Ergon Energy Corporation Limited

Submission on the *National Electricity Amendment (Publication of Zone Substation Data) Rule 2013 Consultation Paper*

Australian Energy Market Commission

24 May 2013

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1. INTRODUCTION

Ergon Energy Corporation Limited (Ergon Energy), in its capacity as a Distribution Network Service Provider (DNSP), welcomes the opportunity to provide comment to the Australian Energy Market Commission (AEMC) on its *National Electricity Amendment (Publication of Zone Substation Data) Rule 2013 – Consultation Paper*.

Ergon Energy is concerned that the proposed Rule change does not appear to provide any benefits to DNSPs for providing a somewhat costly service. While Ergon Energy is able to provide half-hourly interval data for the majority of zone substations, the data in its current form would require manipulation, extraction and collation, and without an understanding of the context of the substation's physical location, network connectivity, and customer information, it is likely that the data will be exposed to misinterpretation and unreliable results. Furthermore, each DNSP is likely to incur significant costs in collating, publishing and maintaining the proposed data. Ergon Energy considers that this approach does not provide for an efficient market, where the key beneficiaries are demand-side aggregators, generation investors and capital providers, and supports Energex's proposal that one body should establish an appropriate system for coordinating and managing the data centrally on behalf of generators, and the costs be apportioned appropriately.

Notwithstanding, Ergon Energy maintains that publication of such data raises many issues of confidentiality, which cannot be resolved through simple aggregation of data. As such, Ergon Energy suggests that the definition of which zone substation data is required for delivery be clarified as such:

- Zone substations that are dedicated to a single customer should be excluded, as well as substations that have commercial or confidentiality issues; and
- Zone substations below a certain MVA threshold (e.g. 2MVA) should be excluded on the basis of likely confidentiality issues, and the cost of maintaining data for a relatively insignificant benefit.

In response to the AEMC's invitation to provide comments on the Consultation Paper, Ergon Energy has focused on the key questions for discussion, as detailed in Section 2. Ergon Energy is available to discuss this submission or provide further detail regarding the issues raised, should the AEMC require.

2. TABLE OF DETAILED COMMENTS

Question(s)	Ergon Energy Response
Data Availability and Accessibility	
In relation to DNSPs: 1a. How many zone substations are there in the DNSP's distribution system?	Ergon Energy has 345 zone substations in its distribution network.
1b. Is half-hourly interval load data at zone substations available?	Ergon Energy is able to provide interval load data from either statistical / revenue metering or SCADA. In the case of SCADA, the data is converted to half-hourly (ending) format. Half-hourly interval load data is available at the majority of zone substations within Ergon Energy's network, as per the following table. SCADA: 90 Statistical Metering: 232 Total Metering: 322 Therefore, the total without metering is 23
1c. If the data is available, does it extend back to the previous ten years, or if not, how many years of data are available?	Ten years of history is not consistently available within Ergon Energy. A summary of the length of history available is: 10+ years: 226 5+ years: 299 2+ years: 320 0 days: 22 N.B Ergon Energy's predecessor corporations had different standards and techniques for monitoring zone substation demand, resulting in a short or incomplete history. New zone substations won't have a 10 year history, and Ergon Energy believes there should be no requirement to provide a calculated 10 year history.
1d. Are there issues with data quality and consistency regarding the historical data? For example:	There are many issues which affect data quality and consistency. For example, Ergon Energy's data has been collected and managed at zone substation level for peak demand forecasting. If the data is to be used for other purposes such as energy analysis and forecasting there will be significant data quality issues.

