NATIONAL ELECTRICITY CODE
ADMINISTRATOR LIMITED
ACN 073 942 775

Level 5, 41 Currie Street
Adelaide SA 5000
Telephone (08) 8213 6302
Facsimile (08) 8213 6391

28 September 2004

FILE No:
DOC: D04/47342
MARS/PRISM:

Mr S Roberts
ACCC
Level 35, The Tower
360 Elizabeth Street
MELBOURNE VIC 3000

Dear Sebastian,

SITE-SPECIFIC LOSS FACTORS FOR SMALLER GENERATORS

I enclose a report by the Code Change Panel recommending amendments to the National Electricity Code to provide for site-specific loss factors for smaller generators.

The change began life as a proposed derogation by Hydro Power Pty Ltd to allow it to receive a site-specific loss factor for its 3.2MW Somerset Dam station. The Panel's report recommends, in effect, approving that request but providing for a more general change to the Code that would allow all generators below the existing 10MW/40GWhr a year threshold to receive site-specific loss factors provided they meet TNSPs' reasonable costs in calculating those specific factors.

As we did in relation to the proposed changes on generator registration and inter-regional settlements agreements last December, and again as I understand it with your prior agreement, we are applying for this change to be treated as a minor variation to the Code.

Yours,

Stephen Kelly

Stephen Kelly
Managing Director

CODE CHANGE PANEL

Site-specific loss factors for small generators

Report

September 2004

National Electricity Code Administrator Limited
ACN 073 942 775

Site-specific loss factors for smaller generators

Hydro Power Pty Ltd requested a derogation to permit it to receive a site-specific loss factor provided it met the reasonable cost of the network service provider in performing the necessary calculation. The Code stipulates in clause 3.6.3(b) that all larger generators must receive a site-specific loss factor but, as an efficiency measure, limits its application to generators of 10 MW or 40 GWhr a year or larger capacity. Smaller generators are effectively restricted to receiving an average loss factor.

Six responses were received from Edison Mission Australia Limited, Energex, Energy Australia, Ergon, Southern Hydro Partnership (SHP) and the Total Environment Centre (TEC). Copies of these responses are attached.

Both Edison Mission and Southern Hydro fully supported the grant of a derogation. Edison Mission suggested a minor drafting change to remove the reference to Hydro Power as it is superfluous. Ergon, Energex and Energy Australia each agreed the derogation ought be granted but expressed concern that measures should be in place to ensure that distributors are not burdened with excessive compliance costs. Ergon and Energy Australia favoured a size and/or voltage based limitation whilst Energex noted this approach was amongst a range of measures that could be adopted to limit demand for site specific loss factors. Other mechanisms Energex suggested were to rely on cost as has been proposed or to make it a matter to be resolved between the network service provider and the generator during negotiations for network support services. Energy Australia noted that it would be undesirable to extend a similar provision to loads because of the vastly greater number of loads compared to generators. The Total Environment Centre strongly supported the grant of a derogation but expressed concern that it might impose an unfair cost on smaller generators. They also suggested the matter could better be dealt with as a Code change.

The Panel notes the suggestions of Edison Mission and the TEC. It agrees that, since the derogation as framed has wider impact than on Hydro Power in that it extends to all similar generators, conversion of the derogation to the equivalent Code change will have the desirable effect of making the Code more readable for all other generators facing a similar situation.

The Panel has considered alternatives suggested in consultation to requiring generators to meet the costs of calculating site-specific loss factors as a means of limiting spurious requests. The Panel notes Energex's support for this as an alternative. Alternative criteria based on technical characteristics as proposed by Energy Australia and Ergon are inherently not technology neutral. In accordance with the market objectives, they should therefore only be adopted when compelling reasons are presented to do so. Ergon suggest that another criteria might be to limit its application to generators with a network support agreement however no basis for imposing such a restriction is given beyond the desire to limit the number of requests

received on unquantified grounds of administrative efficiency. Hydro Power has advised that the additional cost in their instance is small compared to the benefit of obtaining a site-specific loss factor but acknowledge that other small generators may find little or no benefit relative to the cost of obtaining a site-specific loss factor and for very small generators it may never be economic.

