



Australian Competition & Consumer Commission

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3 October 2001

Applications for authorisation of amendments to the National Electricity Code - Averaging loss factors in distribution networks determination (Authorisation Nos A90783, A90784 and A90785)

On 20 March 2001, the Australian Competition and Consumer Commission (the Commission) received applications for authorisation (A90783, A90784 and A90785) of changes to the National Electricity Code (code). The amendments to the code relate to a proposal to allow distribution network service providers to assign smaller contestable customers to non-physical transmission connection points using an averaged transmission loss factor.

The Commission did not receive any submissions in regards to the proposed code changes.

On 6 June 2001, the Commission released its draft determination outlining its analysis and views on the proposed code changes. The Electricity Markets Research Institute (EMRI) notified the Commission on 22 June 2001 that it wished the Commission to convene a conference in relation to the draft determination.

The pre-determination conference (PDC) was held in Canberra on 19 July 2001, and following the PDC, the Commission received submissions from EMRI and EnergyAustralia.

This determination takes into account the issues raised at the PDC and in submissions.

Enclosed is a copy of the Commission's determination in respect of these applications for authorisation. The Commission's determination outlines its analysis and views on the proposed Code changes.

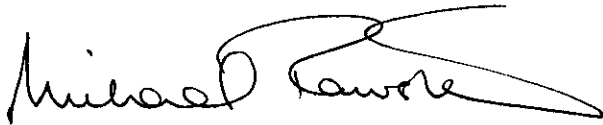
The Commission proposes to grant authorisation, conditional upon a number of amendments to the proposed changes being made. The conditions are specified in Chapter 8 of the determination. The Commission proposes to limit the period of the authorisation to 31 December 2010.

In accordance with s.101 of the *Trade Practices Act 1974* a person dissatisfied with the Commission's determination may apply to the Australian Competition Tribunal for a review of the determination. Each application must be lodged on the appropriate form within 21 days of the date of the determination, with the Registrar of the Tribunal. The Tribunal is located in the Office of the Registrar of the Federal Court in each State.

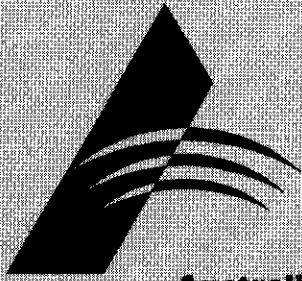


A copy of this letter together with the determination will be placed on the Public Register kept by the Commission.

Yours sincerely

A handwritten signature in black ink, appearing to read "Michael Rawstron". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Michael Rawstron
General Manager
Regulatory Affairs – Electricity



**Australian
Competition &
Consumer
Commission**

Determination

Applications for Authorisation

Amendments to the National Electricity Code

Averaging loss factors in distribution networks

Date: 3 October 2001

Authorisation nos:

A90783

A90784

A90785

Commissioners:

Fels

Shogren

Jones

Martin

Bhojani

File no: C2001/418

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Glossary

code	National Electricity Code
Commission	Australian Competition and Consumer Commission
DCP	Distribution Connection Point
DLF	Distribution Loss Factor
DNSP	Distribution Network Service Provider
EMRI	The Electricity Markets Institute
Energex	Energex Limited
IPART	Independent Pricing and Regulatory Tribunal
NECA	National Electricity Code Administrator
NEDF	National Electricity Distributors' Forum
NEM	National Electricity Market
NEMMCO	National Electricity Market Management Company Ltd
Panel	NECA Code Change Panel
TCP	Transmission Connection Point
TLF	Transmission Loss Factor
TPA	Trade Practices Act 1974
VTN	Virtual Transmission Node

1. Introduction

1.1 The applications

On 20 March 2001, the Australian Competition and Consumer Commission (the Commission) received applications for authorisation (A90783, A90784 and A90785) of changes to the National Electricity Code (code). The applications were submitted by the National Electricity Code Administrator (NECA) under Part VII of *the Trade Practices Act 1974* (TPA).