(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?	(i) There are many issues which affect the quality and reliability of the data. Metered and SCADA load data have different accuracy standards. As stated above, load data is often collected for other purposes and load analysis is a secondary use. (ii) Gaps exist in the historical record for a number of reasons. There are also other issues with the load history that may affect the effectiveness of the load history for forecasting purposes: a. There is not always ten years of history (refer Q1c above) b. SCADA load data does not always have a reading every half hour, resulting in the need to interpolate data points to generate interval data. This introduces inaccuracies. c. Zone substation supply networks are subject to continual change and re-organisation depending on demand growth and operational needs. Load may be transferred to other existing or new substations. Therefore, zone substation load history needs to be understood in the context of the surrounding network and network projects. d. Demand management activity may change the nature of the load, and decrease the value of the historical load record. e. There may be equipment failures in metering of SCADA. (iii) There are likely to be issues of consistency between distribution businesses, both within and between jurisdictions. Some utilities may rely more on SCADA metering, while some may rely on Maximum Demand Indicators etc. Furthermore, there may be time scale issues such as whether a DNSP uses 'half hour beginning', or 'half hour ending' data.
1e. 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?	Zone substation meter data resides in a number of different Ergon Energy metering and SCADA corporate systems. Currently, a departmental-level database combines existing systems for demand forecasting purposes and a unified corporate-level metering analysis warehouse is being implemented to replace this departmental system. In order to deliver the proposed data, Ergon Energy would need to initiate an IT project. Ergon Energy's IT service provider advises that the cost to develop a system to extract data annually is approximately $30,000. This does not include the cost of establishing and maintaining a database server and portal for web access. It also assumes the simplest possible design of the server, and publishing NEM12 load data.

1f. 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?	As noted in Q1e above, Ergon Energy would need to develop a system to extract data at a set up cost of approximately $30 000. It is anticipated that additional processes would need to be implemented to support this system, such as data quality and accuracy checks. However, the cost of establishing and maintaining a database server and portal for web access has not been quantified at this stage. Furthermore, Ergon Energy believes that the publishing of half-hourly data should include a number of safeguards: • Participants should be confirmed as having a valid need for the data, and registered as valid clients; • There should be a notification mechanism to participants when data is added or corrected; and • There should be support for participants, including IT and business support. This is also likely to generate significant additional costs which have not been quantified at this stage.
In terms of all stakeholders: 1g. Does the data need to be published in a standardised format (for example, in a spread sheet) for ease of access? If so, what is the preferred format?	Ergon Energy believes that detailed data architecture is required to determine what data needs to be delivered. Ergon Energy currently forecasts kVA and kVAr peak demand for zone substations based on half hourly interval data. However, in order to analyse this data, knowledge about the zone substation is also required. Such extra data includes: • Zone substation spatial location so that temperature correction can occur; and • Network topology or hierarchy so that it can be related to other substations to manage information about load transfers.
Expected costs of collecting and publishing data	
In relation to DNSPs: 2a. What are the expected establishment activities/tasks and costs in implementing this rule change? Please provide an indication of the magnitude of these costs.	In order to implement the rule change, IT changes will have to be made to publish data, including the implementation of protocols to authorise and manage participants. This is likely to be a non-trivial task to implement, and will have ongoing operational costs.
2b. 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.	Ongoing tasks would include: • Managing the registration of participants; • Updating metering data annually;

	• Publishing changes to metered data at an interval to be determined; • Managing IT systems and processes to provide the data; • Managing business systems and processes to provide the data; • IT operational support, of servers etc.; • Business based support of the system. The cost of undertaking these tasks is likely to be significant.
2c. Are these ongoing costs likely to decrease over time? If so, how significantly and over what time period?	These costs are not likely to decrease over time.
2d. 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?	It is important that zone substation data is understood in the context of the substation's physical location, network connectivity, and customer information[1]. This is additional data that would need to be provided and supported to participants to properly achieve the desired outcomes. In addition, if aggregation is to be conducted, data modelling will be required to identify and manage aggregations of zone substation, and to provide data at the aggregated substations. Furthermore, "Block Load" information is needed to determine the impact of large individual customers on past and future loads, as well as information about zone substation commissioning dates and load transfer.
Confidentiality issues	
In terms of all stakeholders: 3a. 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?	Ergon Energy believes there are many issues of confidentiality: • Some substations (or the majority of load at a substation) provide a single customer. There are therefore potential confidentiality issues for these customers. • Block Load information is needed to determine the impact of large individual customers on past and future loads. This information can be extremely commercial-in-confidence • These issues should be considered not only in terms of the number of customers sharing a substation asset, but also in terms of the relative demand of customers at the substation. For example, a substation may have one major industrial customer and many individual customers. The load on the substation will largely

[1] Including information about the customer and their load profile.

