



Snowy Hydro

PART FOUR

APPENDIXES

A ENERGY MARKET REFORM

The process of energy market reform has been steadily unfolding since the early 1990s. In 2004, the Australian, state and territory governments set the agenda for a transition to national energy regulation in the Australian Energy Market Agreement. The most recent wave of reform is underpinned by revisions to that agreement in 2006. The revisions include streamlined regulatory, planning, governance and institutional arrangements for the National Energy Market (NEM).

Reform activity since 2006 has focused on a number of key areas, including:

- > transition to a national energy framework
- > effect of climate change policies on the energy sector
- > electricity market reform, covering the wholesale market and networks
- > development of an open and transparent gas wholesale sector
- > removal of retail price regulation.

A.1 National institutional framework

At the national level, two intergovernmental bodies determine the direction of Australia's energy policy—the Council of Australian Governments (COAG) and the Ministerial Council on Energy (MCE).

COAG is the peak intergovernmental forum in Australia. The council comprises the Prime Minister, state premiers, territory chief ministers and the president of the Australian Local Government Association. The role of COAG is to initiate, develop and monitor the implementation of policy reforms that are of national significance and that require cooperative action by Australian governments. This includes energy market reform.

The MCE comprises Australian, state and territory energy ministers. Ministers from New Zealand and Papua New Guinea have observer status. The MCE's role is to initiate and develop energy policy reforms for consideration by COAG. It also monitors and oversees implementation of energy policy reforms agreed by COAG.

Special-purpose bodies have been created to develop and implement specific reform packages for the energy sector:

- > In 2006, COAG established an Energy Reform Implementation Group (ERIG) to report on measures that may be necessary to achieve a fully national electricity transmission grid. ERIG also addressed industry structure and financial market issues that may affect the ongoing efficiency and competitiveness of the energy sector.
- > The MCE has established:
 - > the Retail Policy Working Group to oversee the transfer of energy distribution (non-economic) and retail regulation functions to the national legislative framework
 - > an industry-led Gas Market Leaders Group to produce a market development plan for the gas wholesale sector.

There are several other key agencies in the national energy framework:

- > The Australian Energy Regulator (AER), which is the national energy regulator.
- > The Australian Energy Market Commission (AEMC), which is responsible for rule making and market development in the NEM. The AEMC also undertakes reviews of the energy market framework and provides policy advice to the MCE.
- > Market operators, such as the National Electricity Market Management Company (NEMMCO), which is responsible for the day-to-day operation and administration of the power system and electricity wholesale spot market in the NEM.

Although the AER, AEMC and market operators are not policy bodies, each participates in energy market reform processes. Figure A.1 outlines the roles and responsibilities of key bodies involved in national energy policy, regulation and market operation.

A.2 Transition to a national energy framework

Transfer of regulatory functions

The AER and AEMC were established under the Australian Energy Market Agreement in 2004. However, the transfer of functions from other Australian, state and territory regulators is still in progress. Table A.1 sets out the institutional arrangements that will apply once the transfer of functions is complete.

Electricity networks

The AER has been responsible for the regulation of electricity transmission networks since 1 July 2005. This role was previously undertaken by the Australian Competition and Consumer Commission (ACCC).

On 1 January 2008, revisions to the National Electricity Law and Rules refined the regulatory process for electricity networks. The new framework also established the AER as the economic regulator of electricity distribution networks in the NEM jurisdictions.¹

In 2008, the AER released guidelines to assist electricity distribution businesses and their customers to understand the AER's approach to distribution network regulation. It also released details of the incentive schemes that will apply to electricity distribution businesses.

Gas networks

The National Gas Law and Rules, which took effect on 1 July 2008, provide the overarching regulatory framework for the gas transmission and distribution sectors. These instruments replace the Gas Pipelines Access Law and the National Gas Code (Gas Code), which had provided the regulatory framework since 1997.

1. The regulation of distribution networks in Western Australia and the Northern Territory remain under state and territory jurisdiction.