The amendments to the code relate to a proposal to allow distribution network service providers (DNSPs) to assign smaller contestable customers to non-physical transmission connection points (TCPs) using an averaged transmission loss factor (TLF). The proposal will replace the existing obligation on DNSPs to assign all such customers to physical connection points.

1.2 Statutory test

The applications were made under sub-sections 88(1) and 88(8) of the TPA.

Applications made under sub-section 88(1) of the TPA are for authorisation to make a contract or arrangement, or arrive at an understanding, a provision of which would have the purpose, or would or might have the effect, of substantially lessening competition within the meaning of section 45 of the TPA; and to give effect to a provision of a contract, arrangement or understanding where the provision is, or may be, an exclusionary provision within the meaning of section 45 of the TPA. Further sub-section 88(6) provides that an authorisation made under sub-section 88(1) has effect as if it were also an authorisation in the same terms to every other person named or referred to in the application.

Applications made under sub-section 88(8) of the TPA are for authorisation to engage in conduct that constitutes, or may constitute, the practice of exclusive dealing in accordance with the provisions of section 47 of the TPA. Further, sub-section 88(8AA) provides that where authorisation has been granted under sub-section 88(8) and this particular conduct is expressly required or permitted under a code of practice, the authorisation applies in the same terms to all other persons named or referred to as a party or proposed party to the code. Authorisations may also apply to any corporation who becomes a party in the future.

The TPA provides that the Commission shall only grant authorisation if the applicant satisfies the relevant tests in sub-sections 90(6) and 90(8) of the TPA. While sub-section 90(6) and sub-section 90(8) relate to different types of anti-competitive behaviour, the tests are essentially the same.

Sub-section 90(6) provides that the Commission shall grant authorisation only if it is satisfied in all the circumstances that:

- the provisions of the proposed contract, arrangement or conduct would result, or be likely to result, in a benefit to the public; and
- that benefit would outweigh the detriment to the public constituted by any lessening of competition that would, or would be likely to result from the proposed contract, arrangements or conduct.

Sub-section 90(8) provides that the Commission shall grant authorisation only if it is satisfied in all the circumstances that the proposed provision or conduct would result, or be likely to result, in such a benefit to the public that the proposed contract, arrangement, understanding or conduct should be allowed.

The detriment to be considered is limited to detriment caused by a lessening of competition. However, consideration of public benefits is less restricted and public benefits recognised in the past include:

- fostering business efficiency;
- industry rationalisation;
- promotion of industry cost savings;
- promotion of competition in industry;
- promotion of equitable dealings in the market;
- expansion of employment;
- development of import replacements;
- growth in export markets; and
- arrangements which facilitate the smooth transition to deregulation.

In considering whether or not to grant authorisation the Commission must consider what the position is likely to be in the future if authorisation is granted and what the future is likely to be if authorisation is not granted.

If the Commission determines that the public benefits do not outweigh the detriment to the public constituted by any lessening of competition, the Commission may refuse authorisation or grant authorisation subject to conditions.

The value of authorisation for the applicant is that it provides protection from action by the Commission or any other party for potential breaches of certain restrictive trade provisions of the TPA. It should be noted, however, that authorisation only provides exemption for the particular conduct applied for and does not provide blanket exemption from all provisions of the TPA. Further, authorisation is not available for misuse of market power (section 46).

A more expansive discussion about the Commission's authorisation process and the statutory test that the Commission applies can be found in: *Guide to authorisations and notifications*, Australian Competition and Consumer Commission, November 1995.

1.3 Public consultation process

The Commission has a statutory obligation under the TPA to follow a public process when assessing an application for authorisation.

The Commission received the applications for authorisation of the changes to the code on 20 March 2001. Notification of the applications and a request for submissions were advertised in *The Financial Review* on 6 April 2001 and posted on the Commission's web site. Interested parties were asked to make submissions to the Commission regarding their views on the issues of public benefit and anti-competitive detriment arising from implementation of the proposed changes.