The TEC raises a question of equity regarding the imposition of a separate charge for calculation of the loss factor but it should be noted under the Code all larger generators are required to meet the reasonable expenses of the network service provider in responding to a connection application. As such, this is a cost they already meet although it may not be separately itemised. Smaller generators receive an average loss factor and therefore their connection costs do not include the incremental cost of performing this calculation.

The Panel concludes that the derogation request of Hydro Power Pty Ltd should be recast as a functionally equivalent Code change that omits specific reference to Hydro Power Pty Ltd and affirms its view that it is not appropriate to impose technology dependent criteria on the eligibility of generators for a site-specific loss factor. Subject to the amendments noted the Panel agrees that this request should be approved.

Alan Moran
Member

Stephen Kelly
Chairman

Irene Lee
Member

27 September 2004

Site-specific loss factors for smaller generators

New clause 3.6.3(b1)

(b1) For the purposes of clause 3.6.3 (b)(2)(i)(A), where a *generator* meets the reasonable cost of the *distribution network service provider* in performing the necessary calculation in respect of a *generating unit* of up to 10 MW or 40 GWhr per annum capacity, the *distribution network service provider* must calculate a site specific *distribution loss-factor* that, notwithstanding any other provision of the *Code* to the contrary, for the purposes of the *Code* is to apply in respect of that *generating unit* on the same basis as applies for a *generating unit* of more than 10 MW or 40 GWhr per annum capacity as though the *generating unit* were a unit of more than 10MW or 40 GWhr per annum capacity.

Site Specific DLFs - Hydro Power Pty Limited derogation - Ergon Energy Submission.

From: Tony Pfeiffer - Ergon Energy Corporation Limited (Network)

Sent: Tuesday, 17 August 2004 3:57 PM

To: Paul Dunn

Cc: HARRIS Denis (CA)

Subject: Site Specific DLFs - Hydro Power Pty Limited derogation - Ergon Energy Submission.

Paul,

As per previous advice, apologies for not submitting the following both by the deadline and secondly for submitting in the following e-mail form and not in an appropriate submission format.

The attached is Ergon Energy's comments on the derogation proposal.

We oppose the proposed derogation as worded, but express no objection to a specific application to the Hydro Power Generator at Somerset Dam. We would cautiously support a derogation with general application, provided the following issues are addressed.

(the term "small" below means<10MW)

- If the derogation is approved, there will need to be a mechanism to limit small EG proposers' propensity to seek Site Specific DLFs as this could impose a serious resourcing & cost burden on DNSPs. Application of full cost recovery for providing same would be a minimum in this regard.

- An alternative to the calculation of Site Specific values may be for DNSPs to derive a range of appropriate "average" DLFs which would be published & available to small EGs. (This suggestion requires some further consideration re methodology or even whether nominal values could be used.)

- There needs to be a lower limit to the size & connection level of small EGs eligible to receive Site Specific DLFs, to avoid further pressure on DNSPs from very small generators. A suitable lower limit would be **1MW & at a minimum connection voltage of 11kV**.

- It may be appropriate to limit the eligibility to receive a site specific DLF to small EGs which have a Network Support Agreement.

- It would be preferable for the DNSP to retain a prerogative re the applicability of site specific DLFs to small EGs. This would require the replacement of the word "must" with "may" in the proposed Derogation.

- The rationale for providing Site specific DLFs to small EGs needs to be fully considered in the context of such DLFs **not** being available to equivalent (load) customers. In this regard the above suggestion linking eligibility to a Network Support Agreement is instructive.

In the event such a derogation is approved, & the suggestion to come up with "average" or "nominal" values is not adopted, it would be our recommendation that the DNSPs develop a suitable standard methodology to calculate Site Specific DLFs for small EGs, in order to avoid the potential for protracted negotiation or dispute with EG proposers. This could come about because of the paucity of time tagged load data, the inherent variability of voltage regulation and the unpredictability of load profiles of the less diversified loads at the lower levels (extremities) of the network. These conditions

mean that there can be very wide variations in the value of a calculated DLF for quite small perturbations in the input parameters of generator output, operation pattern, & load states.

