

# National Electricity Market Management Company Limited

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11 November 1996

Professor Allan Fels  
Chairman  
ACCC  
P.O. Box 19  
BELCONNEN ACT 2616



Dear Professor Fels



## National Electricity Code and Applications for Authorisation and Acceptance of an Industry Access Code

582-7956

I refer to the National Electricity Code ("the Code"), which was delivered to you on 9 October 1996 (marked "Version 2.0"), together with draft applications for authorisation of the Code and a draft application for acceptance of some of its chapters as an access code.

National Electricity Code Administrator Limited (NECA) and National Electricity Market Management Company Limited (NEMMCO) now submit to the ACCC the following:

1. Two applications under Sections 88 (1) (Forms A and B) and one application under Section 88 (8) (Form E) for authorisation of the Code for the purposes of Part VII of the Trade Practices Act and the Competition Codes.

As all three applications relate to the same market, the application described in Form A is lodged as the first application and the others are additional applications under Regulations 28 (5) and (6) of the Trade Practices Act Regulations.

Accordingly a cheque for \$10,500, representing the fee of \$7,500 for the first application and \$1,500 for each of the additional applications, is also enclosed.

2. Draft application for acceptance of the Code as an access code under proposed amending section 44ZZAA of the Act.

Details and arguments in support of both the draft access code application and the Section 88 applications are in the one **Submission** document enclosed.

The documents referred to in Chapter 1.8 of the **Submission**, which are lodged with the applications, have already been lodged with you on 9 October 1996, when the Code was delivered to you.

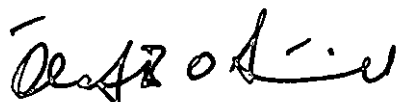
Both NECA and NEMMCO are the applicants in the applications for authorisation. NECA is proposed as the industry body to apply for acceptance of the Code as an access code.

As you will know, legislation to amend the Act to allow for acceptance by the ACCC of an access code submitted by an industry body has yet to pass the Commonwealth parliament and accordingly application for such a code cannot yet be lodged with the Commission. When the legislation passes a formal access code application will be lodged.

As your officers have pointed out in recent correspondence, it may be necessary, as the legislation currently stands, for all who may engage in actions under the Code which may breach section 47 of the Act, to join in an application for authorisation under section 88 (8) of the Act. In these applications for authorisation, only NECA and NEMMCO are applicants. Although we have requested that the Commission exercise its discretion to grant authorisation on terms that extend to future code participants. If our request is unable to be met, it will be our intention, following lodgement of these applications, to work with the Commission to arrange for all those who may require authorisation to be accounted for.

The Code and accompanying draft applications are commended for the consideration of the Commission.

Yours sincerely



Olaf O'Duill  
Chairman  
National Electricity Market Management Company Limited

## FORM A

COMMONWEALTH OF AUSTRALIA  
*Trade Practices Act 1974 - Sub-section 88(1)*  
 EXCLUSIONARY PROVISIONS:  
 APPLICATION FOR AUTHORIZATION

To the Australian Competition and Consumer Commission:

Application is hereby made under sub-section 88(1) of the *Trade Practices Act 1974* for an authorization under that sub-section:

- (a) to make a contract or arrangement, or arrive at an understanding, where a provision of the proposed contract, arrangement or understanding would be, or might be, an exclusionary provision within the meaning of section 45 of that Act; and
- (b) 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 that Act.

1. (a) Name of applicants
 

National Electricity Code Administrator Limited  
 (ACN 073 942 775) ("NECA")  
 and  
 National Electricity Market Management  
 Company Limited (ACN 072 010 327)  
 ("NEMMCO")
- (b) Short description of business carried on by applicants
 

NECA: administration of the National Electricity Code.  
 NEMMCO: management of the National Electricity Market.
- (c) Address in Australia for service of documents on the applicants
 

Level 8  
 350 Collins Street  
 Melbourne Vic 3000  
 Telephone: (03) 9642 8363  
 Facsimile: (03) 9642 8526  
 Attention: Mr Neville Henderson

until 31 December 1996, and thereafter to

Executive Chairman  
 National Electricity Code Administrator Limited  
 Level 7  
 14 Martin Place  
 Sydney NSW 2000  
 Attention: Mr John McMurtrie

2. (a) Brief description of contract, arrangement or understanding and, where already made, its date
 

The initial National Electricity Code as defined in section 6(1) of the National Electricity Law ("the Code"). A copy of the proposed Code (Version 2.0, as proposed to be amended by Addendum 1) is provided as Attachment 1 to the applicants' submission ("Submission") to the ACCC lodged in support of this application dated 13 November 1996.
- (b) Brief description of those provisions of the contract, arrangement or understanding that are, or would or might be, exclusionary provisions
 

The provisions are set out in the Code. The more significant provisions that are, or would or might be, exclusionary provisions within the meaning of section 45 of the Act are identified in the Submission.
- (c) Names and addresses of other parties or proposed parties to contract, arrangement or understanding
 

The other proposed parties to the Code, being all persons who in the future register with NEMMCO under the Code as Code Participants.
3. Names and addresses (where known) of parties and other persons on whose behalf application is made:
 

This application is not made on behalf of any other corporation or other person. However:

  - (a) The authorization being applied for by this application is to be expressed so as to apply to or in relation to each other person who, in the case of an authorization to make the Code, becomes a party to the Code by registering with NEMMCO as a Code Participant at a time after it is made or, in the case of an authorization to give effect to a provision of the Code, becomes a party to the Code by registering with NEMMCO as a Code Participant at a time after the authorization is granted within the meaning of section 88(10) of the Act.
  - (b) This application is expressed to be made also in relation to other proposed contracts, arrangements or understandings that will be in similar terms to the Code within the meaning of sections 88(13), (14) and (15) of the Act.
4. (a) Grounds for grant of authorization
 

Authorization is sought on the grounds set out in the Submission.
- (b) Facts and contentions relied upon in support of those grounds
 

The facts and contentions relied on by the applicants are set out in the Submission.

5. This application for authorization may be expressed to be made also in relation to other contracts, arrangements or understandings or proposed contracts, arrangements or understandings, that are or will be in similar terms to the above-mentioned contract, arrangement or understanding.

(a) Is this application to be so expressed? Yes, each other proposed contract, arrangement or understanding for the purposes of sections 88(13), (14) and (15) of the Act, being each other proposed contract, arrangement or understanding to be made between a person who registers with NEMMCO under the Code as a Code Participant, the applicants and each existing Code Participant at that time, the terms of which are comprised in the Code.

(b) If so, the following information is to be furnished:

(i) the names of the parties to each other contract, arrangement or understanding Not applicable as no other contract or arrangement has been made or understanding has been arrived at as at the date of this application.

(ii) the names of the parties to each other proposed contract, arrangement or understanding which names are known at the date of this application The applicants. Other than to state that the other parties to each other proposed contract, arrangement or understanding for the purposes of sections 88(13), (14) and (15) of the Act will be the person who registers with NEMMCO under the Code as a Code Participant and each existing Code Participant at that time, the names of those other parties are not known as at the date of this application.

6. (a) Does this application deal with a matter relating to a joint venture (See section 4J of the *Trade Practices Act* 1974)

No

(b) If so, are any other applications being made simultaneously with this application in relation to that joint venture?

Not applicable

(c) If so, by whom or on whose behalf are those other applications being made?

Not applicable

7. Name and address of person authorised by the applicant to provide additional information in relation to this application

The persons nominated in 1(c) of this form.

13 November 1996

Dated .....15<sup>th</sup> November....., 1996.....

Signed on behalf of NECA

Signed on behalf of NEMMCO

John McMurtrie  
.....  
(Signature)

Olaf O'Duill  
.....  
(Signature)

Mr John McMurtrie  
Chairman, National Electricity Code  
Administrator Limited  
Level 7  
14 Martin Place  
Sydney NSW 2000

Mr Olaf O'Duill  
Chairman, National Electricity Market  
Management Company Limited  
Level 25  
367 Collins Street  
Melbourne Vic 3000



\* Note: References in this application to the Act also include the Competition Codes of each participating jurisdiction as defined in the Competition Policy Reform legislation now in force in each participating jurisdiction.

## DIRECTIONS

1. Where there is insufficient space on this form to furnish the required information, the information is to be shown on separate sheets, numbered consecutively and signed by or on behalf of the applicant.
2. Where the application is made by or on behalf of a corporation, the name of the corporation is to be inserted in item 1(a), not the name of the person signing the application and the application is to be signed by a person authorised by the corporation to do so.
3. In item 1(b), describe that part of the applicant's business relating to the subject matter of the contract, arrangement or understanding in respect of which the application is made.
4. Furnish with the application particulars of the contract, arrangement or understanding in respect of which the authorization is sought. Those particulars shall be furnished -
  - (a) in so far as the particulars or any of them have been reduced to writing - by lodging a true copy of the writing; and
  - (b) in so far as the particulars or any of them have not been reduced to writing - by lodging a memorandum containing a full and correct statement of the particulars that have not been reduced to writing.
5. Where the application is made also in respect of other contracts, arrangements or understandings which are or will be in similar terms to the contract, arrangement or understanding referred to in item 2, furnish with the application details of the manner in which those contracts, arrangements or understandings vary in their terms from the contract, arrangement or understanding referred to in item 2.

## NOTICES

1. In relation to item 4, your attention is drawn to sub-section 90(8) of the *Trade Practices Act* 1974 which provides as follows:
 

“(8) The Commission shall not -

  - (a) make a determination granting:
    - (i) an authorization under sub-section 88(1) in respect of a provision of a proposed contract, arrangement or understanding that is or may be an exclusionary provision; or
    - (ii) an authorization under sub-section 88(7) in respect of proposed conduct; or
    - (iii) an authorization under sub-section 88(8) in respect of proposed conduct to which sub-section 47(6) or (7) applies; or
    - (iv) an authorization under sub-section 88(8A) for proposed conduct to which section 48 applies;
    - (v) an authorization under subsection 88(8A) for proposed conduct to which section 48 applies;
 unless it is satisfied in all circumstances that the proposed provision or the proposed conduct would result, or be likely to result, in such a benefit to the public that the proposed contract or arrangement should be allowed to be made, the proposed understanding should be allowed to be arrived at, or the proposed conduct should be allowed to take place, as the case may be; or
  - (b) make a determination granting an authorization under subsection 88(1) in respect of a provision of a contract, arrangement or understanding that is or may be an exclusionary provision unless it is satisfied in all the circumstances that the provision has resulted, or is likely to result, in such a benefit to the public that the contract, arrangement or understanding should be allowed to be given effect to.

2. If an authorization is granted in respect of a proposed contract, arrangement or understanding the names of the parties to which are not known at the date of application, the authorization shall, by sub-section 88(14) of the *Trade Practices Act* 1974, be deemed to be expressed to be subject to a condition that any party to the contract, arrangement or understanding will, when so required by the Commission, furnish to the Commission the names of all the parties to the contract, arrangement or understanding.





Professor Allan Fels  
Chairman  
Australian Competition and  
Consumer Commission  
PO Box 19  
BELCONNEN ACT 2616

Dear Professor Fels

### **National Electricity Market - National Electricity Code**

Following execution of various inter-governmental agreements on 9 May 1996, New South Wales, Victoria, South Australia, Queensland and the Australian Capital Territory (participating jurisdictions) committed to the establishment of a national electricity market in southern and eastern Australia.

The National Electricity Code, which is the instrument under which the national electricity market will primarily be administered, has now been completed by the National Grid Management Council (NGMC). Authorisation of the Code, for the purposes of sections 45 and 47 of the *Trade Practices Act 1974* (the Act) will soon be sought by the National Electricity Code Administrator (NECA) on behalf of known Code participants. At the same time the Code, in particular chapters 5, 6 and 8, will be submitted to the Australian Competition and Consumer Commission (ACCC) by the NGMC as an "access code" under section 44ZZA of the Act (yet to be passed).

For the purposes of the ACCC's forthcoming consideration of the authorisation and access undertaking applications, New South Wales believes it is appropriate for the ACCC to consider the following matters.

As you know, the Code has been prepared by the NGMC, a body set up by the Heads of Government in July 1991, through a process involving substantial consultation with industry, the public and Governments over the last two years.

The principles and objectives for the national electricity market and the Code have been confirmed to the NGMC by the relevant Heads of Government acting through COAG. These policies and objectives were developed by the participating jurisdictions (and Tasmania) in consultation with the Commonwealth Government and take account of the national competition policy reform package agreed by COAG in August 1994. As you are aware, that reform package was designed, amongst other things, to introduce competition neutrality, particularly in trading activities of government-owned enterprises.

Treasurer, Minister for Energy, Minister for State and Regional Development, Minister Assisting the Premier  
and Vice-President of the Executive Council

Level 33, Governor Macquarie Tower, 1 Farrer Place, Sydney 2000. Telephone: (02) 9228 3535 Facsimile: (02) 9228 3476

COAG has also maintained a tight control over the parameters of the NGMC process and the timetable for completion by the NGMC of its review, the Code and related matters such as establishment of the National Electricity Market Management Company Ltd and NECA.

In putting forward the model for the national electricity market set out in the Code, and in making all its other recommendations to Governments, the NGMC has conducted detailed research into existing electricity markets throughout the world and has undertaken extensive consultation with industry members, the public and Governments.

New South Wales is satisfied that the model resulting from the combination of COAG directions and the NGMC research and consultation is the preferred model for the national electricity market. At the 9 May 1996 signing of inter-governmental agreements establishing the national electricity market, the participating jurisdictions confirmed as a matter of public policy the market design of a compulsory pool with all electricity sold through the pool.

To give effect to these arrangements, the participating jurisdictions have agreed to implement a National Electricity Law through a co-operative legislative scheme. South Australia, as lead legislature, has passed a Bill creating the National Electricity Law. The other participating jurisdictions are now obliged to pass the Law through their Parliaments and I expect that New South Wales will do this early in 1997.

Further New South Wales has undertaken a review of the proposed Code, including a detailed legal examination. This review was undertaken for the purposes of finalising the State's part of Chapter 9 (Transitional Derogations) of the Code and to confirm that there were no outstanding policy issues. As part of this review the State undertook extensive consultation with representatives of those industry participants in New South Wales likely to be effected by the proposal.

Whilst New South Wales is of the view that the current draft of the Code (Version 2.0) should now be submitted to the ACCC and has authorised NECA and the NGMC to do so on its behalf, it is acknowledged that the Code will continue to be reviewed by affected industry participants both in New South Wales and in other participating jurisdictions. In particular, during the ACCC process the participating jurisdictions and other interested parties may come to the view that changes to the Code are necessary. If NECA or the NGMC determines that modifications are necessary then these modifications will be submitted to the ACCC during the authorisation and access undertaking approval process.

It is particularly important for the competitiveness of the electricity market that the access undertakings are effective. I would urge you, as part of the consultation process, to consider providing an opportunity for the various regulators involved in access matters to discuss and assess the details of the access provisions and the operational procedures that might be employed by regulators.

New South Wales strongly supports the model for the market proposed (as set out in the Code) and the terms of the Code to be submitted by NECA and the NGMC. It is the intention of the States to implement the Code shortly after authorisation and acceptance of the access undertakings in the Code by the ACCC.

When reviewing the applications for authorisation of the Code and the access arrangements set out in the Code, New South Wales requests the ACCC to note these views.

Yours faithfully

Michael Egan  
Minister for Energy



# The Treasurer of Victoria

1376

1 Treasury Place Melbourne Victoria 3002  
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DTS 753 DX21

27 SEP 1995

Professor Allan Fels  
Chairman  
Australian Competition and  
Consumer Commission  
PO Box 19  
BELCONNEN ACT 2616

Dear Professor Fels

## National Electricity Market - National Electricity Code

Following execution of various inter-government agreements on 9 May 1996 New South Wales, Victoria, South Australia, Queensland and the Australian Capital Territory ("participating jurisdictions") committed to the establishment of a national electricity market in southern and eastern Australia.


The National Electricity Code ("Code"), which is the instrument under which the national electricity market will primarily be administered, is in its final stages of completion by the National Grid Management Council ("NGMC").

Authorisation of the Code, for the purposes of sections 45 and 47 of the *Trade Practices Act 1974* ("the Act") will soon be sought by the NGMC and/or the National Electricity Code Administrator Ltd ("NECA") on behalf of the participating jurisdictions. At the same time the Code, in particular chapters 5, 6 and 8, will be submitted to the Australian Competition and Consumer Commission ("ACCC") for the purposes of access undertakings under Part IIIA of the Act.

As you know, the Code has been prepared by the NGMC, a body set up by the Heads of Government in July 1991, through a process involving substantial consultation with industry, the public and Governments over the last 2 years.

The principles and objectives for the national electricity market and the Code have been confirmed to the NGMC by the relevant Heads of Government acting through COAG. These policies and objectives were developed by the participating jurisdictions (and Tasmania) in consultation with the Commonwealth Government and take account of the national competition policy reform package agreed by COAG in August 1994. As you are aware, that reform package was designed, amongst other things, to introduce greater competitive neutrality, particularly in trading activities of government-owned enterprises.

COAG has also maintained a tight control over the parameters of the NGMC process and the timetable for completion by the NGMC of its review, the Code and related matters such as establishment of National Electricity Market Management Company Ltd and NECA.

 Victoria **ON THE MOVE**



In putting forward the model for the national electricity market set out in the Code, and in making all its other recommendations to Governments, the NGMC has conducted detailed research into existing electricity markets throughout the world and has undertaken extensive consultation with industry members, the public and Governments.

The combination of COAG directions and the NGMC research and consultation has resulted in a model for the national electricity market which, Victoria is satisfied, is the preferred model for the national electricity market. At the 9 May 1996 signing of inter-government agreements establishing the national electricity market, the participating jurisdictions confirmed as a matter of public policy the market design of a compulsory pool with all electricity sold through the pool.

To give effect to these arrangements, the participating jurisdictions have agreed to implement a National Electricity Law through a co-operative legislative scheme. South Australia, as lead legislature, has passed an Act creating the National Electricity Law. The other participating jurisdictions are now obliged to pass the Law through their Parliaments.

Further, Victoria has undertaken a detailed review of the proposed Code soon to be submitted to the ACCC by the NGMC and NECA. This review was undertaken for the purposes of finalising the State's part of Chapter 9 (Transitional Derogations) of the Code and to confirm there were no outstanding policy issues for the State. As part of this review the State undertook detailed consultation with representatives of those industry participants in Victoria likely to be effected by the proposal.

Whilst Victoria is of the view that the current draft of the Code prepared by the NGMC should now be submitted to the ACCC and has authorised the NGMC and NECA to do so on its behalf, it is acknowledged that the Code will continue to be reviewed by affected industry participants both in Victoria and in other participating jurisdictions. In particular, during the ACCC process the NGMC, the participating jurisdictions and other interested parties may determine that changes to the Code are necessary. If the NGMC determines that modifications are necessary then these modifications will be submitted to the ACCC during the authorisation and access undertaking approval process.

Victoria strongly supports the model for the market proposed by the NGMC (as set out in the Code) and the terms of the Code to be submitted by the NGMC and NECA. It is the intention of the States to implement the Code shortly after authorisation and acceptance of the access undertakings in the Code by the ACCC.



Professor Allan Fels  
Chairman  
Australian Competition  
and Consumer commission

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The ACCC's review of the applications for authorisation of the Code and access undertakings under the Code will determine whether the anti-competitive provisions of the Code, if any, create a benefit to the public which would outweigh any detriment constituted by a lessening of competition and whether any access undertaking satisfies the criteria set out in Part IIIA of the Act. When reviewing the applications for authorisation of the Code and the access arrangements set out in the Code, Victoria requests the ACCC to note the matters set out in this letter.

Yours sincerely

Alan R Stockdale  
Treasurer

Minister for Industry,  
Manufacturing, Small Business  
and Regional Development.  
Minister for Infrastructure.



HON. JOHN OLSEN, FNIA, MP

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Professor A Fels  
Chairman  
Australian Competition & Consumer Commission  
PO Box 19  
BELCONNEN NSW 2616

Dear Professor Fels

### NATIONAL ELECTRICITY MARKET - NATIONAL ELECTRICITY CODE

Following execution of various intergovernment agreements on 9 May 1996 New South Wales, Victoria, South Australia, Queensland and the Australian Capital Territory ("participating jurisdictions") committed to the establishment of a national electricity market in southern and eastern Australia.

The National Electricity Code ("Code"), which is the instrument under which the national electricity market will primarily be administered, is in its final stages of completion by the National Grid Management Council ("NGMC"). Authorisation of the Code, for the purposes of sections 45 and 47 of the *Trade Practices Act 1974* ("the Act") will soon be sought by the National Electricity Code Administrator Limited ("NECA") on behalf of the known Code participants. At the same time the Code, in particular chapters 5, 6, 7 and 8, will be submitted to the Australian Competition and Consumer Commission ("ACCC") by the NGMC as an "access code" under section 44ZZAA of the Act (yet to be passed).

For the purposes of the ACCC's forthcoming consideration of the authorisation and access undertaking applications, South Australia believes it is appropriate for the ACCC to consider the following matters.

As you know, the Code has been prepared by the NGMC, a body set up by the Heads of Government in July 1991, through a process involving substantial consultation with industry, the public and Governments over the last 2 years.

The principles and objectives for the national electricity market and the Code have been confirmed to the NGMC by the relevant Heads of Government acting through COAG. These policies and objectives were developed by the participating jurisdictions (and Tasmania) in consultation with the Commonwealth Government and take account of the national competition policy reform package agreed by COAG in April 1995. As you are aware, that reform package was designed, amongst other things, to introduce greater competition neutrality, particularly in trading activities of government owned enterprises.

COAG has also maintained a tight control over the parameters of the NGMC process and the timetable for completion by the NGMC of its review, the Code and related matters such as establishment of National Electricity Market Management Company Ltd and NECA.

In putting forward the model for the national electricity market set out in the Code, and in making all its other recommendations to Governments, the NGMC has conducted detailed research into existing electricity markets throughout the world and has undertaken extensive consultation with industry members, the public and Governments.

The combination of COAG directions and the NGMC research and consultation has resulted in a model for the national electricity market which, we are satisfied, is the preferred model for the national electricity market. At the 9 May 1996 signing of intergovernment agreements establishing the national electricity market, the participating jurisdictions confirmed as a matter of public policy the market design of a compulsory pool with all electricity sold through the pool.

To give effect to these arrangements, the participating jurisdictions have agreed to implement a National Electricity Law through a co-operative legislative scheme. South Australia, as lead legislature, has passed a Bill creating the National Electricity Law. The other participating jurisdictions are now obliged to pass the Law through their Parliaments.

Further, South Australia has undertaken a review of the proposed Code soon to be submitted to the ACCC by NECA and the NGMC. This review was undertaken for the purposes of finalising the State's part of Chapter 9 (Transitional Derogations) of the Code and to identify remaining issues for the State.



Whilst South Australia is of the view that the current draft of the Code (Version 2.0) prepared by the NGMC should now be submitted to the ACCC and authorises NECA and the NGMC to do so, it is acknowledged that the Code will continue to be reviewed by participating jurisdictions and affected industry participants both in South Australia and in other participating jurisdictions. In particular, during the ACCC process the NGMC/NECA, the participating jurisdictions and other interested parties may agree that changes to the Code are necessary. If modifications are agreed necessary, these modifications will be submitted to the ACCC during the authorisation and access undertaking approval process.

South Australia supports the model for the market proposed (as set out in the Code) and considers that Version 2.0 of the Code is suitable for submission by NECA and the NGMC to the ACCC.

The ACCC's review of the applications for authorisation of the Code and access undertakings under the Code will determine whether the anti competitive provisions of the Code, if any, create a benefit to the public which would outweigh any detriment constituted by a lessening of competition and whether the access code satisfies the criteria set out in section 44ZZAA of the Act. When reviewing the applications for authorisation of the Code and the access arrangements set out in the Code, South Australia requests the ACCC to note these views.

Yours sincerely



JOHN OLSEN FNIA, MP

Minister for Industry, Manufacturing  
Small Business and Regional Development  
Minister for Infrastructure

24/6/96

**Tom Gilmore MLA**  
Minister for Mines and Energy

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Old Minerals and Energy Centre  
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Brisbane, Queensland 4000.

Telephone: (07) 3224 2170  
Facsimile: (07) 3229 3238

Your Ref:

27 SEP 1996

Professor Allan Fels  
Chairman  
Australian Competition & Consumer Commission  
PO Box 19  
BELCONNEN ACT 2616

Dear Professor Fels

I refer to the National Grid Management Council's submission of the National Electricity Code to the Australian Competition & Consumer Commission (ACCC) for authorisation of anti-competitive arrangements and declaration of an effective access regime.

Since 1993, the Queensland Government has demonstrated its commitment to the National Competition Policy objectives and the establishment of a fully competitive National Electricity Market through two main forums, the Council of Australian Governments and the National Grid Management Council. The Government strongly believes that the introduction of competition to the electricity industry in Queensland is an essential part of micro-economic reform measures to increase the efficiency of the economy and promote economic growth in Queensland.

This commitment was further demonstrated on 9 May 1996, when I signed the National Electricity Market agreement committing Queensland to enacting legislation (within two years) to underpin the Code. I also signed documents establishing, and making Queensland a foundation member of both the National Electricity Code Administrator (NECA) and the National Electricity Market Management Company (NEMMCO).

As you will be aware, Queensland has corporatised and restructured its electricity industry, separating generation, transmission and distribution into individual corporations from 1 January 1995 (transmission and distribution remain part of the Queensland Transmission and Supply Group, but as discrete corporations individually responsible for observing the Queensland Grid Code which requires non-discriminatory access to the relevant networks). The Government believes, however, that further reform may be warranted and is in the process of examining the future electricity industry arrangements within the State.

In July 1996, the Government appointed an independent Queensland Electricity Industry Structure Task Force to recommend a set of structural, institutional and regulatory arrangements for the electricity supply industry that will best suit the energy needs of Queensland, while having regard to the Government's regional and economic development objectives and the need to maintain system security.

The Task Force has advised that its final report will be presented to me in late September/early October 1996, for subsequent consideration by the Government. It is expected that the Task Force's report will include a number of recommendations which may require Queensland-specific derogations from the Code.

On Monday 9 September 1996, the Queensland Government considered the Code and endorsed 'in principle', Chapters 1 to 8 and 10, with further consideration of the Code, including Queensland's specific derogations in Chapter 9, to occur in the light of the Task Force's recommendations. This acknowledged that other jurisdictions wish to proceed with the application to the ACCC for authorisation and declaration of an effective access regime and that awaiting the Task Force's report might delay such an application.

The Government further agreed that if Queensland finalised its derogations prior to the ACCC forming a draft determination and commencing its public consultation process, Queensland would seek to be a part of the NGMC process seeking authorisation and access undertaking approval for the Code in its entirety.

