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Ms Anita Lai
Australian Energy Market Commission
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Dear Ms Lai

National Electricity Amendment (Connecting embedded generators) Rule 2012

Jemena Electricity Networks (Vic) (**Jemena**) welcomes the opportunity to respond to the Australian Energy Market Commission's (**AEMC**) Consultation Paper on the proposed National Electricity Rule (**NER**) change relating to connecting embedded generators.

Our key messages are:

- Jemena considers the current rules do not present any barriers to embedded generators from requiring a network service provider to comply with Chapter 5 of the NER, or conducting negotiations in 'good faith'. However, Jemena has no issues with the proposed amendments that recognise embedded generator's rights in clause 5.1.2 (Purpose) and the inclusion of a 'good faith' provision in clause 5.1.3 (Principles) as it is consistent with good regulatory practice.
- Jemena considers that there is no longer a need for the proposed rule change request with respect to publication of connection information, given the AEMC's draft rule determination and draft rule for the distribution network planning and expansion framework rule change. We believe the draft rule adequately addresses the requirement to publish connection process for embedded generators. Moreover, we do not believe it would be practical to publish connection fees as the amounts would depend on the size and network location of the connection.
- Jemena has no issues in providing an itemised statement of connection costs reasonably required by a connection applicant to understand the main cost components. We support the proposed rule change.
- Jemena believes it is feasible to include a specific timeframe of 65 days within which to provide a connection offer, provided the timeframe excludes the time taken by a connection applicant to provide the information reasonably sought by the distributor and the parties are permitted to vary the timeframe by agreement.

- Clause 5.3.6(b) (2) of the NER already specifies that the ‘offer to connect’ must include the terms and conditions of the kind set out in schedule 5.6. But the rule change proponents are seeking amendments¹ to clause 5.1.3(b)—ensuring the terms and conditions set out in schedule 5.6 also apply to embedded generators. We support the proposed rule change.
- Jemena supports the development of access standards for embedded generators, but considers the proposed rule change should not proceed until the access standards are developed.
- Jemena considers such a rule change that explicitly allows ‘optional fee for service’ would be useful and that the service should be classified as negotiated service.
- Jemena believes non-registered embedded generators which seek to remove a specific network constraint must pay for the cost of removing the constraint including any augmentation costs of the shared network.

Jemena’s detailed response is set out in Annexure 1.

If you have any questions in relation to this submission, please contact me on (03) 8544 9442 or by email siva.moorthy@jemena.com.au. Alternatively, please contact Gabriel Wan, Manager Network Planning & Development on (03) 8544 9615 or by email Gabriel.Wan@jemena.com.au.

Yours sincerely

Siva Moorthy
Manager Network Regulation and Strategy

¹ Rule change request, p. 24

Annexure – 1

Jemena Electricity Networks (Vic) response to the National Electricity Amendment (Connecting embedded generators) Rule 2012

Jemena's answers to the specific questions posed in the consultation paper are set out below:

Question 1 – Complying with Chapter 5

- (a) Currently any person can require a network service provider to comply with Chapter 5 or elect to use the connection procedure under Chapter 5. Are there any problems or barriers to how this is applied in practice?
- (b) If so, what are the problems and/or barriers? What are the costs and impacts on stakeholders?
- (c) How would the proposed amendment to specify that an embedded generator has the right to require a network service provider to comply with Chapter 5 resolve these problems and/or barriers?
- (d) Given that any person can elect to use the connection process under Chapter 5, when, and why, do non-registered embedded generators choose not to use this process?

Response:

Clause 5.1.2 (b) of the NER states "Any person who is not a *Registered Participant* may agree with a *Network Service Provider* to comply with this Chapter as part of a *connection agreement*." Additionally, clause 5.3.1 (c) states "Any person wishing to establish a *connection* to a *network* may elect to follow the procedures in this rule 5.3." Despite this, the rule change proponents are seeking amendments² to clause 5.1.3(b). The request effectively seeks recognition of embedded generators in the overarching principles regarding connection to the national grid.

In Jemena's view, the current rules do not present any barriers to embedded generators from requiring a network service provider to comply with Chapter 5, but it has no issues with the proposed amendment that gives recognition of embedded generator's right in clause 5.3.2 of the NER as it is consistent with good regulatory practice.

