

Australian Energy Market Commission

DRAFT RULE DETERMINATION

**National Electricity Amendment (Publication of
zone substation data) Rule 2013**

Rule Proponent

National Generators Forum

5 December 2013

For and on behalf of the Australian Energy Market Commission

**RULE
CHANGE**

Inquiries

Australian Energy Market Commission
PO Box A2449
Sydney South NSW 1235

E: aemc@aemc.gov.au

T: (02) 8296 7800

F: (02) 8296 7899

Reference: ERC0156

Citation

AEMC 2013, Publication of zone substation data, Rule Determination, 5 December 2013, Sydney

About the AEMC

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

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Summary of draft rule determination

The Australian Energy Market Commission (AEMC or Commission) has determined to make this draft rule determination, including a draft rule, requiring Distribution Network Service Providers (DNSPs) to provide historical zone substation load data to requesting parties. The Commission considers the changes under the draft rule determination will allow interested parties to undertake empirical analysis and prepare forecasts of electricity demand at the sub-regional level, should they wish to do so. This could lead to more informed decision making and timely and efficient investments which would be in the long term interests of consumers with regards to the operation and use of electricity services.

Zone substations form part of the electricity distribution system and connect the higher voltage sub-transmission network with the lower voltage distribution network.

The National Generators Forum (NGF) requested a rule change to amend the National Electricity Rules (NER) that would require DNSPs to publish, on their websites, historical electricity load data at half-hourly intervals, for all zone substations within their networks. The NGF proposed that zone substation data be provided on an annual basis and, where available, for each of the preceding ten years.

The Commission has determined to make the draft rule, with amendments, as proposed by the NGF (the draft rule). The draft rule introduces a new rule in Chapter 5 of the NER, under which:

- DNSPs are required to provide historical zone substation load information in its raw form, where this data is available;
- interested parties are able to request from DNSPs historical zone substation load information as:
 - a once-only report, providing data for the preceding ten years from the commencement date of the final rule; and/or
 - an annual report, providing data for the most recently completed year for which data is available;
- DNSPs are not required to provide data, if in the reasonable opinion of the DNSP, that information is confidential or commercially-sensitive to a third party;
- data recipients are required to acknowledge that:
 - any zone substation information provided by DNSPs is provided as raw data;
 - DNSPs have not analysed, assessed or validated the quality or accuracy of the historical data; and

- DNSPs make no warranty or guarantee as to the data's quality or suitability for any particular purpose;
- DNSPs are able to charge a fee for the provision of the data, which must not exceed the reasonable costs anticipated to be incurred by a DNSP in providing the data.

For the purposes of facilitating business processes and/or systems that DNSPs may require to provide the data, the Commission invites stakeholder comment on whether a delay to the commencement of the final rule is required, and if so, what is the appropriate time frame for the DNSPs to make adequate preparations.

Stakeholders are also invited to comment on whether it would be desirable for the Australian Energy Regulator (AER) to regulate the price of the service prior to the start of the next regulatory control period for a DNSP, and if so, the nature of the transitional arrangements that should be put in place.

The AEMC welcomes submissions from interested parties on this draft rule determination, including the draft rule, by no later than the close of business on 30 January 2014.

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1 National Generators Forum's rule change request

1.1 The rule change request

On 24 January 2013, the National Generators Forum (NGF) (rule proponent) made a request to the Australian Energy Market Commission (Commission) to make a rule regarding the publication of zone substation data (rule change request). In this rule change request, the NGF sought to amend the National Electricity Rules (NER) by requiring Distribution Network Service Providers (DNSPs) to publish historical annual electricity load data for all zone substations within their networks.

1.2 Rationale for rule change request

The purpose of the NGF's rule change request is for DNSPs to provide zone substation load data that would facilitate the modelling of the key determinants of electricity demand changes at the sub-regional level by recipients of the data.

The key issues that the NGF sought to address were:¹

- that there is not sufficient granularity in existing published data to undertake any valid empirical assessment of the key factors that are driving changes in electricity demand; and
- the NGF considered that by providing access to detailed historical load data at the sub-regional level, any interested party would be able to undertake or commission their own forecasts of electricity demand which could be used to independently check and challenge the Australian Energy Market Operator's (AEMO) electricity demand forecasting performance.

1.3 Solution proposed in the rule change request

The rule proponent proposed to resolve the issues discussed above by requesting the AEMC to make a rule that introduces an additional requirement for DNSPs in the 'distribution annual planning report' process (Chapter 5, schedule 5.8 of the NER).

Specifically, the proposed rule would require DNSPs to include in their distribution annual planning report (DAPR) a website address, where:²

- half-hourly load data for all zone substations within each of their respective distribution systems is available;
- the DNSPs provide this data on an annual basis and, where available, for each of the preceding ten years and update it annually; and

¹ NGF, rule change request and cover letter, 24 January 2013, pp.1-2.

² NGF, rule change request and cover letter, 24 January 2013, p.3.

- the DNSPs publish this data on their websites.

1.4 Background

For the purpose of providing context and to support stakeholders' understanding of this rule change request, this section provides information on:

- definitions of key terms;
- DNSP reporting processes;
- electricity demand information published by AEMO that is relevant to this rule change proposal; and
- the related NGF proposal to AEMO for the publication of connection point data.

1.4.1 NER definitions

This rule change request relates to zone substations in an electricity distribution network. Zone substations form part of the distribution system and are used to provide the network link between the sub-transmission network and elements of the distribution system.³

The NER defines:

- a zone substation as:⁴

“...a substation for the purpose of connecting a distribution network to a sub-transmission network.”

- a distribution network as:⁵

“...a network which is not a transmission network.”

- sub-transmission as:⁶

“...any part of the power system which operates to deliver electricity from the transmission system to the distribution network and which

³ A distribution system consists of a distribution network and associated connection assets and is connected to another transmission or distribution system (Chapter 10 of the NER).

⁴ Clause 5.10.2 of the NER.

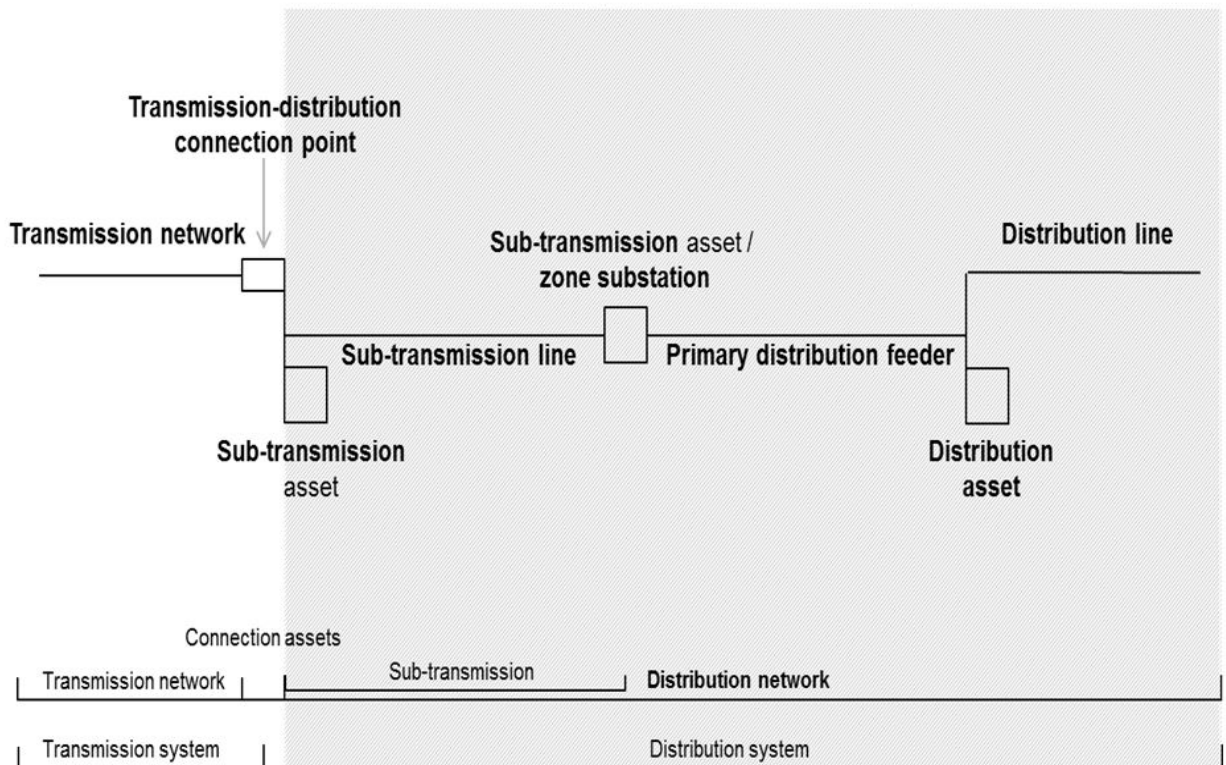
⁵ Chapter 10 of the NER. A transmission network is a network within any participating jurisdiction operating at nominal voltages of 220 kV and above. It may also be any part of a network operating at nominal voltages between 66 kV and 220 kV that either: operates in parallel to and provides support to the higher voltage transmission network; or is deemed by the AER to be part of the transmission network (Chapter 10 of the NER).

⁶ Clause 5.10.2 of the NER.

may form part of the distribution network, including zone substations.”

Figure 1.1 illustrates the relationship between zone substations and transmission, sub-transmission and distribution networks.

Figure 1.1



1.4.2 Distribution annual planning review and reporting

This rule change request also relates to the 'distribution annual planning report' (DAPR) process which is set out in Chapter 5 of the NER.⁷

The distribution annual planning review and reporting process was the subject of a rule change completed by the AEMC in October 2012.⁸

As part of this process, DNSPs are required to undertake annual planning reviews, covering a minimum forward planning period of five years, for the purpose of supporting these businesses in making efficient planning decisions. The planning review must include all distribution assets and activities undertaken by the

⁷ Schedule 5.8 of the NER.

⁸ AEMC, Final rule determination, *National Electricity Amendment (Distribution Network Planning and Expansion Framework) rule 2012*, 11 October 2012.

distribution businesses that would be expected to have a material impact on their networks.⁹

DNSPs are also required to publish a DAPR. The DAPR sets out the outcomes of the annual planning review and is to include information on forecasts (including capacity and load forecasts for transmission-distribution connection points, sub-transmission lines and zone substations) and system limitations. Each DNSP is required to publish its DAPR by the date specified by the relevant jurisdictional government.¹⁰

The NGF submitted that, while DNSPs are required to provide analysis and explanation of any aspects of the forecasts and information in the DAPRs that have changed significantly from the previous year, they are not required to report any historical data on loading levels for particular assets on a regular basis. It noted that licence conditions in some jurisdictions had previously required DNSPs to publish peak load levels for various distribution assets including zone substations.¹¹

1.4.3 AEMO's published electricity demand information

AEMO currently publishes electricity demand for the five regions of the National Electricity Market (NEM), namely: New South Wales/Australian Capital Territory; Victoria; Queensland; South Australia; and Tasmania. This includes both forecast annual demand data (for the next 10 years) and historical monthly demand data (extending back to December 1998). Demand forecasts are published annually in the National Electricity Forecasting Report (NEFR) and in the Electricity Statement of Opportunities (ESOO).¹²

1.4.4 Publication of connection point data proposal

As a separate matter to this rule change request, the NGF has also requested AEMO to publish half-hourly electricity demand data at the connection points between a transmission network and a distribution network. As the transmission to distribution connection point is a level above the zone substation level in the supply chain, there is less granularity in electricity demand data at connection points than at zone substations.