The Commission did not receive any submissions from interested parties.

On 6 June 2001, the Commission released its draft determination outlining its analysis and views on the proposed code changes. The applicant and other interested persons were invited to notify the Commission within 14 days whether they wished the Commission to hold a conference in relation to the draft determination. For the purposes of the conference, an interested person is a person who has notified the Commission in writing that the person, or a specified unincorporated association of which the person is a member, claims to have an interest in the applications and the Commission is of the opinion that the interest is real and substantial. The Electricity Markets Research Institute (EMRI) notified the Commission on 22 June 2001 that it wished the Commission to convene a conference in relation to the draft determination.

The pre-determination conference (PDC) was held in Canberra on 19 July 2001, and following the PDC, the Commission received submissions from EMRI and EnergyAustralia. This determination takes into account the issues raised at the PDC and in submissions.

A person dissatisfied with this determination may apply to the Australian Competition Tribunal for its review.

2. Averaging loss factors in distribution networks

2.1 Background

The network of the National Electricity Market (NEM) provides the connection between generators and customers and enables trade in electricity. The configuration of the network varies, as it is dependent upon the terrain over which it passes, the distance it covers and the amount of electricity transported.

Electrical energy losses occur when electricity is transported from the point of generation to the point of consumption. In the NEM, loss factors are applied as price multipliers to the spot price determined at each regional reference node in order to reflect the costs arising from transporting electricity.

The higher voltage transmission network provides supply to the lower voltage distribution networks at TCPs. Within densely settled urban areas, the transmission network supplies some distribution zone substations, as well as accommodating flows between generators and distributors. Distribution level loads are supplied at distribution connection points (DCPs). Embedded generators also connect at DCPs while large generators and loads connect directly to the transmission network at TCPs.

There are generally open points in the distribution networks that define areas supplied by each TCP. These open points generally are automatically or remotely controlled and thus readily altered. A change in any open point can result in a significant change in the area supplied by a TCP. The open points frequently change for operational purposes, during system maintenance and development, and on a seasonal basis to improve the utilisation of the network.

To ensure that price signals are passed through to DCPs, and to allow local retailers' wholesale market purchases to be settled on the basis of metering at TCPs, each DCP is required to be assigned to a TCP.

The code specifies the responsibilities of DNSPs in relation to the assignment of DCPs to TCPs as follows:

3.6.3 (a) Each *Distribution Network Service Provider* shall assign each *connection point* on its *distribution network* to a single *transmission network connection point* taking into account normal *network* configurations and predominant *load* flows.

The code thus imposes an obligation on DNSPs to assign each DCP to a specific TCP.

2.2 National Electricity Distributors Forum proposal

The National Electricity Distributors Forum (NEDF) argues that the present code provision cannot be fully implemented at reasonable cost, particularly in metropolitan areas. The NEDF states that the accurate assignment of a DCP to an individual TCP is not always possible, because of the complex and variable nature of the network configuration.

The NEDF believes that there is often a degree of uncertainty associated with the assignment of a TCP (particularly in an urban area) and a distributor may be considered to be in breach of the present requirements of the code. This situation may be exacerbated, as the threshold of contestability decreases and much larger numbers of small customers participate in the market settlements.

The NEDF proposes a change to the code to resolve this matter. It would permit the creation of a non-physical TCP or virtual transmission node (VTN) with an averaged TLF. This connection point would be used for market settlements and have a TLF equal to a volume weighted average of the TLFs at adjacent TCP locations.

3. Issues for the Commission

These changes to the code may be considered to be:

- price fixing arrangements, to the extent that participants are employing formulae which may have the effect of fixing or controlling the price of electricity in a region; or
- anti-competitive arrangements, to the extent that loss factors, which result from the averaging of losses across an area, may create cross-subsidies from those whose actual losses are low to those whose actual losses are high, resulting in inequality and inefficient market signals.