Question 2 – Good faith provisions

- (a) The current NER sets out that network service providers and connection applicants must conduct negotiations in 'good faith'. Are there any problems associated with the application of this provision?
- (b) How would the proposed amendment for an additional 'good faith' impact stakeholders?

Response:

Clause 5.3.6 (f) of the NER requires both parties to negotiate in 'good faith' with respect to an 'Offer to connect', if negotiations occur. Moreover, clause 5.5(f) requires distributors to negotiate in 'good faith' on a number of matters concerning network access arrangements.

² Rule change request, p. 24

The rule change proponents are seeking to include a 'good faith' provision in clause 5.1.3, which sets out the overarching principles regarding connection to the national grid.

Given the existing 'good faith' clauses in Chapter 5, we believe inserting another 'good faith' clause would not make material difference in the way parties conduct their negotiations. However, we do not have any issues with the proposed amendments that include a 'good faith' provision in clause 5.1.3 as it is consistent with good regulatory practice.

Question 3 – Publishing details of information requirements

- (a) What are the costs and benefits to distributors and embedded generators in requiring distributors to publish information on its connection process including an application form and information on application fees and calculation of connection costs?
- (b) How would the proposal to add a clause that each party 'must provide the other with information the other reasonably requires in order to facilitate connection to the network' address any problems? What are the details and examples of the current communication issues that stakeholders have experienced with the connection process?
- (c) Noting that there are currently provisions under the NER for the exchange of information, what are the deficiencies of the current arrangements?
- (d) Would the demand side engagement document under the distribution network planning and expansion framework rule change address these information requirements?
- (e) Should the proposed changes apply generally to all network service providers?

Response:

Jemena considers publication of connection processes and application forms for embedded generators would benefit connection applicants as it would provide transparency of connection processes. We believe there will be costs associated with the development and publication of the information, but the costs will not be significant in the context of the overall customer connection information available on our website.

We note on 14 June 2012, the Commission published a draft rule determination and draft rule for the distribution network planning and expansion framework rule change request. Draft rule 5.13.2 of the NER requires DNSPs to publish Distribution Annual Planning Reports (DAPR) which must include the information specified in schedule 5.8. The schedule includes a range of matters including network constraints. Additionally, a DNSP is required to publish demand side engagement document, which must have the information specified in schedule 5.9. This schedule sets out the contents of the document, which includes the process for lodging a connection application for an embedded generator. In our view, the distribution network planning and expansion framework rule change adequately addresses the requirement to publish the connection process for embedded generators.

Jemena believes it would not be practical to publish application fees for processing embedded connection applications, because the fees would greatly depend on the size and location of the connection to the network. It is worth noting that Chapter 5 (clause 5.3.3) requires a DNSP to respond within 10 business days of receipt of a connection enquiry by providing basic information on the connection program and requirements. This is followed up with a written response within 20 business days of an enquiry with all the other information required by a connection applicant to prepare a connection application. Jemena practice is to provide information on the likely application fee during this preliminary connection enquiry stage.

Jemena's connection process allows connection applicants to contest the network augmentation or extension works necessary for the connection. They have the option to accept an itemised connection costs in the connection offer or request Jemena to call tenders

on their behalf³. In our view, it is not practical to publish information on the calculation of connection costs, as it would be project specific. In any case, clause 5.3 of the NER currently sets the requirements on both parties to provide each other information necessary to facilitate connection to the network.

For the reasons mentioned above, Jemena does not support the proposed rule change with respect to publication of information request⁴.

Question 4 – Response to connection enquiries

- (a) In stakeholders' experience, have the response that the network service providers provided in response to connection enquiries been clear and reasonable?
- (b) Have there been experiences where a connection applicant has been asked to provide information that it has already submitted and, if so, why?
- (c) Have there been experiences where a connection applicant has been asked to provide information that it did not consider was 'reasonable'? How was this situation resolved?
- (d) To what extent would the requirements for distributors to publish the demand side engagement document resolve any issues?

Response:

No comment.

Question 5 – Information to be included in offers to connect

- (a) In practice to date, what information on connection costs are provided in offers to connect? How are the requirements of confirming to rule 5.5 being met? How are the current arrangements deficient?
- (b) How would the proposed rule to add an 'itemised statement of connection costs' improve the current arrangements? How would stakeholders be impacted if this requirement were to be introduced?
- (c) Should this requirement apply to all types of connections?