Should Queensland's derogations not be finalised and endorsed by Cabinet before the completion of the ACCC's draft determination, the Government has agreed that Queensland will submit its derogations as either:

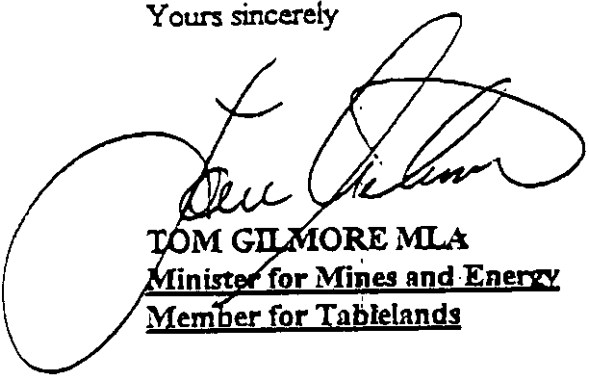
- an addendum to the already submitted Code, albeit possibly requiring another summary public consultation process to be conducted by the ACCC (but only in respect of Queensland's derogations); or
- a separate submission in relation to Queensland's derogations from the Code, recognising that this would not require a re-examination of the authorisation or access matters included in the Code proper, as these issues will have been already addressed in the ACCC examination of the NGMC submission.

In moving to finalise its derogations during the intervening period, Queensland recognises that other jurisdictions have expressed concerns about Queensland potentially derogating in relation to future 'Invitations to Bid', for the construction of new generating capacity, network pricing and access and aspects of system security arrangements. Queensland will accept the assistance offered by the Chapter 9 working group established by the NGMC to refine its derogations and will, to the extent possible, present to the ACCC a set of derogations agreed with the other jurisdictions.

I trust the above clarifies the Queensland Government's position and desire to ensure that the Code authorisation process is able to proceed without unnecessary impediments.

Should you have any queries on this matter, please contact Mr Patrick Bell of the Queensland Electricity Reform Unit on 3224 8654.

Yours sincerely



**TOM GILMORE MLA**  
Minister for Mines and Energy  
Member for Tablelands

13 November 1996

COMMONWEALTH OF AUSTRALIA  
*Trade Practices Act 1974 - Section 44ZZAA*

ACCESS CODE:

Application for Acceptance

*This application form and the related parts of the Submission, particularly Chapter 8 and Chapter 4, are submitted to the ACCC in draft form. Amendments to Part IIIA of the Act in relation to "access codes" have not yet been passed by the Commonwealth Parliament. Accordingly this application, Chapter 8 and the related parts of the Submission (the "Access Code Submission Material") are provided to the ACCC on an informal basis for the purpose of giving greater opportunity for the ACCC and interested parties to give immediate consideration to the access provisions of the Code and the Access Code Submission Material. The Access Code Submission Material has been prepared on the basis and assumption that the proposed amendments to Part IIIA of the Act will be passed in the form of the Trade Practices Amendment (Industry Access Codes) Bill 1996. When Part IIIA of the Act is amended to incorporate provisions dealing with "access codes", a formal application, together with the relevant parts of this Submission, taking into account statutory requirements and relevant facts and circumstances prevailing at that time, will be delivered to the ACCC for consideration.*

To the Australian Competition and Consumer Commission:

Application is hereby made under section 44ZZAA(1) of the *Trade Practices Act 1974* for acceptance under that section of the industry access code (as defined in Chapter 8 of the submission dated 13 November 1996 ("**Submission**")) as an access code for the purposes of the Act.

**1 Details of applicant**

**(a) The applicant**

The applicant is the National Electricity Code Administrator ("**NECA**").

NECA is prescribed as an industry body for the purposes of section 44ZZAA of the Act by Regulations made on [*date to be inserted when Regulations in force*].

**(b) Address for service of documents**

The address in Australia for service of documents on the applicant is:

Executive Chairman  
National Electricity Code Administrator Limited  
Level 7  
14 Martin Place  
Sydney NSW 2000  
Attention: Mr John McMurtrie

13 November 1996

**2 Access Code****(a) Industry Access Code**

The applicant seeks acceptance of the industry access code as an access code for the purposes of the Act.

**(b) Expiry date**

The expiry date of the industry access code is 31 December 2010 (see paragraph 8.3.2 of the Submission).

**3 Grounds for grant of acceptance**

The grounds on which the applicant seeks acceptance of the industry access code as an access code are set out in Chapter 8 of the Submission.

**4 Facts and contentions relied on by the applicant**

The facts and contentions relied on by the applicant in support of this application are set out in the Submission.

Signed on behalf of NECA

.....  
(Signature)

Mr John McMurtrie  
Chairman, National Electricity Code  
Administrator Limited  
Level 7  
14 Martin Place  
Sydney NSW 2000

# NATIONAL ELECTRICITY CODE

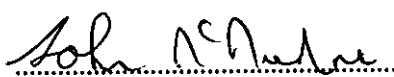
## SUBMISSION TO THE AUSTRALIAN COMPETITION AND CONSUMER COMMISSION RELATING TO THE NATIONAL ELECTRICITY CODE

This is the Submission comprising 295 pages referred to:

- (1) in each of the applications for authorisation in respect of the National Electricity Code; namely:
  - (a) Form A: Exclusionary Provisions dated 13 November 1996
  - (b) Form B: Agreements Affecting Competition dated 13 November 1996
  - (c) Form E: Exclusionary Dealing dated 13 November 1996; and
- (2) in the draft application for acceptance of the industry access code as an access code for the purpose of the Act.

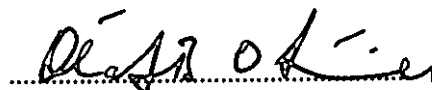
Dated this 13th day of November 1996

Signed on behalf of NECA

  
(Signature)

Mr John McMurtrie  
Chairman, National Electricity  
Code Administrator Limited

Signed on behalf of NEMMCO

  
(Signature)

Mr Olaf O'Duill  
Chairman, National Electricity  
Market Management Company  
Limited

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13 November 1996

## 1. THE APPLICATIONS

### 1.1 Source of authorisation applications

The applications for authorisation are made under Division 1 of Part VII of the *Trade Practices Act 1974* ("the Act") and under the corresponding provisions of the Competition Codes of the participating jurisdictions as defined in the Competition Policy Reform legislation now in force in each participating jurisdiction ("Competition Codes"). A reference in the Submission to the Act is to be read and construed as a reference to the Act and the Competition Codes, unless the context does not permit.

The applications for authorisation are made in respect of:

- the initial National Electricity Code as defined in section 6(1) of the National Electricity Law ("the Code"); and
- the making of, and the giving effect to, the provisions of the Code

by the applicants as participants in the National Electricity Market ("NEM") as follows:

- (1) Application is made under section 88(1) of the Act for an authorisation:
  - (a) to make the Code to the extent that making the Code is making a contract or arrangement, or arriving at an understanding where a provision of the proposed contract, arrangement or understanding:
    - would be, or might be, an exclusionary provision; or
    - would have the purpose, or would have or might have the effect, of substantially lessening competition (including any deemed lessening of competition through price fixing arrangements within the meaning of section 45A of the Act),
 within the meaning of section 45 of the Act; and
  - (b) to give effect to a provision of the Code to the extent that giving effect to a provision of the Code is giving effect to a provision of a contract, arrangement or understanding where the provision is, or may be, an exclusionary provision or has the purpose, or has or may have the effect, of substantially lessening competition (including any deemed lessening of competition through price fixing arrangements within the meaning of section 45A of the Act) within the meaning of section 45 of the Act.
- (2) Application is also made under section 88(8) of the Act for an authorisation to make the Code and give effect to a provision of the Code to the extent that making the Code or giving effect to a provision of the Code involves engaging in conduct that constitutes or may constitute the practice of exclusive dealing within the meaning of section 47 of the Act.

## **1.2 Scope of the application for authorisation of the Code**

In its Issues Paper dated March 1996, the Australian Competition and Consumer Commission ("ACCC") commented that in view of the complexity and integrated nature of the Code, a case could be made for authorisation of the whole Code rather than for authorisation of those provisions in it which may fall within sections 45, 45A or 47 of the Act. Since that time the ACCC has indicated that it would prefer the Code to be submitted for authorisation as a whole.

As such, the whole Code is submitted for consideration by the ACCC and authorisation is sought for the whole Code to the extent set out in paragraph 1.1.

## **1.3 Applicants**

### **1.3.1 Present applicants**

#### **(a) Authorisation**

Authorisation of the Code is sought by the applicants listed in Schedule 1. The applicants are the sole applicants under this application for the reason that the Code cannot take any effect until authorised by the ACCC and accordingly there can be no Code Participants until that time.

#### **(b) Access code**

It is proposed that the National Electricity Code Administrator ("NECA") of Level 7, 14 Martin Place, Sydney 2000, will be designated as the applicant in relation to submission of the Code for acceptance as an access code under the proposed section 44ZZAA of the Act. It is understood that NECA will be declared to be an "industry body" under the Regulations and therefore will be able to make a formal application for acceptance of the Code when the amendments to the Act have been passed (as described in 1.5).

### **1.3.2 Future Code Participants**

#### **(a) Authorisation**

The authorisation under section 88(1) of the Act is sought on the basis that, if granted:

- it is intended also to apply to anyone who registers with the National Electricity Market Management Company Limited ("NEMMCO") under the Code as a Code Participant in the future (see section 88(10) of the Act); and
- sections 88(13), (14) and (15) shall apply as set out below.

In relation to authorisation sought under section 88(8) of the Act, in the absence of any further amendment to the Act or acceptance of the submission in relation to sections 88(13), (14) and (15) of the Act as set out below, it is anticipated that

each person who becomes a Code Participant in the future will either itself lodge, or consent to someone lodging on its behalf, such as NECA or NEMMCO:

- a separate application for authorisation under section 88(8), subject to discretionary procedural directions by the ACCC to expedite such further applications; or
- a Notification under section 93 of the Act.

This will be done at the time that person registers with NEMMCO as a Code Participant.

As a separate and severable submission, it is submitted that sub-section 88(13) of the Act applies in the context of the Code in relation both to the application for authorisation under section 88(1) and the application for authorisation under section 88(8) in that:

- section 88(13) applies to section 88 generally;
- the Code comprises the terms of a proposed contract to be made initially between the applicants and is a particular "contract or proposed contract" for the purposes of section 88(13);
- for the purposes of sections 88(13) and (14), a "contract" includes an arrangement or understanding which would include the Code (see section 88(15)); and
- upon a person in the future registering with NEMMCO under the Code as a Code Participant, the contract that will be formed between that new Code Participant, the applicants and each other existing Code Participant (the terms of which will be comprised in the Code) will be "*another contract or proposed contract ... in similar terms to the first-mentioned contract or proposed contract*" for the purposes of section 88(13).

It is submitted that under section 88(13) the ACCC may grant a single authorisation in respect of all the contracts or proposed contracts (being each contract between the applicants and a Code Participant and other Code Participants the terms of which are comprised in the Code) or may grant separate authorisations in respect of any one or more of those contracts or proposed contracts.

In accordance with section 88(13), authorisation is accordingly also sought:

- (1) under section 88(1) for:
  - the making of each contract between a particular Code Participant, the applicants and the other existing Code Participants, the terms of which will be comprised in the Code (being "*another contract or proposed contract*" for the purposes of section 88(13)), to be made upon authorisation being granted by the ACCC or at any time in the future between a person who becomes a Code

Participant by registering with NEMMCO under the Code, the applicants and each other existing Code Participant ("proposed contract") to the extent that making a proposed contract would be making a contract, arrangement or understanding to which paragraph 1.1(1)(a) of the Submission applies; and

- the giving effect to of a provision of a proposed contract to the extent that giving effect to a provision of a proposed contract would be giving effect to a provision of a contract, arrangement or understanding to which paragraph 1.1(1)(b) of the Submission applies; and
- (2) under section 88(8) for making a proposed contract and giving effect to a provision of a proposed contract to the extent to which making a proposed contract or giving effect to a provision of a proposed contract would be engaging in conduct to which paragraph 1.1(2) of the Submission applies.

For the purposes of section 88(14) the names of the parties to each proposed contract (other than the applicants) are not known to the applicants at the time when this application is made and, as stated in section 88(14)(b), if an authorisation is granted by the ACCC in respect of each proposed contract, that authorisation would be deemed to be expressed to be subject to a condition that any party to such a proposed contract will, when so required by the ACCC, furnish to the ACCC the names of all the parties to that proposed contract, the names being the applicants, all existing Code Participants at that time and each new Code Participant.

**(b) Access undertakings**

If the industry access code (as defined in Chapter 8) is approved as an "access code" under section 44ZZAA each Network Service Provider will, upon registration with NEMMCO, be bound by the Code to provide an access undertaking to the ACCC.

**1.4 Period of authorisation**

**1.4.1 Requirements under the Act**

Section 91(1) of the Act indicates that an authorisation *may* be expressed to be in force for a period as specified in the authorisation and will remain in force for that period.

**1.4.2 Proposed period**

Should the ACCC decide that the authorisation must be in force for a specified period, it is submitted that the period of authorisation be until 31 December 2010.

**1.4.3 Reasons for proposed date**

The period of authorisation, if any, should be at least until the suggested date for the following reasons:

- the NEM represents a completely new trading environment for the existing participants in the industry;
- potential investors in the industry require a sufficient degree of commercial certainty. New investment in the industry may require multi-billion dollar commitment, and development of new assets requires lead times typically well in excess of five years from planning to commissioning;
- for participants in the industry, long term connection and use of system agreements are likely to be negotiated having regard to the Code provisions at the time such agreements are negotiated; and
- for customers and industry participants wishing to enter into long term contracts, such contracts are also likely to be drafted and negotiated on the basis of the existing market rules in the Code. Parties to such contracts will require commercial certainty to enable this to occur.

The period of authorisation suggested balances the needs of investors with those of customers. Investors might seek a longer time to minimise risks while customers need to be assured that new technologies which might provide benefits to consumers are not prevented from incorporation in the market.

## **1.5 Access code and undertakings**

### **1.5.1 Acceptance of the Code as an industry access code**

Proposed amendments to Part IIIA of the Act are before the Commonwealth Parliament at the time of lodging with the ACCC the applications and the Submission. Pending the enactment of the amendments, in accordance with the recommendations of the ACCC, those parts of the Submission which address issues material to approval of the industry access code (as defined in Chapter 8) as an "access code", are placed before the ACCC on an informal basis to maximise the opportunity for the ACCC and interested parties to give immediate consideration to the access provisions of the Code and related material described in the Submission.

When the amending legislation is enacted, it is anticipated that NECA will be prescribed to be an "industry body" under the appropriate regulations. At this time, a formal application for acceptance of the industry access code as an "access code" will be made under section 44ZZAA.

### **1.5.2 Access undertakings**

Subject to acceptance of the industry access code as an "access code", as part of the registration process under the Code, each Network Service Provider will sign an undertaking in the form set out in Schedule 5.8 of the Code, upon registration with NEMMCO. The ACCC will, in due course, be asked to accept the undertakings under section 44ZZA as undertakings given in accordance with the industry access code applying to the services described in Chapters 4 and 8 of the Submission.

### **1.5.3 Period of access code and access undertaking**

Section 44ZZA(2) of the Act requires all access undertakings to specify the expiry date of the undertaking. Section 44ZZAA(2), when enacted, is expected to require that a code submitted as an access code specify the date of expiry of the code. The expiry date will mark the end of the operation of the access code and undertaking, unless the code or undertaking is earlier withdrawn (ss 44ZZAA(5) and 44ZZA(5)).

### **1.5.4 Proposed date**

The proposed expiry date for the industry access code and undertakings is 31 December 2010 (see clause 1.12 and clause 2 of schedule 5.8 of the Code).

### **1.5.5 Reasons for proposed date**

An expiry date of 31 December 2010 is required because:

- investment in network augmentation typically takes a long lead time: usually between 2-4 years from planning to implementation;
- major grid infrastructure projects often require longer than a five year horizon from planning to implementation;
- the terms and conditions of access are likely to be a consideration for potential new investors in the industry as a whole, particularly when assessing commercial certainty; and
- review periods for network pricing will typically be not less than five years, unless exceptions are granted.

As with the suggested authorisation period, the access period suggested also provides an appropriate balance between the needs of customers and the business interests of Network Service Providers.

Network Service Providers also have an interest in the possible conflict between the end dates of the industry access code and the regulatory control periods on network pricing. The selected date would coincide with the end of the second network regulatory review period after the transition period leading to the full application of the Code.

Customer interests are also served by a coincidence of the end dates of regulatory review periods and the electricity industry access code because it minimises costs in renegotiating contracts and undertaking their market operations.

## **1.6 Enquiries**

Enquiries in respect of this application should be addressed in the first instance to:

Neville Henderson  
General Manager Projects  
Office of General Manager Projects  
National Grid Management Council  
Level 8

350 Collins Street  
Melbourne Vic 3000

Tel: (03) 9642 8363  
Fax: (03) 9642 8526

until 31 December 1996, and thereafter to

John McMurtrie  
Executive Chairman  
National Electricity Code Administrator Limited  
Level 7  
14 Martin Place  
Sydney NSW 2000

## **1.7 Description of application**

This application is divided into eight parts.

### **Chapter 1 - Application**

The first part of the Submission describes the authorisations sought for making the Code, giving effect to the provisions of the Code and engaging in practices required under provisions of the Code as well as the application for acceptance of the Code as a proposed industry access code.

### **Chapter 2 - Background to Application**

Chapter 2 describes the background to the NEM including:

- details of the initiation of, and reasons for, the development of a national electricity market;
- details of the consultation process between the Council of Australian Governments ("COAG") and its advisory body, NGMC in relation to the proposed NEM model;
- details of the research undertaken by the NGMC and the NGMC's consultation with industry members and the public to develop the Code; and
- an outline of the existing wholesale electricity market arrangements in the participating jurisdictions, including details of reforms to date.

### **Chapter 3 - National Electricity Market**

Chapter 3 describes the proposed NEM model, particularly in relation to marketing of electricity and system control and dispatch, and modifications at State level required by, or arising from, the NEM.



#### **Chapter 4 - Proposed NEM Access Arrangements**

Chapter 4 describes the existing State access regimes, the proposed NEM access arrangements and modifications to be made at State level upon introduction of the NEM.

Those aspects of the access regime which may be anti-competitive are addressed in Chapter 6.

The requirements to be complied with under Part IIIA of the Act (when amended) are detailed and addressed in Chapter 8.

#### **Chapter 5 - The National Electricity Market and Public Benefit**

Chapter 5 identifies the broad public benefits which arise out of the NEM and the implementation of the Code.

#### **Chapter 6 - Net Public Benefit of the National Electricity Code**

Chapter 6 identifies the net public benefit of those aspects of the Code which may fall within the provisions of Part IV of the Act.

#### **Chapter 7 - Authorisation of Jurisdictional Derogations**

Chapter 7 provides arguments which support authorisation of the jurisdictional derogations from the Code. Most of the jurisdictional derogations are transitional in nature.

#### **Chapter 8 - Assessment of Industry Access Code**

Chapter 8 outlines the statutory criteria which must be considered in seeking approval of access codes and undertakings, and addresses these criteria with reference to the provisions of the Code.

### **1.8 Documents lodged with application**

The following documents are lodged with the Submission:

- the proposed Code (Version 2.0 as proposed to be amended by Addendum 1) (attachment 1);
- National Electricity Law (attachment 2);
- National Electricity Market Legislation Agreement (attachment 3);
- NEMMCO Members Agreement (attachment 4);
- NECA Members Agreement (attachment 5); and
- NGMC National Electricity Code Consultations Report (attachment 6).

## **2. BACKGROUND TO APPLICATION**

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### **2.1 Reasons for the National Electricity Market**

#### **2.1.1 Government initiation of reforms**

In May 1990, the Commonwealth Treasurer, referred to the Industry Commission for an inquiry into the generation, transmission and distribution of electricity and the transmission and distribution of gas.

Simultaneously, the Australian Heads of Government were contemplating national microeconomic reform. In 1990, the Heads of Government recommended the introduction of a competitive national wholesale electricity market. The NGMC was established to perform studies into the potential market and models for that market.

At the same time, some States and Territories began implementing structural reforms to their electricity supply industries so as to introduce competition and/or in anticipation of the NEM.

Details of national and State reforms in the electricity supply and gas industries are set out in Schedule 2. The current State arrangements for electricity trading are set out in Schedule 3. Details of the significant decisions of the Heads of Government and the NGMC are set out in paragraphs 2.2 and 2.3 respectively.

#### **2.1.2 Industry Commission report**

The May 1991 Industry Commission report *Energy Generation and Distribution* recommended that increases to national productive output would be available from:

- a restructuring of the electricity supply industry with the vertical separation of generation and retail from the natural monopoly elements of transmission and distribution;
- the introduction of competition into generation and retail by providing access to the transmission and distribution systems on a non-discriminatory basis;
- the enhancement and extension of the interconnected systems of New South Wales, ACT, Victoria, and South Australia to eventually include (when economically viable) the systems of Queensland and Tasmania.

Out of this report arose the concept of a national electricity market ("NEM"). Some of the reasons for establishing a national market are set out below.

#### **2.1.3 Competition and efficiency**

A national electricity market will increase efficiency in the electricity industry by introducing competition into the generation and retail sectors and indirectly into network investment decisions. In the old electricity industry, most resource allocation and technology choice decisions were taken by public monopolies and/or governments with electricity prices set by "regulation" to cover the industry's costs plus any return

governments, as shareholders. In a competitive market, resource allocation decisions and shareholder returns will be determined by the interaction of supply and demand.

In addition, economic benefits are expected to flow from opening retail and generation to competition in the NEM. If an incumbent generator or retailer attempts to sustain prices at levels well above costs, there is scope for new entrants or existing competitors to take market share from the incumbent. In a similar manner, economic benefits will flow because competition will open up opportunities for new technology (such as combined cycle gas, solar, etc.) and growth in demand will assist the process of new entry.

The NEM will also introduce more direct competition into electricity networks where potential augmentations will have to compete directly with generation and demand side options in an open market at the point of sale. In particular, the network access provisions will open up major opportunities for smaller scale generators to site close to major industrial customers reducing potential network augmentation costs and the cost of electricity transmission losses to customers<sup>1</sup>. Furthermore major network augmentations will now have to be planned and assessed against other options such as new generation and demand side measures.

Efficiency gains are expected to arise both in the short and the long term. In a competitive market the removal of monopolies and groups with significant market power should reduce considerable costs imposed on the community. These costs reflect:

- allocative inefficiencies that arise because prices do not reflect supply costs causing customers to forego consumption;
- productive inefficiencies that occur because costs are likely to be higher than they would be in a competitive market; and
- dynamic inefficiencies that arise because of reduced incentives to respond to changes in market conditions and to make sound and timely investment decisions.

In the short term, efficiency gains will result from pressures on electricity enterprises to reduce costs, align tariffs/prices with costs, and use their assets more efficiently. There is already ample evidence of these gains having occurred in Victoria, New South Wales and South Australia, as discussed in Chapter 6 of this Submission. In the longer term, as new competitors emerge in either generation or retail, the efficiency gains are likely to be more substantial.

At a higher level, according to the Industry Commission's report, *The Electricity Industry in South Australia*, competition in the NEM will have the potential to achieve the following additional benefits:

- reserve plant margins can be reduced by sharing of plants between States;
- non-coincident peaks can be better managed and allow better capacity utilisation of generation assets;

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<sup>1</sup> Source: Submission to the NGMC from the Australian Co-generation Association

- regions with access to low cost primary energy sources can provide cheaper energy to other regions;
- economies of scale in generation can be better utilised; and
- incentives for retailers to develop innovative means of meeting customer needs will help to increase competitive pressures on generators and improve overall economic efficiency. Retail innovations could affect the design of tariffs, the provision of demand management, and the provision of overall energy packages covering electricity, gas, and energy efficient appliances.

In general terms, the reforms will lead to significant benefits for customers and energy users. There will also be better investment decisions in the electricity supply industry and more broadly through the Australian economy.

#### **2.1.4 Consistent with microeconomic reforms generally**

At the April 1995 meeting of COAG, the Heads of Government agreed to the implementation of a package of National Competition Policy Reforms that will increase the competitiveness and growth prospects of the national economy. According to the Industry Commission's 1995 report for COAG on *The Growth and Revenue Implications of Hilmer and Related Reforms*, the Commission estimated that reform of the electricity and gas industries would increase national income (GDP) by 1.4% (or \$5.8 billion per annum) about one quarter of the potential benefits from the Hilmer reforms (IC 1995, page 20 and Chapter B5).

As part of the agreement to implement National Competition Policy and related reforms, COAG reaffirmed its commitment to establish a NEM as agreed at the July 1991 Premiers' Conference.

## **2.2 COAG**

### **2.2.1 Introduction**

In 1991, the Heads of Government agreed to the introduction of a NEM as part of microeconomic reforms in government enterprises.

Since that time the Heads of Government, as COAG, have met at least annually to increase cooperation among governments and to implement integrated national reform. COAG Communiques have focused on the implementation of national microeconomic reforms in the water and electricity industries, the introduction of national free and fair trade in gas and modification of the Act and creation of the ACCC to support the national competition reforms.

COAG has received advice from a number of bodies. In particular, the NGMC was set up by the Heads of Government to develop a model for the NEM.

Although all Governments are represented at the annual COAG meetings, it is only the Prime Minister, the Premiers of New South Wales, Victoria, Queensland, South Australia and Tasmania and the Chief Minister of the Australian Capital Territory who have been involved in the reforms of the electricity industry. Western Australia and the Northern

Territory expressed support for the development of the interstate transmission network across the eastern States even though they are not part of the national grid. Western Australia and the Northern Territory will not participate in the national grid as it is not presently technically or economically feasible for those States to physically connect to the network located in the eastern States.

## **2.2.2 Decisions of COAG**

### **(a) NGMC**

In July 1991, COAG agreed to the establishment of the NGMC to advise it in relation to the development of a national electricity market. COAG has maintained control over the NGMC's role by annually setting the parameters for the NGMC's review and by ordering a review of the NGMC by Senior Officials to delineate the NGMC's role and its relationship with the Senior Officials' Working Group, which is a group set up by COAG at the COAG meeting of 8-9 June 1993 to advise COAG in relation to microeconomic reform generally.

### **(b) Key principles and objectives**

COAG and the NGMC have worked together in developing objectives, directions and principles for the reform. Initially, the key principles were:

- the national transmission network should be developed across eastern and southern Australia; and
- generation and transmission elements of the network should be separate.

The main objectives of a fully competitive national electricity market were agreed by COAG at the meeting of 19 August 1994 to be:

- the ability for customers to choose which supplier, including generators, retailers and traders, they will trade with;
- non-discriminatory access to the interconnected transmission and distribution network;
- no discriminatory legislative or regulatory barriers to entry for new participants in generation or retail supply; and
- no discriminatory legislative or regulatory barriers to interstate and/or intrastate trade.

### **(c) Detailed principles and decisions**

While formulating the objectives of the market, the NGMC also developed details of the precise nature of, and the operating guidelines for, the market including details of the interstate transmission network structure, transmission pricing and pooling arrangements. The NGMC has presented its proposals on these matters to COAG for its approval.

By the COAG meeting of 19 August 1994, the Heads of Government had agreed the following:

***The market***

- the concept of inter-jurisdictional merit order commitment and dispatch and interstate sourcing of generation where cost effective, noting that the Electricity Industry Supply Code of Conduct will ensure that each jurisdiction is fairly treated in the provision of an agreed level of system reliability.

