



**Australian Energy Market Commission**

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## **CONSULTATION PAPER**

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

### **Rule Proponent**

National Generators Forum

26 April 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](mailto:aemc@aemc.gov.au)

T: (02) 8296 7800

F: (02) 8296 7899

Reference: ERC0156

## **Citation**

AEMC 2013, Publication of zone substation data, Consultation Paper, 26 April 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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# 1 Introduction

On 24 January 2013, the National Generators Forum (the NGF or the proponent) submitted a rule change request to the Australian Energy Market Commission (AEMC or Commission).

The rule change request proposes 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.

The purpose of the NGF's rule change request is to facilitate modelling of the key determinants of electricity demand changes at the sub-regional level. The NGF submitted 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. Also, the NGF submitted that providing access to detailed historical load data at the sub-regional level would enable any interested party 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.

This consultation paper has been prepared to facilitate public consultation on the rule change proposal and to seek stakeholder submissions on the rule change request.

This paper:

- sets out a summary of, and a background to, the rule change proposed by the proponent;
- seeks views on the appropriate assessment framework for the AEMC to apply to its analysis of the rule change proposal;
- identifies a number of questions and issues related to the rule change request;
- invites stakeholders to make submissions on the questions and issues raised in this paper; and
- outlines the process for making submissions to the AEMC by the due date.

## 2 Background

This chapter provides definitions of key terms, DNSP reporting processes and electricity demand information published by AEMO that are relevant to this rule change proposal.

### 2.1 Definitions

This rule change 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.<sup>1</sup>

Zone substations are defined in the NER as:<sup>2</sup>

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

A distribution network is defined in the NER as:<sup>3</sup>

“...a network which is not a transmission network.”<sup>4</sup>

Sub-transmission is defined in the NER as:<sup>5</sup>

“...any part of the power system which operates to deliver electricity from the transmission system to the distribution network and which may form part of the distribution network, including zone substations.”

### 2.2 Distribution annual planning review and reporting

This rule change also relates to the 'distribution annual planning report' (DAPR) process which is set out in Chapter 5 of the NER.<sup>6</sup>

The distribution annual planning review and reporting process was the subject of a rule change completed by the AEMC in October 2012.<sup>7</sup>

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1 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).

2 Clause 5.10.2 of the NER.

3 Chapter 10 of the NER.

4 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).

5 Clause 5.10.2 of the NER.

6 Schedule 5.8 of the NER.

As part of this process, DNSPs are required to undertake annual planning reviews, covering a 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 distribution businesses that would be expected to have a material impact on their networks.<sup>8</sup>

DNSPs are also required to publish an annual planning report (the DAPR). The report sets out the outcomes of the annual planning review and will 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.<sup>9</sup>

### **2.3 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, Queensland, South Australia, Tasmania and Victoria. 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).<sup>10</sup>

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<sup>7</sup> AEMC, Final rule determination, *National electricity amendment (distribution network planning and expansion framework) rule 2012*, 11 October 2012.

<sup>8</sup> AEMC, Final rule determination, *National electricity amendment (distribution network planning and expansion framework) rule 2012*, 11 October 2012, ppi-ii.

<sup>9</sup> AEMC, Final rule determination, *National electricity amendment (distribution network planning and expansion framework) rule 2012*, 11 October 2012, pii.

<sup>10</sup> See [www.aemo.com.au](http://www.aemo.com.au)

### 3 Details of the rule change request

The proponent's rule change request seeks to introduce an additional requirement for DNSPs in the 'distribution annual planning report' process (Chapter 5, schedule 5.8 of the NER).

Specifically, the rule change request proposes that DNSPs be required:

- to make available half-hourly load data for all zone substations within the DNSPs' distribution systems;
- to provide this data on an annual basis and where available for each of the preceding ten years; and
- to publish this data on their websites.