In August 2012, in response to the NGF's request for connection point demand data, AEMO published a consultation paper. AEMO sought comment on its proposal to release two years of historical connection point data and all actual data as it became

⁹ AEMC, Final rule determination, *National Electricity Amendment (Distribution Network Planning and Expansion Framework) rule 2012*, 11 October 2012, pp.i-ii.

¹⁰ AEMC, Final rule determination, *National Electricity Amendment (Distribution Network Planning and Expansion Framework) rule 2012*, 11 October 2012, p.ii.

¹¹ NGF, rule change request and cover letter, 24 January 2013, p.8.

¹² See www.aemo.com.au

available. It also proposed to aggregate connection points where there are three or fewer customers receiving supply from that metering point.¹³

In December 2012, AEMO published a response paper addressing issues raised by stakeholders in their submissions. AEMO noted that while most stakeholders were supportive of the proposal, some expressed concerns that commercially-sensitive information may be disclosed. Also, in response to concerns about costs of publication relative to the likely benefits to be gained, AEMO suggested that the benefits of publishing the data would be considerable given the significant recent changes in demand and the effects of these changes on future investment decisions. It also suggested that costs for the initial upload to their website of historical data would be relatively small.¹⁴

The AEMC understands that, at the time of writing, AEMO is currently developing a business case to determine the feasibility of the connection point data proposal and will further consult with stakeholders on the aggregation criteria.¹⁵

In their rule change request, the NGF submitted that, while it is supportive of the publication of connection point data, it considered that the publication of zone substation data offers the additional benefit of providing a more complete cross section of customer types throughout the NEM, particularly at the residential level where changes in peak demand may be occurring. Also, the NGF suggested that there are more zone substations than connection points in the NEM.¹⁶ It considered that implementing the proposed rule change would provide time series data which would be annually updated and could be used for meaningful statistical analysis.¹⁷

1.5 Commencement of rule making process

On 26 April 2013, the Commission published a notice under section 95 of the National Electricity Law (NEL) advising of its intention to commence the rule making process and the first round of consultation in respect of the rule change request. A consultation paper on the rule change request was also published at the time by the AEMC, identifying specific issues or questions for stakeholder comment. Submissions closed on 24 May 2013.

¹³ AEMO, *Proposal to publish connection point demand data*, 30 August 2012, p.4.

¹⁴ AEMO, *Proposal to publish connection point demand data: response to stakeholder submissions*, 10 December 2012, p.4.

¹⁵ AEMO, *Proposal to publish connection point demand data: response to stakeholder submissions*, 10 December 2012, p.4.

¹⁶ The proponent estimates that there are 1,500 zone substations in the NEM (NGF, rule change request and cover letter, 24 January 2013, p.3).

¹⁷ NGF, rule change request and cover letter, 24 January 2013, p.7.

In response to the consultation paper, the Commission received 20 submissions.¹⁸ A summary of the issues raised in stakeholders' submissions, and the Commission's response to each issue is contained in Appendix A.

1.6 Extension of time

On 1 August 2013, the Commission gave notice, under section 107 of the NEL, to extend the period of time for the making of the draft rule determination to 5 December 2013. The Commission decided to extend the period to allow time for the rule proponent to investigate the quality of data that is currently able to be produced by DNSPs and its fitness for purpose. This was in response to concerns raised in submissions to the consultation paper with regards to data quality and availability. Also, some stakeholders questioned the suitability of the DNSP data that the NGF has requested to be published.

The NGF was provided with sample raw data sets from four DNSPs, which was co-ordinated by the Energy Networks Association (ENA). Following the NGF's investigations of these data sets, the Commission facilitated discussions between the NGF and ENA with the aim to provide the Commission with more information to assist its assessment of the proposed rule change against the National Electricity Objective (NEO). The outcome of discussions between the NGF and ENA was general support for a set of key parameters for the provision of data.¹⁹

1.7 Consultation on draft Rule determination

In accordance with the notice published under section 99 of the NEL, the Commission invites submissions on this draft rule determination, including the draft rule, by no later than the close of business on 30 January 2014.

In accordance with section 101(1a) of the NEL, any person or body may request that the Commission hold a hearing in relation to the draft rule determination. Any request for a hearing must be made in writing and must be received by the Commission by no later than 12 December 2013.

Submissions and requests for a hearing should quote project number "ERC0156" and may be lodged online at www.aemc.gov.au or by mail to:

Australian Energy Market Commission
PO Box A2449
SYDNEY SOUTH NSW 1235

¹⁸ These submissions are available on the AEMC website www.aemc.gov.au.

¹⁹ ENA, letter to AEMC, 25 October 2013, p.1.

2 Draft rule determination

2.1 Commission's draft determination

In accordance with section 99 of the NEL, the Commission has made this draft rule determination in relation to the rule proposed by the NGF (the rule proponent).

The Commission has determined it should make, with amendments, the rule proposed by the NGF (the draft rule).²⁰

The Commission's reasons for making this draft rule determination are set out in section 3.1.

The draft rule is attached to, and published with, this draft rule determination. Its key features are described in section 3.2.

2.2 Commission's considerations

In assessing the rule change request, the Commission considered:

- the Commission's powers under the NEL to make the rule;
- the rule change request;
- the fact that there is no relevant Ministerial Council on Energy (MCE) Statement of Policy Principles;²¹
- submissions received during first round consultation;
- the outcome of discussions between the NGF and ENA;²² and
- the Commission's analysis as to the ways in which the proposed rule will, or is likely to, contribute to the National Electricity Objective (NEO).

2.3 Commission's power to make the rule

The Commission is satisfied that the draft rule falls within the subject matter about which the Commission may make rules. The draft rule falls within section 34(1)(a)(iii) of the NEL which relates to: "the activities of persons (including registered

²⁰ Under section 99(3) of the NEL, the draft of the rule to be made need not be the same as the draft of the proposed rule to which the notice under section 95 relates.

²¹ Under section 33 of the NEL, the AEMC must have regard to any relevant MCE statement of policy principles in making a rule. In September 2011, the Council of Australian Governments created the Standing Council of Energy and Resources, which includes Ministers responsible for energy. These Ministers comprise the membership of the legally enduring MCE.

²² ENA, letter to AEMC, 25 October 2013, pp.1-4.

participants) participating in the national electricity market or involved in the operation of the national electricity system".

2.4 Rule making test

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

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

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

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

For this rule change request, the Commission considers that the relevant aspect of the NEO relates to the efficient operation of, and investment in, electricity services for the long term interests of consumers of electricity with respect to the price, reliability and security of the national electricity system.²³

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

- greater transparency of information such as the provision of aggregated electricity demand data, has the potential, in various ways, to improve the decision making of market participants. The availability of zone substation load data can, for example:
 - inform generators' decisions on where and when to build new generation plant, or which and when to retire existing generation plant to maximise efficiency of use; and
 - allow providers of demand side management to offer more efficient demand side response services.²⁴

²³ Under section 88(2), for the purposes of section 88(1) the AEMC may give such weight to any aspect of the NEO as it considers appropriate in all the circumstances, having regard to any relevant MCE Statement of Policy Principles.

²⁴ Demand side management is the modification of consumer demand for electricity through various methods such as financial incentives and education. Usually, the goal of demand side management is to encourage the consumer to use less energy during peak hours, or to move the time of energy use to off-peak times.

- improved decision making is likely to lead to greater efficiency in the operation and use of electricity services, which would be in the long term interests of consumers.

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

3 Commission's reasons

The Commission has analysed the rule change request and assessed the issues arising from it. For the reasons set out below, the Commission has determined that a draft rule be made. Its analysis of the NGF's proposed rule and the key features of the draft rule are also set out below.

3.1 Assessment of issues

In submitting the rule change request, the NGF sought to require DNSPs to publish historical annual electricity load data for all zone substations in their networks. DNSPs record this data for their own operational purposes and it is currently not publically available. The purpose of the NGF's rule change request is for DNSPs to provide zone substation load data that would facilitate the modelling of the key determinants of electricity demand changes at the sub-regional level, by recipients of the data.

The key issues that the NGF sought to address were:²⁵

- that there is not sufficient granularity in existing published data to undertake any valid empirical assessment of the key factors that are driving changes in electricity demand; and
- the NGF considered that by providing access to detailed historical load data at the sub-regional level, any interested party would be able to undertake or commission their own forecasts of electricity demand which could be used to independently check and challenge AEMO's electricity demand forecasting performance.

In assessing the proposed rule, the Commission considered the quality and availability of zone substation data and the provision of this data. The Commission also considered other issues related to data confidentiality and the requested provision of single line diagrams that were raised by stakeholders in consultation. In considering these issues, the Commission considered the views of the rule proponent and stakeholders, as well as the outcome of discussions between the NGF and ENA, prior to the making of this draft rule determination.²⁶

In considering stakeholders' views, the Commission acknowledges that there are issues with regards to the quality and availability of historical zone substation data. It also recognises that not all zone substations are metered for half-hour energy data, and that where data is recorded and collected, the data series may not necessarily extend back for ten years, nor be continuous.

Despite the data limitations, the Commission considers that the provision of raw zone substation load information, on request, is a practical and low cost approach to making

²⁵ NGF, rule change request and cover letter, 24 January 2013, pp.1-2.

²⁶ ENA, letter to AEMC, 25 October 2013, pp.1-4.

data available for use in empirical analysis and/or the forecasting of electricity demand. For this reason, the Commission has decided to make a draft rule that requires DNSPs to provide raw zone substation load information where this data is available.

With respect to concerns regarding the public release of data which could reasonably be considered as confidential or commercially-sensitive to third parties, the Commission considers that DNSPs are in the best position to deal with issues of confidentiality. This is because the DNSPs may have individual contractual relationships with large customers supplied directly from their zone substations that may include data confidentiality obligations. To disclose such data may allow competing customers to decipher commercially-sensitive information, such as production costs and volumes. Also, the DNSPs have detailed knowledge of their networks which could assist in making judgements with respect to possible data aggregation so as to minimise the risk of confidential information being publically released.

With respect to the requested provision of single line diagrams, which show schematically how zone substations are linked together in the distribution network, the Commission considers that DNSPs should not be required to provide this information under the draft rule. The Commission considers that the provision of additional detailed information that may be contained in the single line diagrams is not warranted when balanced against the security concerns that may flow from the provision of such information.

3.2 Key features of the draft rule

The Commission has made a draft rule that requires DNSPs to provide historical zone substation load information on request. This data, where it is available, is to be provided for a period of up to ten years from the commencement of the final rule, if made, and on an annual basis.

The draft rule inserts a new rule 5.13A after clause 5.13.2 of the NER which sets out the requirements for the provision of distribution zone substation data.