***Regulation of the market***

- a national regulator for market conduct such as the Trade Practices Commission (now the ACCC) and national pricing oversight, such as the Prices Surveillance Authority or its successor;
- a code of conduct which, following endorsement by Governments, would be subject to authorisation by a national regulator (such as the Trade Practices Commission or its successor) with oversight for the areas covering: network pricing; market rules, operation and system control; and network connection and access. Oversight will include pricing surveillance, at either State or national level, of non-competitive generation market segments;
- a national advisory body to provide Governments with information on the monitoring/oversight of a code of conduct for planning of future system developments; and
- State regulation for franchise customer pricing, the environment and safety.

***Network pricing and regulation***

- network pricing and regulation should be uniform;  
  
the principles relating to the recovery of the fixed cost component of network pricing should encompass common asset valuation methodologies and rates of return as well as cost reflective and uniform pricing methodologies;
- network charges for extra high voltage transmission networks and lower voltage sub-transmission networks should, in principle, be cost reflective ensuring that both franchised and non-franchised customers and generators are charged on a consistent basis in accord with their use of network assets and taking into account the impact of network constraints;
- in view of the complexity of calculating the value of network services used by individual small customers and householders, distribution system pricing could be calculated using a greater degree of averaging than that required for the extra high voltage and sub-transmission networks;

- within distribution, the retail and network functions should be ring-fenced and separately accounted for;
- prices for high voltage and distribution networks should be transparent and published; and
- for the purposes of developing network pricing and access charges, the Deprival Value should be adopted for asset valuation and the approaches for applying the Deprival Value should be transparent and uniform.

***Interim market and transitional arrangements***

- the necessary structural changes to the electricity industries of the participating States should be in place by 1 July 1995 (i.e., the date recommended by the NGMC for commencement of the national market);
- there should be vesting contracts for managing the transition to the competitive market;
- the interim market trading and pool arrangements within and between the States should be consistent and standardised to the extent necessary to ensure that retailers and eligible customers can freely trade with generators throughout the interconnected system, but recognising the different stages of reform which may exist in each jurisdiction;
- transitional arrangements are to be developed on the basis of the earliest practicable achievement of each of the objectives of the fully competitive market;
- at the commencement of the transitional phase on 1 July 1995, competitive access should be allowed by each State at least for customers of 10MW; and
- transition should be completed by 1 July 1999.

**(d) Competition reform**

While specific reforms in the electricity industry were being considered, microeconomic reforms generally were also being reviewed by COAG. Having agreed to the principles articulated in the Hilmer Report at the COAG meeting of 25 February 1994, on the 19 August 1994 COAG agreed to a package of reforms that comprised:

- the revision of the conduct rules of trade practices legislation and their extension to cover State and local government business enterprises and unincorporated businesses;
- the application by individual jurisdictions of agreed principles on structural reform of public monopolies, competitive neutrality between the public and private sector where they compete, and a program of review of regulations restricting competition;

- the establishment in each jurisdiction of a system to carry out surveillance of prices charged by utilities and other corporations with high levels of monopoly power and a regime to provide access to essential services. The agreed approach will provide for participating State/Territory regimes to be taken as being effective if they meet agreed principles; and
- the establishment of the ACCC and the National Competition Council to exercise powers in relation to access and pricing surveillance issues and advisory powers on matters determined by Governments.

Agreements<sup>2</sup> implementing these reforms were signed at the COAG meeting on 11 April 1995. Since that time, those reforms have provided further guidance in relation to electricity industry reforms, particularly in respect of access to the networks. Those reforms have also provided incentive for the speedy implementation of electricity industry reforms by way of the Competition Payments which are to be made to relevant jurisdictions for their implementation of microeconomic reforms in accordance with their obligations under the Competition Policy Intergovernmental Agreements. Those obligations include taking all measures necessary to implement an interim competitive NEM by 1 July 1995, and completion of the transition to a fully competitive NEM by 1 July 1999.

**(e) Consultation and research**

COAG has encouraged the NGMC to seek public and stakeholder consultation on its proposals.<sup>3</sup> It has also encouraged the NGMC to perform research. Further details of research and consultation undertaken by the NGMC are set out below at paragraphs 2.3.2 and 2.3.3.

**2.2.3 Status of decisions of COAG**

The COAG Communiqués have been instrumental in the development of the NEM. Although the market model was designed by the NGMC, COAG and the NGMC worked closely in the development of the model and the drafting of the Code, with COAG setting guidelines and reviewing the NGMC's proposals throughout the process.

The Competition Policy Intergovernmental Agreements and the amendments to the Act also govern the national electricity reforms, setting requirements and standards for those reforms and providing incentive for the speedy disaggregation of the electricity supply industry into its competitive and natural monopoly components and the implementation of access regimes.

<sup>2</sup> The Conduct Code Agreement and the Competition Principles Agreement

<sup>3</sup> See COAG Communiqués: 7 December 1992; 8-9 June 1993; 25 February 1994



## **2.3 NGMC process**

### **2.3.1 Creation and functions of NGMC**

The NGMC was established in July 1991 and has been developing the market and trading arrangements for the NEM since that time, with input from industry members and the public.

The functions of the NGMC were identified as being to:

- encourage and coordinate the most efficient, economical and environmentally sound development of the interstate electricity industry having regard for key national and State policy objectives;
- coordinate planning of the generation and interconnected transmission systems and encourage the competitive sourcing of generation capacity and use of demand management; and
- encourage open access to the grid and free trade in bulk electricity for private generating companies, public utilities and private and public electricity customers.

The NGMC convened its first meeting in October 1991 and as at the end of September 1996 had met on 56 occasions.

Membership of the NGMC consists of one government-nominated representative from each of the participating jurisdictions (Queensland, New South Wales, ACT, Victoria, Tasmania, South Australia, the Commonwealth) plus an independent Chair.

As the NGMC has matured and the nature of the work has evolved, the composition of the Council itself has changed. Initially, the majority of Members were utility based people, whereas the NGMC now primarily consists of Treasury/Energy policy officials. The NGMC has drawn, and continues to draw, heavily on resources from the electricity authorities and Member jurisdictions.

To aid it in its functions, the NGMC established the Market Steering Committee, the Market Implementation Steering Committee and various NGMC working groups (e.g. Market Trading WG, Transmission Pricing WG, and National Electricity Code WG). A list of the working groups set up by the NGMC appears in Schedule 4 of this Submission.

The NGMC has also sought public comment in relation to the Code.

The following paragraphs 2.3.2 and 2.3.3 outline the research and consultation undertaken by the NGMC in relation to its development of the NEM model and the Code.

### **2.3.2 NGMC's research program**

#### **(a) Early research program**

Since its establishment in 1991, the NGMC has conducted an extensive research and public consultations program to develop its proposed model for the NEM and the Code. Between 1991 and 1993, the NGMC prepared several research and discussion papers on

the design of a competitive electricity market and access and pricing arrangements to electricity networks for public discussion including:

- options for network service pricing and asset valuation methodologies;
- options for common trading arrangements for electricity based on a review of market models overseas;
- options for the structure of an interstate transmission network for eastern and southern Australia;
- options for regulatory arrangements for a national electricity market;
- key issues for government in establishing a market;
- options for demand management in the NEM; and
- options for reducing the initial 10 MW customer threshold.

A full list of NGMC publications is given in Schedule 5.

**(b) National Electricity Paper Trial**

After its initial research program was completed in July 1993, the NGMC conducted a simulation trial of an electricity market in the participating jurisdictions. In early 1993, a number of market models were either in operation or being discussed both in Australia and overseas. The NGMC, with the agreement of COAG, determined that a Paper Trial of a national electricity market should be conducted involving as many participants and stakeholders as possible to assess the operation of an electricity market in the Australian context. It was also viewed as a suitable vehicle through which all stakeholders could raise their awareness of the operational and financial implications of a competitive electricity market with no financial risks to the participants.

The National Electricity Market Paper Trial simulation was conducted from November 1993 to end June 1994. A Trial information kit was published and public information sessions and detailed training workshops for participants were undertaken in October and November 1993. Approximately 170 major customers, distributors and generation utilities took part. Regular summaries of the Trial developments were publicly available.

The Trial arrangements were independently audited by Ernst & Young to test both the systems in place for operation and administration of the Trial and its running. The NGMC also carried out an in-house evaluation of the Trial drawing on, amongst other things, feedback provided by participants over the course of the Trial to assess whether the structures of the trial model were delivering the appropriate outcomes against the Trial objectives and Grid Protocol. The NGMC's evaluation of the Paper trial was published in two volumes in December 1994.

In assessing the important lessons of the Trial, the NGMC was mindful that the market model used was a compromise between the views of the parties involved in its establishment. All parties acknowledged that the model had a number of features that would not be accepted in a real market (e.g. ancillary services were not taken into account

in the scheduling of generation plant). The key lessons from the Paper Trial market rules and systems were:

- Bidding - demand side bidding should be possible along with a more flexible bidding format to allow participants to better structure prices per unit of electricity output.
- Commitment and dispatch - the outcomes of a centralised unit commitment and dispatch process were very difficult to predict or explain given the complexity of optimising bids over an entire day(s). This had the effect of reducing market transparency and gave a competitive advantage to those generators who could afford the resources to manage their bidding strategies in a complex spot market.
- Pool prices - the Trial rules for setting pool prices led to volatile and unpredictable prices and this was generally seen as unacceptable because it undermines consumer confidence in a real market. It was thought that the pool price should be a representation of the instantaneous supply/demand balance and be stable, rational, and predictable. The Paper Trial pool pricing rules failed this test.
- Settlements - there were delays in receiving settlement accounts (one month) that would be unacceptable in a real market. The settlements function needed to be performed by an independent market operator.
- Vesting and trading contracts - the form of the contracts was too restrictive and the attempt to conduct electronic bilateral contracting among many participants did not work.
- Information systems and infrastructure- commercial and reliable systems must be developed and be in place before the market commences. Market information is critical to the success of the market and must be supported by robust and reliable electronic data communication systems.
- Market Participants learned a great deal about the extent of resources that will be required for managing an electricity portfolio in a competitive wholesale electricity market.

**(c) Development of the National Electricity Code Policy Framework**

In late 1994 and early 1995 the NGMC considered and endorsed several policy papers developed by its working groups on a set of market trading arrangements and an access regime. These policy papers which provided the initial "drafting instructions" for the Code, included:

- Proposed Market National Design (MSC001)  
  
(Note: this paper was part of a package of 17 market design discussion papers issued for public consultation. A list of these papers is given at Schedule 5.)
- Floor and ceiling prices (MSC021)
- Rebidding (MSC022)

- Information Disclosure (MSC023)
- Investment Facilitation (MSC024)
- Mechanics of the Short Term Forward Market (MSC026)
- Inter-regional hedging (MSC031)
- Framework for the Administration of the Code of Conduct for the NEM (CCWG001)
- Principles for Network Pricing (TPWG008)
- Principles for Network Connection (MSC033)
- Supply Reliability and System Security Accountabilities in the NEM (SCPA008)
- Governance Arrangements for Global Power System Planning (SCPA001)
- Demand Management and Energy Efficiency (February 1995)

The first version of the Code was drafted and released for public comment based on the above policy papers in autumn 1995.

**(d) Market Simulation Model**

In late 1994, the NGMC commissioned Intelligent Energy Systems to develop a market simulation model to test key features of the market design in a laboratory environment. Many functional areas of the proposed market design are at the leading edge of global developments in electricity market design and although some aspects have been used in other markets, they are untried in the electricity sector. In addition, it was clear to the NGMC that there are certain features of the Australian electricity industry that would require special attention to ensure that the market model is workable and the resultant outcomes are consistent with achieving market objectives endorsed by COAG. These areas are:

- effects of network losses and network constraints on trading;
- interaction between contracts, short term forward market in hedge contracts ("STFM"), and the spot market;
- liquidity in the proposed NEMMCO facilitated STFM and the spot market; and
- implications of the market model on generator self-commitment and reserve requirements.

The market simulation model was constructed and testing of the proposed Market model was conducted in 1995. The testing program demonstrated the feasibility of the proposed central dispatch process and the importance of the STFM in assisting generators to make unit commitment decisions.

**(e) Mega-brief Consultancy Program**

In late 1995, after the NGMC had released its first version of the Code for public comment, the NGMC undertook a major consultancy program ("**mega-brief program**") to subject the proposed Market Rules and System Security Code provisions to a final review by independent consultants. Most of the world's leading firms in electricity industry reform and market design participated in the program. The consultants included KEMA-ECC consultants, William M Mercer, Clayton Utz and Putnam Hayes Bartlett Inc. The purpose of the program was to obtain an independent review of the market design as set out in the draft Code and to receive proposed refinements to the market design and to develop recommendations on operational details of some of the market mechanisms.

The aspects of the Market model addressed in the mega-brief program were:

- bidding and dispatch
- managing dispatch of excess generation
- ancillary services
- dispatch optimisation
- short term forward market operation
- clearing the short term forward market
- inter-regional hedges framework
- operation of the inter-regional hedges
- firm access arrangements to the network
- risks from high pool prices
- market price cap
- market suspension criteria and pricing
- demand side response
- reserve trader
- market participation criteria, options and obligations
- participation fee structures

The market model was subsequently revised, to incorporate many of the consultants' recommendations. A summary of the consultants' recommendations is included in the NGMC's National Electricity Code Consultations Report which is attached to this Submission.

**(f) Experience from State Markets**

The NGMC has also paid close attention to the experience gained by participants in the State electricity markets operating in Victoria and New South Wales. Many of the features of the proposed market model are already operating in those State markets and the NGMC has revised its model based on the experience gained in those markets. Some examples include treatment of generator plant with dispatch inflexibilities and the accounting for network losses within a region.

**2.3.3 NGMC's consultation**

The NGMC has consulted widely in determining the model for the NEM and the Code. Over one hundred organisations are registered with the NGMC to comment on the Code.

The NGMC has also established working groups to aid it in its functions of developing the NEM model and drafting the Code. The Market Steering Committee and Code Working Groups have broad representation of all market participants, including generators, retailers, Network Service Providers, major customers (e.g. from the Business Council of Australia and the Australian Chamber of Commerce and Industry) and power systems operators.

The NGMC utilised a seminar/submission process as a consultative tool to develop a number of key issues in its early years. In addition, a general mailing list which grew to include some 3000 individuals and organisations who had expressed an interest in the reform process was used to circulate material or notify of its availability. As the NGMC structure moved to the "Development" phase, the use of this general mailing list was largely overtaken by the establishment of the Reference Group and the interactive process which that entailed. Seminars continued to be used from time to time to develop the code.

The following is a list of specific consultations undertaken by the NGMC. A copy of the NGMC's National Electricity Code Consultation Report is also being submitted as an attachment to this Submission.

- A series of public seminars, attended by over 500 delegates, was held in capital cities from December 1991 to January 1992 to discuss the draft National Grid Protocol. About 50 written submissions were made to the NGMC following these seminars.
- In 1992, the NGMC formed a Transmission Structure Group which was assisted by consultants to identify possible structural options for an interstate transmission network, to evaluate their merits against an agreed set of criteria and to recommend a preferred structure, together with operating guidelines and a process for implementation. The resultant report was released to the public in April 1993.
- Seminars were held in capital cities in February 1993 to discuss the Protocol, Network Service Pricing Information Paper and a Market and Common Trading Arrangements Information Paper. Over 30 submissions were subsequently received commenting on the material.

- In June 1993, the NGMC agreed to establish the Consultative Working Group, whose members included representatives from the distribution sector, major customers, unions, conservation and community service organisations, and other industry stakeholders not previously represented on the NGMC. Issues addressed by the Consultative Working Group included the development and implementation of the grid and competitive NEM.
- Subsequent to a request by COAG, a Working Group of the NGMC comprising representatives from all Member jurisdictions developed a report on regulatory arrangements for the NEM. The Working Group drew upon the views offered by a wide range of agencies within jurisdictions as well as the public comments on an earlier issues paper released by the NGMC in July 1993. The Report was submitted to Heads of Government on 24 November 1993 and has been widely distributed publicly.
- Seminars were held in July and August 1993 to discuss the Transition to a National Electricity Market Paper (which addressed the implementation of network pricing and market trading arrangements to underpin competition in electricity trading) and Regulatory Framework Issues for a National Electricity Market Paper. The seminars were attended by over 520 people with 42 written submissions received.
- In October 1994, the NGMC held its first Reference Group meetings with all interested parties in the capital cities of the participating jurisdictions. The meetings reviewed the proposed market design, the Code of Conduct framework and the proposed principles for network pricing.
- In December 1994, another round of Reference Group meetings was held in the capital cities to discuss customer interaction in the competitive market and the proposed spot market timetable, the role of demand management in a competitive electricity market, and implications of the proposed principles for network pricing.
- At the end of 1994, the Consultative Working Group agreed that it would cease its regular meetings as the interest groups its members represented were well represented in the Market Steering Committee and Reference Group under the revised NGMC committee structure.
- In February 1995, the NGMC released a report on Demand Management and Energy Efficiency. The report's recommendations were developed after extensive public consultation and consideration to the NGMC's discussion paper, Demand Management Opportunities in the Competitive Electricity which was released in June 1994. The views of the Australian and New Zealand Minerals and Energy Council (ANZMEC) and the National Greenhouse Advisory Council were also carefully considered.
- A first draft Code (Version 0.1) was issued to the public between April and July 1995 for public comment. Reference Group seminars were held in relation to metering and Code administration on 6-12 April 1995, network connection and network pricing on 25-31 May 1995 and market rules and system security on 5-12 July 1995.

- Market simulation model workshops were held in September and October 1995.
- A revised draft of the Code (version 1.0) was prepared incorporating many of the mega-brief recommendations (see paragraph 2.3.2) and public comments from the 1995 consultations. The NGMC was responsible for determining which of the policy recommendations arising out of the mega-brief program and public comments were to be included in the revised draft. The NGMC also commissioned a legal due diligence review of the Code as part of preparing the new draft for public comment.
- In March 1996, the Code (version 1.0) was issued for public review prior to the public consultations workshops. The Code was released with a number of supporting documents which included a summary description of the new Code and the rationale for its provisions as well as feedback to the Reference Groups on the issues raised in submissions on each Chapter following the 1995 Code consultations. A list of the papers is given at Schedule 5.
- Public consultation workshops to discuss version 1.0 of the Code occurred over April and May 1996 in Canberra, Adelaide, Melbourne, Sydney and Brisbane. After the workshops, any interested parties were invited to submit formal submissions to the NGMC. Submissions were made by 31 organisations. The National Electricity Code Consultations report attached to this Application contains a list of the submissions and two registers that document the major Code issues raised at the workshops and in the formal submissions on the Code.

In addition to the formal seminar process conducted by the NGMC, the Chairman (and more recently the GM Projects and other NGMC representatives) have made presentations on the reform process at numerous industry conferences and have had frequent meetings with electricity industry, business, federal, state and local government representatives, environment and other groups to discuss issues related to the competitive reforms.

The Chairman has made regular progress reports on the activities of the NGMC to the COAG meetings.

The NGMC has maintained a very close working relationship with the COAG Senior Officials Electricity Working Group to progress jointly industry reform.

Also, the NGMC Chairman has initiated three meetings of Energy Ministers (22 September 1995, 27 November 1995, 9 May 1996) to advance the reform process.

#### **2.3.4 Finalisation of the Code with participating jurisdictions**

From mid May 1996 to end September 1996, the NGMC and Market Implementation Steering Committee worked with the participating jurisdictions to review and finalise the Code. As part of this process, the NGMC and Market Implementation Steering Committee have:

- addressed the issues raised in 31 submissions received on the Code;
- addressed the issues raised by the ACCC in their May 1996 report *National Electricity Code of Conduct - Comments and Issues Arising*;



- addressed the issues raised by the Electricity Users Group in meetings with NGMC representatives;
- incorporated into the Market Rules the prudential requirements regime recommended by the Prudential Requirements Panel established by the NGMC;
- considered the feedback from consultations held with Market Participants sponsored by each participating jurisdiction;
- undertaken a further legal due diligence review as well as responded to the issues raised in a separate legal due diligence review commissioned by New South Wales.

The Code has been modified substantially in response to the issues raised and a list of the major changes is given at Schedule 6.

The Code (Version 2.0) has been approved by the participating jurisdictions for submission to the ACCC.

### **2.3.5 Summary of the results of the NGMC process and future directions**

As a result of its research and consultation processes, the Code, developed by the NGMC, creates a market for the wholesale sale of electricity and an access regime. The Code is being legislatively implemented in participating jurisdictions with regulatory oversight by the ACCC and jurisdictional regulatory bodies.

The Code establishes a national wholesale electricity market that does not recognise State borders. It is considered that this market model will deliver greater public benefits than a model based on regional State markets with only intra-State competition as stated in paragraph 2.2.3 of this application<sup>4</sup>.

This application is put forward on the basis that proposed arrangements provide an appropriate basis to commence an interim national market in 1997 recognising the need to manage the transition to the full national market through to 1 January 2001. These transitional derogations are set out in Chapter 9 of the Code.

A well structured Code change process, to be administered by the NECA and the ACCC, has been included in the Code in recognition of the need to learn from experience and allow the market design and access regime to evolve in response to changing participants' needs.

## **2.4 Current State arrangements**

Prior to the microeconomic reforms proposed by the Heads of Government around 1990, electricity supply in most States was dominated by a single large vertically integrated authority, in most cases responsible for generation, transmission and distribution activities.

As a forerunner to the NEM, some State-owned electricity monopolies have been disaggregated and corporatised to promote competition and efficiency, and to provide for a smooth transition into the NEM. In particular, the transmission sectors of all electricity

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<sup>4</sup> See reference to the Industry Commission's report, *The Electricity Industry in South Australia*

supply industries except Tasmania, the Northern Territory and Western Australia have been separated from the other elements of the industry such as generation and retail.

Details of the electricity reforms in each jurisdiction, focusing on the major reforms and the present structure of the industries are set out in Schedule 3.

### **3. NATIONAL ELECTRICITY MARKET**

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#### **3.1 Introduction**

This Chapter provides a description of the proposed NEM, its major institutional framework, and how the NEM works as described in the Code. The Chapter also describes how it is proposed that the NEM is to evolve from existing State markets.

In particular, the Chapter describes the central coordinating elements associated with the National Electricity Law, the roles of the two market bodies, NEMMCO and NECA, and the regulatory roles at the national and State and territory level. This is followed by a detailed description of the manner in which electricity is to be traded in the NEM and how the power system and central dispatch process operates.

The Chapter ends with a description of how the NEM is to evolve from the existing trading and sale arrangements in each jurisdiction. In particular, the mechanisms for harmonising the New South Wales and Victorian markets, the application of the Code to access and the introduction of NEM trading rules are described.

The NEM has been designed to ensure that the market trading rules do not constrain bilateral trading between participants, particularly in financial derivatives which may be used to hedge against price and volume risks in contracting for electricity. It is also important that the NEM provides adequate locational price signals to generators, customers, and Network Service Providers to assist evaluation of alternative investment options for new generation, demand side measures, and network augmentations.

The proposed NEM also contains a number of transparent safety nets which are available if, for any reason, the market fails to work properly, particularly in the early years of the market. These include NEMMCO's trading in reserves and its powers of direction with respect to ancillary services and power system security and reliability. These safety nets are regarded as vital to the market design given the critical importance of electricity to the community.

The proposed NEM is intended to give effect to the following market design principles:

- minimisation of NEMMCO decision-making to allow Market Participants the greatest amount of commercial freedom to decide how they will operate in the market;
- maximum level of market transparency in the interests of achieving a very high degree of market efficiency;
- avoidance of any special treatment in respect of different technologies used by Market Participants;
- non discriminatory access to the market for existing and prospective Market Participants;
- the central dispatch of electricity through a pool to manage the balancing of supply and demand in order to maintain power system security; and

- the establishment of trading rules and a regulatory framework which do not encourage anti-competitive behaviour.

In addition, Market Participants will be subject to the relevant provisions of the Act and the Competition Codes of the participating jurisdictions.

## 3.2 Market Institutions Framework

### 3.2.1 National Electricity Law

Legislation will be passed in all participating jurisdictions to implement the provisions of the Code. This will take the form of laws cooperatively passed by each relevant participating jurisdiction which will require all Network Service Providers, anyone operating a wholesale electricity market, all purchasers of electricity from NEMMCO and all generators, to register with NEMMCO in accordance with the Code. NEMMCO registration will compel compliance with the Code.

The "lead" legislation has already been passed by South Australia. Under the terms of the National Electricity Market Legislation Agreement signed on 9 May 1996, other jurisdictions must follow within two years. Under the Legislation Agreement, each participating jurisdiction agrees to adopt legislation identical to that of the lead legislature and not to change or repeal the cooperative legislation without unanimous consent.

In addition to this legislation, all participating jurisdictions will need to pass consequential legislation amending current laws touching on electricity so that the Code can apply consistently in each jurisdiction.

The cooperative legislation will also establish the National Electricity Tribunal, which is the body responsible for imposing any significant sanctions on Code Participants for breach of the Code and for reviewing certain decisions of NECA and NEMMCO which are identified as "reviewable decisions" in the Code.

### 3.2.2 National Electricity Market Management Company ("NEMMCO")

Participating jurisdictions have established NEMMCO to manage the operation of the market and the power system.

The objectives, powers, and responsibilities of NEMMCO are defined in the Code. In particular, NEMMCO will:

- register prospective Code participants;
- operate and administer the spot market;
- ensure facilities are made available for Market Participants to trade in a STFM;
- facilitate an exchange for inter-regional hedge contracts;
- manage the day to day operation of the network and maintain system security in conjunction with State Control Centre System Operators including the right to shed load and call up facilities if public safety or system security is in jeopardy;

- contract with Market Participants for the provision of ancillary services required in the central dispatch process;
- contract with Market Participants for the provision of system reserve, where the levels of reserve expected to be delivered by the normal market mechanisms are expected to be below the standards specified in the Code;
- provide a financial settlement service for the spot market and optionally for other market transactions;
- establish and develop, on a commercial basis, the appropriate market infrastructure including information systems and data communications to support market operations;
- establish procedures for consultation with Code Participants in respect of the manner in which NEMMCO fulfils its functions and obligations under the Code; and
- publish annually, performance indicators to monitor NEMMCO's performance in respect of its market management functions.

NEMMCO is a company incorporated under the Corporations Law and limited by guarantee. It has no share capital but the members guarantee to cover any indebtedness on liquidation up to a specified amount. Such a vehicle is commonly used to manage "not for profit" operations such as those envisaged for NEMMCO.

The members of NEMMCO are the participating jurisdictions. Each is able to appoint a director unless disapproved by the other members. Directors are chosen for their expertise in relevant areas and not as representatives of either a jurisdiction, a participant or class of participant. Two additional directors can be appointed by the board.

Some of the matters concerning the operations and powers of the company, such as initial capital injections, special requirements for the exercise of the company's powers and the criteria for selection of directors, are set out in the NEMMCO Members Agreement.

Neither NEMMCO nor its officers, contractors or agents are liable to Code Participants for any loss suffered by them as a result of NEMMCO's actions so long as NEMMCO has acted in good faith in the performance of its functions.

### **3.2.3 National Electricity Code Administrator ("NECA")**

Participating Jurisdictions have established, NECA, to administer the Code. The objectives, powers, and responsibilities of NECA are defined in the Code. In particular, NECA is to regulate the market and access regime by:

- monitoring and reporting on compliance with the Code and its adequacy;
- enforcing the Code through the National Electricity Tribunal;
- managing changes to the Code;
- granting derogations from the Code;

- registering Metering Service Providers in accordance with Chapter 7 of the Code;
- establishing a Reliability Panel in accordance with Chapter 8 of the Code; and
- providing for dispute resolution procedures where dispute resolution regimes created by Code Participants fail.