The proponent's rule change request includes a proposed rule, which is published on the AEMC's website.<sup>11</sup>

#### 3.1 Rationale for the rule change request

In its rule change request, the proponent provides its rationale for the rule change. The key points raised in the request are summarised below:<sup>12</sup>

- The publication of historical zone substation data would enable better modelling of the key determinants of electricity demand changes at the sub-regional level. This type of analysis would lead to more informed, timely and efficient decision making when businesses are considering new generation plant projects, upgrades or closures.
- The publication of this data would better enable industry and other interested parties to independently check and challenge AEMO's electricity demand forecasting performance.

#### *National Electricity Objective*

The proponent considered that the proposed rule change will contribute to the National Electricity Objective (NEO) as it will provide access to better data which will enable more reliable modelling on which to prepare demand forecasts, thereby reducing some of the uncertainty in making investment decisions (in particular, when evaluating the merits of individual projects). This will ensure timely and efficient investments which are required to maintain a secure, reliable and affordable electricity system.<sup>13</sup>

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11 See [www.aemc.gov.au](http://www.aemc.gov.au)

12 NGF, rule change request and cover letter, 24 January 2013, pp1-2.

13 NGF, rule change request, 24 January 2013, p8.



The proponent also considered that:<sup>14</sup>

- better information on demand conditions, would improve the efficiency of decisions regarding the retirement of generating plant resulting from climate change policies and relative changes in fuel price; and
- 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.

*Expected benefits of the proposed rule change*

The expected benefits of the proposed rule change that have been identified by the proponent include:

1. Enabling detailed econometric studies:

The proposed rule change would give any interested party access to detailed historical demand data at the sub-regional level. By identifying broad categories of consumers taking supply from different parts of the distribution network, independent modelling could measure changes in electricity consumption against a range of economic variables in particular parts of the economy. Types of studies that could be performed include analysis of the patterns of consumption before and after identified structural changes in demand and analyses of price elasticities for different consumer categories. According to the proponent, such detailed econometric studies could provide insights into likely future demand conditions.<sup>15</sup>

2. Enabling third party scrutiny of AEMO's forecasts:

Access to detailed historical data at the sub-regional level would enable any interested party to undertake or commission their own work to assess likely future demand growth, using both top-down and bottom-up modelling approaches. According to the proponent, currently there is no way for interested parties to replicate key parts of the modelling inputs to AEMO's electricity demand forecasts. This is made more difficult with the take-up of small scale distribution connected generation across the NEM. According to the proponent, the publication of zone substation load data would place interested parties in a better position to provide an independent 'check and balance' on AEMO's forecasts.<sup>16</sup>

3. Reducing information asymmetry:

With the publication of NEM data, the proponent notes that there is an inconsistency in the provision of information. Currently, there is an asymmetry

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<sup>14</sup> NGF, rule change request, 24 January 2013, pp8-9.

<sup>15</sup> NGF, rule change request, 24 January 2013, p9.

<sup>16</sup> NGF, rule change request, 24 January 2013, p9.

in the type and quantity of information provided, with comprehensive details on supply side conditions provided, but no disaggregated information provided on the demand side of the market.<sup>17</sup>

#### *Expected costs of the proposed rule change*

The proponent does not anticipate that there will be significant implementation or ongoing compliance costs associated with the publication of zone substation data. It expects that there would be a one-off cost of extracting historical data from existing records and publishing this data on DNSPs' websites. The NGF also expects that any compliance costs would decrease in time as DNSPs would develop systems and processes to automate data collection and publication.<sup>18</sup>

### **3.2 Related developments**

The proponent identified the following related developments to its proposed rule change.

#### *AEMO publication of connection point data*

The NGF requested that AEMO publish half-hourly demand data at connection points. In this instance, a connection point is the point of supply from a transmission network to a distribution network. As the transmission-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, responding to the NGF's request, AEMO published a consultation paper. In this paper, AEMO sought submissions on a proposal to publish connection point demand data. In this proposal, AEMO indicated that it would release two years of historical connection point data and all actual data as it became available. It also proposed to aggregate connection points where there are three or fewer customers receiving supply from that metering point.<sup>19</sup>

In December 2012, AEMO published a paper in response to stakeholder submissions on this connection point data proposal. In this paper, AEMO noted that while most submissions were supportive of the proposal some stakeholders 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 of 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 of historical data would be relatively small.<sup>20</sup>

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<sup>17</sup> NGF, rule change request, 24 January 2013, p10.