Figure A.1

National energy market—institutional framework

POLICY	RULES DEVELOPMENT	REGULATOR AND MARKET OPERATORS
<p>Council of Australian Governments</p> <p>COAG is the peak intergovernmental forum in Australia. The council comprises the Prime Minister, state premiers, territory chief ministers and the president of the Australian Local Government Association. The role of COAG is to initiate, develop and monitor the implementation of policy reforms that are of national significance and that require cooperative action by Australian governments, including National Competition Policy and related energy market reforms.</p>	<p>Australian Energy Market Commission</p> <p>The AEMC has responsibility for the rule-making process under the National Electricity Law and National Gas Law, and making determinations on proposed rules. The AEMC also undertakes reviews on its own initiative or as directed by the MCE, and provides policy advice to the MCE on electricity and gas market issues.</p>	<p>Australian Energy Regulator</p> <p>Electricity: The AER enforces the National Electricity Law and Rules, monitors the wholesale electricity market and regulates electricity transmission and distribution networks in the NEM.</p> <p>Gas: The AER enforces the National Gas Law and Rules, and regulates covered gas transmission and distribution pipelines in all states and territories (except Western Australia).</p>
<p>Ministerial Council on Energy</p> <p>The MCE comprises Australian, state and territory energy ministers. Ministers from New Zealand and Papua New Guinea have observer status.</p> <p>The MCE is the sole governance body for Australian energy market policy. Its role is to initiate and develop energy policy reforms for consideration by COAG. It also monitors and oversees implementation of energy policy reforms agreed by COAG.</p>		<p>National Electricity Market Management Company</p> <p>NEMMCO administers and operates the wholesale NEM and is responsible for the registration of participants, the scheduling and dispatch of generators, the management of transmission constraints and the financial settlement of trades in the market. In addition, NEMMCO is required to publish each year electricity demand and energy projections for the next 10 years (SOO), including a statement on the national transmission flow paths (ANTS).</p>
<p>Energy Reform Implementation Group</p> <p>ERIG was created by COAG in 2006 to review certain elements of the operation of Australia's energy sector. In particular, ERIG provided advice on achieving a fully national transmission grid, structural issues affecting the competitiveness and efficiency of the electricity sector, and ensuring there are transparent and effective financial markets to support energy markets.</p>		<p>VENCorp</p> <p>VENCorp manages and plans Victoria's gas and electricity transmission networks and operates the gas wholesale spot market. VENCorp also operates the national gas market bulletin board pending the creation of the Australian Energy Market Operator.</p>
<p>Retail Policy Working Group</p> <p>The Retail Policy Working Group was established by the MCE in 2006 to develop recommendations on the energy distribution and retail regulation functions to be transferred to national regulation in accordance with the Australian Energy Market Agreement.</p>		<p>Australian Energy Market Operator (beginning 1 July 2009)</p> <p>AEMO is planned as a single, industry-funded national energy market operator for both electricity and gas.</p> <p>AEMO will merge the roles of the current national electricity market operator (NEMMCO) with the gas market operators in New South Wales, the Australian Capital Territory, Queensland, Victoria and South Australia.</p>
<p>Gas Market Leaders Group</p> <p>The Gas Market Leaders Group is an industry-led body established by the MCE in 2005 to develop and implement a gas market development plan to accelerate the development of a reliable, competitive and secure natural gas market.</p>		

AEMC, Australian Energy Market Commission; AEMO, Australian Energy Market Operator; AER, Australian Energy Regulator; ANTS, Annual National Transmission Statement; COAG, Council of Australia Governments; ERIG, Energy Reform Implementation Group; MCE, Ministerial Council on Energy; NEM, National Energy Market; NEMMCO, National Energy Market Management Company; SOO, Statement of Opportunities.

Table A.1 Energy regulation after implementation of national framework

	Qld	NSW	ACT	Vic	SA	Tas	NT	WA	
Gas transmission	Australian Energy Regulator							Utilities Commission	Economic Regulation Authority
Gas distribution									
Electricity wholesale									
Electricity transmission									
Electricity distribution									
Retail (non-price)									
Retail (pricing)	QCA	IPART	ICRC	ESC	ESCOSA	OTTER and GPOC			
Rule changes	Australian Energy Market Commission								
Competition regulation	Australian Competition and Consumer Commission								

ESC, Victorian Essential Services Commission; ESCOSA, Essential Services Commission of South Australia; GPOC, Government Prices Oversight Commission; ICRC, Independent Competition and Regulatory Commission; IPART, Independent Pricing and Regulatory Tribunal; QCA, Queensland Competition Authority; OTTER, Office of the Tasmanian Energy Regulator.