NECA has the same corporate structure as NEMMCO and is likewise owned by the participating jurisdictions as members.

### **3.2.4 Regulation**

The ACCC will:

- scrutinise market conduct by participants through the provisions of the Act and will monitor prices, where necessary, through the Prices Surveillance Act 1983;.
- consider any proposed changes to the Code and any derogations in accordance with the Code.

The participating jurisdictions will:

- regulate network pricing for transmission networks for transitional periods, after which regulation will transfer to the ACCC;
- regulate network pricing and access for distribution networks;
- determine when customers become eligible to participate in the wholesale electricity market defined in the Code or in the retail supply market where contestable customers may trade with the Retailer of their choice;
- set distribution and retail licence conditions to regulate the behaviour of distributors and retailers supplying electricity to customer; and
- regulate matters relating to the environment, safety and franchise customer pricing.

Retailers will be required to join the market as a Market Customer satisfying applicable prudential requirements.

## **3.3 Trading electricity**

### **3.3.1 Introduction**

Participants in the wholesale electricity market pool will be:

- all generators (defined as Market Generators in the Code), unless exempted;
- retailers and end use customers (defined as Market Customers in the Code); and
- traders.

Generators and retailers and end user customers will obtain non-discriminatory access to the market to convey electricity via the access undertaking put forward by transmission and distribution Network Service Providers.

The main features of the market include:

- a common electricity pool serving the interconnected participating jurisdictions;
- generators and loads being subject to a single central dispatch process;
- all wholesale trading is conducted through the pool, but participants are free to enter into contractual relationships with any counter-party of their choice;
- a facilitated short term forward market to allow participants to trade in short term hedge contracts;
- a facilitated inter-regional hedge exchange to allow participants to trade in inter-regional hedge contracts to hedge spot price differentials between the market's regions;
- a settlement function which can accommodate spot, forward, inter-regional hedge transactions and the contractual requirements of wholesale traders at their discretion.

All electricity produced by Market Generators must be traded through the spot market. It is envisaged that the bulk of electricity will be covered by financial contracts which are aimed to manage the risks associated with spot price variability. The form of these contracts is up to the parties and this lack of prescription is intended to encourage innovation in contract forms to meet customer needs. Contracts may be used to reduce the price and volume risks of spot market purchases by allowing the contracting parties to lock in negotiated power purchase terms and conditions. Applications for all necessary exempt futures market declarations will be made to the Australian Securities Commission.

### **3.3.2 Details of the market operations**

#### **(a) Participation in the Market - Generators and Customers**

In Chapter 2 of the Code, all generators are required to register with NEMMCO under the following categories:

- **Market Generator** - a generating unit from which the sent out electricity is not purchased in its entirety by the Local Retailer or by a Customer located at the same connection point, is classified as a market generating unit. A Market Generator must sell all sent out electricity through the spot market and accept payments from NEMMCO for sent out electricity at the spot price applicable at the connection point. In addition, the Market Generator must purchase all electricity supplied through the national grid to the Market Generator at the spot price applicable at its connection point and make payments to NEMMCO.
- **Non-Market Generator** - a generating unit is classified as a non-market generating unit if the sent out electricity is purchased in its entirety by the

Local Retailer or by another Code Participant, in the latter case, where the purchase occurs at the same connection point. A Non-Market Generator does not sell its energy through the spot market and accordingly will not receive payment from NEMMCO for electricity sent out at its connection point.

By virtue of the National Electricity Law, a person must not engage in the activity of directly purchasing electricity from the wholesale market at any connection point, unless that person has registered with NEMMCO as a Market Customer and that connection point is classified as one of that person's market connection points.

A customer is eligible to register with NEMMCO when its electricity consumption at that connection point meets the threshold criteria established by each participating jurisdiction. The major start and end dates for the customer threshold participation are:

Jurisdiction	Site Threshold	Eligibility Date	Number of eligible sites
ACT/QLD	*	*	*
NSW	>40 Gwh pa <160 Kwh	1/10/96 1/7/1999	47 2.7 million
SA	> 5 MW Down to feasible technical/economic limit by 1/7/2000	Market Start	25
VIC	> 5MW <160kwh	12/94 31/12/2000	47 1.9 million

\*Site thresholds and eligibility criteria for the ACT and Queensland are to be announced.

**(b) Participation in Central Dispatch Process - Generators and Customers**

In Chapter 2 of the Code, all generators are required to register with NEMMCO under the following categories:

- Scheduled Generators - a generating unit with a nameplate rating of 30 MW or greater is classified as a scheduled generating unit. A scheduled generating unit is required to participate in the central dispatch process.
- Non-Scheduled Generators - a generating unit with a nameplate rating of less than 30 MW or who is granted this classification under a range of criteria set out in the Code.

Market Customers may voluntarily register a load at a connection point as Scheduled or Non-Scheduled Load.



**(c) The spot market, central dispatch process and calculation of spot price**

A competitive spot market with a common clearing price is the simplest and most efficient means of balancing supply and demand for electricity at any point in time. Some special market arrangements are needed to deal with the unique characteristics of electricity but the market arrangements are different only in degree from those functioning in other commodity markets.

Because electricity cannot be stored, supply must equal demand virtually instantaneously everywhere on an interconnected system. Pricing energy to clear the market every minute or less is impractical hence there is a need to continue to rely upon the services of a single dispatcher (e.g. NEMMCO) to provide the services necessary to match supply and demand instantaneously across the system and to operate a spot market that computes market clearing prices for each half hour within an unconstrained area on the grid.

The Code provides for the following main features of the spot market:

- NEMMCO will operate a spot market for electricity through which all wholesale purchases and sales of electricity are made for registered Market Generators and Market Customers.
- The market is divided into electrical regions which reflect the network constraints that may affect the physical flow of electricity across the regions.
- Each electrical region has a regional reference node for spot price determination.
- Scheduled Generators must submit daily spot bids for a day ahead which consist of a self dispatch level and may contain up to 10 price bands per generating unit. Market Customers may also submit daily bids a day ahead of 10 price bands per scheduled load. For each price band, MW quantities may be sculpted by half hour interval during the day.
- Market Generators are to self commit their generating units rather than rely on a centrally determined unit commitment process.
- Market Generators and Market Customers may aggregate their generating units or loads where approved by NEMMCO.
- A central dispatch process will be operated by NEMMCO which will aim to maximise the value of spot market trading ie. to maximise the value of dispatched load based on dispatch bids less the cost of dispatched generation based on dispatch offers, subject to:
  - ◆ dispatch offer and dispatch bid quantity constraints;
  - ◆ constraints due to availability and commitment;
  - ◆ non-scheduled load requirements in each region;

- ◆ constraints due to power system reserve requirements determined as described in Chapter 4 of the Code;
- ◆ intra-regional network constraints and intra-regional losses;
- ◆ inter-regional network constraints and inter-regional losses;
- ◆ constraints consistent with registered bid and offer data;
- ◆ current levels of dispatched generation and load; and
- ◆ procedures to take account of constraints imposed by ancillary services requirements.

Spot prices will be determined by NEMMCO at each regional reference node in the central dispatch process which takes into account network losses and constraints, balances supply and demand, and ensures that a generating unit or load will be dispatched when its dispatch bid or offer at a location is below the spot price at that location. Because the NEM is comprised of electrical regions, spot prices will usually vary between regions because of the effects of transmission interconnector constraints and losses. Inter-regional transmission constraints can cause the marginal dispatch in one region to be less economic because of the transmission interconnector limiting the available access to Scheduled generators or loads. The spot price for that region's reference node will differ from the other regions and will be based on the bid price of the marginal dispatch available to that constrained region. When the transmission constraint does not apply, the spot price at both reference nodes will be based on the same dispatch offer or bid but the two spot prices will differ by the adjustment for inter-regional transmission losses.

Spot prices are determined in accordance with the following Code principles:

- a dispatch price at a regional reference node is determined by the central dispatch process for each dispatch interval (normally 5 minutes);
- a spot price at a regional reference node is the time-weighted average of the dispatch prices at that regional reference node in a trading interval (30 minutes, so for example spot price equals the average of six dispatch prices
- dispatch prices determine dispatch such that a generating unit or load whose dispatch bid or dispatch offer at a location is below the spot price at that location will normally be dispatched;
- network losses and network constraints are taken into account in the determination of dispatch and consequently affect dispatch prices and spot prices;
- when the spot price is determined, it applies to both sales and purchases of electricity at a particular location and time;

- spot prices and dispatch prices provide Market Participants with signals as to the value of providing or cost of consuming, electricity at a particular location at a particular time;
- the local spot price at each transmission network connection point is the spot price, at the regional reference node for the region to which the connection point is assigned, multiplied by the intra-regional loss factor applicable to that connection point; and
- a Market Participant will be paid or must pay the local spot price for each trading interval in respect of all electricity sent out or consumed by it at a connection point in that trading interval.

When it is necessary to involuntarily interrupt supplies to electricity users in order to balance the overall electricity supply and demand, the spot price will rise to the Value of Lost Load (VoLL) prescribed in the Code. The maximum spot price (VoLL) is \$5,000 per MWh upon commencement of the NEM, with a review to be conducted by NECA after one year.

Another situation may result where too much generating plant has elected to self-commit for the expected/actual demand, resulting in excess generation on the system or an insufficient regulating margin as specified in the Chapter 4, Power system security. Under the market design, Market Participants are responsible for making their own unit commitment or decommitment decisions based on market signals. The Code also provides for an additional market-based mechanism to resolve excess generation situations where, despite low spot prices, the total amount of generation self dispatched on the power system is more than that required to meet demand. As part of a standard offer, a Scheduled Generator is required to submit at least one off loading price with a MW quantity consistent with reducing the generating unit's dispatch level to zero. If an excess generation period occurs, the dispatch price to customers shall be clamped at zero \$/MWh, whilst generators are exposed to negative prices. During excess generation periods Scheduled Generators pay NEMMCO their dispatched MW multiplied by the negative pool price. This market mechanism provides a very strong incentive to avoid excess generation situations.

Nevertheless, as a last resort to maintain system security, NEMMCO shall direct non-compliant plant to decommit if the negative price signal does not resolve the problem in accordance with clause 4.8.10.

**(d) Contracts between Participants**

The spot price can be volatile due to a range of supply and demand factors. As such, participants may reduce this risk through retail arrangements or through entering long and short term wholesale contracts. These contracts can be written between participants relating to the future supply and consumption of electricity. Participants will enter into such contracts to help manage the financial risk of trading in the spot market alone. There is a mutual interest between retailers and customers and generators sharing such risks.

It is also envisaged that a buyer of electricity in the spot market can sometimes be a seller in a contracts market if he wishes to reduce his net contract holding. In the same way sellers of energy to the spot market can also be contract buyers.

The proposed market rules have been designed to cater for any form of contract trading on the understanding that such contracts do not directly affect the way in which generators or loads are dispatched or the way spot prices are determined by the central dispatch process. For example, parties may enter into a long term power purchase agreement and the generator can self dispatch as described above to comply with the terms of the power purchase agreement. The only restriction is that all Scheduled Generators are required to participate in the excess generation process if the need arises.

Another form of contract is a financial hedge instrument that allows parties to agree on a price and firm quantity of electricity as a hedge against the spot market. Such contracts are financial instruments and will not affect the way in which generators or scheduled loads are dispatched or the calculation of spot prices in the central dispatch process.

Contracting between participants also performs other roles by:

- providing incentives for coordinating investment; regular plant maintenance, unplanned plant maintenance, and demand/supply variations and constraints leading up to the actual trading day;
- reducing the variability of income and expenditure flows of participants; thereby lowering the cost of finance;
- clarifying the market value of generation/retailers for possible sale.

It is envisaged that Market Participants will develop and trade in a wide range of financial instruments including:

- long term contracts (between generators and retailers or customers operating in the wholesale market);
- financial hedging contracts to allow for variations in expected plant operations;
- short term hedging contracts closely associated with operation of the network and spot market in the days and hours leading up to the actual trading day or interval.

Applications for all necessary exempt futures market declarations will be made to the Australian Securities Commission to permit participants to trade in financial derivatives.

**(e) Short term forward market**

The Code places a requirement on NEMMCO to ensure that a STFM is established to facilitate trading by Market Participants in short term hedge

contracts in the trading days leading up to dispatch. The purpose of the centrally facilitated STFM is to:

- allow participants to adjust their trading positions as close as possible to the trading day to reflect changed circumstances (e.g. updated weather forecast might lead a Retailer to review customer load projections) and minimise spot market exposure to uncontracted positions;
- provide a price discovery mechanism in the days leading up to central dispatch and spot trading so that generators can assess their alternative short term planning options to commit or decommit a generating unit.

With potentially volatile spot prices, Market Participants who have to make operational decisions in advance have an incentive to seek the certainty of a contracted position that matches their planned operation. The STFM provides an opportunity to make contract adjustments that cover the difference between their long term contract position and the expected dispatch of plant.

NEMMCO will determine the initial form of the short term forward market prior to the market commencement in consultation with Code Participants and any other persons NEMMCO thinks appropriate.

The Code also stipulates that if NEMMCO itself operates a short term forward market:

- it must do so in a way which reasonably ensures it uses no advantage derived from its other functions which would not be available to an alternative operator; and
- it must use reasonable endeavours taking into account the surrounding circumstances, to give effect to the objective of recovering the costs of the establishment and operation of the short term forward market from Market Participants who trade in the short term forward market.

NEMMCO's facilitation role in the short term forward market will cease within three years after market commencement. Prior to the expiry of the 3 year period, NECA will review NEMMCO's facilitation role in the short term forward market in consultation with Code Participants and any other persons NECA considers appropriate. The review will address the need, if any, for NEMMCO to have a continuing role in facilitating the operation of an effective short term forward market.

**(f) Inter-regional hedges**

The NEM will be comprised of electrical regions. Spot prices will usually vary between regions because of the effects of transmission interconnector constraints and losses. When an interconnector between two regions is constrained the spot prices for those regions' reference nodes will differ and will be based on the bid price of the marginal dispatch available to each constrained region. When the transmission constraint does not apply, the spot price at both reference nodes will

be based on the same dispatch offer or bid but the two spot prices will differ by the adjustment for inter-regional transmission losses.

Market Participants in different regions who wish to trade with each other will be exposed to risks arising from the dynamic inter-regional price differences caused by transmission network constraints and losses between regions. The financial risk of these price differences can be overcome by taking out financial hedges which are instruments to minimise the risk of pool price differences.

The arrangement specified in the Code recognise these additional risks and uncertainties and makes special provisions for NEMMCO to provide Market Participants with the opportunity to reduce their risks by buying hedging contracts for inter-regional price difference.

The primary objective of the inter-regional hedge market is to create a market environment where bilateral inter-regional trading can compete as a practical alternative on level terms with intra-regional trading up to the capability of the interconnectors. Under Chapter 3 of the Code, NEMMCO must ensure that inter-regional hedge contracts are made available, for purchase by Market Participants, in respect of all interconnectors for which regulated network charges are imposed in accordance with Chapter 6 of the Code. NEMMCO will determine the form of the inter-regional hedge contracts in consultation with Code Participants and any other persons NEMMCO considers appropriate in accordance with the Code consultation procedures.

NEMMCO also must ensure that an inter-regional hedge exchange is established to facilitate trading in inter-regional hedge contracts by Market Participants. NEMMCO will determine the initial form of the inter-regional hedge exchange prior to market commencement in consultation with Code Participants and any other persons NEMMCO considers appropriate in accordance with the Code consultation procedures.

If NEMMCO itself operates an inter-regional hedge exchange:

- it must do so in a way which reasonably ensures it uses no advantage derived from its other functions which would not be available to an alternative operator and
- it must use reasonable endeavours, taking into account the surrounding circumstances, to give effect to the objective of recovering the costs of the establishment and operation of the inter-regional hedge exchange from users of the inter-regional hedge exchange.

NEMMCO's facilitation role in the inter-regional hedge exchange will cease within three years after establishment of the inter-regional hedge exchange.

Prior to the expiry of the three year period, NECA will review NEMMCO's facilitation role in the inter-regional hedge exchange in consultation with Code Participants and any other person NECA considers appropriate. The review will address the need if any for NEMMCO's continuing role in facilitating the operation of an effective inter-regional hedge exchange.

It is proposed that NEMMCO may undertake secondary trading in inter-regional hedge contracts. NEMMCO shall establish prior to market commencement, such a policy on secondary trading having the following objectives:

- in the first three years following establishment of the inter-regional hedge exchange, to facilitate development of an efficient market in inter-regional hedge contracts in the short to medium term; and
- to manage NEMMCO's business risks associated with the performance of its roles and responsibilities in accordance with this Code.

The participating jurisdictions and NEMMCO will seek the necessary exemptions from the Australian Securities Commission to permit participants to trade in inter-regional hedge contracts.

**(g) Settlement of the market and market fees**

Under Chapter 3 of the Code, NEMMCO must facilitate the billing and settlement of transactions in markets operated or facilitated by NEMMCO including:

- spot market transactions;
- reallocation transactions whereby Market Participants can reallocate part or all of their financial obligations or entitlements to or from the market to another Market Participant;
- short term forward market transactions;
- inter-regional hedge transactions; and
- market fees transactions.

NEMMCO must develop, review and publish, in consultation with NECA, Code Participants and such other persons as NEMMCO thinks appropriate, the structure of Participant fees for such periods as NEMMCO considers appropriate.

The structure of Participant fees should, to the extent practicable, be consistent with the following principles:

- The structure of Participant fees should be simple;
- Participant fees should recover the budgeted revenue requirements for NEMMCO and NECA determined under the Code;
- The components of Participant fees charged to each Code Participant should be reflective of the extent to which the budgeted revenue requirements for NEMMCO and NECA involve that Code Participant; and
- Participant fees should not unreasonably discriminate against a category or categories of Code Participants.

The components of the Participant fees may include, but are not limited to:

- registration fees, comprising an annual fee payable by each person for each Code Participant category in which they are registered;
- ancillary services fees, to recover NEMMCO's budgeted revenue requirements for its ancillary services contracting;
- power system operations fees, to recover NEMMCO's budgeted revenue requirements in relation to its power system operation activities;
- metering fees to recover NEMMCO's budgeted revenue requirements for the collection, storage and processing of metered data;
- billing and settlements fees, to recover NEMMCO's budgeted revenue requirements for the settlement service;
- administration fees, to recover the remainder of NEMMCO's and NECA's budgeted revenue requirements.

### **3.4 Power system operations and central dispatch**

#### **3.4.1 Introduction**

The operation of the power system needs to be cognisant of the need to maintain the physical integrity of the power system so that all users can receive the appropriate level of service from the system and allow for market competition to be the determinate of which plant is to deliver that service, particularly in respect of generating plant competing for dispatch.

The operation of a power system requires the instantaneous balancing/matching supply and consumption of electricity. Therefore all inputs to the operation of the system need to be coordinated and as such procedures and arrangements for operation of the system need to be well defined to enable the centralised operation of the system.

The principal features of power system operations and central dispatch are:

- NEMMCO and the System Operators acting as agents of NEMMCO are to be responsible for the day to day operation of the power system and to balance supply and demand based on the resources presented by the market.
- All Scheduled Generators and Scheduled Loads are required to participate in the central dispatch process to facilitate NEMMCO's ability to balance supply and demand and maintain power system security.
- Generators will schedule their own unit commitment based on their own view of the market. Participants must notify NEMMCO of such commitment intentions.
- Dispatch of scheduled generating units and loads is to be determined through a competitive auction process where generating units and loads are dispatched nationally in merit order on an integrated basis subject to any physical constraints placed on dispatch by the power system.



- As a transitional measure, should the market mechanisms fail to provide sufficient reserves consistent with the reliability standard set by the Reliability Panel of NECA, NEMMCO may, as a last resort, act to direct scheduled generators or scheduled loads to reduce the risk of involuntary load shedding.
- Ultimately, as a last resort, should market mechanisms fail to provide or maintain power system security, NEMMCO (and the System Operators) will have to power of intervention to maintain public safety and the security of the power system in order to prevent a collapse to a black system.

Regulation of the power system, to ensure its reliability and safety, is governed by the Code.

### 3.4.2 Central dispatch process

The generation and supply of electricity has a number of characteristics which make it quite unlike most other commodities :

- Electricity is transported through a shared network. Electricity passing through the network cannot be labelled or otherwise identified with a particular source.
- Losses occur during transport of electricity through the network and these losses are non-additive, making it difficult to attribute them to particular generator-customer power flows.
- Transport bottlenecks can arise and transport capacity is a scarce resource which must be allocated amongst prospective users of the network.
- Electricity production cannot be economically stored in large quantities and is on a "just in time" basis. If total supply does not match total consumption (including losses) on a minute by minute basis, the security of the whole electricity supply system can be put at risk.
- Many participants cannot readily enter and exit the market. Large thermal generators may take up to 24 hours to start up. Factories locked into production schedules may not be able to rapidly vary their electricity consumption.

The Industries Commission in its report, *Does Pacific Power Have Market Power?*, also noted that:

*...it [electricity] is a "fungible" commodity and there must be a balance of supply and demand at all times. Largely because of these characteristics, some features of the new market arrangements are different from those which apply in other commodity markets. In particular, procedures need to be in place to ensure the overall integrity of the system.<sup>1</sup>*

These characteristics impose special requirements on the design of a competitive market in electricity which don't exist in respect of most other commodity markets.

<sup>1</sup> The Industry Commission, *Does Pacific Power Have Market Power?* August 1995, p 15

It is for this reason that the spot market and physical operation of the interconnected power system, including the central dispatch of generators and loads, need to be centrally and jointly managed through a pooling arrangement, with all wholesale electricity being bought and sold through the pool.

Scheduled Generator units and scheduled loads are to be dispatched by NEMMCO in accordance with the central dispatch process. The generator or unit which bids the lowest price will be dispatched first, with the other generators and loads being dispatched in order of merit until all the required loads have been dispatched.

### **3.4.3 Power System Security and Reliability**

NECA will establish a Reliability Panel whose functions include monitoring, reviewing and reporting on the performance of the market in terms of power system security and reliability. The Reliability Panel will on the advice of NEMMCO and after public consultations determine the power system security and reliability standards for the market which are required under Chapter 4 of the Code.

The key power system security and reliability definitions are:

- satisfactory operating state - these are the technical operating limits which must not be exceeded by the power system without a risk to public safety or the risk that the entire power system breaks down and goes to a black system
- secure operating state - the power system has sufficient contingency reserves in accordance with the standard set by the Reliability Panel to sustain one single credible contingency event and still maintain a satisfactory operating state; (Note: if more than one credible event occurs, some customer load may be shed involuntarily if necessary to ensure the power system states within a satisfactory operating state)
- power system security - is defined as making sure to the extent practicable that the power system is operated such that it is and will remain in its secure operating state; (Note: Following a credible contingency event or a significant change in power system conditions, it is possible that the power system may no longer be in a condition which could be considered secure on the occurrence of a further contingency event. In that case, NEMMCO should take all reasonable actions to adjust, wherever possible, the operating conditions with a view to returning the power system to its secure operating state as soon as practical.)
- reliable operating state - the power system has sufficient short term capacity reserves in accordance with the standard set by the Reliability Panel to sustain more than one single credible contingency event and reduce the risk of involuntary load shedding to maintain a secure operating state.

Under the Code, NEMMCO is required to:

- contract for and dispatch ancillary services, including contingency reserves, to ensure power system security;

- monitor and inform the market in the Projected Assessment of System Adequacy process ("PASA") of the extent to which the market is not meeting the reserve standards specified by the Reliability Panel in the power system security and reliability standards;
- intervene to contract for reserves when it becomes clear that the market is not responding to a projected lack of reserves through the PASA process;
- intervene to direct plant to maintain a reliable operating state and to reduce the risk of involuntary load shedding if sufficient reserves cannot be commercially contracted; and
- intervene, as a last resort, to maintain public safety and the security of the power system in order to prevent a collapse to a black system.

Each of these functions is described below in the paragraphs below.

#### 3.4.4 Ancillary services

Ancillary services are services that are essential to the management of power system security, facilitate orderly trading in electricity and ensure that electricity supplies are of acceptable quality. They include:

- the provision of sufficient regulating capability to meet fluctuations in load occurring within a trading interval;
- the provision of sufficient contingency capacity reserve to maintain power system frequency in accordance with Chapter 4 of the Code in the event of network or generation outages;
- the provision of reactive support to guard against power system failure through voltage collapse;
- the provision of black start capability to allow restoration of power system operation after a complete failure of the power system or part of the power system.;
- the provision of measures to protect the quality of supply of electricity, such measures may take the form of:
  - ◆ limits on reactive power demands of customers
  - ◆ facilities to disconnect load blocks in the event of severe low power system frequency
  - ◆ protective devices to disconnect malfunctioning or faulty plant
  - ◆ suppression of harmonic distortion of power supply waveforms

Under the Code, NEMMCO is required to contract for and dispatch ancillary services for:

- system regulating capability needed to absorb fluctuations in the supply/demand balance within each half-hour period;

- contingency capacity reserve to maintain power system frequency in the event of network or generation outages;
- reactive support to guard against system failure through voltage collapse, additional to the local requirements provided under connection contracts; and
- “black start” capability to allow restoration of electricity supply after a complete failure.

Measures to protect the quality of electricity supply are handled by NEMMCO and Network Service Providers setting minimum standards in Code Participants’ connection agreements for technical performance that require some level of ancillary service to be provided.

Where it has not been possible to negotiate a contract for the provision of services which are necessary to maintain system security, NEMMCO has powers to direct participants to provide ancillary services and compensation is provided to directed participants.

Under clause 3.13, NEMMCO must investigate, consult with Code Participants and report to NECA within 2 years of market commencement on the possible development of market-based arrangements for the provision of ancillary services, including a short term market in which Market Participants which are not parties to ancillary services agreements may submit offers for the provision of regulating capability or contingency capacity reserve.

#### **3.4.5 Projected Assessment of System Adequacy (“PASA”)**

It is proposed that the National Electricity Code of Conduct require NEMMCO to administer a very comprehensive program of information collection, analysis and disclosure regarding a projected assessment of system adequacy (“PASA”) so that the market is properly informed and participants are in a good position to make informed decisions which will lead to economically efficient outcomes. NEMMCO will monitor and inform the market of the physical ability of the power system to deliver power system operational reliability to specified standards. In particular, NEMMCO will disclose medium term and short term system security and reliability prospects so that Market Participants are able to make operational and commercial decisions about supply, demand and transmission outages in respect of periods up to 2 years and 7 days (respectively) in advance.

For the medium term PASA, NEMMCO will collect weekly updated information from Market Participants concerning their planned availability of scheduled generating units and scheduled loads and from Network Service Providers concerning their planned outages for the transmission network. This information will be analysed and disseminated to participants. By this process, it is expected that there will be effective market driven coordination of plant maintenance scheduling. The published assessments of system adequacy and participants’ expectations of likely price outcomes will drive participants to schedule their maintenance at times other than when high prices are likely.

For the short term PASA in the lead up to the actual day of dispatch, generators will be required to provide details of their intended plant availability on a rolling 7 day basis. This together with a comprehensive range of standing data from generators will be

analysed and NEMMCO will each day publish a rolling 7 day outlook of supply and demand highlighting any perceived technical problems which may be emerging.