Response:

Connection costs are normally discussed during the connection enquiry process and reaffirmed in the connection offer. The level of detail in the offer would be as per the connection applicant's request.

Jemena currently provides details of meter type and costs for connection points that record below 160 MWh per annum. For greater than 160 MWh per annum, we advise metering services are contestable and that retailers are responsible for arranging the meter provider and meter data agent.

Jemena has no issues in providing an itemised statement of connection costs reasonably required by a connection applicant to understand the main cost components. We support the proposed rule change⁵.

³ Essential Services Commission of Victoria, Electricity Industry Guideline No. 14, clauses 3.7 and 4.2

⁴ Rule change request, p.26

⁵ *ibid*, p. 27

Question 6 – Setting out the time to connect in the preliminary program

- (a) Under the current arrangements (either under the NER or jurisdictional arrangements), what are the typical timeframes within which offers to connect are made by distributors?
- (b) What are the factors that affect the timeframe for finalising an offer to connect?
- (c) Is it feasible or practical to include a specific timeframe to finalise an offer to connect at the time of preparing the preliminary program? What information is currently provided in preliminary programs?
- (d) If adopted, should this requirement apply to all connection enquiries?

Response:

Under the current Victorian distribution licence, a distributor is required to make an offer for connection of embedded generator within 65 business days from the time of the connection application is received or the date the distributor receives all information reasonably required by the distributor to make the connection offer, whichever is the later.

Chapter 5A of the NER also imposes a similar obligation – that is, a distributor must use its best endeavours to make a connection offer within 65 business days after the date of the connection application but the time taken by the applicant to provide the information reasonably sought by the distributors will not be counted.

Jemena believes it is feasible to include a specific timeframe, provided the time excludes the time taken by a connection applicant to provide the information reasonably sought by the distributor and the parties are permitted to vary the timeframe by agreement. It is important to allow connection applicants and distributors to vary the timeframe by agreement to cater for very large and complex generator connection applications, if necessary.

In a preliminary program, Jemena would propose milestones for various connection and access activities including the timeframe of 65 business days to process the connection application to a connection offer, with a caveat that the timeframe is conditional on excluding the time taken by the applicant to provide any information reasonably required by Jemena and the time taken by other parties (AEMO, NSPs) to assess the impacts of the connection such as fault levels and/or network stability.

Question 7 – Providing an offer to connect within 65 business days

- (a) What are the factors that affect the timeframe within which offers to connect may be made? What are the factors that impact the process for negotiating negotiated access standards?
- (b) Have there been cases (particularly in Victoria) where 65 business days was not sufficient to finalise an offer to connect? What were the reasons for requiring more than 65 business days?
- (c) How would network service providers and connection applicants be affected by the proposed amendment?
- (d) Should this requirement apply to all network service providers for all connections?

Response:

Embedded generator enquires and connection applications have been growing over the years. Commensurate with this growth, Jemena's connection processes have also steadily improved over time. In this regard, Jemena has developed a guideline that contains its automatic and minimum access standards for connection of embedded generators.

In our view, the connection process generally works well and is optimised when connection applicants are supported by a knowledgeable independent consultant who can effectively gather specific information on design and other matters reasonably required by a distributor.

Factors that delay the timeframe within which connection offers have to be made are:

- A connection applicant may not have submitted with the connection application all the information reasonably requested by the distributor in order to assess the technical performance and costs of the required connection to prepare the connection offer. In such circumstances, the distributor would request the information from the connection applicant in accordance with clause 5.3.5(c) of the NER.
- A connection applicant may disagree with the commercial terms and conditions in the connection agreement—in particular the liability and indemnity clauses in the connection agreement.
- Consultations with AEMO and/or other network service providers and the connection conditions they may require a distributor to include in the connection offer.
- A distributor may need to sift through irrelevant data being submitted with the connection applicant. It is worth emphasising that a knowledgeable consultant significantly speeds up the connection process

Despite Jemena's best endeavours to provide technical guidance and support, sometimes the negotiations of access standards becomes protracted due to a number factors. In our experience, they are:

- Connection applicants claiming connection and network performance standards are too onerous—for example, they may consider the required protection and inter trip requirements are too high.
- Connection applicants not engaging with Jemena until after they have completed the design, procurement and even the installation of their generator.
- Connection applicants going ahead with the design before receiving Jemena's connection offer—effectively going ahead with the design based on preliminary discussions during the enquiry stage.
- Negotiation of access standards is less of an issue where connection applicants engage independent consultants who have the relevant experience compared to those who are linked to the manufacturer, installing contractor or supplier of a particular generator.
- Some of the consultants engaged by connection applicants do not fully understand the technical requirements set out in Jemena's connection access standards—that is, they do not have the relevant knowledge of the electricity distribution networks (especially in protection and control requirements). However, we believe these issues linked to the quality of consultants will become less significant as the consulting market matures in this area.