The key features of the draft rule are it:

- requires DNSPs to provide historical zone substation load information in its raw form, where this data is available;
- allows for interested parties to request from DNSPs historical zone substation load information as:
 - a once-only report, providing data for the preceding ten years from the commencement date of the final rule; and/or
 - an annual report, providing data for the most recently completed year for which data is available;

- permits DNSPs not to provide data, if in the reasonable opinion of a DNSP, that information is confidential or commercially-sensitive to a third party;
- requires data recipients to acknowledge that:
 - any zone substation information provided by DNSPs is provided as raw data;
 - DNSPs have not analysed, assessed or validated the quality or accuracy of the historical data; and
 - DNSPs make no warranty or guarantee as to the data's quality or suitability for any particular purpose;
- provides for DNSPs to charge a fee for the provision of the data, which must not exceed the reasonable costs anticipated to be incurred by a DNSP in providing the data.

The draft rule differs from the proposed rule as follows:

- it provides for data to be provided by DNSPs to interested parties on request (rather than requiring publication on a DNSP's website);
- it requires data to be provided in its raw form only;
- it requires the person who receives the information to acknowledge that the DNSP has not analysed, assessed or validated the quality or accuracy of the data, and has provided the data without any warranty or guarantees as to the data's quality or suitability for any particular purpose;
- it permits DNSPs not to provide data, if in the reasonable opinion of the DNSP that information is confidential or commercially-sensitive to a third party; and
- it provides for DNSPs to charge a fee for the provision of the data.

For the purposes of facilitating business processes and/or systems that DNSPs may require to provide the data, the Commission invites stakeholder comment on whether a delay to the commencement of the final rule is required, and if so, what is the appropriate time frame for the DNSPs to make adequate preparations.

Stakeholders are also invited to comment on whether it would be desirable for the AER to regulate the price of the service prior to the start of the next regulatory control period for a DNSP, and if so, the nature of the transitional arrangements that should be put in place.

3.2.1 Potential benefits

The Commission considers that the provision of zone substation load data, where it is available, has the potential, in various ways, to improve the decision making of market participants. The availability of zone substation load data can, for example:

- inform generators' decisions on where and when to build new generation plant, or which and when to retire existing generation plant to maximise efficiency of use; and
- allow providers of demand side management to offer more efficient demand side response services.²⁷

The Commission considers that consumers will benefit, in the long term, from improved decision making by market participants, which may lead to greater efficiency in the operation and investment in electricity services.

3.2.2 Costs

The Commission considers that the costs associated with implementing the draft rule are likely to be relatively low when compared to the potential benefits that may arise under the draft rule. The draft rule requires DNSPs to provide raw zone substation data, where it is available, on request. The Commission considers that by providing such data on request, the costs that are likely to be incurred by DNSPs in regards to processing, formatting and distributing the data are minimised.

With respect to the DNSPs' recovery of costs for the provision of zone substation data, the Commission considers that the direct beneficiaries of the data (that is, the users of the data) should pay a reasonable fee to the DNSP for the provision of the data. The Commission considers that this fee should be no more than that required to meet the reasonable costs anticipated to be incurred by the DNSP in providing the data. The Commission also considers that DNSPs charging a fee for the provision of data may reduce the likelihood of any spurious requests for data being made to DNSPs, thereby keeping DNSPs' costs and, in turn, fees to a minimum.

The Commission notes that at the time of the next regulatory determination for a DNSP, the AER may decide to classify the service provided under the draft rule (if made) as a direct control service and regulate the price of the service. For example, the AER could classify the service as an alternative control service and determine the fixed fee the DNSP may charge for the service. However, if it were desirable for the AER to regulate the price of the service prior to the start of the next regulatory control period for a DNSP, the final rule would need to include transitional provisions that empower the AER to classify the service and specify the form of regulation that will apply.

²⁷ Demand side management is the modification of consumer demand for electricity through various methods such as financial incentives and education. Usually, the goal of demand side management is to encourage the consumer to use less energy during peak hours, or to move the time of energy use to off-peak times.

3.3 Civil Penalties

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

4 Commission's assessment approach

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

In assessing the rule change request against the NEO, the Commission has considered whether the public availability of information, as proposed in the request, is likely to bring about the efficiency benefits in the electricity system, for example by allowing for more accurate forecasting and targeting the need for investment in electricity services.

The Commission has considered whether these benefits are likely to outweigh the costs of providing the data, and any potential negative impacts on market participants.

It has considered and focussed on the following issues:

- zone substation load data quality and availability;
- the provision of zone substation load data;
- other related issues, including:
 - data confidentiality, where a zone substation is supplying a single or several large consumers; and
 - the requested provision of single line diagrams to identify the linkages between zone substations.

The Commission has focussed on this set of issues because they relate to how zone substation load data can be made publically available, and were issues that were raised by stakeholders.

In addition to the above considerations, the Commission's analysis has also incorporated the outcome of discussions between the NGF and ENA.²⁸ The AEMC facilitated discussions between the NGF and ENA with the aim to provide the Commission with more information to assist its assessment of the proposed rule change against the NEO.

²⁸ ENA, letter to AEMC, 25 October 2013, pp.1-4.

5 Data quality and availability

This chapter discusses zone substation data quality and availability. The views of the rule proponent and stakeholders, the outcome of discussions between the NGF and ENA, and the Commission's analysis and decisions, are set out below.

5.1 Rule proponent's view

As outlined in chapter 1, the NGF, in its rule change request, is seeking the publication of historical zone substation load data that is measured in half-hourly intervals. It is seeking that DNSPs provide this data on an annual basis and, where available, for each of the preceding ten years.²⁹

5.2 Stakeholders' views

In submissions to the AEMC's consultation paper, stakeholders expressed mixed views about the quality and availability of zone substation data. DNSPs considered that there were significant issues in relation to data quality and availability, and questioned whether the data that is available is sufficiently robust to enable reliable econometric analysis and forecasts to be undertaken. In particular, DNSPs noted that:³⁰

- not all zone substations are metered and, those that are metered, may not have data extending back for ten years;
- zone substations are metered for operational and planning purposes and mostly have supervisory control and data acquisition (SCADA)³¹ data;
- the metered data is measured in MW at different time intervals (for example, at 1, 5, 10, 15 or 30 minute intervals) and would require conversion to MWh at half-hour intervals;
- switching and load transfer can occur between zone substations at any given point in time which can result in significant variations in load recorded at those substations affected;
- the metered data may contain gaps or missing data due to device failure or metering equipment being offline for a period of time;

²⁹ NGF, rule change request and cover letter, 24 January 2013, p.3.

³⁰ Citipower and Powercor, submission, 24 May 2013, p.2; Energy Networks Association, ENA, submission, 27 May 2013, pp.4-5; Energex, submission and cover letter, 23 May 2013, pp.1-4; Ergon Energy, submission, 24 May 2013, pp.4-6; Jemena Electricity Networks, Jemena, submission and cover letter, 24 May 2013, pp.1-2; Networks NSW, submission, 24 May 2013, pp.1-2; SA Power Networks, submission, 24 May 2013, pp.1-3; and United Energy, submission and cover letter, 24 May 2013, pp.1-4.

³¹ Computer controlled systems that monitor and control industrial processes that are at multiple sites and over large distances.

- the metered data is raw data and has not been corrected for spikes in the data, abnormal switching, outliers in the data and weather dependent variables;
- the metered data is gross energy data and consists of distribution load data as well as data from unmetered supplies (such as non-scheduled generators and solar photovoltaic (PV) generation);
- the metered data is not disaggregated by customer category; and
- the metered data for each DNSP will need to be assembled from records which are currently not in a standardised format.

In their submission, Aurora Energy (Aurora) said that it is unconvinced that the publication of zone substation data for Tasmania will be of use. This is because of the non-standard asset boundary that exists between transmission and distribution in Tasmania. Aurora submitted that it takes its supply from the Transmission Network Service Provider (TNSP) either at sub-transmission voltages to supply its zone substations, or at distribution voltages to supply its distribution feeders.³²

The ENA submitted that the transmission to distribution connection point data proposal that AEMO is currently investigating, if implemented, has the potential to provide more accurate data at the sub-regional level than the proposed publication of zone substation data. It suggested that the connection point proposal be evaluated before consideration be given to any incremental benefits from the proposed rule change.³³

SA Power Networks submitted that about half of its zone substations only have SCADA facilities. It estimated that it would cost \$16 million to install accurate metering (National Grid Meters) and communications to all of its 363 zone substations.³⁴

On the other hand, stakeholders who were supportive of the proposed rule change, considered that zone substation load data should be made available on a routine basis and in a standardised format. Some stakeholders suggested that it be made available more frequently than what has been proposed.³⁵ This is discussed further in chapter 6.

5.2.1 NGF and ENA investigations and discussions

As discussed in chapter 1, in response to concerns raised in submissions with regards to data quality and availability, the Commission decided to extend the period of time for the making of the draft rule determination. This was to allow time for the NGF to

³² Aurora Energy, submission, 27 May 2013, pp.1-2.

³³ Energy Networks Association, ENA, submission, 27 May 2013, pp.1-4.

³⁴ SA Power Networks, submission, 24 May 2013, pp.1&3.

³⁵ Alinta Energy, submission, 24 May 2013, p.2; Clean Energy Council, submission, 31 May 2013, p.2; EnergyAustralia, submission, 16 May 2013, pp.1-2; EnerNOC, submission, 24 May 2013, pp.1-2; GDF Suez, submission, 24 May 2013, p.1; and Westpac Energy, submission, 29 April 2013, p.1.

investigate the quality of data that is currently able to be produced by DNSPs and its fitness for purpose.

The NGF was provided with sample raw data sets from four DNSPs, which was co-ordinated by the ENA. Following the NGF's investigations of these data sets, the Commission facilitated discussions between the NGF and ENA with the aim to provide the Commission with more information to assist its assessment of the proposed rule change against the NEO. The outcome of discussions between the NGF and ENA was general support for a set of key parameters for the provision of data.³⁶ These key parameters are discussed further in chapter 6 and stakeholders are invited to comment on their appropriateness.

With respect to data quality, the NGF and ENA generally supported that unprocessed or raw data (for example, SCADA data), where it was available, should be provided as part of this rule change.³⁷ The NGF was of the view that the data would be useful in its most raw form to provide information on long term changes in demand patterns. It also considered that releasing the data in a raw form would reduce DNSPs' costs of collecting and distributing the data under this rule change.³⁸ The ENA noted that in discussions between itself, the NGF and the AEMC, support was given for data to be sourced from SCADA systems, and provided in raw form.³⁹

5.3 Commission analysis and conclusion

The Commission acknowledges that there are limitations with regards to the quality and availability of zone substation data. It recognises that not all zone substations are metered for half-hour energy data and that, where data is recorded and collected, the data series may not necessarily extend back for ten years, nor be continuous.

Given the limitations in the data that is available, the Commission considers that the provision of raw zone substation load data, as generally supported by the NGF and ENA, is a practical way of making data available that may be used for empirical analysis and forecasting of electricity demand.⁴⁰ The Commission considers that the provision of raw data is likely to be the least cost method for a DNSP to provide zone substation data. This is because DNSPs would not be required to process the data beyond that required for public release (for example, formatting for key parameters). The Commission also considers that the provision of raw data may be advantageous to data users, as they may perform their own analysis on the data knowing that it has not been previously manipulated. In this way, data users will be able to determine, for themselves, the appropriate level of resource to be applied toward data analysis and investigation.