The overall objective of this information collection, analysis and dissemination is to provide Market Participants with every opportunity to make commercial decisions which are not only in their own best interests but which will also result in an economically efficient market.

#### **3.4.6 NEMMCO's reserve trading and intervention power**

Because of the special role electricity plays in the community NEMMCO is required under the Code to contract for the provision of reserves where, in its reasonable opinion, there is a clear risk of involuntary load shedding.

This function of NEMMCO is to last only until five years after market commencement by which time it is expected that market-based signals will be adequate to deliver adequate system reserves.

Under this function NEMMCO may, by contract:

- secure the availability of reserve plant which would otherwise not be available for dispatch;
- secure the availability of reserves to meet the reserve standards specified in Chapter 4 of the Code or as otherwise specified by the Reliability Panel.

The commercial contracting of reserve by NEMMCO is regarded as more desirable than simply providing NEMMCO with a power of direction to secure plant in the first instance. Direction powers are only to be used as last resort option.

Chapter 4 of the Code also provides NEMMCO with an additional intervention power to maintain a reliable operating state to reduce the risk of involuntary load shedding. This is transitional power which is linked to NEMMCO's reserve trading activity and has a 5 year sunset clause.

Clause 4.8.6 (b) provides that after NEMMCO is unable to reach a commercial solution to a lack of reserves problem, NEMMCO may, in accordance with any guidelines issued by the Reliability Panel, give reasonable directions to any Scheduled Generator in relation to its scheduled generating units or any Market Customer in relation to its scheduled loads requiring the Scheduled Generator or Market Customer (as the case may be) to do any act or thing which NEMMCO deems necessary to maintain the power system in a reliable operating state.

This direction may require a generator to delay a planned outage or accelerate its return to service from an outage. NEMMCO is expected to select the intervention option which minimises the cost to Market Customers. The Code will empower NEMMCO to request the necessary cost information from Market Participants after it has declared an intervention period to make this assessment.

When plant under a NEMMCO reserve contract is dispatched or a direction is issued, NEMMCO is obligated to determine spot prices at a value which NEMMCO considers

would have applied if the reserve plant had not been dispatched or the direction had not been issued.

### **3.4.7 Power system safety and regulation**

Chapter 4 of the Code , sets out the responsibilities of NEMMCO, System Operators, and Network Service Providers and parties connected to the network to achieve the effective control of power system operations to ensure public safety. The operation of an integrated power system is complex and therefore it is essential that the accountabilities and responsibilities for maintaining the system quality of supply attributes of frequency and voltage to all users and the integrity of equipment comprising the power system are clearly defined.

NEMMCO will work with the System Operators and Network Service Providers to coordinate power system operations for:

- power system frequency control;
- power system voltage control;
- protection of power system equipment;
- power system stability;
- managing contingency events and load shedding; and
- emergency black start procedures.

These accountabilities and responsibilities set out in Chapter 4 of the Code are consistent with good industry practice that has operated over the history of the interconnected system. The only major change is the establishment of NEMMCO as a central coordinator who will take a national rather than regional review of the interconnected power system working with the other parties.

In both section 76 of the National Electricity Law and clause 4.8.10 of the Code, NEMMCO is provided with significant powers of direction to maintain public safety and the security of the power system. When the power system is affected by a contingency event (e.g. failure of a major generating unit or a transmission line) NEMMCO will work with the System Operators to identify the impact of the event on the capability of the power system and identify and implement actions required in each affected region to restore the power system to a satisfactory operating state.

Under the Code if , at any time, there are insufficient generation or supply options available to securely supply total load in a region, then NEMMCO may undertake all or any of the following:

- attempt to increase the generating supply capability such as directing available but not committed generating units to start-up, or recall of transmission equipment outages;
- disconnect one or more points of load connection as NEMMCO considers necessary; or

- direct a Market Customer to take such steps as are reasonable to immediately reduce its load.

If there is a major supply shortfall, NEMMCO must:

- first, if any region has agreed to accept a lower level of security than that specified in the power system security and reliability standards and nominated automatic or manually interruptible load to be shed for this purpose, shed that load; and
- then implement, any load shedding required across interconnected regions in an equitable manner as specified in the power system security and reliability standards up to the power transfer capability of the network. The shedding of load in each region will take into account a participating jurisdiction's requirements for sensitive loads (e.g. hospitals, public transport, etc.).

NEMMCO must also liaise with participating jurisdictions for the ongoing management of an extensive disruption by invoking the use of emergency services powers in those participating jurisdictions. NEMMCO will make arrangements with the participating jurisdictions concerning the use by them of emergency powers over the power system. NEMMCO will also, when appropriate, request the relevant jurisdictions to invoke emergency services legislation in order to assist with its duties to maintain the security and reliability of the power system. Likewise, when jurisdictions seek to invoke such legislation, they will endeavour to consult with NEMMCO first and, if possible, give carriage of the implementation of such arrangements (as they may affect the power system) to NEMMCO. (Note: An emergency services protocol is being prepared in these terms for approval by the Energy Ministers in the participating jurisdictions.)

### **3.5 Transition to the NEM**

#### **3.5.1 Introduction**

The national market arrangements will evolve through a managed, step by step transition which will give Market Participants adequate lead time to adjust to changes as they occur, and will allow the phasing in of information technology systems as they are developed.

The changes to take place which are listed below under the following headings are more fully described in the balance of Chapter 3:

- NEM1 - Harmonisation of Victorian and New South Wales electricity markets (Phase 1 - February 1997 and Phase 2 - July 1997)
- NEM2 - Application of the national access regime under the Code (April 1997)
- NEM3 - Interim NEM Commencement (late 1997/early 1998)
- Code Transitional Derogation Period
- Full NEM commencement 1 January 2001

New South Wales and Victoria have announced the early harmonisation of their State markets in the lead-up to the interim national electricity market.

South Australia is in the process of implementing industry structural reform. Unlike the other interconnected States, South Australia only has two major power stations and the units within them are complementary rather than competitive. At this stage, therefore, it is not practicable to operate an effective competitive State market. South Australia will commence participation in the national market at the time the interim market (NEM3) commences.

Queensland has appointed an independent Task Force to recommend a set of structural, institutional, and regulatory arrangements for the electricity supply industry that best suits the energy needs of Queensland, while having regard to the Government's regional and economic development objectives and the need to maintain system security. Queensland has considered the Code and endorsed "**in principle**", Chapters 1 to 8 and 10 with further consideration of the Code including Queensland's specific derogations, to occur in light of the Task Force's recommendations.

If Queensland finalises its derogations prior to the ACCC forming a draft determination and commencing its public consultation process, Queensland will seek to be a part of the NGMC process seeking authorisation and access undertaking approval for the Code in its entirety.

Should Queensland's derogations not be finalised and endorsed by Cabinet before the completion of the ACCC's draft determination, the Government has agreed that Queensland will submit its derogations as either:

- an addendum to the already submitted Code, albeit possibly requiring another summary public consultation process to be conducted by the ACCC (but only in respect of Queensland's derogations); or
- a separate submission in relation to Queensland's derogations from the Code, recognising that this would not require a re-examination of the authorisation or access matters included in the Code proper, as these issues may have been already addressed in the ACCC examination of the NGMC submission.

### **3.5.2 NEM 1 - Harmonisation of the New South Wales and Victorian electricity markets (Phase 1, February 1997 to Phase 2, July 1997)**

The jurisdictions of New South Wales, Victoria and the ACT have agreed to harmonise the New South Wales and Victorian wholesale electricity markets. The resulting wholesale market arrangements, which are known as NEM1:

- will bring jurisdictions closer to implementation of the National Electricity Code;
- provide effective and non-discriminatory access and improved benefits to customers; and
- come under common regulatory oversight in a number of key areas.



The broad policy principles and operational issues surrounding NEM1 will be formalised in a Heads of Government Agreement.

Wholesale market arrangements in each State are being examined to identify and redesign where necessary those aspects which will enable prices in New South Wales and Victoria to be linked to facilitate interstate trade on a commercial basis. Market rules for NEM1 will be submitted for authorisation by the ACCC under the Act.

Jurisdictions involved in NEM1 are committed to moving toward a policy and regulatory framework which promotes open and effective competition in electricity production and retailing.

NEM1 will be introduced in two phases.

Phase 1 will commence in February 1997 and will involve:

- progressive introduction of interstate trade in electricity
- system security under the control of TransGrid in New South Wales and the ACT and the Victorian Power Exchange in Victoria;
- trading of energy from the Snowy scheme in accordance with the existing entitlement arrangements.

Phase 2 will commence by July 1997 and will involve:

- full interstate trade in electricity;
- system security jointly administered by TransGrid and the Victorian Power Exchange; and
- trading of energy from the Snowy being managed by one entity.

### **3.5.3 NEM2 - Application of the national access regime under the Code (April 1997)**

Once the ACCC authorises the Code and accepts its relevant provisions as an industry access code, those access provisions which do not relate to the markets created by the Code will be available to Network Service Providers to adopt. They can do this by registering with NEMMCO and giving the undertaking to the ACCC as to access to their networks required by the Code.

This will enable Network Service Providers to obtain the protection against declaration afforded by the Act to those giving undertakings in accordance with accepted access codes. It will also enable users of those networks giving the undertaking to have its terms enforced under the Act.

The National Electricity Law will not be passed at this point because NEMMCO will not be in a position to operate the market as specified by Chapter 3. Until it is in such a position (at "NEM3" detailed below) the market rules will not apply and nor will Network Service Providers and generators be compelled to register with NEMMCO (although, as mentioned above they may choose to do so and give an access undertaking to the ACCC.)

Once the ACCC authorises and approves the Code, NECA will take full control of the Code from the NGMC as part of carefully managed transition. NECA will oversee administration of the Code, including provision of public information, management of Code changes, dispute resolution and penalties for non-compliance with the Code. NECA will commence some of its Code functions including:

- Management of the Code Change process under Chapter 8
- Registration of Metering Providers under Chapter 7
- Establishment of the Reliability Panel but their determinations will not take effect until market commencement (NEM3)
- Review of parts C and E of Chapter 6 (transmission and distribution pricing)
- Establishment of Force Majeure Schedules and Administered Price Caps (clause 3.16) to take effect from market commencement (NEM3)

#### **3.5.4 NEM3 Interim Market Commencement (late 1997/early 1998)**

NEM3 will not commence until Release 1 of the NEMS JV systems are ready for implementation. NEMMCO and NECA will commence NEM3 after NEMMCO, VPX, TransGrid, and the SA System Operator must sign off those systems as ready for implementation.

The NEM3 milestone affects the participating jurisdictions including ACT, New South Wales, South Australia, and Victoria.

##### **(a) Entry to Market**

Authorisations to trade in the wholesale electricity market will be administered by NEMMCO according to the Chapter 2 Code provisions.

For example, in Victoria, VPX will no longer have any responsibility for granting authorisations to generators or customers to participate in the wholesale electricity market. In a similar manner, the Minister for Energy in New South Wales and TransGrid will cease to have any responsibility for granting authorisations to participate in the wholesale electricity market.

The Retail market is regulated at the jurisdictional level and licences are required for distribution Network Service Providers and Retailers from each jurisdiction.

##### **(b) Terms and conditions of Access**

Customers covered by the Code will include:

- holders of retail supplier licences from each jurisdiction; and

- non-franchise customers who elect to become Market Customers or who voluntarily register with NEMMCO as Code Participants.

Customers covered by Retail Market regulation will include:

- franchise customers; or
- any non-franchise customers who elect not to become Market Customers or register with NEMMCO as Code Participants.

Terms and conditions for network access including network pricing are regulated according to the Chapter 9 derogations of each jurisdiction.

**(c) Wholesale Electricity Market Arrangements**

The major new changes to be introduced in the wholesale electricity market by the Code will include:

- Competition among generators and retailers is national.
- Power system security will be managed nationally rather than on a regional basis across the interconnected power system
- All Market Customers must buy wholesale electricity from the NEM.
- Short term forward market - In New South Wales a short term forward market is being developed by Market Participants. In the national market NEMMCO will facilitate a short term forward market.
- Inter-regional hedge exchange - Market Participants will be able to use inter-regional hedging contracts to hedge against spot price diversions across regions.
- Reserve trading - In the State markets reserve capacity is monitored as part of system adequacy, and publicised to enable a market-based correction. In the national market NEMMCO will monitor reserve and enter into contracts if necessary to ensure adequate reserve based on the power system security and reliability standards determined by the Reliability Panel.
- Rebidding arrangements - In the national market the bid profile may be varied at any time prior to dispatch. In the State markets rebidding arrangements are more restricted.
- Reliability Panel - power system security and reliability standards will be determined on a national basis by the Reliability Panel established under NECA.

The major institutional changes will be:

- TransGrid and VPX will cease any role as market operators or Code Administrators.

- System control and dispatch will be the responsibility of NEMMCO for all participating jurisdictions. NEMMCO will appoint VPX, TransGrid, and the SA System Operator to operate the power system in each State on an agency basis.
- NEMMCO will become market operator and assumes all its Code responsibilities including power system operations, spot market, settlements, and global system planning.
- NECA will oversee administration of the Code, including provision of public information, management of Code changes, dispute resolution and penalties for non-compliance with the Code.
- Regulation of the wholesale market will be by two national bodies (ACCC and NECA).

### **3.5.5 Code Transitional Derogation Period**

The major milestones in the transition to the full NEM are described below:

- 1 July 1999 - Approval of the new version of part C of Chapter 6, Transmission pricing by the ACCC.
- ACCC assumes responsibility for regulation of transmission access and pricing (Chapters 5 & 6) in New South Wales.
- 1 July 2000 - Approval of the new version of part E of Chapter 6, Distribution pricing by the ACCC.
- 31 December 2000 - Most transitional derogations cease in all participating jurisdictions.

### **3.5.6 Full NEM Commencement 1 January 2001**

The major milestones in the full NEM are described below:

- 1 January 2001 - ACCC assumes responsibility for regulation of transmission access and pricing in all jurisdictions.
- The Code forms the access regime for distribution systems regulated by jurisdictional regulators.
- Customer participation thresholds in the participating jurisdictions reach their feasible technical and economic limits.
- Inter-network settlements between Network Service Providers across participating jurisdictions commence.
- NEMMCO is no longer obligated to seek and consider submissions from affected participating jurisdictions in making a determination that a network augmentation is justified.

## **4. PROPOSED NEM ACCESS ARRANGEMENTS**

### **4.1 Introduction**

National competition policy reform has extended the reach of the Act to encompass the manner by which access to nationally significant infrastructure services is granted. Nationally significant infrastructure services are often provided in connection with facilities which can be characterised as natural monopolies. Within the proposed NEM, transmission and distribution networks may constitute such facilities.

The *National Competition Policy Reform Act* 1995 amended the Act to introduce a legislated approach to third party access to these services provided in connection with these nationally significant facilities. There are a number of avenues under the Act whereby access to nationally significant infrastructure services can be granted. Service providers can provide access undertakings to the ACCC, or can seek to have an access arrangement determined to be an effective state-based access arrangement. Where neither of these approaches is adopted, an aggrieved access seeker may request that the service be "declared" and an access arrangement be developed by the ACCC under Part IIIA of the Act.

Amendments to the Act to allow access to be regulated by way of an industry access code are currently before the Senate.

The Code, which is being submitted to the ACCC for acceptance as an industry access code, has been designed to provide certainty, and fair and reasonable terms and conditions on which access is to be granted to parties seeking access to the national electricity grid.

This Chapter provides a description of the proposed industry access code, its major institutional framework, and how the access arrangements will work as described in the Code. The Chapter also describes how it is proposed that the transition from the existing jurisdictional access arrangements to those in the Code will take place.

Chapter 8 of the Submission provides a definition for and a detailed assessment of the industry access code pursuant to the criteria required under Part IIIA of the Act and references in this Chapter 4 to industry access code are to be read and construed accordingly.

### **4.2 Access principles**

#### **4.2.1 Introduction**

The Code contains provisions enabling Code Participants to seek and obtain access to the electricity networks in participating jurisdictions. These electricity networks may either be transmission networks (generally, high-voltage networks) and distribution networks (lower voltage networks). By gaining access to electricity networks, Code Participants can be supplied with:

- transmission services - the conveyance of electricity by a high voltage transmission system together with associated technical support services, such as voltage and frequency control; and/or

- distribution services - the conveyance of electricity by a lower voltage distribution system together with associated technical support services, such as voltage and harmonics control.

The proposed NEM access arrangements have been designed to meet the requirements for an industry access code under Part IIIA of the Act. The key access principles of the proposed arrangements are described below.

#### **4.2.2 Effective regulation of monopoly services**

To a large extent transmission and distribution networks are natural monopolies. The industry access code recognises that electricity networks must be appropriately regulated to ensure that effective access arrangements are established, maintained and evolve in response to technology change, competition in generation and retail markets, and the requirements of service providers and network users.

The Code provides for an efficient and cost effective regulatory regime which seeks to achieve the following objectives:

- ensure that the terms and conditions for access to an electricity network offered by a Network Service Provider are commercially reasonable and non-discriminatory taking into account a balance between the legitimate business interests and investments of the service provider and the interests of the party seeking access;
- provide, on a prospective basis, a fair and reasonable rate of return to service providers on their transmission or distribution system assuming efficient investment and efficient operating and maintenance practices;
- prevent monopoly rent extraction by service providers;
- provide an equitable allocation between service users and service providers of efficiency gains the regulator expects the service providers to achieve through an incentive-based regulatory regime;
- foster efficient investment within transmission and distribution networks and upstream and downstream sectors;
- foster efficient use of existing network infrastructure;
- promote competition in upstream and downstream markets and in the provision of network services where economically feasible;
- provide reasonable recognition of pre-existing policies of governments regarding transmission asset values, revenue paths and prices;
- provide reasonable regulatory accountability through transparency and public disclosure of regulatory processes and the basis of regulatory decisions;

provide reasonable certainty and consistency over time of the outcomes of regulatory processes and recognition of the adaptive capacities of Code Participants in the provision and use of transmission network assets;

- provide reasonable and well defined regulatory discretion which permits an acceptable balancing of the interests of service providers, service users and the public interest, as required of the ACCC under the provisions of Part IIIA of the Act.

#### **4.2.3 Compatibility with the market trading arrangements**

The network pricing structure is designed to complement the electricity market design in encouraging and facilitating the development of an efficient competitive electricity market. In particular the network pricing regime will not distort the energy market since it will only introduce signals which are related to the use of the network. In return for the payment of a connection and use of system fee to the Network Service Provider, the network user gains the capacity to enter into electricity trading arrangements with any other participant.

This separation of network prices from electricity trading arrangements will promote greater competition in upstream and downstream sectors.

#### **4.2.4 Defined network service standards**

Network Service Providers are obligated to meet network performance standards as prescribed in the Code. In return for payment of network charges, network users are entitled to receive a level of network service specified in an agreement between the Network Service Provider and the user.

Network Service Providers and network users, through negotiation, may vary the specified level of network service where it is economic to do so provided that the variation will not adversely affect other existing network users.

#### **4.2.5 Minimise barriers to entry**

The technical terms and conditions for generator and customer access to a transmission and distribution network aim to minimise the barriers to entry to both the upstream (generation) and downstream (energy customer) sectors, while promoting the efficient use of existing infrastructure or the efficient investment in new infrastructure. The main objective of specifying technical terms and conditions for network access is to ensure that the physical access to a new user is provided on a basis that does not adversely affect the quality of supply to existing users.

#### **4.2.6 Published and transparent pricing**

Transmission and distribution prices are to be published in order to provide pricing signals to participants and to allow participation in the energy market with knowledge of network prices.

#### **4.2.7 Right to negotiate**

The Code provides for maximum prices for use of system charges and for connection charges for existing connection facilities. Network users may negotiate on the prices and associated network service standards. Connection charges will be determined through commercial negotiation and should be directly related to the facilities requested by the party seeking access. For distribution networks, connection charges may not be applied to some users because it is not practicable to distinguish connection assets from the broader shared distribution assets. Factors such as administrative costs may be reduced by bundling connection and other assets together.

#### **4.2.8 Separation of businesses**

Separation of businesses is important to ensure that monopoly businesses do not cross subsidise the parts of their business which operate in competitive markets. All participating jurisdictions have separated their transmission networks as separate business entities. System Operators are either ring fenced within the transmission entity or are separate companies. Distribution businesses are required to maintain accounts for their competitive activities (such as generation and retail) separate from the accounts of the monopolistic businesses (ie the wires business).

#### **4.2.9 Dispute resolution**

Effective dispute resolution procedures must exist with recourse to an independent party to resolve and provide a binding outcome of the dispute. The dispute resolution process must observe the rules of natural justice, preserve or enhance the relationship between the parties to the dispute, and ensure that the necessary skills or knowledge are available to parties to assist in resolving the dispute. The Code's dispute resolution procedures reflect these principles.

#### **4.2.10 Enforcement**

The Code and the National Electricity Law together provide enforcement powers to ensure that the Code provisions are effective and adhered to by service providers and network users.

### **4.3 Description of the Industry Access Code**

The provisions of the Code which regulate access to the networks are principally intended to limit the ability of the Network Service Providers to use their natural monopoly power to the detriment of network users, and provide adequate levels of services to network users. The Code does this by:

- detailing the principles and guidelines governing connection to the national grid;
- establishing the process to be followed by a Code Participant to establish or modify a connection to the national grid or to record the details of an existing connection arrangement where no formal agreement is in place; and
- establishing processes to ensure ongoing compliance with technical requirements of the Code to facilitate management of the national grid.



Under the industry access code, all Network Service Providers are obliged to connect parties and give them access to the network if they have entered into a fair and reasonable connection agreement. The process of applying, assessing, and negotiating a connection agreement is designed to ensure that Network Service Providers use best endeavours to give users access to their network, while maintaining the safety and security the network. The preferred approach to network access and connection agreements is to allow negotiation between the parties.

The prices for transmission use of system and distribution use of system determined by the regulator are maximum reference prices. Scope is provided to negotiate lower prices or differentiated service levels.

#### **4.3.1 Entry to the market**

Upon commencement of the NEM, Network Service Providers will be required to register with NEMMCO and give an undertaking to the ACCC to give access to their networks as required by the industry access code. Schedule 5.8 of the Code sets out the undertaking to be given to the ACCC under Section 44ZZA of the Act.

As part of this undertaking, Network Service Providers will be required to observe any jurisdictional network arrangements contained in "applicable regulatory instruments". These jurisdictional access arrangements are described in Schedules 7 to 11. Under the Code (clause 5.2.3(e)) and pursuant to the access undertaking in Schedule 5.8, Network Service Providers are bound by these applicable regulatory instruments. Many of them will be transitional arrangements, but some may remain as continuing jurisdictional requirements.

As discussed in Chapter 3 of the Submission, authorisations to trade in wholesale electricity as a Market Generator or Market Customer will be administered by NEMMCO according to Chapter 2 of the Code.

#### **4.3.2 Terms and conditions for access**

##### **(a) Connection and use of system**

Chapter 5 of the Code provides a set of procedures for those seeking connection and for Network Service Providers to process connection applications. It needs to be recognised that some arrangements and procedures for connection to transmission and distribution networks have existed for many years and may differ between jurisdictions and between Network Service Providers. The objective of the industry access code is to provide a common set of procedures, including any jurisdictional arrangements contained in "applicable regulatory instruments" some of which may continue beyond the transitional period (ie beyond 31 December 2000).

Clause 5.3 of the Code sets out the procedures to be followed by a party seeking to establish or modify connection to a network. These procedures cover:

- information to be provided by the party seeking connection;
- the identification of a connection coordinator to liaise as appropriate with other Network Service Providers that may be affected by the proposed connection;

- information to be provided in response by the Network Service Provider;
- requirements on Network Service Providers to liaise with other affected Network Service Providers;
- provision by the Network Service Provider of a work program for the connection;
- requirement on the Code User to pay an application fee;
- requirements on Network Service Providers to respond within a specified time period;
- requirement on the Network Service Provider to provide an offer to connect specifying equipment performance, extent and cost of works, impact on network service charges and effect on power transfer capability;
- steps to follow to finalise the connection agreement; and
- maintaining the confidentiality of information provided by an applicant.

The connection requirement provisions have been developed based on the principle of commercial negotiation of connection services terms and charges as being synonymous with the concept of light handed regulation. It is important that the Network Service Providers and parties seeking to establish connection negotiate a connection agreement that meets the needs of the Connection Applicant without adversely or materially affecting the levels of service and quality of supply received by other network users. The Network Service Provider and Connection Applicant may negotiate with each other in respect of the provision of connection and any other matters relevant to the provision of connection. The parties may seek to vary the terms and conditions from those contemplated by this Code where relevant considerations such as geographic factors make variation necessary or desirable, provided that any such conditions are reasonable and are explicitly identified in the offer to connect.

The terms and conditions for connection are also addressed in the following Code provisions:

- technical conditions for connection are specified in:
  - ◆ Schedule 5.1 for conditions for connection of two networks
  - ◆ Schedule 5.2 for conditions of connection of a generator
  - ◆ Schedule 5.3 for conditions of connection of a customer
- the metering provisions of Chapter 7 will apply if the party seeks to participate in the wholesale market as a Market Participant;
- responsibility for the planning and design of connection assets will be essentially driven by the customers who are receiving the service. Most decisions can be made by them with respect to the level of service, including the capacity of the transmission or distribution network without impacting on other participants (clause 5.4);

- where affected participants are in a position to consider the longer term implications of changes in their loading without the need for sophisticated pricing signals to be provided, it is sufficient to allocate the costs of providing the connection service to the dedicated receivers of that service (clause 6.4.2);
- any augmentation of dedicated connection assets would take place only at the request of the connected participant. The additional service would be covered under a long term contractual relationship between the Network Service Provider and the connected party. The form of such contracts is not specified in the Code, but the Code recognises that any such arrangements fall outside the specific provisions of the cost allocation in the Code (clause 5.3);
- existing connection assets are treated in the same manner as new assets. The total cost of providing these assets is fully allocated to the relevant participants and the risk allocation would be specified in contracts established between the parties at the time of vesting (clause 6.4.2);
- the charges for connection provided by existing equipment are calculated from the annual costs of the equipment which is installed at a sub-station. The annual cost of individual network elements is determined by allocating the total revenue requirement of the connection asset categories assets on a pro rata basis with their deprival value (Part C of Chapter 6);
- the Network Service Provider may require a generator or customer to make capital contributions, pre-payments or financial guarantees or satisfy other forms of prudential requirements for connection service and/or network use of system services. These prudential requirements are intended to allow the Network Service Provider to manage financial risks associated with investment in network assets. The requirement for these and their treatment are negotiated between the Network Service Provider and the generator or customer, and are included in relevant network service agreements. There are safeguards in the Code to prevent any double counting which might arise by including in the Network Service Provider's asset base the value of assets paid for by network users (clauses 6.6 and 6.15);
- the network owner will need to itemise the plant recovered under connection charges. This could take the form of a station layout diagram, with allocation to network or connection assets clearly marked (Schedule 5.6); and
- Code Participants must enter into legally binding and enforceable connection agreements with Network Service Providers which must require the parties to comply with the Code (clause 5.3.7 and Schedule 5.6).