Jemena will not be affected by the proposed amendment because it already applies the '65 business days' timeframe within which to provide a connection offer subject to the caveats discussed above.

This consultation paper is about connecting embedded generators. By definition, embedded generators are those generators connected to a distribution network. In our view, generators connected to the transmission network would generally be large generators and the connection issues and considerations would be relatively more complex. Should the AEMC proceed with the proposed rule change, we believe it should be only apply to DNSPs.

Question 8 – Terms and conditions of connection

- (a) How are the current provisions under clause 5.3.6(b)(2) being applied? That is, are the terms and conditions for connection of the kind as set out in schedule 5.6?
- (b) In what ways are varying terms and conditions between distributors a problem? Is it appropriate for distributors to have different terms and conditions? Does this reflect relevant differences in network requirements?

Response:

Jemena notes that clause 5.3.6(b) (2) of the NER already specifies that the 'offer to connect' must include the terms and conditions of the kind set out in schedule 5.6. Despite this, the rule change proponents are seeking amendments⁶ to clause 5.1.3(b)—effectively ensuring the terms and conditions set out in schedule 5.6 also apply to embedded generators. We support the rule change.

When developing a connection agreement, Jemena includes each of the terms and conditions listed in schedule 5.6 of the NER as a minimum, including those other technical, commercial and legal conditions governing the connection works the parties have negotiated and agreed to. The agreement would include legal conditions on liability and indemnity of the connection. Jemena believes it is appropriate and often necessary for terms and conditions to vary between distributors to reflect network and jurisdictional differences. Commercial terms will vary across the distributors in relation to their commercial risk profile. The terms and conditions may also vary between connection projects—for example, the liability and indemnity conditions may vary commensurate with the type, size and export capability of an embedded generator.

Question 9 - Technical standards for embedded generators

- (a) Without technical standards currently being in place for embedded generators, how well has the connection process under Chapter 5 worked in practice? How urgently are standards needed?
- (b) Would standards for different types/classes of embedded generators be required?
- (c) What factors should be taken into consideration in developing such standards? Are there any specific jurisdictional or local requirements?
- (d) What should be the scope of such standards? Can all relevant technical requirements be 'standardised'?

Response:

Jemena has documented its automatic and minimum access standards for connection of embedded generators in a guideline. We believe it contains the necessary technical standards to assist a connection applicant in their design and the information we require for

⁶ Rule change request, p. 24

assessing a connection application. Jemena currently provides this guideline to connection applicants as part of the response to a connection enquiry and intends to publish this guideline on its website after completing its internal approval process.

The rule change proponents are requesting an automatic access standard for cogeneration systems up to 5 MW and another for larger cogeneration between 5 – 30 MW to be provided in the NER as a matter of priority⁷. But the rule change request⁸ is seeking to insert a new schedule of minimum access standards (5.3b) specifically for embedded generators, which is yet to be developed.

In Jemena's view, access standards should be developed based on the network voltage level – for example, LV (430V), HV (11kV, 22kV), Sub-T (66kV). However, we believe that it will be difficult to develop a national standard given the different jurisdictional requirements such as power quality, reliability, etc. In order to develop a national standard, there needs to be harmonisation of jurisdictional differences.

Jemena supports the development of access standards specifically for embedded generators (schedule 5.3b), but considers the rule change concerning the new schedule 5.3b should not proceed until the appropriate access standards (automatic and/or minimum) are developed.

Question 10 – Embedded generators having an automatic right to export to the grid

- (a) Under what circumstances have embedded generators not been allowed to export electricity to the network?
- (b) What are the impacts on embedded generators and other participants when exporting is not allowed?
- (c) Are there circumstances where the ability of embedded generators to export electricity to the network should be limited? What conditions could be reasonably imposed to limit exporting?
- (d) What are the costs and benefits of allowing, and not allowing, embedded generators to export electricity to the network?
- (e) Is there any basis for embedded generators to be treated differently to load or other generators? For what reasons?