4. What the applicant says

The NECA Code Change Panel (Panel) sought comments on the proposed changes and in particular on whether:

- averaged TLFs should be allowed, as proposed by the NEDF, but only across TCPs physically able to serve the relevant customer;
- if non-physical TCPs are allowed, the proposal appropriately limits the number of physical connection points that may be averaged to arrive at the loss factor for that VTN;
- the other proposed safeguards are adequate; and
- the proposal creates, or increases, risk for the local retailer or any other party or results in an unreasonable diminution of the amounts accruing within the settlements system or the inter or intra-regional settlements surplus accounts.

The Panel notes that the current NEM design achieves some of its locational signalling through TLFs and distribution loss factors (DLFs) and considers it essential that larger customers continue to receive this signal. However, the Panel also notes that for smaller customers the allocation of transmission use of system and distribution use of system charges by customer class is likely to be both economically efficient and an adequate basis for informing consumers.

The NEDF proposed that the threshold of 10 MW or 40 GWh apply for the averaging of TLFs and is thus consistent with the recommendations of the NECA transmission and distribution pricing review. The Panel considers that implementation of this proposal represents progress towards the unbundling of network charges for all customers. The Panel endorses the proposal, subject to minor changes to clarify the calculation of the average TLF suggested by the code change focus group.

5. What the interested parties say

5.1 Submissions to NECA

Energex Limited (Energex) states that it fully supports the proposal and that it is a pragmatic approach that will simplify the process of assigning a transmission node identifier by the local network service provider, particularly in cases where premises can be supplied from multiple TCPs.

Energex considers that the error arising from the averaging of TLFs will generally be minimal and this is unlikely to lead to degradation of locational pricing signalling.

6. Issues arising from the draft determination

EMRI recommends that the Commission should assess the proposed code amendments not only under TPA Part VII but also under TPA Part IIIA. EMRI contends that the benefit to the public espoused in the draft determination that follows the TPA Part IV is not as customer focussed as TPA Part IIIA.

EMRI is concerned that customers dealing with the monopoly distributors face disadvantages. These being a lack of access to data, difficulty in assessing compliance with good practice, lopsided bargaining power and almost no recourse to dispute resolution. EMRI believes that under an effective access regime these concerns would have been addressed.

EMRI states that allowing TLFs based on VTNs can lead to favoured treatment in the situation where a co-generator may be associated with an outside retailer (or have its own retail license) who has an interest to serve close-by customers unless there are provisions to discourage such practice. EMRI believes that the monopoly distributors' exercise of discretion should be subjected to public scrutiny and not be left to State based regulation.

EMRI submits that it sometimes happens that a DLF forms a catch all factor to absorb theft, metering errors, fault current (leakage) and poor accounting practices. Some State regulators have incentives to reward distribution companies for reducing distribution losses. EMRI states that it would be counter productive to allow distributors to collect these rewards by distorting TLFs.

EMRI states that a substantial component of the pool market settlement is based on deemed values and much of that deemed energy is on account of retail customers belonging to the associated retail arm of the distribution business. EMRI believes that given this vested interest in the deemed energy component, there needs to be a methodology to verify the integrity of the TLF allocation process.

EMRI agrees that the impact on a customer in a highly meshed urban network with customers having similar loads may not be very significant but states that there is a very significant impact on customers in remote areas situated close to large facilities like saw mills. EMRI states that where the losses are high and significant variation in load conditions exist between consumers, the present arrangements are inequitable. Allowing VTNs will further blur the issues and make informed decisions more difficult.

