WOTS 22 kV No.2 Busbar. The impact on SP AusNet's performance indicators was:

- unplanned SAIDI 0.067 minutes.
- unplanned SAIFI 0.004 interruption per overall network customer.

4.2 AER's analysis

The criterion under which SP AusNet 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 2.2, 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 SP AusNet's and considers that:

- The supply interruptions were caused by the failure of the 330/66/22kV No.2 transformer connection equipment, which forms part of the transmission connection assets at the terminal station.
- The event was outside the control of SP AusNet.
- Because 22 kV busbar equipment failures have a low probability of occurrence, it is not a normal industry practice to provide built in redundancy to avoid supply interruptions in the event that a busbar fails. The WOTS 22 kV busbars are of standard industry design and considers that there is no evidence to suggest that SP AusNet failed to adequately plan for the transmission connections at WOTS.

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 WOTS.

4.3 Draft decision

The AER proposes to approve the application by SP AusNet for the supply disruptions resulting from the de-energisation of the 22 kV No.2 Busbar of Wodonga Terminal Station (WOTS) on 14 December 2008 to be excluded from the calculation of the S factor and the obligation to make low reliability GSL payments.