Response:

Embedded generators are allowed to export provided they meet the access standards to ensure network stability, power quality, supply reliability and most importantly safety. For large generator connection and export, the network generally requires network augmentation and constraints removed before a generator connection and export is allowed. Where significant connection costs are involved, the connection applicants make a value judgment on the level of export versus the connection costs.

Jemena's concerns with embedded generators that export to the grid are related to the potential impact the export may have on all other customers connected to the distribution network. In most cases, stability studies are required to model the generator behaviour during and following credible network disturbances. Unstable generators can have serious detrimental effect on power quality and on the operation of protections on the distribution network. Modelling of the generator may reveal that connection to certain parts of the distribution network will degrade power quality such as voltage regulation, harmonics, flicker etc. If that is the case, it may be necessary to connect at a different part of the network such

⁷ Rule change request, p. 14

⁸ *ibid*, p. 25

as a higher voltage level. Alternatively, the distributor may specify additional protections for the generator such that it limits the export to ensure network safety⁹, stability, reliability and quality to other users connected to the network.

If a generator exceeds the power export limit, under certain conditions it can cause problems on the network (such as exceeding plant thermal ratings or causing excessive voltage fluctuations). That is why distributors generally require embedded generators to have protection systems to limit the export and to trip the generator if normal control systems fail.

Jemena considers embedded generators must be treated differently to load. Embedded generator is a source and when operating in parallel with the distribution network it has the potential to supply other customers on the network beyond the connection point. If a generator connection to the network is not adequately designed, it has the potential to 'island'¹⁰ and cause adverse impact on the quality of supply to other customers and safety risk to operational personnel, contractors and the general public. For example, a section of the electricity distribution network which has been isolated from the normal source of supply due to a network fault condition or during network maintenance work where part of network may be isolated accidentally.

Consequently, adequate protections schemes (specified in automatic access standards) are required to ensure embedded generators do not 'island' to any part of the distribution network that supplies other customers.

Islanding should be avoided for the following reasons:

- It creates a serious health and safety risk to operational personnel, contractors and the general public.
- Quality of supply to customers connected to the islanded electricity distribution network will be determined solely by the generator's own control systems and may breach the jurisdictional and other operating standards imposed on distributors.
- It has the potential to cause severe damage to the distribution network and the equipment of customers connected to it.

Question 11 – Allowing distributors to charge an optional fee for service

- (a) What are the barriers that prevent network service providers from charging a 'fee for service' under the current arrangements?
- (b) Is the proposed rule sufficient in identifying what services would be provided for the 'fee for service'? If not, how should the relevant service be specified?
- (c) What factors should be considered on how such a service should be classified? That is should it be a direct control service or negotiated service? Should the service be on a cost recovery basis only?
- (d) Should the NER provide any guidelines on how such a fee should be determined or should it be negotiated between a distributor and embedded generator? Should the fee be approved by the AER and, if so, on what basis?

Response:

⁹ Safety of public, our staff and contractors

¹⁰ Islanding within this context refers to a situation where the embedded generator supplies other customers while still connected to a part of the distribution network that is not connected and supplied from the main transmission network.

In Victoria, the Essential Services Commission of Victoria (**ESCV**) Guideline 15 sets the rules for embedded connection. Clause 2.3 (c)¹¹ of the guideline appears to pose a barrier to distributors providing services for a fee.

The consultation paper notes that clause 5.3.3 (c) (5) of the NER provides for network service providers to charge an 'application fee' that would cover the reasonable costs to investigate an application to connect and prepare the offer to connect. But it does not provide for distributors to charge a fee for services provided during a connection enquiry stage (i.e. prior to the connection application being lodged). The rule change proponents are requesting an 'optional fee for service' be introduced that would be payable to distributors by connection applicants.

Jemena considers such a rule change that explicitly allows optional fee for service would be useful. Such services could include initial investigations on the distribution network up to the embedded generator point of connection including network studies (e.g. fault levels calculations, impact to distribution network protection etc) prior to a connection applicant submitting a connection application. These services can potentially reduce the application fee for processing the connection application.

Because the services are project specific, Jemena does not believe there is a need for a guideline on how such a 'fee for service' should be determined. We believe the fees should be negotiated between the parties on a full cost recovery basis.

Jemena believes the optional fee for services should be classified as negotiated service.