These arrangements are considered fully consistent with the intent of providing an efficient and equitable access regime. The participants have full control over the planning decisions with knowledge of the price associated with provision of additional network service. They are able to make appropriate trade-offs between cost and the performance and reliability of the network service provided.

New entrants can seek access to a transmission or distribution network and will be able to obtain access at defined (fair and reasonable) prices which accurately reflect the cost of

providing the necessary assets to allow connection at the specified capacity and level of performance.

Chapter 6 of the Code therefore provides connection (entry and exit) services to be defined as separate services with costs allocated to these services recovered directly from the relevant participants.

Regulatory intervention should only be required in the event of an access dispute or where a party believes they have been discriminated against.

**(b) Transmission network pricing**

Chapter 6 of the Code sets out the transmission pricing arrangements for connection charges and use of system charges for transmission networks. They complement the technical terms and conditions together with the administrative arrangements for augmentation of the transmission system which are set out in Chapter 5.

Part B of Chapter 6 defines the principles for incentive-based economic regulation of transmission pricing to determine a maximum allowable revenue cap for the Transmission Network Owner.

The pricing arrangements outlined in Part C of Chapter 6 are based on the framework and principles which have been agreed by COAG for the role of the transmission network in the NEM and the objectives to be achieved by the basic pricing methodology.

The Code provides for a review of the transmission pricing arrangements specified in Part C of Chapter 6 to be conducted and completed by NECA within 12 months of the ACCC's initial acceptance of the Code (refer to clause 6.1.6 of the Code).

The transmission pricing arrangements are critical to the NEM. They provide the commercial basis for open access to the natural monopoly transmission networks and are an essential component in allowing participants to trade freely in the energy sub-market.

Network pricing which improperly allocates costs for participants could lead to significant distortions in the energy sub-market. Power stations and major load could be encouraged to locate without regard to the costs on existing users, and the possible need for and cost of new transmission when spare capacity may be available elsewhere.

While recognising that no pricing method can exactly reflect the costs to individual participants, greater cost reflectivity minimises the level of cross subsidy between customer groupings. Cross subsidisation may not be in the public interest to the extent that it encourages over-use of the system in certain areas, and under-use in others; each with a negative impact on economic efficiency. For example, uniform electricity pricing has tended to encourage development of central power generation facilities to supply remote areas when local generation may well have provided a more efficient lower cost solution.

If pricing is not consistent between areas there are likely to be restrictions on the development of a competitive electricity market between these areas. For example

interstate trade in electricity may be limited if individual network owners were to price long distance transmission differently.

The transmission pricing proposal outlined in Part C of Chapter 6 of the Code has the following major features:

- connection charges are to be determined through commercial negotiation and should be directly related to the facilities requested by the Connection Applicant, except for existing connection facilities prior to market commencement, where charges are to be regulated;
- maximum use of system prices for the network are determined by the Network Service Provider by allocating an aggregate annual revenue cap set by the appropriate Regulator in a cost reflective manner;
- the transmission pricing arrangements provide a long run marginal cost (LRMC) based pricing signal to allow participants to gauge the impact of their behaviour on future network costs and make appropriate economic decisions;
- prices are published in advance and are independent of any energy market contracts. Participants are able to trade in energy with a knowledge of the medium term transmission charges. Participants are treated equally. That is, participants at the same location and requiring the same level of service pay the same transmission price regardless of their status, e.g. whether franchised or non-franchised, or, new or existing customers etc.

The transmission use of system prices are published as maximum prices which may be varied by negotiation with the Network Service Provider.

Clause 6.7.3 of Part C of the Code provides that inter-grid network settlements between Transmission Network Service Providers will not commence until after 1 January, 2001. Under the cost reflective network pricing methodology all transmission networks are treated as a single system ignoring boundaries of each Transmission Network Service Provider. Settlements between Transmission Network Service Providers are required to allow each Network Service Provider to collect the revenue owed to him for the use his network assets by users in another region. Participating jurisdictions have decided to delay implementation of inter-grid settlements for transmission networks across the market until the ACCC assumes responsibility for regulation of all transmission networks.

Regulation of transmission network service pricing will be performed by jurisdictional regulators prior to 1 July, 1999, in the case of New South Wales and prior to January 2001, in the case of other jurisdictions. In each relevant case, the ACCC takes over regulation of transmission network service pricing after the expiry date.

**(c) Distribution network services pricing**

Determination of network pricing for the distribution networks will be similar to that for transmission networks, however, much more averaging of pricing by voltage level and geographic location is allowed.

Part D of Chapter 6 of the Code applies to the regulatory requirements in respect of the general level of distribution service prices and/or the aggregate annual revenue requirement for distribution services. The arrangements specified in Part D:

- set out the principles which will be applied in economic regulation of distribution service pricing;
- provide for the formulation of national guidelines by which those principles may be applied; and
- establish a regime where participating jurisdictions apply national Code principles in a manner consistent with prevailing conditions in the jurisdiction.

The Code specifies broad objectives and principles which are used by the relevant jurisdictional regulator to develop detailed regulatory regimes applicable to each Distribution Network Service Provider. To the extent that distribution networks have common characteristics and cost drivers, the regulation in each jurisdiction is likely to be similar. However, where different cost drivers or different industry characteristics exist, specific Network Service Provider regulation may evolve.

The regulatory arrangements proposed in the Code for distribution pricing result in control of a Network Service Provider's charges at two levels:

- a control on the overall revenue or average price that the Network Service Provider earns for Network Services; and
- controls on the individual charges that the Network Service Provider levies on individuals or groups of customers.

The overall revenue control/price control is structured so that the regulator puts in place a control regime for minimum periods of three years, thereby giving the Network Service Provider regulatory certainty over this period. This establishes an incentive to improve efficient and overall performance through profit maximisation.

The distribution pricing regime requires Network Service Providers to publish regulator-approved customer charges. These charges represent maximum prices that the Network Service Provider can charge. The Code allows negotiation beneath these maximum prices where commercial incentives drive such negotiation.

This pricing regime establishes a clear and simple component of the access regime for all customers and retailers with the form of distribution prices being similar across all Network Service Providers covered by the Code.

Network charges to individuals or groups of customers across each Network Service Provider's network are to be developed by individual Network Service Providers and submitted to the jurisdictional regulator for approval. The charges must fit within broad principles of economic efficiency and equity.

Such an approach allows Network Service Providers to develop innovative pricing solutions within a light handed regulatory oversight of monopoly network activities.

The Code establishes a flexible approach to network pricing to individual customers and represents the second stage (i.e. notional guidelines) of the process detailed above. Part E of Chapter 6 represents one cost allocation method which can be applied to determine Network Service Provider prices.

A full and detailed review of Part E is to be completed by NECA within 24 months of the Code's acceptance by the ACCC. This review will be facilitated by NECA and will involve Federal and State regulators as well as industry experts and customers. The terms of reference for the review are detailed in section 6.1.6 of the Code.

#### **4.3.3 Arbitration of access disputes**

Clause 8.2 of the Code establishes a regime for dispute resolution including arbitration of access disputes.

This clause applies to any dispute which may arise between Code Participants as to:

- the application or interpretation of the Code;
- any failure to reach agreement on a matter where the Code requires agreement;
- a dispute concerning certain augmentation of a network; or
- the payment of moneys under or concerning any obligation under the Code.

These dispute resolution procedures also apply where a contract between Code Participants provides that the dispute resolution procedures in the Code are to apply.

It is intended that the dispute resolution procedures should be:

- guided by market objectives and code objectives in the Code;
- simple, quick and inexpensive;
- preserve or enhance the relationship between the parties to the dispute;
- take account of the skills and knowledge that are required for the relevant procedure;
- observe the rules of natural justice; and
- place emphasis on conflict avoidance and encourage resolution of disputes without formal legal representation or reliance on legal procedures.

However, if the dispute resolution procedures do not bring about a settlement of the dispute, Code Participants are free to pursue other options to resolve disputes between them.

Under clause 8.2, each Code Participant must adopt and implement a dispute management system of its own. This dispute management system is to meet the criteria determined by NECA in consultation with Code Participants.

If a dispute arises, the parties must firstly refer the dispute to their own dispute management system. Failing resolution of the dispute, it can be referred to a dispute resolution adviser appointed by NECA. This dispute resolution adviser may refer the dispute to a dispute resolution panel established by the adviser in accordance with clause 8.2.6 of the Code.

For transmission networks, access disputes will be managed by NECA after the ACCC assumes responsibility for transmission pricing regulation. For distribution networks, access disputes will be managed by Jurisdictional Regulators unless a jurisdiction has transferred regulatory responsibility for distribution networks to the ACCC, in which case the ACCC will be responsible.

#### **4.3.4 Enforcement**

Under section 9 of the National Electricity Law, a person must not engage in the activity of owning, controlling or operating:

- a generating system that supplies electricity to a transmission or distribution system; or
- a transmission or distribution system that is used to convey, and control the conveyance of, electricity to customers (whether wholesale or retail) and is connected to another such system,

unless the person is registered by NEMMCO as a Code Participant in relation to that activity or is the subject of a derogation or exemption under the Code.

Likewise, a person (other than NECA or NEMMCO) must not engage in the activity of administering or operating a wholesale market for the dispatch of electricity generating units or loads unless the person is authorised to engage in that activity under the Code.

Finally, a person must not engage in the activity of purchasing electricity from a person who administers or operates a wholesale market for the dispatch of electricity generating units or loads unless the purchaser:

- is registered by NEMMCO under the Code as a Code Participant in relation to that activity; or
- is the subject of a derogation or exemption under the Code.

Under the Code, each Code Participant which is registered with NEMMCO is bound by the Code.

The National Electricity Law establishes a tribunal to deal with breaches. If NECA considers that a Code Participant has breached a provision of the Code, NECA may apply to the tribunal for an order under Part 5 of the National Electricity Law. The National Electricity Tribunal must declare whether or not the Code Participant is in breach of the Code and can take any of the following actions:

- make orders requiring the Code Participant to pay a civil penalty; or



- impose a requirement on the Code Participant to:
  - ♦ cease the act which constitutes the breach of the Code; or
  - ♦ take action to remedy a breach of the Code; or
  - ♦ implement a specified program for compliance with the Code,

or any combination of these.

In addition, the registration of the Code Participant may be suspended.

An order of the National Electricity Tribunal for payment of a civil penalty may be registered in a court having jurisdiction for the recovery of debts up to the amount of the civil penalty. Proceedings for enforcement of an order registered in the court may be taken as if the order were a judgment of the court.

These provisions are given statutory force under the National Electricity Law being enacted in each participating jurisdiction.

#### **4.3.5 Maintaining the integrity of networks**

The integrity of networks is maintained by the provisions of Chapter 5 dealing with:

- the design of connected equipment;
- planning and development of the network;
- inspection and testing of equipment;
- the power of NEMMCO to disconnect customers;
- network performance requirements; and
- connection requirements for applicants.

The Schedules to Chapter 5 of the Code, detailing the technical and performance standards required by Network Service Providers and those connected to the network, complement these provisions.

Network Service Providers, customers, and generators are all required to maintain and operate equipment that is connected to the network in accordance with "applicable regulatory instruments", the Code and good electricity industry practice.

As stated in Chapter 3 of this Submission, the provisions in Chapter 4 of the Code which detail the definition of system security, system reliability and the duties and powers of NEMMCO with respect to the operation of the interconnected power system also help to preserve the integrity of the networks.

#### **4.3.6 Planning and development of the network**

Under Chapter 5 of the Code, there are four processes by which a network augmentation may be initiated, namely:

- in response to an application for connection or to modify an existing connection (clause 5.3) by a generator or customer;
- as part of the annual planning review of networks in a region (clause 5.6.2);
- as part of the annual planning of the power system's transmission networks (clause 5.6.5); and
- as part of the special access conditions for parties seeking to establish new interconnectors (clause 5.6.6).

Each of these processes is discussed below.

##### **Augmentation associated with a party seeking access**

Under clause 5.3.5 of the Code, when preparing an offer to connect the Network Service Provider is obliged to consult with NEMMCO and other Code Participants with whom it has connection agreements, if the Network Service Provider believes the terms and conditions of those connection agreements will be affected by the party seeking connection. The Network Service Provider is to determine:

- the performance requirements for the equipment to be connected;
- the extent and cost of augmentations and changes to all affected networks;
- any consequent change in network service charges; and
- any possible material effect of this new connection on the network power transfer capability including that of other networks.

In finalising the connection agreement, the party seeking access is to pay for its connection facilities plus any proportion of the augmentation costs that is attributed to that party under the network pricing methodology endorsed by the relevant regulator. The balance of any augmentation costs is to be recovered from other network users using the same network pricing methodology.

Under this process, the provisions of the contract between the Network Service Provider and the Network User determine the risk sharing that should apply. It is not intended that regulatory reviews should re-distribute agreed risk sharing by the contracting parties.

For major augmentations associated with providing access to a large generator or party seeking to connect two transmission networks, it is expected that these connection applications would also be subject to review by the Inter-Regional Planning Committee as described below.

### **Augmentations associated with annual planning reviews of networks within a region**

Clause 5.6.2 of the Code provides for an annual planning review to be conducted by the Transmission Network Service Provider in conjunction with each Distribution Network Service Provider connected to the transmission network within each region. As part of the planning review process, the Network Service Provider is to:

- issue a report to all affected Code Participants of any relevant technical limits the transmission or distribution system will exceed over the next five years for distribution networks and ten years for transmission networks based on an extrapolation of the load forecasts provided by Code Participants in accordance with clause 5.6.1;
- consult with affected Code Participants and interested parties on the possible options to address the projected limitations of the relevant transmission or distribution system; and
- carry out economic cost effectiveness analysis of possible options to identify the option that maximises net benefit to Customers over a period of at least 15 years. The range of options is to include a comparison of network augmentation, generation and demand side options.

Following the consultations with the affected Code Participants, the Network Service Provider must prepare a report that is to be made available to affected Code Participants and interested parties which:

- includes assessment of all identified options;
- includes details of the Network Service Provider's preferred proposal;
- summarises the submissions from the consultations; and
- recommends the action to be taken.

A proposal likely to increase the use of system charges of a Code Participant by more than 2% at the date of the next price review may be disputed by that Code Participant and if agreement cannot be reached in negotiations with the Network Service Provider, then the matter is to be resolved by NECA using the dispute resolution procedures of Chapter 8 for transmission networks. For distribution networks such disputes will generally be managed by the Jurisdictional Regulator. The 2% threshold is to provide network users with some protection from unreasonable price shock.

After a period of review, the agreed or determined cost of the augmentation is included for revenue determination purposes in the asset base of the relevant Network Service Provider and is recovered through use of system charges.

### **Augmentations associated with annual planning reviews of the power system's transmission networks**

Under clause 5.6.3 of the Code, NEMMCO must establish an Inter-regional Planning Committee whose functions are to:

- assist NEMMCO in the preparation of the statement of opportunities in accordance with clause 5.6.4;
- undertake an annual planning review of the power system's transmission networks in accordance with clause 5.6.5; and
- assess all applications to connect made by Connection Applicants seeking to establish new interconnectors between regions in accordance with clause 5.6.6.

The Inter-Regional Planning Committee, comprised of NEMMCO, transmission system planners, and other experts nominated by NEMMCO, is being established to ensure that changes to transmission networks are coordinated to maintain the network performance standards specified in Schedule 5.1 of the Code. This cooperation between monopoly service providers is essential to properly plan and enable expansion of the power system's transmission networks to provide transmission services to new generators seeking access upstream in the generation market and new customers seeking access downstream in the supply market. In the absence of a coordinated transmission planning process, the quality of supply to existing and new Network Users cannot be maintained.

In the annual planning review, the Inter-regional Planning Committee must:

- identify the magnitude and significance of future network losses and constraints on power transfers within and between regions and identify and assess options for the reduction or removal of future network constraints and reduction in network losses including the construction of new transmission lines between regions, or the implementation of demand side or generation investments by Code Participants or other persons;
- develop and publish a program for the periodic review of options for the removal or reduction of each network constraint as soon as practicable based on the most recent assessment of augmentation options;
- consider any transmission system augmentation proposals submitted voluntarily by a Transmission Network Service Provider to determine whether it is of net public benefit;
- must call for and receive submissions from Network Service Providers, Code Participants, other interested parties and relevant participating jurisdictions for the assessment of particular augmentation options;
- assess the economic and technical effects of the augmentation options using the primary criterion of maximising net benefits to customers based on the premise that all transmission systems are to be planned and operated as if they form a single power system; and
- must report on the methodology used for its assessment and it must make recommendations to NEMMCO on its assessment of the costs and benefits of augmentation options to remove or reduce network constraints or losses.

The planning arrangements are structured under clause 5.6.5 for NEMMCO to act in the public interest if it believes that further analysis is required to determine whether an

augmentation is justified. NEMMCO may commission an independent analysis the costs of which are to be paid by NEMMCO and included in the calculation of Participant fees.

The Code also prescribes how a justified proposal is to proceed. It is important to note that the Code strictly limits NEMMCO's role to making determinations only. NEMMCO is not permitted to call for tenders to invest in network assets. The process is:

- the Network Service Providers whose networks would require augmentation may arrange for the augmentation project to be undertaken and the cost of the relevant assets are to be included in the determination of the revenue cap in accordance with Part B of Chapter 6; or
- if the relevant Network Service Provider declines to arrange for the augmentation to be undertaken, NEMMCO must mediate and liaise with the relevant regulator to resolve the dispute.

If NEMMCO determines that an augmentation is not justified, then the relevant Network Service Provider may itself undertake, or arrange for the augmentation project to be undertaken and, to the extent that the augmentation will provide regulated services, the cost of the relevant assets are to be included in the determination of the revenue cap in accordance with Part B of Chapter 6. It should be noted that any augmentation investment made by the Network Service Provider which is not subject to a take or pay contract or which has not been determined as being of net benefit to customers will be subject to periodic asset revaluation for revenue determination by the appropriate regulator.

A determination by NEMMCO that an augmentation is or is not justified is a reviewable decision if a party wants it reviewed by the National Electricity Tribunal.

#### **Applications to establish new interconnectors across regions**

Parties seeking to establish new interconnectors across the regions are required to comply with the access arrangements in clause 5.6.6 of the Code. The Code is not overly prescriptive on the commercial arrangements for new interconnectors to permit parties to develop arrangements that suit their needs. Where these arrangements conflict with the Code they are required to go through the Code change processes administered by NECA.

The Inter-regional Planning Committee will review all applications to establish new interconnectors in order to determine:

- the performance requirements for the equipment to be connected;
- the extent and cost of augmentations and changes to all affected networks;
- any consequent change in network service charges for other Network Users;
- the possible material effect of this new connection on the network power transfer capability including that of other networks; and
- whether there is a net benefit to customers from the proposal.

The review of the interconnector proposal includes a public consultation process.

Under the Code, customers will not be required to pay for costs of augmentations to support access for new interconnectors when it is independently determined by NEMMCO that customers receive no net benefit for these augmentations.

If NEMMCO determines that the interconnector proposal is justified, then the costs of augmentations to other affected networks would be included in revised network charges for those users of those networks.

If the interconnector proposal is determined not to be of net customer benefit, then the party may proceed with the project provided that the party concerned:

- establishes connection agreements with all affected Network Service Providers where augmentations are required to their networks to support the connection and pay for the augmentations and on-going operations and maintenance costs associated with the augmented network assets;
- registers with NEMMCO as a Market Participant;
- agrees to satisfy all obligations of a Network Service Provider under the Code in relation to that interconnector other than the transmission service regulation and pricing arrangements in Chapter 6 of the Code; and
- applies to NECA to determine the rules that will apply in terms of the Connection Applicants participation in the market as a Market Participant in relation to that interconnector.

A determination by NEMMCO that an interconnector proposal is or is not justified is a reviewable decision if a party wants it reviewed by the National Electricity Tribunal.

#### **4.3.7 Access code**

As specified in clause 1.12 of the Code, the submitted industry access code is proposed to expire on 31 December 2010. Prior to expiry, it is expected that rules as to access will be resubmitted to the ACCC for acceptance under Part IIIA of the Act.

### **4.4 Modifications to be made to existing electricity access regimes**

#### **4.4.1 Victoria**

Schedule 7 contains details of the operation and interaction of the National and Victorian access regimes following commencement of the NEM.

#### **4.4.2 New South Wales**

Schedule 8 contains details of the operation and interaction of the National and New South Wales' access regimes following commencement of the NEM.

#### **4.4.3 South Australia**

As noted in Schedule 9, it is intended that when the Code is authorised by the ACCC and the NEM is operational, the access arrangements in the Code will apply in South Australia.

#### **4.4.4 Queensland**

As noted in Schedule 10, the independent Electricity Industry Structure Task Force established by the Queensland Government will report to Government on the appropriate structural and regulatory arrangements required in Queensland for the national market. The recommendations adopted by the government will determine the modifications Queensland will make to its current network access arrangements.

#### **4.4.5 Australian Capital Territory**

As noted in Schedule 11 of this application, the legislation which presently regulates the operations of the ACT's electricity industry is being reviewed to identify amendments required for the operation of the National Electricity Law in the ACT.

## **5. THE NATIONAL ELECTRICITY MARKET AND PUBLIC BENEFIT**

### **5.1 Purpose of Chapters 5 and 6**

The purpose of Chapters 5 and 6 can be summarised as follows:

- to identify the relevant markets for the purposes of this application (paragraph 5.3);
- to describe the concept of public benefit (paragraph 5.4);
- to identify, describe and explain the benefits to the public of the NEM as regulated by the Code (paragraph 5.5);
- to describe the statutory criteria to be applied by the ACCC in assessing applications for authorisation, being the criteria set out in sub-sections 90(6) and (8) of the Act (paragraph 6.1.2);
- to apply that statutory criteria to the NEM and to address and deal with the issues relevant to net public benefit; namely, to balance the public benefits (including likely public benefits) and detriments flowing from the introduction and operation of the NEM as regulated by the Code.

### **5.2 Introduction to Chapter 5**

A fundamental element of an application for authorisation under Division 1 of Part VII of the Act is the demonstration of a benefit to the public that will result or will be likely to result from the arrangements in respect of which authorisation is sought.

This Chapter identifies the NEM as the market of central and fundamental significance (while not ignoring the retail electricity market and other markets in Australia), discusses the breadth of the concept of public benefit for the purposes of Part VII of the Act and demonstrates the benefits to the public that will result or will be likely to result from the introduction of the NEM and the associated regulatory framework for the NEM as set out in the Code.

### **5.3 Market Definition**

#### **5.3.1 Identification of relevant markets**

In *Re Queensland Co-Operative Milling Association Ltd ("QCMA")*<sup>1</sup>, the Trade Practices Tribunal stated that the identification of markets:

*"must be the essential first step in assessment of present competition and likely competitive effects".*

In *Re Queensland Independent Wholesalers Limited*<sup>2</sup>, the Trade Practices Tribunal observed that:

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<sup>1</sup> (1976) 25 FLR 169 at 189

<sup>2</sup> (1995) ATPR 40,914 at 40,949



*"We approach the task conscious that there may be more than one relevant market, indeed that the delineation of relevant markets (and sub-markets) entails a mapping of competitive forces playing about the functioning of the industry."*

It is recognised that persons to whom electricity is supplied by Code Participants comprise a separate market at a different functional dimension (namely, the retail level). That market is relevant in the context of this application, at least to the extent of its identification and the effect, if any, that the introduction of the NEM as regulated by the Code, would be likely to have upon that market. The economic benefits that will be derived in the retail market are discussed in paragraph 5.5.6 and an assessment of the net public benefit to be derived in that retail market as a result of the NEM arrangements is made in paragraph 6.4.

It is also recognised that the introduction and operation of the NEM as regulated by the Code may have some effect upon other markets (including sub-markets) in Australia. However, the concept of public benefit is very broad, including *"anything of value to the community generally"* and *"any contribution to the legitimate aims pursued by society"* (see paragraph 5.4).

This means that the concept of public benefit is not circumscribed by reference to a particular market and that it permeates through various interrelated markets. Accordingly, the benefits to the public identified and demonstrated in paragraph 5.5 have application to each and any other market upon which the NEM as regulated by the Code may have some effect and the matters and issues discussed in that paragraph should be read accordingly. As no detriment would result, or would be likely to result, in any such market if the NEM as regulated by the Code were introduced and were to operate, it is not necessary to endeavour to identify or pursue any of these markets. It is sufficient to state that there will be either no effect at all or that the effect would be to the benefit of the participants in that market and to the community generally.

The only market of central and fundamental significance in the context of this application for authorisation of the making of the Code, the giving effect to the provisions of the Code and the engaging in practices required under a provision or provisions of the Code, is the NEM. It is submitted that this is consistent with the ACCC Issues Paper released in March 1996.

### 5.3.2 Definition of the NEM

The definition of the relevant market for the purposes of this application is the supply and use of electricity by wholesale Market Participants in New South Wales, Victoria, South Australia, Queensland and the Australian Capital Territory. The key characteristics which define this market, recognising the principle that identification of the market is "multi-dimensional involving product, functional level, space and time"<sup>3</sup>, are:

- the services provided - supply and use of electricity (the energy sub-market), supply and use of transmission and distribution network services (the network

<sup>3</sup> *Re Tooth & Co Ltd; Re Tooheys Ltd* (1979) 39 FLR 1; *Singapore Airlines Limited v Taprobane Tours WA Pty Ltd* (1991) 33 FCR 158 at 177

services sub-market), and the associated financial sub-markets (inter-regional hedge and short-term forward sub-markets);

- the market participants - wholesale electricity producers and customers rather than final retail customers;
- the geographic scope - those locations which will adhere to the market arrangements described in the Code, namely New South Wales, Victoria, South Australia, Queensland and the Australian Capital Territory.

It is submitted that each of the energy sub-market, the network services sub-market and the associated financial sub-markets represents a sub-market within the market defined above. Adopting the language used by the Trade Practices Tribunal in *Re Tooth & Co Ltd; Re Tooheys Ltd*<sup>4</sup>, competition in sub-markets may be "*especially close or especially immediate*", subject to the qualification that "*competitive relationships in key sub-markets may have a wider effect upon the functioning of the market as a whole*".

In *QCMA*<sup>5</sup>, the Trade Practices Tribunal observed that:

*"Sub-markets may be especially useful in registering the short-run effects of change; but they may be misleading if used uncritically to assess long run competitive effects."*

In *Re Queensland Independent Wholesalers Limited*<sup>6</sup>, the Trade Practices Tribunal used the term "sub-market":

*"... to refer to a field of rivalry that is 'especially close or especially immediate' reflecting 'some discontinuity in substitution possibilities' ..."*

It is submitted that none of the above sub-markets can be regarded as a separate market "*for the activities concerned are subject to the ultimate discipline of pervasive competition*"<sup>7</sup>, between wholesale Market Participants in New South Wales, Victoria, South Australia, Queensland and the Australian Capital Territory.