³⁶ ENA, letter to AEMC, 25 October 2013, p.1.

³⁷ ENA, letter to AEMC, 25 October 2013, p.3.

³⁸ NGF, submission, 24 May 2013, p.8.

³⁹ ENA, letter to AEMC, 25 October 2013, p.3.

⁴⁰ ENA, letter to AEMC, 25 October 2013, p.3.

The Commission does not expect DNSPs to provide data that is not readily available, or for DNSPs to install metering equipment for the specific purpose of providing data to meet their obligations under the draft rule. The details of key parameters of this data, and how this data is to be provided, are discussed in chapter 6.

In responding to Aurora's submission that the proposed rule would have limited application in Tasmania, the Commission notes that the draft rule would only apply to substations that are defined as zone substations under the NER (that is, substations that are connected to a sub-transmission network and a distribution network).⁴¹ This means that, under the draft rule, Aurora would not be required to provide data for its substations that take their supply directly from the transmission network as these substations are not connected to a sub-transmission network and are, therefore, not defined as a zone substation under the NER.

With regard to the transmission to distribution connection point data proposal that AEMO is currently investigating, the Commission notes while this is a similar proposal in that it relates to the publication of sub-regional electricity demand data, AEMO's evaluation of this proposal is unrelated to the Commission's consideration of this rule change request as it does not form part of the rule change request. The Commission notes that while the electricity demand data collected at transmission to distribution connection points is of a higher quality than zone substation load data, it is less granular as it is at a higher level in the supply chain. Given that zone substation load data provides a greater level of detail, it may be possible from this data to analyse electricity demand trends at a more localised level, than what otherwise may be achieved using the transmission to distribution connection point data.

In responding to SA Power Networks' concern that it would have to install metering equipment and improve the quality of metered data at all of its zone substations in order to meet its obligations under the proposed rule, the Commission does not consider this to be the case. As discussed above, under the draft rule, DNSPs would only be required to provide raw zone substation data where this data is available. DNSPs would not be expected to install metering equipment where metering does not currently exist at zone substations, or to improve the quality of their metered data for the specific purpose of meeting their obligations under the draft rule.

⁴¹ Clause 5.10.2 of the NER.

6 Provision of data

This chapter discusses the provision of zone substation data. The views of the rule proponent and stakeholders, the outcome of discussions between the NGF and ENA, and the Commission's analysis and decisions, are set out below.

6.1 Rule proponent's view

As outlined in chapter 1, the NGF in its rule change request is seeking that DNSPs publish on their websites historical zone substation load data on an annual basis and, where available, for each of the preceding ten years.⁴²

6.2 Stakeholders' views

There were mixed views in stakeholders' submissions to the AEMC's consultation paper with regard to the provision of zone substation data. Approximately half of the submissions received were supportive of the proposed rule, while the remainder were not.

DNSPs were generally not supportive of publishing zone substation data, as they considered that it has not been demonstrated that the anticipated benefits outweigh any costs imposed.⁴³ Apart from their concerns with respect to data quality and availability, as discussed in chapter 5, DNSPs also had concerns about publishing large volumes of zone substation data on their websites. Specifically, DNSPs raised concerns that their websites are not designed to handle the large volumes of data that would be required to be published.

Several DNSPs submitted that significant costs would need to be incurred to increase the capacity of their websites and to implement IT systems to manage such large volumes of data.⁴⁴

Energex and Ergon Energy (Ergon) suggested that DNSPs provide the data to a central body to co-ordinate and publish the data on its website, and that this would be beneficial to both DNSPs and data users.⁴⁵

⁴² NGF, rule change request and cover letter, 24 January 2013, p.3.

⁴³ Citipower and Powercor, submission, 24 May 2013, pp.1-2; Energy Networks Association, ENA, submission, 27 May 2013, pp.1-5; Energex, submission and cover letter, 23 May 2013, p.1; Ergon Energy, submission, 24 May 2013, p.3; Jemena Electricity Networks, Jemena, submission and cover letter, 24 May 2013, pp.1-2; Networks NSW, submission, 24 May 2013, pp.1-2; SA Power Networks, submission, 24 May 2013, p.7; and United Energy, submission and cover letter, 24 May 2013, pp.1-7.

⁴⁴ Ergon Energy, submission, 24 May 2013, pp.6-7; and Jemena Electricity Networks, Jemena, submission and cover letter, 24 May 2013, pp.1-2&4.

⁴⁵ Energex, submission and cover letter, 23 May 2013, p.1; and Ergon Energy, submission, 24 May 2013, pp.1&10.

Jemena and United Energy suggested that any potential data users should first register with the DNSP and for the DNSP to then provide them with the data offline.⁴⁶

Energex submitted that it did not consider that the costs of extracting raw SCADA data would be material. It estimated that it would take approximately one–two weeks for a full time equivalent (FTE) employee to extract historical raw data from its records in the format that is currently available. It also estimated that it would take approximately another week per year for a FTE employee to extract, compile and publish the data on an annual basis. However, Energex considered that if the DNSP is required to perform other activities, including data cleansing, verification and reconciliation, then the DNSP may incur material costs which may be passed onto network customers.⁴⁷

Another concern raised by DNSPs with the proposed rule change is that they do not have current resources available to handle potential queries from data users about data quality issues and interpretation of the data. To do so, it was submitted, would impose significant costs on DNSPs.⁴⁸

United Energy submitted that providing derived consumption data, without the corresponding event data and networks' operations knowledge, may not be useful. It suggested an extensive business-to-business project which United Energy suggested could take several years for DNSPs to standardise data formats and to provide meter register information and meter event collection and use. It estimated that this could cost each DNSP between \$4–10 million (not including the costs to improve metering and data quality work).⁴⁹

The ENA submitted that if zone substation data is to be provided by DNSPs, then it should be subject to the following caveats:⁵⁰

- the source, form and limitations of the data must be explicitly recognised;
- privacy concerns for individual customers need to be adequately addressed; and
- information provided by DNSPs should be available as an 'as provided basis' and users accept the data at their own risk without recourse.

The ENA also submitted that, as a general principle, it considers that the direct beneficiaries of the proposed rule change should bear the costs.⁵¹

⁴⁶ Jemena Electricity Networks, Jemena, submission and cover letter, 24 May 2013, pp.2&4; and United Energy, submission and cover letter, 24 May 2013, p.4.

⁴⁷ Energex, submission and cover letter, 23 May 2013, p.4; and Energex, submission, 5 June 2013, p.1.

⁴⁸ Citipower and Powercor, submission, 24 May 2013, p.2; Energy Networks Association, ENA, submission, 27 May 2013, p.5; Energex, submission and cover letter, 23 May 2013, p.1; Ergon Energy, submission, 24 May 2013, p.3; Jemena Electricity Networks, Jemena, submission and cover letter, 24 May 2013, p.5; and United Energy, submission and cover letter, 24 May 2013, p.5.

⁴⁹ United Energy, submission and cover letter, 24 May 2013, p.4.

⁵⁰ Energy Networks Association, ENA, submission, 27 May 2013, p.1.

⁵¹ Energy Networks Association, ENA, submission, 27 May 2013, p.4.

Stakeholders who were supportive of the proposed rule change cited the potential benefits of publishing zone substation load data.⁵²

The AER submitted that, in principle, it supports the public release of market information as it provides greater transparency to the operation of the market and provides market participants with more reliable information on which to base their decisions, thereby promoting more efficient outcomes. The AER considered that, provided the data is robust, then the benefits cited by the NGF in its rule change request are likely to occur from the proposed rule change.⁵³

Generators supported the proposed rule change, noting that it will allow competing forecasts of electricity demand and will encourage empirical assessment of the factors that are driving electricity demand.⁵⁴ EnerNOC (a demand response aggregator) submitted that in addition to significantly increasing transparency by making more detailed load data routinely available, the proposed rule change could benefit demand-side aggregators in assessing the potential for demand-side solutions to network issues.⁵⁵ The Clean Energy Council (CEC) submitted that the publication of zone substation data could allow greater scrutiny of DNSPs' investment proposals for the augmentation of their networks.⁵⁶

EnergyAustralia and Westpac submitted that consideration should be given to publishing the data on a real time basis.⁵⁷

Stakeholders who were supportive of the proposed rule change considered that the data should be published in a standardised format that would allow users to access and analyse the data consistently.⁵⁸

6.2.1 NGF and ENA investigations and discussions

As discussed in chapter 5, the Commission, prior to the making of this draft rule, facilitated discussions between the NGF and ENA with the aim to provide the Commission with more information to assist its assessment of the proposed rule

⁵² Alinta Energy, submission, 24 May 2013, pp.1-2; AER, submission, 24 May 2013, pp.1-2; Clean Energy Council, submission, 31 May 2013, pp.4-5; Creative Analytics, submission, 19 August 2013, p.1; EnergyAustralia, submission, 16 May 2013, pp.1-3; EnerNOC, submission, 24 May 2013, pp.1-3; GDF Suez, submission, 24 May 2013, p.2; NGF, submission, 24 May 2013, p.9; St. Kitts Associates, submission, 23 May 2013, p.1; and Westpac Energy, submission, 29 April 2013, pp.1-4.

⁵³ AER, submission, 24 May 2013, p.1.

⁵⁴ Alinta Energy, submission, 24 May 2013, pp.1-2; EnergyAustralia, submission, 16 May 2013, pp.1&3; GDF Suez, submission, 24 May 2013, p.2; and NGF, submission, 24 May 2013, pp.1-9.

⁵⁵ EnerNOC, submission, 24 May 2013, p.1.

⁵⁶ Clean Energy Council, submission, 31 May 2013, p.4.

⁵⁷ EnergyAustralia, submission, 16 May 2013, p.1; and Westpac Energy, submission, 29 April 2013, p.4.

⁵⁸ Alinta Energy, submission, 24 May 2013, p.2; Clean Energy Council, submission, 31 May 2013, p.2; EnergyAustralia, submission, 16 May 2013, p.2; EnerNOC, submission, 24 May 2013, pp.1-2; GDF Suez, submission, 24 May 2013, p.1; and Westpac Energy, submission, 29 April 2013, p.1.

change against the NEO. The outcome of discussions between the NGF and ENA was general support for a set of key parameters for the provision of data.

The key parameters and the requirements that were generally supported by the NGF and ENA are:⁵⁹

- Data type:
 - raw data (for example, SCADA data).
- Data to be clearly labelled with the:
 - identifier of the zone substation, which corresponds to the zone substation identifier in the DNSP's DAPR;
 - date and time of the meter reading;
 - time interval or frequency of the data;
 - unit of measurement (for example, MW, kV, MVA), including power factors, where appropriate.
- Data format:
 - standard electronic format (for example, comma separated values (CSV) or text format).
- Provision of data:
 - DNSPs would provide information on their website on how an interested party could make a request for zone substation load data;
 - upon receiving such a request, the DNSP would make the data available to the person making the request in a reasonable time;
 - the data to be made available includes:
 - a. once-only provision of historical load data (extending back ten years, if available);
 - b. ongoing historical annual data (that is, load data for the previous year only), which the DNSP updates annually as part of the DAPR process.
 - DNSPs have the option of providing the data either offline via a data storage device (for example, compact disc (CD) or universal serial bus (USB) drive) or online via a secure website download.