Jemena wish to emphasise that the design of a generator installation is the responsibility of the generator proponent. Distributors are unlikely to have the specialised in-house design expertise. Moreover, it would bring significant legal liability which a distributor may not wish to take on. In our view, embedded generator connection applicants should directly engage their consultants for the design of a generator installation. By doing so, they are directly involved in the cost, timeliness and quality of the work.

A distributor will only seek to influence the design to the extent that the integrity of the design is seen to be inadequate and may undermine the reliability and quality of supply to other users of the network. Our access standards are therefore focused primarily on plant design, network connection and isolation, protection, control of fault levels, earthing, and equipment specifications at the network interface and elements of the generator installation that could impact the distribution network.

Question 12 – Shared network augmentation costs

(a) Is the current approach to attributing connection costs, particularly in relation to shared network augmentation costs, inefficient, inequitable and not cost-reflective? For what reasons?

(b) Should embedded generators (noting that embedded generating installations can encompass a broad range of installations) be exempt from paying shared network augmentation costs? Why or why not?

¹¹Clause 2.3 (b) The amount of any such application fee may not be more than necessary to cover the reasonable costs of all work anticipated to arise from investigating the application to *connect* and preparing the associated offer to *connect*.

(c) A *distributor* must not charge for any information that the *distributor* provides to an *embedded generator* prior to the *embedded generator* lodging an application to *connect*.

(c) If embedded generators are exempt from shared network augmentation costs, how should these costs be allocated?

Response:

In Victoria, ESCV Guideline 14 requires all customers seeking connection to contribute to the capital cost of new connection works and augmentation of the shared network. They are required to contribute the shortfall between the incremental costs (new works and augmentation) and the incremental revenue in establishing a new connection. The underlying principle is that those who impose a burden on the network should be required to contribute their share of the cost of network augmentation. This principle was adopted in the recent AER connection charge guideline¹² for retail customers. Section 5.1.4 of the AER's guideline allows a distributor to seek a capital contribution, if the incremental cost of standard control connection service exceeds the estimated incremental network revenue the distributor expects to receive from the connection.

In the AER's final decision¹³ on connection charge guidelines, the AER notes the following with respect to embedded generation:

"The AER's final decision is set out in section 7 of the connection charge guidelines for electricity retail customers. In summary:

The capital contribution for non-registered embedded generators that are also load customers will be calculated based on the total cost of the works required to support both the generation (expected electricity output) and load components of the connection service.

No incremental revenue will be received by the DNSP from the generation component.

The relevant load for the purposes of calculating shared network cost will be the gross peak demand of the load, regardless of the embedded generator's expected electricity output.

Non-registered embedded generators which seek to remove a specific network constraint must pay for the cost of removing the constraint. The AER considers services related to removing shared network constraints for specific users, such as embedded generators, would generally be an alternative control service, negotiated service or unclassified service. However, a DNSP's normal asset management may lead to a DNSP funding such shared network augmentation if there is a demonstrable net benefit to other network users. Non-registered embedded generators will not be charged a unit rate for shared network augmentation (based on the generation output)."

The key points to note are:

- a DNSP does not receive incremental revenue from an embedded generator; and
- a non-registered embedded generator which seeks to remove a specific network constraint must pay for the cost of removing the constraint.

Jemena supports the principle that a non-registered embedded generator which seeks to remove a specific network constraint must pay for the cost of removing the constraint including any augmentation costs of the shared network. We do not agree with rule change proponents' suggestion that the NER should be amended such that all embedded generators are exempt from paying shared network augmentation costs. If embedded generators do not

¹² AER connection charge guideline for retail customers, under chapter 5A of the National Electricity Rules, June 2012.

¹³ Final Decision on connection charge guidelines under chapter 5A of the National Electricity Rules for retail customers accessing the electricity distribution network (20 June 2012), p 63.

pay their share of alleviating network constraints, then it will result in upwards pressure on network charges for all customers.

The rule change proponent claims the current application of shared network augmentation costs on a 'lasting in, worst dressed' basis is inequitable. To mitigate this issue, embedded generators and distributors could consider a cost sharing scheme – akin to a 'pioneer' scheme that applies to load customers – whereby subsequent embedded generators refund the original embedded generator who had funded the cost of removing network constraints at a particular location (e.g. fault level reduction) to the extent of the benefit they get.