EMRI states that the Commission should expand its conditions of authorisation to include:

- requiring NECA to report on the impact of current methodology on customers in regional areas, with special reference to areas where the transmission loss factor is greater than 3. An assessment should be made of more appropriate methodologies that could be used instead of the direct application of loss factors for apportioning losses;
- lowering the proposed ceiling to 1 MW annual maximum demand or 4 GWh energy consumption per annum;
- requiring distributors to publish TLFs for all VTNs in conjunction with TLFs for the contributing TCPs as derived by NEMMCO;
- requiring each distributor to publish the methodology used to determine the required number of VTNs, their respective area of application and the calculation process to derive the applicable TLF;
- requiring the distributor to produce the actual working to show how the applicable VTN TLF was calculated from the relevant TLFs provided by NEMMCO, on an application made by a customer or prospective customer;
- an effective dispute resolution process under the code as is normally found in effective access regimes where the disputed issue at stake is higher than the monetary threshold set for the Industry Ombudsman Scheme; and
- requiring NEMMCO to do an annual reconciliation of total losses from VTNs and directly allocated transmission losses versus the total transmission losses allocated to that distribution system as part of the annual setting of transmission losses.

EnergyAustralia states that it can be concluded from the NEDF's submission to NECA, which originally proposed the code changes, that the effect of averaging EnergyAustralia TLFs in the Sydney area, produce a VTN with a worst-case difference in the total electricity bill of less than 0.1%.

EnergyAustralia considers that this difference is considerably less than the maximum allowable error of 1.5% for a Type 4 metering installation and entirely negligible compared with the approximations involved in the calculation of DLFs.

EnergyAustralia believes that the following principles should apply to the code changes presently under consideration by NECA and other affected parties such as NEMMCO:

- the calculation of TLFs should remain the province of NEMMCO, who presently have all the associated data;
- the calculation of DLFs should remain with the DNSPs, for the same reason;

- approval of a proposed grouping of TLFs should be sought from the jurisdictional regulator by the DNSP. This would most efficiently be done in conjunction with the existing annual approval of DLFs. In the case of IPART, an independent engineering consultant has been engaged to audit the loss factor proposals;
- the calculation of the weighted average loss factor to apply to each VTN would be carried out by NEMMCO, in accordance with a process set out in the code. This process would be a simple extension of the existing TLF calculation; and
- NEMMCO should publish the TLFs to apply at each VTN in the same format and at the same time that it publishes other TLFs.

EnergyAustralia states that the calculation and implementation of TLFs and DLFs are separate exercises with no interaction. The network boundary for these calculations is at the TCPs (the points of bulk supply from the transmission network to the distribution network). These are also the points of market settlement.

EnergyAustralia contends that DNSPs calculate DLFs for their networks, which are the subject of jurisdictional approval. They are published on distribution network price lists and also used in market settlements to adjust the customer's metered quantity to the TCP. A customer's DLF is based upon the type of load and metering arrangement. This choice is quite independent of the choice of either a TCP or a VTN.

EnergyAustralia submits that the TLF to apply to the VTN is the weighted average of the TLFs of the constituent TCPs. It is proposed that market settlements would be unaffected by the presence of VTNs. Settlement residues arise due to differences between actual transmission losses and those due to the application of TLFs. Settlement residues would not be affected by the presence of VTNs.

EnergyAustralia states that as there is no way of accurately identifying which of the constituent TCPs each contestable customer is connected to, it would not be possible to reconcile losses at each VTN with those that might have taken place if the loads were assigned to TCPs.

7. Commission considerations

Accurate signalling of transportation losses in the spot market is necessary to provide economically efficient locational price signals and to ensure that central dispatch and pricing achieve the most efficient outcome. Losses are also important in ensuring that new investment is appropriate and that the right balance is achieved between investment in generation, demand side measures and/or the main transmission network.

For the smaller urban customers connected within distribution networks, transmission losses contribute only a small proportion of the delivered energy cost. This is because TCPs of distribution zone substations are physically and electrically close together and hence the differences in transmission losses are small. Consequently, any differences in electricity prices due to averaging loss factors at the transmission level are likely to be insignificant, compared with the averaging inherent in DLFs.