Regards,

Tony Pfeiffer
Manager Regulation, Networks
Ergon Energy
e-mail: tony.pfeiffer@ergon.com.au
Ph: 07 3228 7711
Fax: 07 3228 8255
Mobile: 0417 734 664

TOTAL ENVIRONMENT CENTRE INC.
LEVEL 2, 362 KENT STREET, SYDNEY, NSW 2000
Ph: 02 9299 5599 - 02 9299 5680 Fax 02 9299 4411
www.tec.org.au

Submission

16 August 2004

National Electricity Code Administrator
Code Change Panel

Hydro Power Pty Ltd Derogation

1 Summary

TEC supports the application that would permit Hydro Power Pty Ltd and other embedded generators of not more than 10 MW or 40 GWh capacity to apply for and receive the calculation and application of site specific distribution loss factors (DLFs).

TEC, however, recommends that the costs of calculating site-specific DLFs should be borne by the network service provider, as is the case for generators over 10MW. This would relieve the burden on small generators that are subject to inappropriate, average DLFs. As a result, it would improve equity within the NEM, one of the market's key objectives.[1]

Applying site specific DLFs would contribute considerably to the efficient proliferation of embedded generators throughout the NEM by providing a price signal for the location of these generators. This would increase efficiency and reliability in the physical delivery of electricity.

While distribution networks may be unfamiliar with the calculation of site specific DLFs, small generators should not be discriminated against on these grounds. Rather, networks should develop cost-effective methods for these calculations with the assistance of the jurisdictional regulators, if necessary. In a competitive electricity market, requests for accurate pricing, such as site specific DLFs should not be seen as 'unreasonable'.

TEC recommends that rather than inserting a derogation under Chapter 8 of the Code, Clause 3.6.3(b)(2) should be changed to remove the arbitrary hurdle of 10MW under which networks cannot supply site specific DLFs.

2 Equity

Clause 3.6.3(b)(2) of the National Electricity Code (the Code) currently treats embedded generators of under 10MW unfairly by disallowing networks from applying site specific DLFs.

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[1] National Electricity Code 1.3 (b) (4); 1.3 (b) (5)

This is in contravention of the Code's requirement that:

> 'a particular energy source or technology should not be treated more favourably or less favourably than another energy source or technology'.[2]

Clearly, the exclusion of generators of less than 10MW from acquiring site specific DLFs treats larger generators more favourably than smaller generators.

The key principles and core objectives of network pricing are also intended to achieve efficiency in the location of generation[3] and equity.[4] If the proposed derogation were to be rejected, the Code would be continuing to stifle the efficiency and reliability benefits of distributed generation. It would also be treating different sized generators unequally. This would result in the Code's continued unequal treatment of smaller embedded generators and renewable generators in general.

3 Efficiency

While there may be efficiency benefits to be gained from releasing network service providers from their obligation to perform site specific DLF calculations, these are at the expense of far greater efficiencies to be gained from the proliferation of small embedded generators in the market. The contribution of small embedded generators, particularly in remote locations, to the reduction of distribution and transmission losses is substantial. These benefits will grow as embedded generators proliferate throughout the NEM.

Increased embedded generators throughout the NEM could also result in lower network tariffs for consumers as embedded generation can help networks avoid or defer expensive augmentations.

However, as the Parer Report noted:

> 'Structural impediments, particularly transmission and distribution regulatory arrangements, have ... hindered efficient locational investment decisions.'[5]

Limiting site specific DLFs to generators over 10MW is one of these structural impediments that is hampering efficient investment decisions.

4 Reduction of Greenhouse Gas Emissions

Despite the NEM's continuing resistance to the inclusion of environmental externalities, resulting in extensive market failure, the contribution of small, embedded generators to a reduced carbon impact should not be ignored. As with most small, embedded generators, Hydro Power provides renewable energy, reducing green house gas emissions and producing a pollution free environment for generator workers and the local communities. These factors should also be considered when deciding on access to site specific DLF and payment for DLF calculations.