⁵⁹ ENA, letter to AEMC, 25 October 2013, pp.3-4.

The NGF and ENA generally supported that the proposed rule change should recognise the limitations of the available data. The ENA submitted that while the data is fit for network purposes, it may not be sufficiently accurate or complete for other unrelated purposes. Both parties generally supported that the data should be available to users on an 'as provided basis' and users should accept the use of the data at their own risk without recourse. The ENA submitted that there should not be any requirement for DNSPs to assist potential users regarding interpretation of the data. To have such a requirement could ultimately be costly to electricity consumers without any corresponding direct benefit.⁶⁰

6.3 Commission analysis and conclusion

As discussed in chapter 2, the Commission considers that the provision of zone substation load data, where it is available, has the potential, in various ways, to improve the decision making of market participants. For example, the availability of zone substation load data can inform generators' decisions on where and when to build new generation plant, or which and when to retire existing generation plant to maximise efficiency of use. It may also allow providers of demand side management to offer more efficient demand side response services. By obtaining a greater understanding of the changes in electricity demand, and where these changes are occurring across the NEM, generators and demand side management providers are able to target their resources in areas of the network that they are likely to have the most value. This will maximise the efficiency of their investments and services. Improved decision making by market participants promotes the efficient operation and investment in electricity services, which is in the long term interests of consumers.

The Commission notes the potential benefits and costs that have been identified by stakeholders in relation to the proposed rule change. The Commission considers that it is possible to provide zone substation data on the lowest cost terms possible, where the potential benefits arising from the provision of this data would outweigh the costs.

The Commission considers that the key parameters and requirements generally supported by the NGF and ENA are a practical way of making zone substation data available at the lowest possible cost. The Commission considers that providing raw zone substation load data on request is likely to minimise the costs to DNSPs associated with processing, formatting and distributing the data. As discussed above, data that is to be provided will be unprocessed. Formatting requirements are to be kept to a minimum by using a standard electronic format and clearly labelling the data. Also, with DNSPs only providing data on request, this is likely to minimise the costs of providing the data as a DNSP would not be required to publish the data on their website. As the data is to be provided on request, rather than being published, the potential costs likely to have been incurred by DNSPs, in relation to upgrading their websites to handle such large volumes of data, can be avoided.

⁶⁰ ENA, letter to AEMC, 25 October 2013, p.3.

For these reasons, the Commission has decided to base its draft rule on the parameters and requirements that were generally supported by the NGF and ENA. The draft rule inserts a new rule 5.13A after clause 5.13.2 of the NER which sets out the requirements for the provision of distribution zone substation data. The draft rule requires that each DNSP provide historical zone substation data, on request, for each of its zone substations.

Under the draft rule, zone substation information means the following data for each zone substation on the DNSP's distribution network:⁶¹

- the name or other identifier for the zone substation that corresponds to that used by the DNSP in its DAPR regional development plan;
- where data has not been provided for reasons of confidentiality, a statement to that effect;
 - Under the draft rule, a DNSP is not required to provide zone substation information if, in the reasonable opinion of the DNSP, that information is confidential or commercially-sensitive to a third party;⁶²
- each date and time interval for which load data is available for that zone substation;
- for each specified date and time interval specified for each zone substation, load data (measured in kW or MW); and
- any additional information relating to load at the zone substation that the DNSP wishes to provide, including:
 - apparent power (measured in kVA or MVA);
 - reactive power (measured in kVAr or MVAr); or
 - power factor.

Under the draft rule, any person can request the DNSP to provide historical zone substation reports of the following kinds:⁶³

- an annual zone substation report, which contains historical zone substation data for one reporting year. The reporting year is defined as a period of one year that ends on the same date in each reporting year (for example, a period of one year ending on 30 June); and
- a ten year zone substation report, which contains historical zone substation data for the ten reporting years prior to the commencement of the final rule, if made.

⁶¹ Clause 5.13A(b) of the draft rule.

⁶² Clause 5.13A(g) of the draft rule.

⁶³ Clause 5.13A(a) of the draft rule.

A DNSP can determine its own reporting year based on its current data collection practices.

With respect to requesting the data, the draft rule requires that the DNSP must publish the following information on its website:⁶⁴

- information on how a person may request zone substation reports;
- the electronic or other format(s) in which the DNSP can make the zone substation reports available;
- the start and end dates of the DNSP's reporting year;
- the start and end dates of the period to which the ten year zone substation report relates;
- details of the annual zone substation reports that are available on request;
- information on when the next annual zone substation report will be available on request; and
- the amount of the fee payable to the DNSP for the provision of the ten year zone substation report and each annual zone substation report;
 - Under the draft rule, the fee charged by the DNSP must be no more than that required to meet the reasonable costs anticipated to be incurred by the DNSP in providing the data.

The draft rule requires that a person requesting data to:⁶⁵

- specify whether they require:
 - a ten year zone substation report; and/or
 - one or more annual zone substation reports;
- specify the format in which they wish to receive the zone substation reports, which must be a format specified by the DNSP;
- acknowledge that:
 - any zone substation information provided by the DNSP is provided as raw data;
 - the DNSP has not analysed, assessed or validated the quality or accuracy of the data; and

⁶⁴ Clause 5.13A(d) of the draft rule.

⁶⁵ Clause 5.13A(e) of the draft rule.

- the DNSP makes no warranty or guarantee as to the data's quality or suitability for any particular purpose.
- provide any applicable fees specified on the DNSP's website; and
- submit a request in a form reasonably required by the DNSP and as specified on its website.

Upon receiving such a request, the draft rule requires that the DNSP must provide the report(s) requested as soon as practicable but, in any event, within 30 business days of the date of the request.⁶⁶

Stakeholders are invited to comment on whether 30 business days is an appropriate period of time for the DNSP to provide the requested report(s).

In responding to DNSPs' concerns with regards to the potential costs of processing and publishing the data, as explained above, the Commission considers that, under the draft rule, the processes required and the associated costs incurred to make the data available are likely to be minimal. The Commission notes Energex's submission which indicated that it would take approximately one–two weeks for a FTE employee to extract historical raw data and that it would take approximately another week for a FTE employee to extract, compile and publish the data on an annual basis. Under the draft rule, the Commission considers that the costs of providing the data are likely to be lower than has been suggested by some DNSPs because under the draft rule, the data, only where it is readily available, is to be provided as unprocessed or raw data. Further, the data is to be provided only upon request, rather than requiring it to be published. Also, the Commission notes that the key parameters and requirements of the data that is to be made available under the draft rule, has the general support of the ENA.⁶⁷

With regard to the recovery of DNSPs' costs for the provision of zone substation data via charging a fee to data users, the Commission considers that this is the best approach for the recovery of such costs. This is because:

- The direct beneficiary of the data should pay for the data (that is, the 'user pays principle'). The Commission considers that under the alternative approach for the recovery of costs, where DNSPs' costs are recovered from electricity consumers via network charges for standard control services, consumers may not directly benefit from the provision of data. Rather, market participants (such as, generators) are likely to directly benefit as the provision of zone substation data could potentially lead to better investment decisions. This may be of benefit to consumers in the long term.
- DNSPs' costs for the provision of zone substation data, as required under the draft rule, are likely to be lower than has been suggested by some DNSPs (for reasons discussed above).

⁶⁶ Clause 5.13A(f) of the draft rule.

⁶⁷ ENA, letter to AEMC, 25 October 2013, pp.1-4.

- Charging a fee for the provision of zone substation data is likely to reduce the likelihood of spurious requests being made to DNSPs for data, thereby keeping DNSPs' costs and, in turn, fees to a minimum.
- The AER may, in the next regulatory determination process for a DNSP, classify the service provided under the final rule, if made, as a direct control service and regulate the fee that can be charged by the DNSP.

In responding to Energex and Ergon's suggestion that DNSPs provide the data to a central body which can co-ordinate and publish the data on its website, the Commission considers that while this approach could have potential benefits for both data users and DNSPs, it is unlikely to be the least cost approach and would require a greater degree of co-ordination and administration.

Instead of requiring DNSPs to 'publish' zone substation data, the Commission has decided to take the approach of requiring DNSPs to make this data available, on request. The Commission considers that the provision of data on request is the least cost approach. The Commission notes this approach was suggested by Jemena and United Energy.

In responding to DNSPs' concerns that they would have to employ additional resources to answer queries from data users on data quality and interpretation issues, the Commission considers that, under the draft rule, this will not likely to be the case. This is because the data is to be provided on an 'as provided basis' and users are expected to accept the data at their own risk without any warranty or guarantees as to the data's quality or suitability for any particular purpose. The Commission notes that, under the draft rule, DNSPs are not obliged to provide information beyond the required zone substation raw data. For this reason, the Commission does not consider the costs suggested by United Energy for providing additional information to the zone substation data are likely to eventuate under the draft rule.

In responding to the ENA's concern that if the proposed rule is made, then the rule should be subject to several caveats regarding the limitations of the data, data confidentiality issues and that the data be provided on an 'as provided basis', the Commission notes that each of these issues are addressed by the draft rule. As noted above, the confidentiality issue is discussed further in chapter 7.

Finally, in responding to stakeholders' suggestions that zone substation data should be made available more frequently than what has been proposed (with some suggesting that it be made available on a real time basis), the Commission considers that it has not been provided with sufficient reasons to support such a proposition and that, in any event, it is unlikely to be the least cost approach in providing zone substation data.

7 Confidential customer information

This chapter discusses the issue of confidential customer information. The views of the rule proponent and stakeholders, the outcome of discussions between the NGF and ENA, and the Commission's analysis and decisions, are set out below.

With the provision of zone substation data, there is the potential to reveal information about an individual customer or market participant which could reasonably be considered by those customers as being confidential or commercially-sensitive. This issue may arise where a zone substation is supplying a single or several consumers that account for a substantial proportion of the load. Although there may be many consumers in total being supplied by that particular zone substation, under such circumstances, it may be possible to broadly deduce an individual consumers' electricity consumption profile which may be considered to be commercially-sensitive.

To mitigate against this risk, one potential solution may be for the data, from the zone substation where there are concerns with regards to confidentiality, to be aggregated with data from other neighbouring zone substation(s). Another potential solution may be to exclude the data from the zone substation information that is to be made available by the DNSP.

7.1 Rule proponent's view

The NGF in its rule change request did not specifically address the issue of confidentiality. However, when discussing the publication of connection point data proposal that AEMO is currently investigating, the NGF noted that some stakeholders, in their submissions to AEMO's consultation paper on the proposal, had raised concerns that commercially-sensitive information may be disclosed.⁶⁸

7.2 Stakeholders' views

There were mixed views in stakeholders' submissions to the AEMC's consultation paper with regard to the confidentiality issue. Most stakeholders recognised that there is a need to address such concerns that may arise with the provision of zone substation data.⁶⁹

⁶⁸ NGF, rule change request and cover letter, 24 January 2013, p.8.