Each of the sub-markets identified above is inextricably connected to and interwoven with each of the others of them so that together, they form and represent a single market, the whole of which falls within the regulatory framework set out in the Code. None of these sub-markets can be analysed in isolation as if it were a separate market; each of them must be analysed (and can only be understood) in the context of the whole market. In *Singapore Airlines* it was referred to as follows<sup>8</sup>:

*"In the context of Australian anti-trust law it [a sub-market] has no explicit statutory role, but refers to an area of competition narrower than a market and intended as a tool of analysis rather than an element of a legal standard of liability. Sub-markets may be used to*

<sup>4</sup> (1979) 39 FLR 1

<sup>5</sup> (1976) 25 FLR 169 at 190-191. See also *Singapore Airlines* (supra) at 180-182

<sup>6</sup> (1995) ATPR 40, 914 at 40, 952

<sup>7</sup> (1995) ATPR 40, 914 at 40, 952

<sup>8</sup> *Singapore Airlines Limited v. Taprobane Tours WA Pty Ltd* (1991) 33 FCR 158 at 181 per French J.

*examine how competition works in the broader market by identifying its nature and intensity in various segments ...*”.

Accordingly, the NEM is defined as set out above and is to be construed as comprising the energy sub-market, the network services sub-market and the associated financial sub-markets, being the inter-regional hedge and the short-term forward sub-markets. This excludes alternative forms of energy, in particular, natural gas.

This market definition is based on the test of “substitutability” as espoused in *QCMA*<sup>9</sup>:

*“A market is the area of close competition between firms or, putting it a little differently, the field of rivalry between them... Within the bounds of a market there is substitution - between one product and another, and between one source of supply and another, in response to changing prices. So a market is the field of actual and potential transactions between buyers and sellers amongst whom there can be strong substitution, at least in the long run, if given sufficient price incentive.”*

However, the concept of substitutability involves questions of degree and judgment. In *Queensland Wire Industries Pty Ltd v Broken Hill Pty Ltd*<sup>10</sup> Deane J stated that:

*“The identification of relevant markets and the definition of market structures and boundaries ... involves value judgments about which there is some room for legitimate differences of opinion. The economy is not divided into an identifiable number of discreet markets into one or other of which trading activities can be neatly fitted.”*

In *Arnotts Ltd v Trade Practices Commission*<sup>11</sup>, the Full Court of the Federal Court of Australia concluded that (at page 329):

*“The question of substitutability is not to be disposed of merely by showing that, upon some occasions, some people consume one product rather than another or that some products within a claimed market do not directly compete with some other products in that market; or do compete with some products outside that claimed market. ... But the fact that, upon some occasions, some consumers select one product rather than another does not establish that the two products are “substitutable”, so as to be within a single market.”*

**(a) Services provided**

**Energy sub-market**

<sup>9</sup> (1976) 25 FLR 169 at 190

<sup>10</sup> (1989) 167 CLR 177 at 195

<sup>11</sup> (1990) 24 FCR 313 at 329. These principles were applied in *Dauids Holdings Pty Ltd v Attorney General of the Commonwealth* (1994) 49 FCR 211 at 229 and in *News Limited v Australian Rugby Football League Limited* (1996) 58 FCR 447 at 480-481

Taking into account this view of a market defined by the degree of substitution for which there is potential, it must be recognised that there are some markets in which gas can and does compete with the energy sub-market, such as in heating and cooking. On the other hand, there are applications for which electricity is the only likely power source in the foreseeable future, such as lighting and appliance powering.

Evidence of the cross-elasticity of demand for gas and electricity is provided in a recent report published by the Australian Gas Association.<sup>12</sup> This estimated both short run elasticity, where energy users do not have time to change their capital stock, and long run elasticity when consumers have time to change their appliances and industries can change the equipment used in production. The table below summarises their estimates of the long-run cross-elasticity of electricity and gas.

**Long run price elasticity of demand for electricity and gas<sup>13</sup>**

<ul style="list-style-type: none"> <li>• Percentage change in demand for:</li> <li>• From a 1% change in the price of :</li> </ul>	Gas	Electricity
	Electricity	Gas
Residential sector	0.83	0.15
Commercial sector	-0.37	-0.10
Industrial sector	0.00	0.00

The table shows significant asymmetry in the responses of consumers of electricity and gas to changes in the prices of the other energy product (the cross-price elasticity). There is less asymmetry in the responses in the commercial and industrial markets. The residential market is characterised by a relatively high responsiveness of gas demand to changes in electricity prices. By contrast, customers are less likely to switch away from electricity if gas prices fall. This is partly due to the fact that there are some uses of electricity which must continue irrespective of the price of gas (e.g. lighting and most appliances including computers and electric motors etc.). Commercial and industrial customers are even less likely on average to switch from electricity to gas when electricity prices change. However, there is considerable variation within these groups. This makes the aggregate results for the commercial sector particularly difficult to interpret.

There is evidence that microeconomic reform of the electricity and gas sectors and the introduction of competition may result in increased interaction of the markets in the future, but this is primarily in the retail sector. However consideration of the broader "energy" market is outside the scope of this Application.

<sup>12</sup> Price Elasticities of Australian Energy Demand, Australian Gas Association Research Paper No. 3 September 1996

<sup>13</sup> Australian Gas Association, *Price Elasticities of Australian Energy Demand*, Research Paper No 3, September 1996, p 24

The technical characteristics of the electricity market more clearly delineate it from other energy markets. For the purpose of the wholesale electricity market which is the subject of this Submission, it is important to note that electricity transmitted through electricity networks within a short time frame is a homogenous commodity where its character is not affected by its end use. The Submission proceeds on the view that the market definition, in considering aspects of public benefit of the wholesale market arrangements, must be largely determined by the unusual technical features of electricity production and transmission, and the practical inability to store it and the fact that no other energy source can be sold in the wholesale electricity market.

#### **Network services sub-market**

In order for electrical energy to be safely and efficiently transported from generators to customers in the wholesale (and retail) electricity markets, the Code regulates the activities of those persons who transport or arrange for the transportation of electricity (Transmission and Distribution Network Operators and/or Network Service Providers). The Code also regulates the activities of those persons that use the network services, such as retailers, generators and customers.

These "transportation" activities comprise an essential adjunct to the energy market which is the core of the NEM.

#### **Financial sub-markets**

Electrical energy as a commodity is traded in the spot market and is conveyed from suppliers to customers via Network Service Providers at a commodity delivery price per kWh payable by all wholesale customers for each half hour of supply.

The financial sub-markets will comprise the variety of contracting arrangements which participants may enter into in order to manage the risks of volatility of spot market prices. The financial sub-market is likely to comprise an array of financial instruments that participants will use to adjust their risks.

#### **(b) Market participants**

The NEM includes all electricity produced by Generators and supplied through the interconnected transmission/distribution networks. All electricity produced and sent out into the grid by "Market Generators" (as defined in the Code) is sold to "Market Participants" (as defined in the Code) through the spot market operated by NEMMCO.

The retail market arrangements are not covered in the National Electricity Law or Code for the NEM, and are therefore not considered part of the 'market' covered by the Code. Retailing arrangements are to be regulated and administered separately by each jurisdiction. Nevertheless, an important benefit of introducing competition in the wholesale market is that it will facilitate the introduction of competition at the retail level. Similarly, retail competition acts as a force to promote competition at the wholesale level. For that reason, the public benefits deriving from retail competition are also described in this Submission.

**(c) Geographic scope**

The NEM will initially incorporate the interconnected electricity networks in New South Wales, Victoria, South Australia and the Australian Capital Territory. The production and sale of electricity, the provision and use of network services in these jurisdictions will adhere to the arrangements set out in the Code. Queensland is included in the arrangements as it is a signatory to the Code.

**5.4 The concept of public benefit**

The concept of "public benefit" is not defined in the Act. However, the ACCC and the Trade Practices Tribunal have provided guidance on the main factors taken into account in assessing public benefit, which are described in the extracts set out below. The main conclusions which can be drawn are that:

- public benefit should be considered in very broad terms as anything of value to society; and
- the primary emphasis is on encouraging competition and improving efficiency.

In *QCM*<sup>14</sup> the Tribunal expressed the following conclusion:

*"... we would not wish to rule out of consideration any argument coming within the widest possible conception of public benefit. This we see as anything of value to the community generally, any contribution to the aims pursued by the society including as one of its principal elements (in the context of Trade Practices legislation) the achievement of the economic goals of efficiency and progress."*

In *Re 7-Eleven Stores Pty Ltd*<sup>15</sup> the Trade Practices Tribunal endorsed the conclusion in *QCM* stating:

*"Public benefit has been, and is, given a wide ambit by the Tribunal ... . Plainly the assessment of efficiency and progress must be from the prospective of society as a whole: the best use of society's resources. We bear in mind that (in the language of economics today) efficiency is a concept that is usually taken to encompass 'progress'; and that commonly efficiency is said to encompass allocative efficiency, production efficiency and dynamic efficiency."*

The Trade Practices Commission has stated its support of the view in *QCM* that public benefit may constitute "anything of value to the community generally, any contribution to the aims pursued by the society"<sup>16</sup>.

<sup>14</sup> (1976) 25 FLR 169 at 182

<sup>15</sup> (1994) ATPR 42, 644 at 42,677

<sup>16</sup> *ACI Operations Pty Ltd* (1991) ATPR (Com) 56,065 at 56,067

In *ACI Operations Pty Ltd*<sup>17</sup> the Trade Practices Commission listed the following as public benefits:

- economic development;
- fostering business efficiency;
- industrial rationalisation;
- employment expansion;
- employment growth;
- unemployment prevention;
- assistance to efficient small business;
- improvement in quality and safety of goods and services;
- promotion of equitable dealing;
- promotion of industry cost saving;
- improvement in consumer choice;
- industrial harmony;
- development of import replacements;
- growth in export markets;
- environmental protection; and
- supply of better information to consumers.

A similar broad conclusion was reached in *Re Rural Traders Co-Operative (WA) Ltd*<sup>18</sup>:

*"It is undesirable to attempt to fix in advance the limits of what the concept of "benefit to the public" encompasses or to exclude, in advance, from its ambit any contribution to the legitimate aims pursued by society. In the context of Trade Practices legislation, the encouragement of competition and competitive behaviour within relevant markets and the achievement of the economic goals of efficiency and progress will commonly be paramount."*

<sup>17</sup> (1991) ATPR 50-108

<sup>18</sup> (1979) 37 FLR 244 at 262

## **5.5 Benefits to the Public**

### **5.5.1 Summary of Benefits to the Public arising from the Code**

The means of creating and establishing the NEM have been described in Chapter 3. The NEM, as regulated by the Code, is expected to result in substantial benefits to the public in the following areas, which are discussed in the remainder of this paragraph 5.5:

- introducing a new competitive market;
- promoting economic efficiency;
- improving customer choice;
- increasing international competitiveness; and
- environmental benefits.

These benefits are not limited to the electricity sector. Quantitative estimates of the benefits of the Hilmer reforms have shown substantial increases in economic growth from reform of the electricity sector, in the order of \$5 billion per annum. Benefits are likely to be distributed broadly throughout the economy, through lower input prices to Australian industry, lower prices to final customers, and more efficient use of society's resources.

It is important also to recognise that the Code is not a static document. It incorporates a process by which provisions can be changed as the market develops and experience is gained. The intent of the Code is to provide the basis for an efficient, dynamic and flexible competitive market. The transparency of the market will allow market participants, potential new entrants, customers, regulators and governments to monitor the performance of the market. Should concerns arise, there is ample scope for the market arrangements to be modified to remedy any perceived weaknesses within the confines of the Code change process outlined in Chapter 8 of the Code.

### **5.5.2 Introducing competition**

First and foremost, the NEM will introduce a new competitive market in electricity. There will be inter- and intra- State competition in an industry where competition is currently limited to the respective markets operating in New South Wales and Victoria, and where competitive markets currently do not exist in other States.

Until recently, there was limited "competitive" supply of electricity in and between jurisdictions. Any inter-jurisdictional trading was limited primarily to opportunity trading between utilities. Demand has been satisfied by the delivery of electricity through vertically-integrated utilities at fixed tariffs.

In the past, the need to coordinate dispatch of electricity and ensure safe, reliable supply were seen as barriers to establishing a competitive market. A major benefit of the Code is that it establishes competition, and the benefits which competition promotes, while ensuring that the technical requirements needed for a safe and reliable electricity supply are maintained. The success of a centrally coordinated pooling arrangement to achieve these twin goals has already been shown in New South Wales and Victoria, and in other countries such as the UK.



According to the Industry Commission's 1996 report, "*The Electricity Industry in South Australia*", competition in the NEM will have the potential to achieve the following benefits over and above those which might result from State-based markets:

- reserve plant margins can be reduced by sharing of plants between States;
- non-coincident peaks can be better managed and allow better capacity utilisation of generation assets;
- regions with access to low cost primary energy sources can provide cheaper energy to other regions;
- economies of scale in generation can be better utilised; and
- incentives for retailers to develop innovative means of meeting customer needs will help to increase competitive pressures on generators and improve overall economic efficiency. Retail innovations could affect the design of tariffs, the provision of demand management, and the provision of overall energy packages covering electricity, gas, and energy efficient appliances.

### 5.5.3 Economic Efficiency

The Trade Practices Tribunal has recognised the importance of efficiency as a public benefit. There are three different aspects of economic efficiency:

- productive efficiency, which refers to minimum cost production;
- allocative efficiency, which describes the most efficient use of the economy's resources; and
- dynamic efficiency, which describes the effectiveness of the investment decisions to take account of changing technologies, customer tastes etc. over time.

The NEM promotes efficiency through:

- *introducing competition in the wholesale market.* This provides incentives to existing generating businesses and new entrants to minimise their costs, innovate and take advantage of developing technologies;
- *regulation of network monopolies.* The regulatory principles outlined in the Code aim to prevent network businesses from earning excess profits in the long run, while providing incentives for improving efficiency in operation and in investment; and
- *facilitating retail competition.* While the Code does not introduce retail competition, the potential gains from retail competition are enhanced greatly by the existence of a competitive wholesale market.

In the short term, efficiency gains will result from pressures on electricity enterprises to reduce costs, align tariffs/prices with costs, and use their assets more efficiently. There is already ample evidence of these gains having occurred in Victoria, New South Wales, and

South Australia. In the longer term, as new competitors emerge in either generation or retail, the efficiency gains are likely to be more substantial.

The impact of the NEM on the three forms of economic efficiency is examined below. Paragraphs 5.5.4 to 5.5.6 look more closely at how these efficiencies arise in each of the three sectors noted above.

#### **(a) Productive Efficiency**

Productive efficiency refers to minimum cost production. The introduction of the Code will provide strong incentives to players in the market to improve their efficiency and minimise costs:

- in the generation sector, competition will drive businesses to minimise costs; and
- in the regulated monopoly wires businesses, incentive regulation (revenue capping) will provide network owners with incentives to minimise costs, and will share those benefits with customers.

A recent international benchmarking study of electricity businesses by the Productivity Commission<sup>19</sup> concluded that

*"productivity analysis suggests there is considerable scope for further improvement in the efficiency of the Australian ESI. The greatest opportunity to improve efficiency is through reductions in excess capacity. This can be achieved through greater exploration of opportunities for power exchanges between state-based systems where feasible. ... An effective national electricity market (NEM) would provide an impetus for further productivity improvements."*

Australian electricity businesses have already made substantial gains in productivity. These gains have resulted from a range of reforms, including commercialisation and corporatisation, and increased pressure by shareholding governments. Recent gains in some States also reflect the introduction of competition, and preparation for increased competition when the NEM is introduced. The Industry Commission, in 1995<sup>20</sup>, when assessing reforms associated with the push for national competition, took reforms since 1990 as its benchmark. The public benefits of creating the NEM cannot be considered in isolation from earlier reform activities.

#### **(b) Allocative efficiency**

Allocative efficiency refers to the optimal use of the economy's available resources. A key to achieving allocative efficiency is ensuring that the relative prices of resources reflect their economic cost.

The arrangements introduced by the Code will enhance pricing signals in a number of ways:

<sup>19</sup> Productivity Commission, *Electricity 1996 International Benchmarking*, Report 96/16 September 1996, p. xxiv

<sup>20</sup> Industry Commission, *The Growth and Revenue Implications of Hilmer and Related Reforms*, A report by the Industry Commission to the Council of Australian Governments, March 1995

- separating prices for energy from those for transmission and distribution, and retail services;
- the wholesale price of electricity will be determined by supply and demand, rather than central determination as has been the case in the past. The spot market design aims to ensure coordinated, least cost production of electricity. Prices will more closely reflect cost factors. This will encourage efficient use of resources, that is, improvements in allocative efficiency;
- pricing in the spot market will be determined according to the bids by generators at different times of the day. Such bids, in conjunction with demand responses, will clear the market, and therefore will reflect the differing economic cost of electricity over different periods;
- the network pricing principles in the Code recognise the natural monopoly nature of network services and recognises, in particular, a revenue/price cap approach which should provide network owners with incentives to minimise costs and improve efficiency while still reflecting the value of network services;
- as customers are progressively given the right to choose their supplier of electricity and to seek the best possible deals for retail supply, it will become increasingly difficult for retailers to sustain cross-subsidies. Any attempt to charge some customers a price which exceeds cost (including reasonable returns to equity) will risk losing those customers to competitors. In the past, the Australian electricity supply industry has contained substantial cross-subsidies between different classes of customer, predominantly from industrial customers to residential customers. These distorted price signals affect the demand for electricity by these groups, who will consume either more or less electricity compared with the efficient level.

Enhanced pricing signals are expected to have a substantial impact on retail customers in the longer run (see, for example, Byrne Associates<sup>21</sup>):

As metering technology improves and becomes cheaper it is possible even for retail customers to purchase electricity according to time-of-use prices.

This greater market information empowers retail customers with the capacity to effectively judge the competitiveness of bids for supply offered by rival retailers.

As such end use retail customers can exercise choice between suppliers. Thus the threat of losing customers to rival retailers will impose competitive disciplines which would be expected to be transferred back to generators and to enhance the markets for demand response services, cogeneration or network augmentation.

### (c) Dynamic efficiency

Dynamic efficiency refers to the pattern of production over time; the use of resources so as to make timely changes to technology and products in response to changes in consumer

<sup>21</sup> Byrne Associates, *'Real Time Pricing and Electric Utility Industry Restructuring: Is the Future 'Out of Control''*, 1993

tastes, relative prices of inputs, and other productive opportunities. Appropriate investment decisions are important to achieving dynamic efficiency.

The competition among generators and at the retail level delivers dynamic efficiency by providing incentives for firms to respond to changes in technology and customer tastes.

In the monopoly wires sector, the regulatory framework contained in the Code has been designed with the objective of ensuring efficient investment, balancing the interests of the different parties, and avoiding the costs of excessive regulatory risk.

#### 5.5.4 Competition in the generation of electricity

Generation represents the largest scope for cost reductions, as generation accounts for 63% of total delivered costs.<sup>22</sup>

As noted in paragraph 5.5.2, until relatively recently the need to ensure a safe and reliable supply of electricity, and the practicalities of self commitment and merit order dispatch were seen as barriers to the development of a competitive wholesale electricity market. In some areas efficiency gains were sought through sourcing power through independent power producers, but there were few competitive market pressures. The wholesale pool arrangements outlined in the Code offer the advantages of centralised coordination of dispatch, while introducing the disciplines of a competitive market.

A wholesale spot market and centralised coordinated dispatch ensures that incentives exist for lowest cost production regardless of any bilateral contractual arrangements. Cost of production will vary, and if alternative lower cost supplies exist at any time, then a generator may choose to let that lower cost supply meet its contractual obligation. Furthermore, a generator bidding above its cost of production bears a market risk that it will not be dispatched because alternative generators may bid a lower price. In this way a transparent and competitive process of pricing is achieved to the benefit of the market as a whole. While in the short run spot market prices may vary significantly from those in the contract market, they are expected to converge through time.

There are four main ways in which the NEM will provide improvements in efficiency in the generation sector:

- improved operating efficiency and cost reductions;
- better investment decision making;
- more efficient use of existing generation capacity; and
- introduction of new technology in generation.

These benefits are not limited to the existing market participants. Importantly, the NEM allows new generators to enter and compete in the market. Also, existing generators can compete in areas to which they have previously not had access.

Real costs of generation have reduced significantly in recent years in anticipation of the NEM. Many examples of improved efficiency and cost reductions can be cited. These

<sup>22</sup> W Haynes, *Consumer Gains from Competition?*, Business Council Bulletin, March 1996, p.30

relate to a combination of structural and market changes in anticipation of the competitive pressures that are expected to be placed on regions, and include:

- the real costs of generation and transmission for Pacific Power were reduced by one third between 1988-89 and 1993-94;<sup>23</sup>
- "significant savings" in corporate overheads were achieved after Generation Victoria was dismantled and individual generation businesses were established, each with its own "small corporate function";<sup>24</sup> and
- plant availabilities for Loy Yang A, Yallourn 1 and 2, and Hazelwood increased on average from 67 per cent in 1991-92 to around 89 per cent in 1994-95.<sup>25</sup>

Historically, the decision to invest in new generation has been made by the relevant owner governments with the investment risk being passed on to electricity consumers through the integrated industry structure. Because State electricity authorities had a supply monopoly, consumers had no choice but to accept higher charges resulting from any poor investment decisions. These decisions often ignored alternative supply options and failed to pursue demand side opportunities such as shifting consumption to times when system demand is lower or encouraging the use of more power-efficient appliances and other energy efficiency measures. These are likely to be available in a competitive market. This has resulted in an industry very much concentrated on coal while cogeneration, gas and other technologies have remained relatively under-developed.

In a competitive environment, generation investment decisions will be made by the owners of the electricity business or by new entrants and will be subject to the disciplines of a competitive market. The allocation of risk for poor investment decisions will fall on the shareholders. The higher costs of poor decisions will not be passed on to consumers because, in a competitive wholesale market, least cost generators will be dispatched.

The drive to reduce the costs of generation will guide new investment decisions and may direct some expenditure into ways of improving the outcomes of past investments, rather than making new investments.

A good example of this is the sale of the Hazelwood Power Station in Victoria in August 1996. This power station was previously scheduled by the State Electricity Commission of Victoria to be closed before the turn of the century. In the competitive market the new owners have concluded that its life could be extended by up to 30 years. This has effectively deferred the cost of construction of new base load plant that would have been required to replace Hazelwood on its closure.

In a capital intensive industry with long investment lead times, the effect on investment is crucial to the long run success of the NEM. It is important to note that there are risks of both over-investment and of under-investment in this market, as in others, and that the market arrangements in the Code are designed to allow the clearest signals to reduce the risks in both directions.

<sup>23</sup> Industry Commission, *Does Pacific Power have Market power ?*, August 1995, p.9 citing the New South Wales Government Pricing Tribunal 1994, p.83

<sup>24</sup> Industry Commission, *Does Pacific Power have Market Power ?*, August 1995, p.124

<sup>25</sup> Industry Commission, *The Electricity Industry in South Australia*, March 1996, p.89, citing the Victorian Government submission at pages 3-4

The level of excess capacity in the various jurisdictions that will comprise the NEM has been assessed at various times. The Industry Commission examined the outlook for electricity generation and consumption in the four-state region over the period from 1994 to 2006, and concluded that with high, moderate and low load growth the installed capacity would remain in excess until 2002, 2005, and post-2006, respectively.<sup>26</sup>

As noted earlier, the Industry Commission has observed that the NEM has the potential to achieve a number of benefits including -

- reduction of reserve plant margins by sharing between States;
- better management of non-coincident peaks; and
- better utilisation of economies of scale in generation.<sup>27</sup>

The circumstances in which unused capacity may be utilised would typically be circumstances of demand growth in a geographic area where local generation is insufficient. Surplus capacity elsewhere can then be used to provide this capacity, or at least provide reserve.

Competition in generation is expected to be a spur for the introduction of new technology to improve the efficiency and competitive advantage of the various participant generators. The improvement is expected to be directed to all aspects of generation, including fuel source technologies, plant efficiency and maintenance practices.

Introduction of competition in generation throughout the NEM will enable alternative generation technologies to be fully realised. The Industry Commission noted that:

*"In recent years, other [non coal-fired] generation methods have become established as cost-competitive for large-scale generation, most notably gas turbines in open-cycle or closed-cycle configurations. Largely because of the long asset lives of generating plant, and a reluctance to downsize and to accept new gas technologies, the impact of this technological development has yet to be fully applied to the world's electricity generation industry, much of which remains in public ownership."*<sup>28</sup>

Generators in the NEM will have incentives to be technologically innovative. Competitive pressures that will be in force in the generation sector and in the wholesale market generally will drive the industry to be innovative in understanding and addressing the requirements of each market segment and customer-category.

Prior to reform, new investors either had to secure long-term contracts and thereby become exempt from the vagaries of the competitive market, or else take the risk of substantial potential market power being exercised in adverse ways by relatively large former monopoly incumbent generators. In either case, the NEM reduces the non-competitive or anti-competitive potential and enables new entrants to invest with increased confidence responding, as in other competitive markets, to normal investment signals.

<sup>26</sup> Industry Commission, *Does Pacific Power have Market Power?*, August 1995, p.159

<sup>27</sup> Industry Commission, *The Electricity Industry in South Australia*, March 1996, p. 89

<sup>28</sup> Industry Commission, *Does Pacific Power have Market Power ?*, August 1995, p. 38

### 5.5.5 Improved network services

Distribution accounts for around 25% of total delivered costs and transmission for 9%. As natural monopolies, these areas are considered to contain less scope for competitive pressures to drive efficiency. Nonetheless, competition can be introduced in some areas, such as connection and augmentation services. Furthermore, efficiency can be promoted through the following means:

- *a regulatory framework which provides incentives to reduce costs.* The Code introduces revenue/price capping for network businesses, which provides efficiency incentives to network owners, and shares efficiency gains with customers in the longer term;
- *efficient network investment.* The Code aims to encourage efficient network investment by ensuring that those parties who make investment decisions have appropriate incentives, and that there is an appropriate sharing of investment risk; and
- *efficient and transparent network pricing.* The Code proposes transmission and distribution pricing methodologies which should provide signals to network users of the costs of their network use.

These issues form an integral part of the network access arrangements. They are described more fully in Chapters 4 and 8.

Reforms in the network sector have already delivered benefits in the Victorian market. For example, after two years there has been a 30% reduction in operating and maintenance costs of the transmission system. Considerable benefits have also already been achieved through the operation of independent network service pricing oversight in New South Wales.

### 5.5.6 Competition in the retail sector

The Code governs activity in the wholesale market, including the transfer of power across the transmission and distribution networks. Regulation of the retail market is left predominantly to individual States. While the NEM does not directly incorporate retail competition, introducing wholesale competition is vital to gain the benefits from competition at the retail level. The gains from retail competition would be severely limited if retailers could not 'shop around' for their energy sources. Similarly, while retail costs account for only 3 % of total delivered costs of electricity, the overall gains from retail competition are likely to be much greater because it will drive efficiency in the upstream wholesale market.