The new legislation transferred the regulation of covered distribution networks outside Western Australia from state and territory regulators to the AER. It also transferred the regulation of covered transmission pipelines outside Western Australia from the ACCC to the AER. As of July 2008, the AER regulated eight covered transmission pipelines and 11 covered distribution networks.²

The AER is working closely with jurisdictional regulators and network businesses to maintain regulatory certainty in the transition to the national framework. In September 2008, the AER released guidelines to assist gas network businesses and their customers to understand the AER's approach to the regulation of gas distribution businesses.

Retail

The Retail Policy Working Group has been developing recommendations to the MCE Standing Committee of Officials on retail functions for transfer to national regulation.

The areas under review include:³

- > retailer obligations for supply to small customers
- > customer market contracts
- > marketing
- > business authorisations
- > ring-fencing
- > retailer failure arrangements (retailer of last resort).

The Standing Committee of Officials published its final recommendations on the transfer of retail functions to the AER in June 2008.⁴ Under the current proposals, the AER will:

- > be a gatekeeper for authorisation and exemptions
- > publish standing tariffs
- > undertake monitoring and enforcement in the areas of:
 - > customer financial hardship
 - > compliance with terms of regulated contracts and rules
 - > marketing conduct
- > issue guidance to market participants on the application of the new framework and the AER's enforcement strategy.

2. There are three covered transmission pipelines and one covered distribution network in Western Australia. These assets are regulated by the Economic Regulation Authority.

3. MCE, *Communiqué*, 19 May 2006.

4. MCE Standing Committee of Officials, *A National Framework for Regulating Electricity and Gas (Energy) Distribution and Retail Services to Customers*, 2008.

It is expected that the legislative package will be introduced into the South Australian Parliament by September 2009, after which the states and territories will transition to the national framework.

Establishing the Australian Energy Market Operator

In April 2007, COAG agreed to establish an Australian Energy Market Operator (AEMO) as a single, industry-funded national energy market operator for both electricity and gas.⁵ The AEMO is scheduled to begin by 1 July 2009.⁶

The AEMO will merge the roles of the current national electricity market operator (NEMMCO) with gas market operators in New South Wales, the Australian Capital Territory, Queensland, Victoria and South Australia.

Impact of climate change policies on the energy sector

The Australian government is committed to reducing carbon emissions by 60 per cent of 2000 levels by 2050. Policy measures that have been announced to assist in the achievement of this target include a Carbon Pollution Reduction Scheme, involving the trading of emissions rights,⁷ and a 20 per cent mandatory renewable energy target for Australia, to be reached by 2020.⁸

Recognising the potential for significant impacts on the energy sector as a result of these climate change policies, the MCE requested that the AEMC review the energy market frameworks. The review is to consider both the electricity and gas markets in all states and territories. The AEMC is to identify potential market risks arising

from climate change policies and present options to refine the energy market frameworks to mitigate those risks. The review is scheduled for completion by September 2009.⁹

One likely outcome of the introduction of climate change policies is an increasing reliance on intermittent generation (such as wind farms), which can raise reliability and security issues for the power system.¹⁰ To manage these issues, NEMMCO submitted a Rule change proposal to the AEMC that would require significant intermittent generators to participate in the central dispatch process and to limit their output at times when that output would otherwise violate secure network limits.

The AEMC published a Rule determination on 1 May 2008 that requires new intermittent generators to register under the new classification of *semi-scheduled generator*. These generators will be required to participate in the central dispatch process, including submitting offers and limiting their output when requested by NEMMCO. This Rule will take effect on 31 March 2009.¹¹

A.3 National Electricity Market reform

National transmission planner and regulatory investment test

In 2007, ERIG reported that there was a need to strengthen transmission planning arrangements in the NEM. In particular, it found that current approaches focused on priorities within individual jurisdictions, rather than on the national grid as a whole. It recommended that a national planning body be established and housed within a reformed market operator body.¹² In addition, it recommended that the

5. COAG, *Communiqué*, 13 April 2007.

6. MCE, *Communiqué*, 13 December 2007.

7. Australian Government Department of Climate Change, *Carbon Pollution Reduction Scheme Green Paper*, July 2008.

8. COAG Working Group on Climate Change and Water, *Design options for the expanded national renewable energy target scheme*, July 2008.