⁶⁹ Alinta Energy, submission, 24 May 2013, p.2; AER, submission, 24 May 2013, p.2; Aurora Energy, submission, 27 May 2013, p.2; Citipower and Powercor, submission, 24 May 2013, p.2; Clean Energy Council, submission, 31 May 2013, p.3; EnergyAustralia, submission, 16 May 2013, p.2; Energex, submission and cover letter, 23 May 2013, pp.5-7; EnerNOC, submission, 24 May 2013, p.2; Ergon Energy, submission, 24 May 2013, pp.3, 7-8; GDF Suez, submission, 24 May 2013, p.1; Jemena Electricity Networks, Jemena, submission and cover letter, 24 May 2013, pp.2&5; Networks NSW, submission, 24 May 2013, p.2; SA Power Networks, submission, 24 May 2013, p.4; United Energy, submission and cover letter, 24 May 2013, p.6; and Westpac Energy, submission, 29 April 2013, pp.1-2.

Aggregation of zone substation data was generally seen as the best approach to reducing the risk of releasing data that could be considered as confidential.⁷⁰ Westpac submitted that when aggregating zone substations for confidentiality purposes, similar customer types should be aggregated together, where possible.⁷¹ However, GDF Suez cautioned against an overly conservative approach by DNSPs unnecessarily aggregating data to avoid issues of confidentiality. It considered that such an approach would restrict the granularity and, hence, utility of the data.⁷² EnerNOC submitted that when aggregating zone substation data, care should be taken, where possible, to form aggregations in a way which is consistent with the network topology. This is so that the zone substations concerned will generally lie on the same side of any likely constraint.⁷³

Several DNSPs submitted that when aggregating data to avoid issues of confidentiality, consideration not only be given to the number of customers sharing a zone substation, but also the relative demand of customers at the zone substations concerned. For example, a zone substation may have one major industrial customer and many individual smaller customers, and that the load of the zone substation will largely reflect the load of the major customer.⁷⁴

Some DNSPs considered that due to network configuration, in some instances, it may not be possible to aggregate zone substation loads to avoid disclosure of major customer loads.⁷⁵ In such circumstances, exclusion of the zone substation data from public release should be permitted.⁷⁶

Ergon submitted that the definition of zone substation data that is required to be published be clarified so that:⁷⁷

- zone substations that are dedicated to a single customer should be excluded, as well as substations that have a commercial or confidentiality issues; and

⁷⁰ Alinta Energy, submission, 24 May 2013, p.2; AER, submission, 24 May 2013, p.2; Citipower and Powercor, submission, 24 May 2013, p.2; EnerNOC, submission, 24 May 2013, p.2; GDF Suez, submission, 24 May 2013, p.1; Jemena Electricity Networks, Jemena, submission and cover letter, 24 May 2013, pp.2&5; SA Power Networks, submission, 24 May 2013, p.4; United Energy, submission and cover letter, 24 May 2013, p.6; and Westpac Energy, submission, 29 April 2013, pp.1-2.

⁷¹ Westpac Energy, submission, 29 April 2013, p.1.

⁷² GDF Suez, submission, 24 May 2013, p.1.

⁷³ EnerNOC, submission, 24 May 2013, p.2.

⁷⁴ Ergon Energy, submission, 24 May 2013, pp.7-8; Jemena Electricity Networks, Jemena, submission and cover letter, 24 May 2013, p.5; and SA Power Networks, submission, 24 May 2013, p.4.

⁷⁵ Aurora Energy, submission, 27 May 2013, p.2; Energex, submission and cover letter, 23 May 2013, p.5; Ergon Energy, submission, 24 May 2013, pp.3&8; and SA Power Networks, submission, 24 May 2013, p.4.

⁷⁶ Energex, submission and cover letter, 23 May 2013, p.5; Ergon Energy, submission, 24 May 2013, pp.3&8; SA Power Networks, submission, 24 May 2013, p.4.

⁷⁷ Ergon Energy, submission, 24 May 2013, p.3.

- zone substations below a certain MVA threshold (for example, 2MVA) should be excluded on the basis of likely confidentiality issues, and the costs of maintaining data for a relatively insignificant benefit.

Energex, Jemena and SA Power Networks submitted that judgements on confidentiality with regards to releasing data should be made at the discretion of the DNSP.⁷⁸ Energex submitted that the confidentiality of customer information is governed by contract terms which prevent disclosure of information except in specific circumstances where Energex is required to disclose the information by law. It considered that the proposed rule change should include a mechanism or an exemption that allows a DNSP to not have to disclose zone substation data if it believes that by doing so it would be likely to breach customer confidentiality obligations.⁷⁹

The CEC considered a more appropriate approach to the treatment of confidential information would be a requirement for market participants or individual customers who consume electricity above a certain threshold level to 'opt-out' of the publication of demand data. If the customer chooses to 'opt-out', then the relevant DNSP should make the appropriate decision about aggregating data for that customer's connection point. Otherwise, the CEC considered that all data should remain disaggregated.⁸⁰

The NGF was also not supportive of restricting the release zone substation data. It considered that the benefits of publishing all data in a consistent form may outweigh any concerns about releasing data on zone substation loads from which only a few customers take supply. It noted that smelters and large industrial customers generally take their supply from the sub-transmission network and consequently will not be affected by the proposed rule change. In its submission, the NGF stated its reasons why it considers that the publication of all zone substation data should not create any significant concern about commercial disclosure, as:⁸¹

- for a person to use this information to track an individual customer's load profile, they would need to know the identity of the relevant zone substation, how many other customers receive supply from that substation, and the approximate load shape of each customer taking supply;
- the proposed publication of zone substation data is historical data not real time data;
- the zone substation data only relates to the volume and profile of electricity supply, it does not reveal the value of any supply contracts;
- publication of zone substation data would seem compatible with other initiatives to quantify and publish details of the extent of demand response in the NEM;

⁷⁸ Energex, submission and cover letter, 23 May 2013, p.7; Jemena Electricity Networks, Jemena, submission and cover letter, 24 May 2013, pp.2&5-6; Ergon Energy, submission, 24 May 2013, pp.3&8; SA Power Networks, submission, 24 May 2013, p.4.

⁷⁹ Energex, submission and cover letter, 23 May 2013, p.6.

⁸⁰ Clean Energy Council, submission, 31 May 2013, p.3.

⁸¹ NGF, submission, 24 May 2013, p.8.

- electricity represents a relatively small proportion of business costs for the vast majority of businesses in the NEM; and
- AEMO publishes data on generator unit operations at five minute intervals along with a range of other technical and commercial data for each power station facility. Generators do not object to the publication of this information.

The NGF also submitted that aggregation of zone substation data may shuffle loads between zone substations as customer numbers increase or decrease through time.⁸²

7.2.1 NGF and ENA investigations and discussions

As discussed in chapters 5 and 6, the Commission, prior to the making of this draft rule, facilitated discussions between the NGF and ENA with the aim to provide the Commission with more information to assist its assessment of the proposed rule change against the NEO. The outcome of discussions between the NGF and ENA was general support for a set of key parameters for the provision of data. However, the NGF and ENA did not agree on two issues, namely confidentiality and the requested provision of single line diagrams.⁸³ The requested provision of single line diagrams is discussed in chapter 8.

With respect to the issue of confidentiality, the ENA's position is that any proposed rule change should allow DNSPs to exclude confidential or commercially-sensitive data from public release. It noted that:⁸⁴

- customer confidentiality obligations are imposed on DNSPs under connection contracts;
- aggregation will not always avoid confidentiality issues, as it may not be possible given the configuration of the network to conceal certain customer loads;
- manipulation of the data adds to costs and aggregation could run counter to the objective of analysing locational loads; and
- confidential or commercially-sensitive information is excluded from the DAPRs.

7.3 Commission analysis and conclusion

The Commission considers that the DNSP is in the best position to deal with issues of confidentiality arising with the public release of zone substation data. DNSPs may have contractual relationships with customers with regards to the supply of network services. These contracts may have customer confidentiality obligations that have the effect of restricting the publication of information that relates to the customer's electricity consumption profile. Also, DNSPs have detailed knowledge of the

⁸² NGF, submission, 24 May 2013, pp.8-9.

⁸³ ENA, letter to AEMC, 25 October 2013, pp.1-2.

⁸⁴ ENA, letter to AEMC, 25 October 2013, p.4.

configuration of their networks. This may include the number of customers and their relative load sizes that are supplied from each of their zone substations. It is this information that DNSPs would use to make judgements on zone substation data aggregation or, if necessary, to make a judgement on excluding data from public release that is considered confidential or commercially-sensitive to a third party.

For this reason, the Commission has decided to make a draft rule that provides discretion to DNSPs to decide on how to deal with issues of data confidentiality that may arise with the public release of zone substation data. Under the draft rule, the DNSP is not required to provide data for a zone substation if, in the reasonable opinion of the DNSP, that information is confidential or commercially-sensitive to a third party.⁸⁵

In responding to stakeholders' views as to aggregating zone substation data to avoid concerns of confidentiality, the Commission considers that it is difficult to prescribe what level of aggregation should be applied, without significantly impacting on the usefulness of the data. This is because it is dependent on the particular circumstances of the zone substation concerned (for example, how it relates to the surrounding network, its location and the number and relative load sizes of the customers supplied). Also, it may be difficult to assess what level of aggregation is acceptable without significantly impacting on the usefulness of the data. As the ENA has noted, aggregation could run counter to the objective of analysing locational loads and data manipulation would add to DNSPs' costs. For these reasons, the Commission has not made provision for the aggregation of zone substation data in the draft rule.

The Commission acknowledges that, in some cases, it may not be practically possible to aggregate zone substation data to avoid issues of confidentiality. Such circumstances may arise due to network configurations where it is not possible to conceal an individual customer's load profile. In such circumstances, any data that is considered confidential or commercially-sensitive to a third party may be excluded from the publically released data set. In responding to DNSPs' views that data exclusion for the purposes of avoiding confidentiality concerns should be permitted under any proposed rule change, the Commission notes that under the draft rule, DNSPs may choose the method they think is reasonable and appropriate to deal with issues of confidentiality. This may include not providing information on a zone substation under the draft rule.⁸⁶

In responding to Ergon's suggestion that zone substations below a certain MVA threshold should be excluded from the publically released data set, the Commission considers that unless there are reasonable concerns that the information is confidential or commercially-sensitive to a third party, then all available zone substation data should be released. The Commission considers that this is consistent with the objective of the rule change request which requires that, as far as possible, a complete set of zone substation load information from each DNSP is made public.

⁸⁵ Clause 5.13A(g) of the draft rule.

⁸⁶ Clause 5.13A(b)(2) of the draft rule.

In responding to the CEC's suggestion that there should be an 'opt-out' option available for customers who have concerns about data confidentiality, the Commission considers that such an approach places the onus on the individual customer to object. As outlined above, the Commission considers that the DNSP is in the best position to make judgements on issues with regards to data confidentiality. If a DNSP has concerns that there may be potential confidentiality issues with regards to releasing zone substation load data that could be linked to a particular individual customer, then the DNSP could, for example, contact that customer to establish whether they have any objections to that data being publically released.