The Commission considers that the averaging of TLFs in distribution networks for smaller urban customers is unlikely to distort economic signals to any greater degree than the system now in place. It is accepted that this process will entail some degree of cross subsidisation. However, averaged transmission losses will only apply to smaller urban customers where it is said to be not practicable to assign DCPs to TCPs.

The Commission believes that the averaging envisaged in these code changes does not have a material impact on competitive outcomes in the spot market. The Commission considers that the level of complexity involved in these code changes is not significantly greater than the current system and does not increase potential barriers to entry for new participants and barriers to direct trading for end use customers.

The Commission believes that there is a public benefit in reduced administration costs and certainty in the arrangements for averaging transmission losses between TCPs while the alternative of assigning every DCP to a TCP is complex and does not increase the benefit to end users. The Commission does acknowledge that simplifications and approximations will occur. However, the Commission considers the calculation of loss factors, as proposed in these code changes, is a pragmatic approach.

The Commission notes EMRI's recommendations with respect to assessing the code changes using the provisions of part IIIA of the TPA but notes that the relevant test to be applied is set out in the TPA and is outlined in section 1.2 of this determination. The Commission also notes EMRI's concerns of customer disadvantage and considers that dispute resolution measures are available under Chapter 8 of the code.

The Commission considers that VTNs are to apply to smaller contestable customers where it is not practicable to do otherwise and understands that they are not generally to be used in remote areas. Jurisdictional regulators approving the grouping of TCPs for VTNs and monitoring their use will allay concerns regarding distributors' vested interests or favoured treatment in the retail market. Incentive rewards for reducing distribution losses will not be affected as these code changes concern only TLFs.

The Commission notes EMRI's concerns regarding public scrutiny of the VTN calculation process and therefore requires that NEMMCO must calculate and publish the TLFs and methodology that applies to VTNs.

While this code change proposal does not require DCPs to be assigned to specific TCPs, section 3.15 of the code requires the energy flowing to these DCPs to be accounted for in market settlements. The Commission considers that the aggregate adjusted gross energy for DCPs assigned to VTNs must be accounted for when calculating adjusted gross energy for TCPs. Therefore, section 3.15 of the code must be amended as a condition of authorisation to ensure market settlements are calculated correctly. Further, the glossary definition of adjusted gross energy must be amended to make reference to VTNs.

Finally, as clause 3.6 of the proposed code changes does not account for connection points with other distribution networks, market network service links etc. the code must be amended so that the intent is to ensure that these connection points are, by default, assigned to a TCP.

8. Determination

This determination is made on 3 October 2001. The Commission considers that the proposed arrangements and conduct set out in the averaging loss factors in distribution networks code changes:

- are likely to result in a benefit to the public which outweighs the potential detriment from any lessening of competition that would result if the proposed conduct or arrangements were made, or engaged in; and
- are likely to result in such a benefit to the public that the proposed conduct or arrangements should be allowed to take place or be arrived at.

For the reasons outlined in section 7 of this determination, the Commission pursuant to s.90A of the TPA grants authorisation to applications A90783, A90784 and A90785, subject to the conditions set out below. The Commission proposes to limit the period of the authorisations to 31 December 2010.

Conditions of authorisation.

1. **Clause 3.6 of the code must be amended to specify that NEMMCO will calculate and publish the transmission loss factors and the methodology that applies to each virtual transmission node.**
2. **Clause 3.15 of the code must be amended to ensure that the aggregate adjusted gross energy for distribution connection points assigned to virtual transmission nodes are accounted for when calculating the adjusted gross energy for transmission connection points.**
3. **The definition of adjusted gross energy in Chapter 10 of the code must be amended to include reference to virtual transmission nodes.**
4. **Clause 3.6 of the code must be amended to ensure that connection points with other distribution networks, market network service links etc., by default, are assigned to a transmission connection point.**

This authorisation is subject to any application to the Australian Competition Tribunal for its review.