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[2] National Electricity Code 1.3 (b) (5)
[3] National Electricity Code 6.1.1 (c) (1)
[4] National Electricity Code 6.1.1 (c) (4)
[5] Commonwealth of Australia, *Towards a Truly National and Efficient Energy Market*, 2002, p. 240.

5 Increased Competition in the NEM

Research has shown that embedded generation provides positive benefits provided that it is of an optimum size (typically 50 –100% of the maximum load on the feeder). Ignoring the benefits suggests a discriminatory attitude towards embedded generators and impedes greater competition in the NEM.

6 Improved reliability.

A larger number of embedded generators can increase reliability by lowering the dependence on a few large generators and critical transmission lines. Quality of power can also be improved as embedded generators reduce the amount of customers at the end of long lines.

7 The Somerset Dam Generator

The Somerset Dam generator owned by Hydro Power was recently refurbished, which means it still has a considerable working life. As noted in the Hydro Power submission, the generator provides considerable benefits through increased reliability, deferral of costly network augmentation and environmental benefits.

It has been proven by the Network Provider (Energex Pty Ltd) that the generator currently reduces losses in excess of the average DLF. The loss of revenue caused by the inaccurate DLF is potentially significant.

Southern Hydro

5 August 2004

Paul Dunn
National Electricity Code Administrator Limited
Level 5, 41 Currie St
ADELAIDE SA 5000

Dear Paul

Re: Hydro Power Pty Limited derogation

Thank you for the opportunity to comment on the application by Hydro Power Pty Limited to NECA for a Chapter 8 derogation that would permit it, and other generators of not more than 10 MW or 40 GWh capacity, to apply for and receive a site-specific loss factor provided that the applicant pays the reasonable cost of the network service provider in calculating the factor.

Southern Hydro has reviewed the application from Hydro Power and wording of the proposed derogation and fully supports the granting of this Chapter 8 derogation.

If you have any further questions please do not hesitate to contact me on 03 9252 2875

Yours sincerely

Rob Jackson

Manager Market Development and Regulation

Southern Hydro Partnership (ABN 86 076 691 481)
[a partnership comprising SHP1 Pty Ltd (ACN 080 429 901), SHP2 Pty Ltd (ACN 080 810 546) and SHP3 Pty Ltd (ACN 080 735 815)]
Level 22, 600 Bourke Street, Melbourne Vic 3000 Telephone (03) 9252 2888 Facsimile (03) 9252 2889

EDISON
MISSION ENERGY
An EDISON INTERNATIONAL℠ Company

16 August 2004

Mr, Paul Dunn
by email: pdunn@neca.com.au

Dear Paul,

Response to NECA Code Consultation – Hydro Power Pty Limited derogation

Edison Mission Energy Australia Pty. Ltd. (EMEAL) has no objections to Hydro Power Pty Limited's application (on the 28th June 2004) for a Chapter 8 derogation.

The only suggestion EMEAL has is to remove the specific reference to Hydro Power in clause (a) of the proposed code change, as the same result can be achieved by stating "Any generator of not more than 10MW or not more than 40 GWh capacity".

Yours Sincerely

Terry Killen
Director, Physical Markets

Edison Mission Energy Australia Ltd
ABN 87 055 563 785
Level 20, HWT Tower
40 City Road, Southbank
Melbourne VIC 3006 Australia
Tel: 61 3 9696 6477 Fax: 61 3 9696 8420

12 August 2004

energex

NECA
Level 5, 41 Currie St
Adelaide SA 5000

Attention Mr Paul Dunn

Dear Paul

HydroPower

Thank you for the opportunity to comment on Hydro Power Pty Ltd's Code derogation application. With regard to the application ENERGEX would like to make the following comments.

Background

We confirm that as per the correspondence provided by Hydro Power Pty Ltd to NECA, Hydro Power did previously request ENERGEX to provide a site-specific DLF for their installation. However, ENERGEX did not provide the site-specific DLF as it was felt that such action would be in breach of clause 3.6.3 of the Code.