	reflect the load of the major customer. Some substations connect a number of major customers with authorised demands via their connection agreements. Ergon Energy believes these substations should be excluded from the proposed reporting requirement. Ergon Energy suggests these issues will require further analysis to determine any confidentiality impacts, and should be considered on a case by case basis.
3b. Will aggregation of the data up to a certain number of customers avoid issues of confidentiality?	Aggregation of data will not avoid issues of confidentiality in all cases. The need for confidentiality should also include the peak demand of the substation. The creation of another level of artificial substations for the purpose of aggregation involves data modelling and the creation of another hierarchy of substations specifically for the purpose of this reporting. This is not a current Ergon Energy activity, and would add to Ergon Energy's costs. If aggregation is required, it should be to report the Bulk Supply or Transmission Connection Point data. However, this raises other issues for Ergon Energy due to the meshed sub-transmission network. Ergon Energy believes consideration should be given to simply excluding substations with confidentiality issues from the data delivery.
3c. 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?	If implemented, aggregation should be made not just on numbers of customers, but also on the maximum demand of other customers at the substation (refer Q3a). Where 2 competitors share a substation, knowledge of the total zone substation load would enable a competitor to deduce the other competitor's load. Therefore, Ergon Energy believes the minimum number of customers required to avoid aggregation should be at least 3. However as noted above, where there is one large customer and multiple smaller customers the load on the substation will largely reflect the load of the major customer and therefore this may also cause confidentiality issues that can't be avoided by any level of aggregation.
3d. Will aggregation reduce the usefulness of the data for demand forecasting and econometric studies? If so, what level of aggregations should be applied to avoid the issue of confidentiality while still retaining some degree of usefulness of the data?	Since specific econometric data at the zone substation level is generally not available, aggregation may have a beneficial effect on the quality of econometric analysis.
3e. How should disputes arising from data confidentiality be resolved?	Disputes arising from data confidentiality may have to refer to connection agreements. Ergon Energy may need to review existing connection agreements, and change future

	agreements with major customers to enable the provision of this information. Ergon Energy recommends the AEMC provide indemnity for any consequences of publishing zone substation load data. Ergon Energy suggests that legal advice be sought in relation to this issue.
In relation to DNSPs: 3f. How many zone substations supply less than five customers, less than three customers and only one customer in a distribution system?	In Ergon Energy the following number of zone substations supply less than five customers, less than three customers and only one customer in a distribution system: <5: 85 <3: 83 Only 1: 82
3g. Are there issues of liability associated with judgements on confidentiality?	As noted in Q3e above, Ergon Energy believes this issue requires legal advice, of which Ergon Energy has not specifically sought.
3h. How should issues associated with making judgements on confidentiality be addressed?	As above.
Expected benefits	
In terms of all stakeholders: 4a. What is the materiality of the benefits by the proponent?	Ergon Energy believes that any data to be provided should be based on a direct request with identified valid needs, and individual confidentiality agreements. It is likely that this would address a number of the issues identified above. Notwithstanding, Ergon Energy does not anticipate any benefit to be material. Furthermore, econometric studies at zone substation level are likely to be hindered by the lack of econometric data. If Transmission Connection Point forecasts are required, then a history of Transmission Connection Point load should be used as the load input.
4b. What are your views on the value of historical and forward looking electricity demand information?	While historical demand has predictive ability, a large range of factors need to be taken into account to understand the load history. Zone substation supply networks are subject to continual change and re-organisation depending on demand growth and operational need. Load may be transferred to existing adjacent substations, or new zone substations may be constructed to relieve the load on a zone substation. Therefore, zone substation load history needs to be understood in the context of the surrounding network and projects to increase capacity or to manage demand. Furthermore, a detailed knowledge of past and future customers must also be used in

	the forecast.
4c. What other benefits of the proposed rule change can be expected that have not been identified by the proponent?	Ergon Energy has not identified any other benefits.
4d. Are these other benefits likely to be significant?	Nil comment.
4e. Who are likely to be recipients of these benefits?	Nil comment.
Consistency of approach	
In terms of all stakeholders: 5a. 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.	Ergon Energy believes that a consistency of approach is likely to minimise cost both to the DNSPs and to the users of the data. A consistent approach is also likely to minimise the possibility of misinterpreting data and allow for the same analysis approach and systems to be used for every zone substation. To facilitate this, Ergon Energy supports Energex's proposal that the data be hosted on an AEMO server.