<sup>18</sup> NGF, rule change request, 24 January 2013, p10.

<sup>19</sup> AEMO, *Proposal to publish connection point demand data*, 30 August 2012, p4.

<sup>20</sup> AEMO, *Proposal to publish connection point demand data: response to stakeholder submissions*, 10 December 2012, p4.

AEMO is currently developing a business case to determine the feasibility of the connection point data proposal and will further consult with stakeholders between July and December 2013 on aggregation criteria.<sup>21</sup>

While supportive of the publication of connection point data, the NGF argued 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 has suggested that there are more zone substations than connection points in the NEM.<sup>22</sup> It considered that implementing the proposed rule change would provide a time series of data which is annually updated and can be used for meaningful statistical analysis.<sup>23</sup>

#### *Distribution annual planning review and reporting*

The NGF noted that among other reporting requirements of the DAPR process, DNSPs are required to provide capacity and load forecasts at the sub-transmission level, the zone substation level and at primary distribution feeders.<sup>24</sup> It also noted that DNSPs are required to publish their DAPR on their website by the date specified by the relevant jurisdiction.<sup>25</sup>

The NGF submitted that while DNSPs are required to provide analysis and explanation of any aspects of the forecasts and information in the planning reports 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.<sup>26</sup>

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21 AEMO, *Proposal to publish connection point demand data: response to stakeholder submissions*, 10 December 2012, p4.

22 The proponent estimates that there are 1,500 zone substations in the NEM.

23 NGF, rule change request, 24 January 2013, p7.

24 A primary distribution feeder is a distribution line connecting a sub-transmission asset to either other distribution lines or distribution assets that are not sub-transmission lines or assets (Clause 5.10.2 of the NER).

25 NGF, rule change request, 24 January 2013, pp7-8.

26 NGF, rule change request, 24 January 2013, p8.

## 4 Assessment framework

The Commission's assessment of this rule change request must consider whether the proposed rule promotes the National Electricity Objective (NEO) as set out under section 7 of the National Electricity Law (NEL).

“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.”

The Commission is seeking stakeholder views on whether the following is an appropriate framework to assess this rule change request.

In assessing the rule change request against the NEO, the Commission notes that the NEO generally supports the public release of market information, such as aggregated actual electricity demand. However, in assessing the rule change request, the Commission will need to consider the costs of extracting and publishing the data, as well as issues of confidentiality. If the Commission considers that these costs and issues are significant, then it will need to consider if there are material benefits arising from the proposed rule change.

In proposing this assessment framework, the Commission has identified the following key issues:

- the availability and accessibility of historical zone substation load data;
- the establishment costs of creating business and/or system processes for collecting and publishing this data;
- the ongoing costs of updating and publishing this data to meet the proposed rule's obligation;
- the potential of publishing information that could be considered as confidential to individual customers or market participants;
- the long term benefits to interested parties of publishing this type of data; and
- the merits of having a consistent approach in publishing zone substation and connection point demand data.

The proposed rule will also be assessed against the relevant counterfactual arrangements which, in this case, are the existing provisions in the NER.

## 5 Issues for consultation

Taking into consideration the proposed assessment framework and the potential requirements to implement the proposed rule change, we have identified a number of issues for consultation that appear to be relevant to this rule change request.

The issues outlined below are provided for guidance. Stakeholders are encouraged to comment on these issues, as well as any other aspect of the rule change request or this paper, including the proposed assessment framework. In relation to the questions directed at DNSPs, the AEMC would appreciate if all DNSPs could respond in order for us to gauge the significance of the issues raised.

### 5.1 Data availability and accessibility

The key premise of the proposed rule change is that half-hourly interval load data at zone substations is available for the ten year period and can be easily accessed for publication. However, this may not be the case.