Finally, in responding to the NGF's view that the publication of all zone substation data should not create any significant concern about commercial disclosure, the Commission considers that large consumers (such as industrial plants) which are supplied directly from zone substations would be highly sensitive to the public release of load data that could be used to derive their electricity consumption profiles. To disclose such data may allow competing customers to decipher commercially-sensitive information, such as production costs and volumes.

Stakeholders are invited to comment on other possible solutions to addressing confidentiality concerns relating to the public release of zone substation data.

8 Provision of single line diagrams

This chapter discusses the issue of the provision of single line diagrams by DNSPs. The views of the rule proponent and stakeholders, the outcome of discussions between the NGF and ENA, and the Commission's analysis and decisions, are set out below.

In discussions with the NGF and ENA, the NGF raised the issue that under any proposed rule requiring the provision of zone substation load information, DNSPs should also be required to provide single line diagrams as part of that information. The AEMC understands that the NGF's interpretation of what a single line diagram is, is a schematic diagram that shows the linkages between zone substations.

8.1 Rule proponent's view

The NGF in its rule change request did not raise the issue of single line diagrams directly.

8.2 Stakeholders' views

Stakeholders' submissions in response to the AEMC's consultation paper did not raise the issue of single line diagrams. This issue was not discussed in the AEMC's consultation paper.

8.2.1 NGF and ENA investigations and discussions

As discussed in chapters 5, 6 and 7, the Commission, prior to the making of this draft rule, facilitated discussions between the NGF and ENA with the aim to provide the Commission with more information to assist its assessment of the proposed rule change against the NEO. The outcome of discussions between the NGF and ENA was general support for a set of key parameters for the provision of data. However, the NGF and ENA did not agree on two issues, namely confidentiality and the requested provision of single line diagrams.⁸⁷ The requested provision of single line diagrams is discussed below.

The NGF was of the view that DNSPs should be required to provide single line diagrams, or detailed network diagrams that show the linkages between zone substations.

The AEMC understands that the NGF considers that these diagrams would assist in the interpretation of the zone substation raw data, particularly where there are step changes in the data. Step changes may be the result of load switching from one zone substation to another or the sectioning of the local 11kV network. Where load switching occurs, a sudden change in load at a given zone substation would normally result in a corresponding opposite load change at another zone substation. We

⁸⁷ ENA, letter to AEMC, 25 October 2013, pp.1-2.

understand from the NGF, that data users may wish to develop algorithms to interpret these load step changes and to attribute the load to specific network areas. The NGF considers that in order to achieve this, single line diagrams, or detailed network diagrams are required which show the linkages between zone substations, and also the likely points where the distribution network could be sectioned.

We understand that the NGF considers that single line diagrams are particularly needed where the distribution network is highly meshed. It also considers that the network diagrams shown in the DAPRs are at a very high level and do not provide sufficient detail for such analysis to be undertaken.

In response, the ENA submitted that it does not support the public release of spatial information on the location of zone substations and the provision of single line diagrams, as proposed by the NGF. It noted that where this information is currently available, it is subject to confidentiality agreements. The ENA considered that the public release of such information raises potential security concerns.⁸⁸

The ENA considered that there is sufficient detail in the maps published in the DAPRs to provide connectivity of the zone substation to its supplying substation.⁸⁹

8.3 Commission analysis and conclusion

The Commission considers that DNSPs should not be required to provide single line diagrams or any other network design information that is not already included in the DAPRs.

In reaching this decision, the Commission notes that:

- there are legitimate concerns regarding network security and commercial-in-confidence issues with the public release of detailed network diagrams and information. The Commission considers that the provision of additional detailed information that may be contained in the single line diagrams is not warranted when balanced against the security concerns that may flow from the provision of such information;
- each DNSP, as part of its DAPR, is required to provide a regional development plan which consists of a map of its network identifying sub-transmission lines, zone substations and transmission-distribution connection points;⁹⁰
- it would be difficult in a rule to qualify what level of subjective detailed information would be required to resolve data interpretation issues;
- the provision of detailed network diagrams and information would add to DNSPs' costs of providing zone substation data; and

⁸⁸ ENA, letter to AEMC, 25 October 2013, p.4.

⁸⁹ ENA, letter to AEMC, 25 October 2013, p.4.

⁹⁰ Schedule 5.8(n) of the NER.

- interested persons who request zone substation data under the final rule, if made, may directly approach and negotiate with individual DNSPs to obtain any detailed network information that they may require on a confidential basis (for example, by signing a confidentiality agreement).

Abbreviations

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Commission	See AEMC
DAPR	Distribution annual planning report
DNSP	Distribution Network Service Provider
CD	Compact disc
CEC	Clean Energy Council
CSV	Comma separated values
ENA	Energy Networks Association
FTE	Full time equivalent
kV	Kilovolts
kVA	Kilovolt-amperes
kVAr	Kilovolt-amperes reactive
kW	Kilowatts
MCE	Ministerial Council on Energy
MVA	Megavolt-amperes
MVAr	Megavolt-amperes reactive
MW	Megawatt
MWh	Megawatt-hour
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective

NER	National Electricity Rules
NGF	National Generators Forum
PV	Photovoltaic
SCADA	Supervisory control and data acquisition
SCER	Standing Council on Energy and Resources
TNSP	Transmission Network Service Provider
USB	Universal serial bus

A Summary of issues raised in submissions

Stakeholder	Issue	AEMC Response
<p><i>DNSPs who were generally not supportive of the proposed rule change:</i> Aurora Energy (Aurora), Citipower and Powercor, Energy Networks Association (ENA), Energex, Ergon Energy (Ergon), Jemena Electricity Networks (Jemena), Networks NSW, SA Power Networks and United Energy.</p> <p><i>Other stakeholders who were supportive of the proposed rule change:</i> Alinta Energy, Clean Energy Council, EnergyAustralia, GDF Suez, National Generators Forum (NGF) and Westpac Energy (Westpac).</p>	<p><i>Data quality and availability</i></p> <p>DNSPs considered that there were significant issues in relation to data quality and availability, and questioned whether the data that is available is sufficiently robust to enable reliable econometric analysis and forecasts to be undertaken. In particular, DNSPs noted that:</p> <ul style="list-style-type: none"> • not all zone substations are metered and, those that are metered, may not have data extending back for ten years; • zone substations are metered for operational and planning purposes and mostly have supervisory control and data acquisition (SCADA) data; • the metered data is measured in MW at different time intervals (for example, at 1, 5, 10, 15 or 30 minute intervals) and would require conversion to MWh at half-hour intervals; • switching and load transfer can occur between zone substations at any given point in time, which can result in significant variations in load recorded at those substations affected; • the metered data may contain gaps or missing data due to device failure or metering equipment being offline for a period of time; • the metered data is raw data and has not been corrected for spikes in the data, abnormal switching, outliers in the data 	<p><i>Data quality and availability</i></p> <p>The Commission acknowledges that there are limitations with regards to the quality and availability of zone substation data. It recognises that not all zone substations are metered for half-hour energy data and that, where data is recorded and collected, the data series may not necessarily extend back for ten years, nor be continuous.</p>

Stakeholder	Issue	AEMC Response
	<p>and weather dependent variables;</p> <ul style="list-style-type: none"> • the metered data is gross energy data and consists of distribution load data as well as data from unmetered supplies (such as non-scheduled generators and solar photovoltaic (PV) generation); • the metered data is not disaggregated by customer category; and • the metered data for each DNSP will need to be assembled from records which are currently not in a standardised format. <p>Aurora submitted that it is unconvinced that the publication of zone substation data for Tasmania, will be of use. This is because of the non-standard asset boundary that exists between transmission and distribution in Tasmania.</p> <p>The ENA submitted that the connection point data proposal that AEMO is currently investigating, if implemented, has the potential to provide more accurate data at the sub-regional level than the proposed publication of zone substation data. It suggested that the connection point proposal be evaluated before consideration be given to any incremental benefits from the proposed rule change.</p> <p>SA Power Networks submitted that about half of its zone substations have SCADA facilities. It estimated that it would cost \$16 million to install accurate metering (National Grid Meters) and communications to all of its 363 zone substations.</p> <p>Stakeholders who were supportive of the proposed rule change considered that zone substation load data should be made</p>	<p>The Commission considers that under the draft rule, Aurora would not be required to provide data for its substations that take their supply directly from the transmission network as these substations are not connected to a sub-transmission network and are, therefore, not defined as a zone substation under the NER.</p> <p>The Commission notes while the transmission to distribution connection point data proposal is a similar proposal in that it relates to the publication of sub-regional electricity demand data, AEMO's evaluation of this proposal is unrelated to the Commission's consideration of this rule change request as it does not form part of the rule change request. The Commission notes that while the electricity demand data collected at transmission to distribution connection points is of a higher quality than zone substation load data, it is less granular as it is at a higher level in the supply chain. Given that zone substation load data provides a greater level of detail, it may be possible from this data to analyse electricity demand trends at a more localised level, than what otherwise may be achieved using the transmission to distribution connection point data.</p> <p>The Commission considers that DNSPs would not be expected to install metering equipment where metering does not currently exist at zone substations, or to improve the quality of their metered data for the specific purpose of meeting their obligations under the draft rule.</p> <p>The Commission notes the comments made by stakeholders who were supportive of the proposed rule</p>

Stakeholder	Issue	AEMC Response
	<p>available on a routine basis and in a standardised format.</p> <p>The NGF was of the view that the data would be useful in its most raw form to provide information on long term changes in demand patterns. It also considered that releasing the data in a raw form would reduce DNSPs' costs of collecting and distributing the data.</p>	<p>change.</p> <p>The Commission notes the comments made by the NGF in relation to the provision of raw data.</p>
<p><i>DNSPs who were generally not supportive of the proposed rule change:</i> Citipower and Powercor, Energy Networks Association (ENA), Energex, Ergon Energy (Ergon), Jemena Electricity Networks (Jemena), Networks NSW, SA Power Networks, and United Energy.</p> <p><i>Other stakeholders who were supportive of the proposed rule change:</i> Alinta Energy, Australian Energy Regulator (AER), Clean Energy Council (CEC), Creative Analytics, EnergyAustralia, EnerNOC, GDF Suez, National Generators Forum (NGF), St. Kitts Associates, Westpac Energy (Westpac).</p>	<p><i>Provision of data</i></p> <p>DNSPs were generally not supportive of publishing zone substation data as they considered that it has not been demonstrated that the anticipated benefits outweigh any costs imposed.</p> <p>DNSPs had concerns about publishing large volumes of zone substation data on their websites. They considered that their websites are not designed to handle the large volumes of data that would be required to be published. Ergon and Jemena submitted that significant costs would need to be incurred to increase the capacity of their websites and to implement IT systems to manage such large volumes of data.</p> <p>Energex and Ergon suggested that DNSPs provide the data to a central body to co-ordinate and publish the data on its website, and that this would be beneficial to both DNSPs and data users.</p> <p>Jemena and United Energy suggested that any potential data users should first register with the DNSP and for the DNSP to then provide them with the data offline.</p> <p>Energex submitted that it did not consider that the costs of extracting raw SCADA data would be material. It estimated that</p>	<p><i>Provision of data</i></p> <p>The Commission considers that it is possible to provide zone substation data on the lowest cost terms possible, where the potential benefits arising from the provision of this data would outweigh the costs. It considers that the draft rule achieves this.</p> <p>The Commission considers that under the draft rule, the potential costs likely to have been incurred by DNSPs, in relation to upgrading their websites to handle such large volumes of data, can be avoided. This is because DNSPs would only be required to provide data on request, rather than publishing the data on their websites.</p> <p>The Commission considers that providing data to a central body to publish, is unlikely to be the least cost approach and would require a greater degree of co-ordination and administration.</p> <p>The Commission notes that the provision of data on request is the approach taken under the draft rule.</p> <p>The Commission notes Energex's cost estimates for the provision of zone substation data.</p>