ENERGEX understands, and has always been supportive of, the approach which was taken in drafting of section 3.6 of the Code, as stated by NECA, to *"... prevent network service providers from the need to perform extensive calculations in circumstances where the benefits to the generator were expected to be limited ..."*. However, that said, ENERGEX is not fundamentally opposed to the idea of facilities such as Hydro Power having a site-specific DLF, if it provides a significantly fairer and more accurate outcome, is allowable (under the Code), and can be done without resulting in significant additional workload for distributors.

Hydro Power Pty Ltd Facility

Hydro Power's facility provides identifiable network support benefits to the long rural 33 kV sub-transmission network, to which it is connected. It could in fact be regarded as being an optimal sized embedded generator for the network. This is an almost unique situation in that often embedded generators are not of an optimal size for the network to which they are

Reference 34-04

INTERNATIONAL QUALITY MANAGEMENT SYSTEM

Enquiries
Ray Pannam
Telephone
(07) 3407 4506
Facsimile
(07) 3407 4608
Email
raypannam
@energex.com.au

Corporate Office
150 Charlotte Street
Brisbane Qld 4000
GPO Box 1461
Brisbane Qld 4001
Telephone (07) 3407 4000
Facsimile (07) 3407 4509
www.energex.com.au

ENERGEX Limited
ABN 40 078 849 055

connected, or are not located in places that enable them to provide real identifiable network support.

Because the Hydro Power generator is an "optimal" size, and it is connected to a reasonably high loss rural network, the average (33 kV) distribution loss factor for ENERGEX's network is much less than the site specific loss factor would be in this situation.

Recommendations

If a derogation of some form is forthcoming to address this situation, there still needs to be some limitations on the general use of site specific loss factors to ensure that distributors are not burdened with excessive compliance costs. There would appear to be a number of possible options to address this, such as:

- Hydro Power's proposal of a fee for service arrangement, or
- Specifying a connection voltage limitation eg. all generators connected at 33 kV or above have site specific factors applied, or
- A combination of limits based both on the size of the generator and the connection voltage, or
- Allow for site specific DLFs to be a matter for negotiation between distributors and generators during negotiating for network support services.

Thank you for the opportunity to comment on this issues. If you have any questions regarding this submission please contact Ray Pannam, phone no (07) 34074542.

Yours sincerely

Mike Griffin
General Manager Asset Management

9269 4171
M – NP&CC/DH

16 August 2004.

The General Manager
National Electricity Code Administrator
Level 5
41 Currie Street
ADELAIDE SA 5000

ATTENTION: MR PAUL DUNN

Dear Paul,

Hydro Power Pty Limited Derogation

This letter constitutes EnergyAustralia's response to the Hydro Power Pty Limited application for a Code derogation.

EnergyAustralia generally supports the Hydro Power application, which it is noted would apply to all generators with a capacity of less than 10MW. However, it is concerned to ensure that the resulting arrangements can be practically implemented and do not cause undue resourcing issues and costs for the industry and its regulators.

Our concerns with the derogation are as follows:

1. A minimum size and voltage limit should be specified, to avoid the situation where numerous very small generators might apply for site specific loss factors. It is suggested that a lower limit of 500kW and connection at least to 11kV should apply.

2. Individually calculated loss factors can be much more efficiently and consistently determined if a single electrical simulation (such as TPRICE) is used. In addition, a single Jurisdictional Regulator approval process would be highly desirable as the current practice by them is to obtain consultant advice before such approval is granted. Therefore, it is proposed that individual loss factor calculations for <10MW generators should be carried out at the same time as other loss factors are calculated and, following regulatory approval, apply for the following financial year.

   Where a generator of <10MW is established during the course of a financial year, an averaged distribution loss factor would apply until an individual loss factor was determined and approved.

3. If this derogation should be approved, it must be recognised that a non-symmetric arrangement compared with load connections would be introduced. The vastly greater number of load connections would make reduction of the 10MW/40GWh limit for individual calculations for loads impractical to administer and suggest it would be imprudent to extend this derogation to similarly sized loads.

I trust these comments will be of assistance in framing a derogation which would be both practical and cost effective to administer and yet provide improved economic signals where it is appropriate to do so.

Yours faithfully,

(signed)

George Maltabarow
GENERAL MANAGER – NETWORK