As part of our assessment of this rule change proposal, we will be investigating the extent to which DNSPs have kept historical records of zone substation load data, and in circumstances where they have, the quality, type and form that it is available in.

Issues around data quality and availability may occur not only over a time period, but also within and between distribution businesses and jurisdictions. For these reasons, the usefulness and consistency of the data may be restricted.

Stakeholders may therefore wish to reflect on the following questions regarding the availability and accessibility of zone substation data when considering this proposed rule change.

#### **Question 1      Data availability and accessibility**

**In relation to DNSPs:**

- (a)    How many zone substations are there in the DNSP's distribution system?**
- (b)    Is half-hourly interval load data at zone substations available?**
- (c)    If the data is available, does it extend back to the previous ten years, or if not, how many years of data are available?**
- (d)    Are there issues with data quality and consistency regarding the historical data? For example:**
  - (i)    Are there issues related to metering which may affect the quality and reliability of the data?**
  - (ii)   Are there gaps in the data with respect to a time series and/or**

location?

- (iii) Are there issues of consistency in data within and between distribution businesses and jurisdictions?
- (e) Can the required data be extracted from historical records? If so, what is involved in this task? How costly and/or time consuming is this likely to be?
- (f) What issues are there in the ongoing management and updating of the databases? For example, what business systems and/or processes may need to be put in place in order to facilitate the publication of the data annually?

In terms of all stakeholders:

- (g) Does the data need to be published in a standardised format (for example, in a spreadsheet) for ease of access? If so, what is the preferred format?

## 5.2 Costs of collecting and publishing data

It is expected that there would be two types of costs associated with this rule change. These are:

1. Establishment costs of implementing the rule change:

If the data is available and can be easily accessed from historical records, then it is unlikely that establishment costs will be significant. If however, this is not the case, then there may be significant costs incurred by DNSPs to collect the data in a form that can be published annually on their websites. There would also be the establishment cost of setting up business systems and/or processes for publishing this data annually on their websites.

2. Ongoing costs of complying with the rule obligation:

DNSPs may incur additional costs associated with updating and publishing the data each year. In their rule change request, the NGF expects these ongoing costs to decrease in time as the DNSPs develop business systems and/or processes to automate data collection and publication.

Stakeholders may wish to reflect on the following questions related to expected costs.

### **Question 2 Expected costs of collecting and publishing data**

In relation to DNSPs:

- (a) What are the expected establishment activities/tasks and costs in implementing this rule change? Please provide an indication of the

magnitude of these costs.

- (b) What are the expected ongoing activities/tasks and costs in complying with this rule change? Please provide an indication of the magnitude of these costs.
- (c) Are these ongoing costs likely to decrease over time? If so, how significantly and over what time period?
- (d) Are there other expected activities/tasks and costs associated with this rule change that have not been identified? If yes, in terms of costs, how significant are they?

### 5.3 Confidentiality issues

With the publication of zone substation load data by DNSPs, there is the potential to reveal information about individual customers or market participants which would reasonably be considered by those customers as confidential. For example, this may occur where one zone substation is supplying one or a small number of customers and it is possible to broadly deduce an individual customer's electricity consumption profile. This may raise concerns about the release of market sensitive information about individual customers.

To mitigate against this risk, one solution maybe for the data from a zone substation where there are one or a small number of customers, to be aggregated with data from other neighbouring zone substations. In the proposal for the publication of connection point data, AEMO has suggested aggregation of connection points where there are three or fewer customers receiving supply from that metering point. As previously discussed, AEMO will consult further with stakeholders on the criteria to be used when aggregating connection point data to avoid issues of confidentiality.

Applying discretion to the levels of aggregation required to avoid issues of confidentiality will involve additional effort on the part of DNSPs, which may add to the ongoing activities/tasks and costs of managing and processing the data for annual publication.

Issues of liability may arise for DNSPs when they deal with the risks associated with making judgements on confidentiality.

Stakeholders may wish to reflect on the following questions related to confidentiality issues.