Stakeholder	Issue	AEMC Response
	<p>it would take approximately one–two weeks for a FTE employee to extract historical raw data from its records in the format that is currently available. It also estimated that it would take approximately another week per year for a FTE employee to extract, compile and publish the data on an annual basis.</p> <p>DNSPs were also concerned that they do not have current resources available to handle queries from data users about data quality issues and interpretation of the data. To do so, it was submitted, would impose significant costs on DNSPs.</p> <p>United Energy submitted that providing derived consumption data, without the corresponding event data and networks' operations knowledge, may not be useful. It suggested an extensive business-to-business project which it suggested could take several years for DNSPs to standardise data formats and to provide meter register information and meter event collection and use. It estimated that this could cost each DNSP between \$4–10 million (not including the costs to improve metering and data quality work).</p> <p>The ENA submitted that if zone substation data is to be provided by DNSPs, then it should be subject to the following caveats:</p> <ul style="list-style-type: none"> • the source, form and limitations of the data must be explicitly recognised; • privacy concerns for individual customers need to be adequately addressed; and • information provided by DNSPs should be available as an 'as provided basis' and user's accept the data at their own 	<p>The Commission does not consider that DNSPs would need to employ additional resources to handle queries from data users. This is because the data is provided on an 'as provided basis' and users are expected to accept the data at their own risk without any warranty or guarantees as to the data's quality or suitability for any particular purpose.</p> <p>The Commission considers that the costs suggested by United Energy for providing additional information to the zone substation data would not eventuate under the draft rule. This is because under the draft rule, DNSPs are not obliged to provide information beyond the required raw zone substation data.</p> <p>The Commission notes that each of these issues identified by the ENA are addressed by the draft rule.</p>

Stakeholder	Issue	AEMC Response
	<p>risk without recourse.</p> <p>The ENA also submitted that, as a general principle, it considers that the direct beneficiaries of the proposed rule change should bear the costs.</p> <p>The AER submitted that, in principle, it supports the public release of market information as it provides greater transparency to the operation of the market and provides market participants with more reliable information on which to base their decisions, thereby promoting more efficient outcomes. The AER considered that, provided the data is robust, then the benefits cited by the NGF in its rule change request are likely to occur from the proposed rule change.</p> <p>Generators (Alinta Energy, EnergyAustralia, GDF Suez and the NGF) considered that the proposed rule change will allow competing forecasts of electricity demand and will encourage empirical assessment of the factors that are driving electricity demand.</p> <p>EnerNOC submitted that in addition to significantly increasing transparency by making more detailed load data routinely available, the proposed rule change could benefit demand-side aggregators in assessing the potential for demand-side solutions to network issues.</p> <p>The CEC submitted that the publication of zone substation data could allow greater scrutiny of DNSPs' investment proposals for the augmentation of their networks.</p> <p>EnergyAustralia and Westpac submitted that consideration should be given to publishing the data on a real time basis.</p>	<p>The Commission notes that under the draft rule, data users who are the direct beneficiaries of the draft rule are required to pay a fee to the DNSPs for the provision of zone substation data.</p> <p>The Commission notes the comments made by the AER in support of the proposed rule change.</p> <p>The Commission notes the comments made by stakeholders who were supportive of the proposed rule change.</p> <p>The Commission notes the comments made by the EnerNOC in support of the proposed rule change.</p> <p>The Commission notes the comments made by the CEC in support of the proposed rule change.</p> <p>The Commission considers that it has not been provided with sufficient reasons to support making data available on a real time basis and that, in any event, it is unlikely to be the least cost approach in providing zone substation data.</p>

Stakeholder	Issue	AEMC Response
	<p>Stakeholders who were supportive of the proposed rule change considered that the data should be published in a standardised format that would allow users to access and analysis the data consistently.</p>	<p>The Commission notes the comments made by stakeholders who were supportive of the proposed rule change.</p>
<p>Alinta Energy, AER, Aurora Energy (Aurora), Citipower and Powercor, Clean Energy Council (CEC), EnergyAustralia, Energex, EnerNOC, Ergon Energy (Ergon), GDF Suez, Jemena Electricity Networks (Jemena), National Generators Forum (NGF), Networks NSW, SA Power Networks, United Energy, and Westpac Energy (Westpac).</p>	<p><i>Confidentiality issue</i></p> <p>Aggregation of zone substation data was generally seen as the best approach to reducing the risk of releasing data that could be considered as confidential.</p> <p>Westpac submitted that when aggregating zone substations for confidentiality purposes, similar customer types should be aggregated together, where possible.</p> <p>GDF Suez cautioned against an overly conservative approach by DNSPs unnecessarily aggregating data to avoid issues of confidentiality. It considered that such an approach would restrict the granularity and, hence, utility of the data.</p> <p>EnerNOC submitted that when aggregating zone substation data, care should be taken, where possible, to form aggregations in a way which is consistent with the network topology. This is so that the zone substations concerned will generally lie on the same side of any likely constraint.</p> <p>Several DNSPs (Ergon, Jemena, and SA Power Networks) submitted that when aggregating data to avoid issues of confidentiality, consideration not only be given to the number of customers sharing a zone substation, but also the relative demand of customers at the zone substations concerned. For example, a zone substation may have one major industrial customer and many individual smaller customers, and that the</p>	<p><i>Confidentiality issue</i></p> <p>The Commission considers that it is difficult to prescribe what level of aggregation should be applied, without significantly impacting on the usefulness of the data. This is because it is dependent on the particular circumstances of the zone substation concerned (for example, how it relates to the surrounding network, its location and the number and relative load sizes of the customers supplied). Also, it may be difficult to assess what level of aggregation is acceptable without significantly impacting on the usefulness of the data. Aggregation could run counter to the objective of analysing locational loads and data manipulation may add to DNSPs' costs. For these reasons, the Commission has not made provision for the aggregation of zone substation data in the draft rule.</p> <p>The Commission notes the comments made by Westpac, GDF Suez and EnerNOC in relation to aggregating data.</p> <p>The Commission considers that DNSPs are in the best position to make judgements on zone substation aggregation. This is because DNSPs have detailed knowledge of the configuration of their networks including where zone substations are located with respect of any likely constraint. DNSPs may also have knowledge on the number of customers and their relative load sizes that are supplied from each of their zone substations.</p>

Stakeholder	Issue	AEMC Response
	<p>load of the zone substation will largely reflect the load of the major customer.</p> <p>Some DNSPs (Aurora Energy, Energex, Ergon Energy and SA Power Networks) considered that due to network configuration, in some instances, it may not be possible to aggregate zone substation loads to avoid disclosure of major customer loads. It was considered that in such circumstances, exclusion of the zone substation data from public release should be permitted.</p> <p>Ergon submitted that the definition of zone substation data that is required to be published be clarified so that:</p> <ul style="list-style-type: none"> • zone substations that are dedicated to a single customer should be excluded, as well as substations that have a commercial or confidentiality issues; and • zone substations below a certain MVA threshold (for example, 2MVA) should be excluded on the basis of likely confidentiality issues, and the costs of maintaining data for a relatively insignificant benefit. <p>Energex, Jemena and SA Power Networks submitted that judgements on confidentiality with regards to releasing data should be made at the discretion of the DNSP.</p> <p>Energex submitted that the confidentiality of customer information is governed by contract terms which prevent disclosure of information except in specific circumstances where Energex is required to disclose the information by law. It considered that the proposed rule change should include a mechanism or an exemption that allows a DNSP to not have to disclose zone substation data if it believes that by doing so it</p>	<p>The Commission acknowledges that in some cases, it may not be practically possible to aggregate zone substation data to avoid issues of confidentiality. In such circumstances, any data that is considered confidential or commercially-sensitive to a third party may be excluded from the publically released data set.</p> <p>The Commission considers that unless there are reasonable concerns that the information is confidential or commercially-sensitive to a third party, then all available zone substation data should be released. The Commission considers that this is consistent with the objective of the rule change request which requires that, as far as possible, a complete set of zone substation load information from each DNSP is made public.</p> <p>The Commission notes that the draft rule provides discretion to DNSPs to decide on how to deal with issues of data confidentiality that may arise with the public release of zone substation data.</p> <p>The Commission notes the comments made by Energex in relation to disclosure of customers' confidential information.</p>

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	<p>would be likely to breach customer confidentiality obligations.</p> <p>The CEC considered a more appropriate approach to the treatment of confidential information would be a requirement for market participants or individual customers who consume electricity above a certain threshold level to 'opt-out' of the publication of demand data. If the customer chooses to 'opt-out', then the relevant DNSP should make the appropriate decision about aggregating data for that customer's connection point. Otherwise, the CEC considered that all data should remain disaggregated.</p> <p>The NGF was not supportive of restricting the release zone substation data. It considered that the benefits of publishing all data in a consistent form may outweigh any concerns about releasing data on zone substation loads from which only a few customers take supply. It noted that smelters and large industrial customers generally take their supply from the sub-transmission network and consequently will not be affected by the proposed rule change. The NGF submitted that the reasons why it considers that the publication of all zone substation data should not create any significant concern about commercial disclosure, are:</p> <ul style="list-style-type: none"> • for a person to use this information to track an individual customer's load profile, they would need to know the identity of the relevant zone substation, how many other customers receive supply from that substation, and the approximate load shape of each customer taking supply; • the proposed publication of zone substation data is historical data, not real time data; • the zone substation data only relates to the volume and 	<p>The Commission considers that an 'opt-out' approach as suggested by the CEC places the onus on the individual customer to object. The Commission considers that the DNSP is in the best position to make judgements on issues with regards to data confidentiality. If the DNSP had concerns about releasing data that could be linked to a particular individual customer, then the DNSP could, for example, contact that customer to establish whether they have any objections to that data being publically released.</p> <p>The Commission notes the comments made by the NGF in relation to publically releasing data that may be considered as confidential. The Commission considers that large consumers (such as, industrial plants) which are supplied directly from zone substations would be highly sensitive to the public release of load data that could be used to derive their electricity consumption profiles.</p>

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	<p>profile of electricity supply, it does not reveal the value of any supply contracts;</p> <ul style="list-style-type: none"> • publication of zone substation data would seem compatible with other initiatives to quantify and publish details of the extent of demand response in the NEM; • electricity represents a relatively small proportion of business costs for the vast majority of businesses in the NEM; and • AEMO publishes data on generator unit operations at five minute intervals along with a range of other technical and commercial data for each power station facility. Generators do not object to the publication of this information. <p>The NGF also submitted that aggregation of zone substation data may shuffle loads between zone substations as customer numbers increase or decrease through time.</p>	<p>The Commission notes the comments made by the NGF in relation to aggregating data.</p>