9. MCE, *Terms of reference—AEMC review of energy market framework in light of climate change policies*, 2008.

10. See discussion in Executive overview.

11. AEMC, *Rule determination—National Electricity Amendment (central dispatch and integration of wind and other intermittent generation) Rule 2008*, May 2008.

12. ERIG, *Energy Reform—the way forward for Australia—A report to the Council of Australian Governments by the Energy Reform Implementation Group*, January 2007.

regulatory test for transmission investment be reformed to enable consideration of reliability and market benefits within one process.¹³

COAG adopted the ERIG recommendations in April 2007.¹⁴ The MCE subsequently directed the AEMC to develop a detailed implementation plan for a national transmission planning function, and to advise on a project assessment and consultation process to replace the current regulatory test.

The AEMC released its final report in June 2008, which recommended the development of a national transmission planner within the AEMO.¹⁵ The planning body would publish an annual national transmission network development plan outlining the efficient development of the power system. The plan would provide a long-term strategic outlook (minimum 20 years), focusing on national transmission flow paths.

The development plan would not replace local planning and would not be binding on transmission businesses or the AER. Rather, the plan would complement shorter-term investment planning by transmission businesses.

With respect to the regulatory test, the AEMC recommended the removal of the current distinction between reliability-driven projects and projects driven by the delivery of market benefits. All projects would be assessed through a single consultation and assessment framework, which aims to identify investments that maximise net economic benefits and, where applicable, meet reliability standards. The revised assessment process would be more comprehensive than the current test, and would apply to a wider range of investment projects.

The AEMC also released a report by Frontier Economics, which assesses various models of interregional transmission charging.¹⁶ Under current arrangements, customers in an importing region of the NEM do not pay a charge to transmission network providers in the exporting region to cover the costs incurred to serve their load. The AEMC has recommended that a more detailed review be carried out on the appropriate mechanism for implementing a formal interregional transmission charging arrangement.

Jurisdictional reliability standards

ERIG reported in 2007 that the current transmission reliability standards need greater clarity and transparency. In particular, it formed a view that clause 5.1 of the National Electricity Rules and the majority of jurisdictional reliability obligations require significant interpretation.¹⁷

In April 2007, COAG accepted ERIG's recommendations for a nationally consistent framework for setting transmission reliability standards.¹⁸ The AEMC Reliability Panel is undertaking a review of jurisdictional transmission reliability standards. An interim report in August 2008 set out the panel's preferred option for a nationally consistent framework.¹⁹ Key features include:

- > economically derived and deterministically expressed standards set on a jurisdictional basis by an independent jurisdictional authority
- > the introduction of a national reference standard
- > a clear and transparent standard setting process.

13. The regulatory test is an analysis tool used by transmission and distribution businesses in the NEM to assess the efficiency of network investment.

14. COAG, *Communiqué*, 13 April 2007.

15. AEMC, *National transmission planning arrangements—final report to MCE*, 30 June 2008.

16. Frontier Economics, *Advice on the application of AEMC options for an inter-regional charging mechanism in the NEM—A report prepared for the Australian Energy Market Commission*, April 2008.

17. ERIG, *Energy Reform—the way forward for Australia—A report to the Council of Australian Governments by the Energy Reform Implementation Group*, January 2007.

18. COAG, *Communiqué*, 13 April 2007.

19. AEMC Reliability Panel, *Towards a nationally consistent framework for transmission reliability standards review—Interim report*, 5 August 2008.

Congestion management review

Although the reliability of transmission networks in the NEM is consistently high, network congestion sometimes impedes the dispatch of the most cost-efficient generation to satisfy demand. In October 2005, the MCE directed the AEMC to review congestion management issues in the NEM and, in particular, to consider the scope for enhanced market-based solutions to manage trading risks.