#### **Question 3      Confidentiality issues**

**In terms of all stakeholders:**

- (a) Are there likely to be issues of confidentiality surrounding the publication of zone substation data? If so, at what disaggregated level

(that is, in terms of number of customers) do such considerations come into play?

- (b) Will aggregation of the data up to a certain number of customers avoid issues of confidentiality?
- (c) If so, what criteria should be used to aggregate the data? For example, should aggregation occur where there are five, three or less customers supplied from one zone substation?
- (d) Will aggregation reduce the usefulness of the data for demand forecasting and econometric studies? If so, what level of aggregation should be applied to avoid the issue of confidentiality while still retaining some degree of usefulness of the data?
- (e) How should disputes arising from data confidentiality be resolved?

In relation to DNSPs:

- (f) How many zone substations supply less than five customers, less than three customers and only one customer in a distribution system?
- (g) Are there issues of liability associated with judgements on confidentiality?
- (h) How should issues associated with making judgements on confidentiality be addressed?

## 5.4 Expected benefits

The proponent has identified two key expected benefits of the proposed rule change. These are that it will:

- enable detailed econometric studies of the key determinants of electricity demand changes; and
- enable third party scrutiny of AEMO's forecasts by allowing interested parties to undertake or commission their own electricity demand forecasts.

Stakeholders may wish to reflect on these expected benefits and the following questions.

### Question 4 Expected benefits

In terms of all stakeholders:

- (a) What is the materiality of the benefits identified by the proponent?
- (b) What are your views on the value of historical and forward looking



electricity demand information?

- (c) What other benefits of the proposed rule change can be expected that have not been identified by the proponent?
- (d) Are these other benefits likely to be significant?
- (e) Who are likely to be the recipients of these benefits?

## **5.5 Consistency with publication of connection point demand data**

As discussed previously, AEMO is currently investigating a proposal to publish similar demand data collected at connection points (that is, the points of supply from a transmission network to a distribution network).

As there is likely to be similar issues that may arise with the publication of these data sets (for example, issues associated with confidentiality and data management), there may be merit in having a consistent approach in publishing both sets of data.

### **Question 5 Consistency of approach**

**In terms of all stakeholders:**

- (a) Should there be a consistency of approach in publishing zone substation and connection point electricity demand data? Please provide reasons as to why there should/or should not be a consistent approach.

## **6 Lodging a submission**

The Commission has published a notice under section 95 of the NEL for this rule change proposal inviting written submissions. Submissions are to be lodged online or by mail by no later than the close of business on 24 May 2013 in accordance with the following requirements.

Where practicable, submissions should be prepared in accordance with the Commission's Guidelines for making written submissions on rule change proposals.<sup>27</sup> The Commission publishes all submissions on its website subject to a claim of confidentiality.

All enquiries on this project should be addressed to Trevor Johnston on (02) 8296 7800.

### **6.1 Lodging a submission electronically**

Electronic submissions must be lodged online via the Commission's website, [www.aemc.gov.au](http://www.aemc.gov.au), using the "lodge a submission" function and selecting the project reference code ERC0156. The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated.

Upon receipt of the electronic submission, the Commission will issue a confirmation email. If this confirmation email is not received within 3 business days, it is the submitter's responsibility to ensure the submission has been delivered successfully.

### **6.2 Lodging a submission by mail**

The submission must be on letterhead (if submitted on behalf of an organisation), signed and dated. The submission should be sent by mail to:

Australian Energy Market Commission  
PO Box A2449  
Sydney South NSW 1235

Or by Fax to (02) 8296 7899.

The envelope must be clearly marked with the project reference code: ERC0156.

Except in circumstances where the submission has been received electronically, upon receipt of the hardcopy submission, the Commission will issue a confirmation letter.

If this confirmation letter is not received within 3 business days, it is the submitter's responsibility to ensure successful delivery of the submission has occurred.

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<sup>27</sup> This guideline is available on the Commission's website.

## Abbreviations

AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
Commission	See AEMC
DAPR	Distribution annual planning report
DNSP	Distribution network service provider
kV	kilovolts
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective
NER	National Electricity Rules
NGF	National Generators Forum