Retail competition in the NEM will improve overall efficiency and consumer benefits in a number of important ways, including -

- providing retailers with incentives to minimise the costs of energy purchases in the wholesale market;
- providing retailers with incentives to negotiate innovative and lower priced network services;

- innovative product packaging and pricing that better matches the demand and other requirements of particular classes of customers;
- innovative pricing that encourages and rewards demand side management and customer management of interruptible loads;
- pricing structures that reflect long term commitment and other commercial features valued by retailers; and
- pricing and packaging that creatively allocates or shares risk and incentives between retailer and end customer

The experience in Victoria as retail franchises are removed illustrates the type of benefits that customers can expect to receive. Similar benefits are expected in New South Wales and the other States where retail reform has been initiated or contemplated. These benefits include:

- *altered tariff structures and competitively determined prices for some customers.* As customers ceased to be covered by franchise and tariffs they have been pursued by various competing retailers, including the retailer in whose distribution areas they reside or conduct their business. In order to attract or retain customers the retailers in Victoria have had to generate attractive pricing packages to replace the tariff. Of the 380 customers who became contestable in July 1995 and the approximately 2,000 customers who became contestable in July, 1996 an estimated 35-40 % have changed their retailer;
- *transparent prices for monopoly functions.* The Victorian Tariff Order establishes clear pricing paths for non-contestable customers, based on incentive price regulation, to the year 2000. These prices are transparent, and compliance is enforced by regulatory means;
- *competition in service provision to customers.* Commercial and industrial customers are concerned with value in terms of cost, quality and service, and these are subject to negotiation by contestable customers; and
- *promotion of equitable dealing.* The retail sector is regulated and the licence or other regimes under which retailers operate provide for fair and equitable dealing with customers, backed by regulatory sanctions. In Victoria, for example, the Supply and Sale Code issued by the Office of the Regulator General provides guidelines and develops standards for behaviour by licensed retailers and remedies for inappropriate behaviour. In New South Wales there is a requirement for standard form customer contracts.

Until recently, in all jurisdictions retailing has been associated with distribution. Many of the efficiency gains that have been achieved, or sought, have occurred through restructuring of the combined sector and these improvements in efficiency have occurred in both retail and distribution activities.



In October 1995 the New South Wales Government amalgamated the then 25 distributors into 6. The Distribution Review Group estimated that scale economies of "at least \$85 million a year in operating costs and possibly well over \$100 million"<sup>29</sup> would ensue.

In addition, a report prepared for New South Wales Treasury by Arthur Andersen Consultancy Group in 1995, concluded that the New South Wales electricity distribution sector can "realistically achieve savings in total 94/95 expenditure (operating and capital) of \$376 million or 33% within 5 years."<sup>30</sup>

It is anticipated that the extent of retail competition and its efficiency will increase with the introduction of the NEM, and as national customers seek the price, convenience and other benefits of dealing with national retailers. This issue was touched on by the Industry Commission in its examination of the South Australian market -

*"In the longer term, new retailers can be expected to enter the SA regional market. Several participants indicated that they were looking to expand their energy businesses to cover the national electricity market and would be exploring opportunities in the SA market. Over time, the number of non-franchise customers will increase as SA complies with the COAG requirement to deregulate retail franchise progressively."*<sup>31</sup>

The access arrangements in the Code enable retail competition to become a continuing reality in the market.

In this context, the increasing globalisation of the electricity supply market should also be noted. An increasing proportion of retail electricity services can be traded internationally thereby creating benefits of scale economies and international competition. For example, Integral Energy Australia has outsourced its Information Technology function to a major IT supplier which intends to recover part of the cost by making sales to other electricity utilities internationally. Retail and upstream market competition provide retailers with an incentive to search out the most efficient means of undertaking their retail activities.

#### **5.5.7 Economic development and international competitiveness**

The arrangements in the Code will improve the signals for economic development in terms of direction and extent. It is submitted that the competitive arrangements proposed in the Code, because they relate to infrastructure industries, will have substantial and beneficial multiplier effects throughout the whole economy, improving Australia's competitiveness at national, regional and international levels.

Paragraph 5.5.12 provides evidence of the large gains in economic growth which it has been estimated will result from electricity sector reforms. These gains will be reflected in lower input prices to industries broadly throughout the economy. For those industries

<sup>29</sup> New South Wales Distribution Review Group, *Summary Report*, August 1995, p.5, referred to in the New South Wales Application for Authorisation of Restrictive Trade Practice to the ACCC, March 1996, p.15

<sup>30</sup> Referred to in New South Wales Application for Authorisation of Restrictive Trade Practice to the ACCC, March 1996, p. 15

<sup>31</sup> Industry Commission, *The Electricity Industry in South Australia*, March 1996, p. 114

operating in international markets (some of which are intensive electricity users), electricity reform offers opportunities to improve their competitive position.

A Tasman Institute study notes that competition in electricity supply can have other less obvious, but equally important, implications for economic development. The Institute notes that competitive, cost related pricing:

*"encourages optimal usage levels. Often this will entail higher prices [through reduction of cross subsidies] but lower expenditure, particularly capital expenditure and a significant gain to consumers from the community having more resources left for expenditure on other items of value."* (Institute's emphasis).<sup>32</sup>

The NEM establishes transparent pricing for energy and for network services. Should governments wish to offer incentives to promote economic development in particular regions or industries within their jurisdictions then the price signals provided by the NEM will enable clear identification of the cost of government assistance programs conducted through the electricity market. This increased transparency is a further benefit of implementing the NEM through the Code.

#### **5.5.8 Safety and security of supply**

The Code provides a regulatory framework for the safe and reliable supply of electricity. Given the nature of electricity, as a dangerous good which cannot be stored, provisions designed to ensure safety and instantaneously matching demand and supply are essential. The Code achieves this in the following manner:

##### **(a) "In-time" nature of the commodity**

The Code puts in place a spot market with central coordination to ensure demand and supply are matched. It is impossible for this instant-by-instant balance to be achieved on a continuing basis by bilateral arrangements between each individual who wishes to supply or demand electricity because precise demand on an instantaneous basis is not known in advance. To overcome these difficulties and to guarantee the safety and security of electricity supply there must be some degree of co-ordination and uniformity of technical standards and market rules.

##### **(b) Central coordination of reserve levels**

In order to have a safe system that has appropriate levels of reserve and can manage constraints as they arise from outages and other sources, it is necessary to have central coordination of the kind described in the Code.

The various roles that have been entrusted to NEMMCO will ensure that from the outset the coordinated processes and various hedge markets will be developed to provide the levels of safety and security of electricity supply that customers are entitled to expect.

<sup>32</sup> Tasman Institute, *Competition in the Provision of Electricity and Water Services: A Study into Harnessing Competition in the Provision of Electricity and Water Services*, August 1993, p.7

**(c) Powers of NEMMCO**

The powers that have been given in the Code to NEMMCO are designed to ensure that the power system and the market operate under all foreseeable conditions. This applies especially to NEMMCO's powers to intervene in the market and to suspend trading under emergency conditions. NEMMCO's role and powers under the Code are designed to ensure that appropriate action can be taken in the event of market and other forms of failure. This is in principle no different to the powers of market suspension held by the Australian Stock Exchange in the stock market.

**(d) Powers of NECA**

It is submitted that the powers granted to NECA, and to individual participants in the absence of action by NECA, are designed to ensure compliance with the Code and for ensuring that Code changes are brought forward in good time to rectify any shortcomings that are revealed through experience and the practicalities of operation once the NEM commences.

**(e) Requirements of the Code imposed on participants**

The Code incorporates the electricity supply industry's collective experience and wisdom on the matter of appropriate standards including network connection requirements that should be applied in the overall public interest insofar as safety and security of supply are concerned. The Code change process will allow adaptation to changes in standards that might be suggested by further experience and technological developments over time.

The technical requirements of connection equipment design controls, and testing procedures, in the Code have been included so that customers, generators and network owners may reasonably rely on the efficacy of the Code to deliver safety and security of electricity supply. A similar case may be made for metering.

**5.5.9 Customer information**

The arrangements in the Code will improve customer information.

Firstly, customers will have the benefit of the substantial disclosure arrangements under the Code for planning, adequacy and market operational information. This will enable those customers to be better informed in their own commercial decision-making.

The separation of network costs from energy costs will provide necessary information which will enable informed choice by customers at both the wholesale and retail level, and empowers customers to choose the most appropriate fuel mix and technology to satisfy their energy needs.

In addition the Code provides for substantial information to be made available to the public.

The improved information environment fostered by the Code depends on commercial incentives to ensure the information is analysed and disseminated to existing and potential customers. It is recognised that the availability of substantial amounts of data is unlikely to be utilised directly by most customers, because they have neither the resources nor the

expertise to effectively analyse such information. However, the value from analysis and dissemination will be captured by value-adding market research service providers who will analyse and disseminate it..

#### 5.5.10 Social benefits and consumer choice

The arrangements proposed through the Code will achieve social benefits by materially improving customer choice at various levels in the market, as follows -

- As the franchise in each jurisdiction is progressively removed, retail customers will have the choice of taking electricity from the retailer associated with their local distribution company, or with any other retailer in the market, including those generators who are licensed retailers.
- Purchasers in the wholesale electricity market will also have a range of new choices, including hedging and other contractual options with a generator of their choice.
- Improved customer choice will extend not only to choice of supplier but to choice amongst an increasing range of price, availability and other options as they are developed as innovative responses to competitive pressures. The pressure on prices that will be supported by the competitive market will also expand choice.

Substantial benefit seems to accrue to customers whenever electric utility competition exists. In addition to the lower consumer prices, consumers have a choice whenever competition exists. The existence of alternative supply, in contrast to the usual monopoly situation, obviously provides consumers with a more favourable buying situation.

#### 5.5.11 Environmental benefit

Implementation of the Code provides a commercial environment which reduces the dominance of incumbent Market Participants and which is better suited to the introduction of more environmentally sound technologies and practices. Short and long term efficiency incentives and market opportunities will be created for new and existing Market Participants on the supply and demand sides of the electricity market. Consequently, the Code supports the conservation of Australia's fuel resources, in particular coal, gas and water. The promotion of alternative sources of generation and the application of supply-side and demand-side responses through open competitive processes have been nominated among the initiatives governments could take to reduce emissions of greenhouse gases and air pollutants<sup>33</sup>.

The Code does not, however, impinge on the legitimate rights of the State and Territory Governments to directly regulate environmental matters in their jurisdictions, including but not limited to, environmental planning and assessment, and emission standards.

The NEM provides a sound foundation for targeted environment programs.

<sup>33</sup> Commonwealth of Australia 1992 *National Strategy for Ecologically Sustainable Development*, Australian Government Publishing, p. 46-7

**(a) The supply side**

To the extent that generator bids reflect costs of production, particularly fuel costs, merit order dispatch will ensure that the most efficient generators for each fuel type will run most often. The Code also enables the national power system to operate at lower levels of reserve than would otherwise be the case. Thus, in the short term, mechanisms established by the Code provide incentives for Market Participants and the power system as a whole to minimise fuel usage.

In the longer term, competitive sourcing of generation and third party network access enables new entrants to build more efficient (less expensive) generation plant to operate in competition with less efficient (more expensive) existing plant. Examples of these new entrants already include the Burrandong and Wyangla Dams hydro-electric projects, the Smithfield cogeneration project, and the Appin and Tower collieries coal-bed methane project.

New generation is more and more likely to be high efficiency gas fired, with an increasing emphasis on cogeneration. Gas-fired generators have the additional benefit of being:

- smaller with low capital cost;
- where appropriate, located close to loads to reduce electrical losses and reliance upon network service; and
- capable of being brought into service quickly.

The Code does not, however, treat one energy source or technology more or less favourably than any other.

A number of emerging renewable generation technologies are being developed at the small end of the market. The Code enables NEMMCO to exempt generators below 30 MW from the requirement to register as a Market Participant.

**(b) The demand side**

The Code creates an environment for vigorous competition to provide end-use customers with the energy products they need at a price they are prepared to pay, and this will have beneficial environmental outcomes.

Network Service Providers will be subject to business or structural separation from competitive energy trading entities... Regulation of Network Service Providers will allow increased profits through productivity improvements and better utilisation of assets, rather than by transporting more energy. Thus, under the Code provisions, Network Service Providers are more neutral with regard to the promotion of energy sales, or even perhaps more inclined to promote demand side management to better utilise their existing assets. Under the network planning provisions of the Code, supply side, demand side and network options are considered equally in regard to meeting customer needs.

The spot market mechanism described in the Code creates an important economic link between the supply side and the demand side of the electricity market. This link ensures that electricity prices will reflect both supply side bids and the level of demand on a

dynamic basis. The Code enables demand side participants to have an active involvement in how prices are set and provides them with incentives to minimise their demand during peak periods when less efficient (more expensive) generation plant might need to be dispatched.

In accordance with the retail franchise removal in each jurisdiction, an end-use customer will have a number of choices with regard to how they purchase energy from the NEM. Firstly, they may choose to become a Market Customer and purchase directly from the spot market, or they may choose to become a retail customer and purchase through an electricity retailer. As a retail customer, they then have the choice of retailers. The introduction of customer choice creates new incentives for retailers to provide greater value. Customers value energy products in different ways and many are seeking total energy solutions which include energy efficiency services and alternative energy sources. Some retailers are providing customers with the opportunity to sponsor new renewable energy initiatives through products involving "green pricing"

#### 5.5.12 Quantification of benefits

The previous sections have described the efficiency and other benefits which are likely to result from the introduction of the national market. In the context of COAG consideration of Hilmer and related reforms, the Industry Commission<sup>34</sup> was requested to undertake an analysis of the economic benefits of these reforms. Based on a range of work by organisations such as the BIE, and ABARE among others, the Industry Commission developed assumptions regarding possible productivity improvements from the introduction of competition, including an interstate market in electricity. These were:

- improved labour productivity of 50%;
- improved capital productivity of 20%; and
- reduced replacement costs of generating capacity of 20%.

It was estimated by the Commission that the application of the COAG proposals on electricity and gas reform would increase annual national GDP by 1.4% or \$5.8 billion a year (in 1993-94 dollars). This benefit was the largest single benefit in the overall Hilmer and related reforms exceeding by a margin the benefits from reform of rail, telecommunications, waterfront and other areas.

Although the share of the \$5.8 billion benefit associated with electricity reform was not explicitly specified by the Industry Commission, an earlier Industry Commission analysis<sup>35</sup> suggested that over 90 per cent of combined electricity and gas reform benefits could be attributed to electricity reform.

Some of the benefits estimated by the Commission would have occurred without the introduction of the NEM, through the other reforms initiated by the Hilmer report or by other Government reform programs. Nonetheless: administrative change by itself would not drive the full potential efficiency gains which can be made in the electricity sector. Introducing competition through the Code is the key to providing incentives to electricity

<sup>34</sup> Industry Commission, *The Growth and Revenue Implications of Hilmer and Related Reforms: A Report by the Industry Commission to the Council of Australian Governments*, March 1995

<sup>35</sup> Industry Commission, *Energy Generation and Distribution*, Vol 2: Report, No. 11, 17 May 1991

businesses to improve their efficiency. As noted in a more general context by the Industry Commission<sup>36</sup>:

*"Competition provides a powerful stimulus for private firms and public enterprises to operate efficiently. ... competition is the most certain means of ensuring that the benefits of improved productivity are passed to consumers".*

The Industry Commission, in analysing the Hilmer reforms, quoted a number of other reports which have estimated the benefits of microeconomic reform, including reform of the electricity sector. These other studies also show substantial economic gains from reform<sup>37</sup>.

Experience in the New South Wales and Victorian wholesale electricity markets and the reform progress in other States is tangible evidence of the public benefit being delivered and which will continue to be delivered through better plant performance and lower cost of delivery, made possible by the introduction of competition.

In its 1991 Report, the Industry Commission noted that economic efficiency could be promoted on many dimensions, including:

- bringing total factor productivity up to international best practice levels in all jurisdictions;
- reducing excessive installed generation levels by reducing reserved plant margins (RPMs) to international best practice. The Commission noted:

*"To get some indication of these additional costs for the Australian state electricity systems, the RPMs for 1989-90 have been compared with the 'best practice' figure of around 20 per cent recommended by the IEA, a figure which corresponds to the bottom end of the 20 to 35 per cent range accepted by ECNSW. ... Some countries, such as Japan, have achieved significantly lower RPM levels. Over the period 1983 to 1986 -, the RPM for the Japanese ESI averaged 12.6 per cent."*<sup>38</sup>

Australian practice and best practice in this area has improved since then, as has international best practice.

- improving labour productivity. The Commission noted that:

*"taking into account long term employment targets of the various Australian authorities and comparisons with other countries [in 1991], reductions in-unit labour inputs of at least 25 per cent would be required before the Australian industry could be considered equal to the best in the world."*<sup>39</sup>

<sup>36</sup> Industry Commission, *Annual Report 1994-95*, p.7

<sup>37</sup> Industry Commission, *The Growth and Revenue Implications of Hilmer and Related Reforms: A Report by the Industry Commission to the Council of Australian Governments*, March 1995. The magnitude of the expected benefits varies between the studies due to differences in methodology, base years, and the scope of 'package' of reforms considered

<sup>38</sup> Industry Commission, *Energy Generation and Distribution*, Report No 11, Vol 11, p.37

<sup>39</sup> Industry Commission, *Energy Generation and Distribution*, Report No 11, Vol 11, p.39

### 5.5.13 Distribution of Benefits

The previous discussion has provided evidence of the public benefits which are likely to arise from the introduction of the NEM. The Commission is also concerned to examine the distribution of benefits which arise out of proposed arrangements.

The benefits of the NEM will be shared by customers broadly across the economy. Competitive pressures will ensure that efficiency gains will flow through to customers in the form of lower prices for electricity, and for products and services which use electricity as an input. However, the price implications for individual customers cannot be accurately predicted. Certainly the removal of cross-subsidies, and more cost-reflective pricing will mean that different customers will experience different price impacts. Also, other aspects of reform such as competitive neutrality (commercial rate of return) may temper price reductions.

Nonetheless, estimates of future electricity price paths suggest substantial reductions in price resulting both from competition and effective economic regulation. For example, the Independent Pricing and Regulatory Tribunal has noted that:

*"the Tribunal expects retail prices can fall 20%, on average and in real terms, from 1994-95 to 1999-2000"*<sup>40</sup>.

Moreover, the Industry Commission<sup>41</sup> indicated that the benefits of reform are expected result in increased output across many industry groups. Such increases, however, are not uniform to all industries and output in some industries was estimated to expand by more than in others.

## 5.6 Conclusion

Within the wholesale electricity market, the NEM arrangements embodied in the Code are expected to contribute significantly to the achievement of the large economic benefits estimated by the Industry Commission from reform of the electricity sector. These benefits are estimated to exceed \$5 billion in additional GDP each year when fully implemented. The benefits take the form of direct improvements in efficiency in the electricity sector, and flow-on effects to other areas of the economy. The competitive market and the regulatory framework embodied in the Code provide incentives for lower cost production, better use of resources, and a more dynamic and innovative response to new technology and changes in customer preferences.

Along with this economic benefit the NEM will promote broader welfare gains through greater customer choice, more efficient use of existing and future infrastructure, and will promote a broadening of the role of the retail sector. The NEM will also promote more environmentally appropriate technologies and outcomes. At the same time, it puts in place appropriate mechanisms to ensure satisfactory network behaviour and the delivery of a safe and secure power system through the co-ordination functions of NEMMCO and NECA.

<sup>40</sup> IPART, *Electricity Prices*, March 1996

<sup>41</sup> Industry Commission, *The Growth and Revenue Implications of Hilmer and Related Reforms: A Report by the Industry Commission to the Council of Australian Governments*, March 1995, Table C.2.4, p.428



## **6. NET PUBLIC BENEFIT OF THE NATIONAL ELECTRICITY CODE**

### **6.1 Introduction**

#### **6.1.1 Purposes of Chapters 5 and 6**

Chapter 5 demonstrated the public benefits resulting from the NEM as a new market introducing inter-State competition, governed by the Code and its associated regulatory framework. This Chapter assesses the net public benefit arising from the NEM in the following manner:

- (a) Paragraphs 6.1.2 and 6.1.3 argue that the NEM is a new market introducing new competition, that this will result in the public benefits demonstrated in Chapter 5 and that, as a new market, the operation of the NEM under the regulatory environment created by the Code, is not capable of any relevant comparison for the purposes of sections 90(6) and (8) of the Act. Therefore, the identified public benefits clearly satisfy sections 90(6) and (8) of the Act.
- (b) Notwithstanding the arguments in paragraphs 6.1.2 and 6.1.3 (but without derogating from these arguments):
  - (i) the ACCC has raised concerns about some aspects of a draft of the Code<sup>1</sup>; and
  - (ii) the Code includes provisions that:
    - may fall within a provision of Part IV of the Act a contravention of which does not depend upon any "substantial lessening of competition" test; or
    - may fall within a provision of Part IV of the Act that, if a comparison of competition could be made in respect of the NEM as regulated by the Code, should be taken in to account for the purpose of this application.

For these purposes, two assumptions have been made; namely, that the reference in section 90(6) to "any lessening of competition":

- (i) requires a comparison between competition in two separate and distinct markets; namely, the existing State and Territory markets, whether viewed - individually or collectively, and the NEM; and
- (ii) requires a comparison between the NEM as regulated by the Code and the NEM not regulated by the Code.

Paragraphs 6.2 and 6.3 are to be read in the context of these assumptions and references in those paragraphs to "lessening of competition" are to be construed and adapted accordingly.

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<sup>1</sup> *Issues Paper*, ACCC, March 1996 and *National Electricity Market Code of Conduct, Comments and Issues Arising*, ACCC, May 1996

- (c) The main concerns raised by the ACCC are examined in paragraph 6.2.
- (d) Paragraph 6.3 identifies the main aspects of the Code that may fall within a provision of Part IV of the Act and the net public benefit in respect of each of them.
- (e) An assessment of the net public benefit to be derived in the retail market is made in paragraph 6.4.

It is the object of this Chapter 6 to address and deal with the concept of net public benefit, taking into account the submission in paragraph 6.1.3 and the above assumptions, as applied under sections 90(6) and 90(8) of the Act. That is, to balance the public benefits (including likely public benefits) and detriments flowing from the introduction and operation of the NEM as regulated by the Code.

For ease of reference, clauses which have the same effect in relation to a specific aspect of the Code are discussed together in paragraphs 6.2 and 6.3. Details of the main Code provisions which may fall within a provision of Part IV of the Act are set out in Schedule 12.

### 6.1.2 The Statutory criteria

section 90(6) of the Act relevantly provides that:

*"The Commission shall not make a determination granting an authorisation under sub-section 88(1) ... or (8) in respect of a provision of a proposed contract, arrangement or understanding [such as a provision of the Code] ... or in respect of proposed conduct [such as making the Code, giving effect to a provision of the Code, or engaging in a practice required under a provision of the Code] ... unless the Commission is satisfied in all the circumstances that the provision of the proposed contract, arrangement or understanding ... or the proposed conduct, as the case may be, would result, or be likely to result, in a benefit to the public and that that the benefit would outweigh the detriment to the public constituted by any lessening of competition that would result or be likely to result if ... the proposed contract or arrangement were made or the proposed understanding were arrived at, and the provision concerned were given effect to ... or the proposed conduct were engaged in, as the case may be."*

Section 90(8) of the Act relevantly provides that: ...

*"The Commission shall not:*

- (a) *make a determination granting:*
  - (i) *an authorisation under sub-section 88(1) in respect of a provision of a proposed contract, arrangement or understanding [such as a provision of the Code] that is or may be an exclusionary provision; or*

...  
 (iii) *an authorisation under sub-section 88(8) in respect of proposed conduct [such as making the Code, giving effect to a provision of the Code or engaging in a practice required under a provision of the Code] to which sub-section 47(6) or (7) applies; ... unless it is satisfied in all the circumstances that the proposed provision or the proposed conduct would result, or be likely to result, in such a benefit to the public that the proposed contract or arrangement should be allowed to be made, the proposed understanding should be allowed to be arrived at, or the proposed conduct should be allowed to take place, as the case may be.*"

In *Re Queensland Stock and Station Agents Association*<sup>2</sup> the Trade Practices Tribunal stated the guiding principles governing the application of the authorisation test under sections 90(6) and (8) as follows:

*"We are content to state the guiding principles in summary form:*

- *First, it is for the parties seeking authorisation to satisfy the Tribunal that benefit to the public is likely and that there will be sufficient public benefit to outweigh any likely anti-competitive detriment;*
- *Secondly, since the likely benefits and detriment to be considered are those that would result from the proposed conduct, the Tribunal is required to consider the likely shape of the future both with and without the conduct in question; and*
- *Thirdly, that task will generally entail an understanding of the functioning of relevant markets with and without the conduct for which authorisation is sought.*"

The Trade Practices Tribunal has held that the test under section 90(6) and under section 90(8) is "essentially the same" and that this test necessitates "the establishment of likely benefit to the public, and a weighing against that benefit of any likely detriment of the public from lessening of competition": *Re Queensland Stock and Station Agents Association*<sup>3</sup>; *Re Media Council of Australia (No 2)*<sup>4</sup>

The Trade Practices Tribunal made it clear in *QCMAS*<sup>5</sup> that the issues for determination by a Court in the event of a contravention or an alleged contravention of a provision of Part IV of the Act are different from those for determination when an authorisation is sought. Further, the mere act of making application for authorisation is not to carry with it any presumption as to the arrangements in question contravening a provision of Part IV of the Act.

<sup>2</sup> (1985) FLR 250 at 267

<sup>3</sup> (1985) FLR 250 at 266

<sup>4</sup> (1987) ATPR 48,406 at 48,418

<sup>5</sup> (1976) 25 FLR 169 at 180. See also *Re Queensland Independent Wholesalers Ltd* (1995) ATPR 40,914 at 40,928

Conduct that answers the statutory description of anti-competitive lessening of competition does not necessarily constitute anti-competitive detriment for the purposes of section 90. *In Re Media Council of Australia (No 2)*<sup>6</sup> it was stated that:

*"It is erroneous to equate anti-competitiveness with detriment. Anti-competitive behaviour may in certain circumstances be a positive benefit."*

For the purposes of sections 90(6) and 90(8), a lessening of competition in a market must cause detriment to the public before it can be relevant in the context of the examination to be carried out under each of those sub-sections.

### 6.1.3 Competition in the NEM

In *QCMA*<sup>7</sup>, the Trade Practices Tribunal stated that:

*"Competition is a process rather than a situation. Nevertheless, whether firms compete is very much a matter of the structure of the markets in which they operate."*

The Tribunal continued<sup>8</sup> by stating that:

*"It follows that the identification of markets must be the essential first step in assessment of present competition and likely competitive effects. In our view the usefulness of the 'market' concept goes beyond the determination of market concentration to the identification of rivalrous relationships between sellers.."*

Sections 90(6) and 90(8) contemplate a comparison being made between present competition in existing circumstances and likely competition in postulated future circumstances. That present and likely competition must be assessed within a market structure. In *Re Application by Concrete Carters Association (Victoria)*<sup>9</sup> it was put by the Tribunal as follows:

*"Competition is an active process rather than a passive situation. Nevertheless, the existence and extent of competition or likely competition between those competing within a market will depend, to a large extent, upon the distinctive, albeit evolving, structure of that market."*

Although section 90(6) of the Act refers to "detriment to the public constituted by any lessening of competition", it is submitted that this reference to "detriment" must be a reference to detriment observed by way of a meaningful comparison as intended by the sub-section. That is, a comparison by way of an assessment of competition in the relevant

<sup>6</sup> (1987) ATPR 48,406 at 48,419. See also *Re 7-Eleven Stores Pty Ltd* (1994) ATPR 42,644 at 42,654

<sup>7</sup> (1976) 25 FLR 169 at 189

<sup>8</sup> (1976) 25 FLR 169. A similar principle was followed in *Re Application by Concrete Carters Association (Victoria)* (1978)

31 FLR 193

<sup>9</sup> (1978) 31 FLR 193 at 216