The AEMC released the *Final report: congestion management review* in June 2008.²⁰ It recommended a number of changes to current market arrangements to reduce network congestion and better manage the effects of this problem. The recommendations included:

- > formalisation in the National Electricity Rules of NEMMCO's current process for determining which generators to dispatch in the market
- > amendment of the National Electricity Rules in respect of settlement residues to reduce uncertainty for holders of settlement residue units—in particular, it was recommended that new arrangements be introduced for the management and funding of negative settlement residues
- > publication of a *congestion information resource* by NEMMCO to consolidate and enhance information on network congestion
- > clarification and strengthening of the rights of generators that fund transmission augmentations to manage congestion risk—in particular, ensuring that future network users contribute to investment costs where they benefit from them.

In 2008, the AER launched a scheme that provides incentives for network businesses to better manage factors within their control that can lead to transmission congestion—for example, the scheduling of outages.²¹

Abolition of the Snowy region

In late 2006 and early 2007, the AEMC received five Rule change proposals on the ineffective management of network congestion in the NEM. In August 2007, the AEMC found that abolishing the Snowy region of the NEM would improve incentives for generators to bid in a competitive way, improve dispatch efficiency and result in more cost-reflective spot prices. The AEMC also found that this would provide clearer signals for efficient investment and electricity use.²²

The Snowy region of the NEM was abolished on 1 July 2008. The areas previously covered by the region are now located in the New South Wales and Victoria regions.

Comprehensive Reliability Review

Over the past couple of years some concerns have been raised about the future reliability of electricity supply in the NEM. This led to the AEMC Reliability Panel conducting a review of reliability settings in the NEM, the Comprehensive Reliability Review.

The panel's report, published in 2007, recommended an increase in the wholesale market price cap (VoLL) from \$10 000 to \$12 500, effective from 1 July 2010.²³ It also recommended an increase in the *cumulative price threshold* (which triggers administered wholesale pricing) to \$187 500, or fifteen times the value of VoLL.

The review also recommended that the current reserve trader mechanism be changed to a *Reliability and Emergency Reserve Trader*. The revised mechanism would provide NEMMCO with greater flexibility in sourcing reserve capacity. Changes from the current mechanism include an extended timeframe for contracting with reserve providers and the introduction of multiple rounds of tendering.

20. AEMC, *Final report: Congestion management review*, June 2008.

21. AER, *Final decision—Service target performance incentive scheme version 2*, March 2008.

22. AEMC, *Rule determination—National Electricity Amendment (abolition of Snowy region) Rule*, August 2007.

23. AEMC Reliability Panel, *Final report—Comprehensive reliability review*, 2007.

Another significant recommendation was for a new *energy adequacy assessment projection*. This mechanism would improve market participants' ability to forecast and respond in times where there may be energy constraints that would affect reliability.

Review of demand-side participation in the National Electricity Market

An increasing focus of reform has been to increase the responsiveness of electricity demand to price signals. In particular, the AEMC is reviewing options to better facilitate demand-side participation in the NEM. The review consists of three stages:²⁴

- > stage 1—investigating demand-side participation issues in the context of the current AEMC work program
- > stage 2—reviewing the National Electricity Rules to identify barriers to efficient demand-side participation and to develop proposals to reduce or remove those barriers
- > stage 3—identifying any additional barriers to efficient demand-side participation.

The AEMC published a report by NERA²⁵ on stage 1 and released an issues paper²⁶ on stage 2 in May 2008. The issues paper focused on:

- > the economic regulation of networks
- > network planning
- > network access and connection arrangements
- > wholesale markets and financial contracting
- > the use of demand-side participation for reliability purposes.

In August 2008, the AEMC released a report by CRA International on ways in which electricity customers can participate in the wholesale market, elements of the National Electricity Rules that may limit demand-side participation, and options for reform.²⁷

Demand management activities aimed at energy customers require *smart meters* to record patterns of energy use. In 2007, COAG agreed to a national implementation strategy for the progressive rollout of smart meters where the benefits outweigh costs.²⁸ A cost-benefit assessment published in March 2008 found that a national rollout would achieve a net benefit.²⁹

A.4 Gas wholesale market reform

In 2005, the MCE established the Gas Market Leaders Group to accelerate the development of a competitive, reliable and secure natural gas market, that promotes efficient investment and provides efficient management of supply interruptions.³⁰ The MCE has endorsed several of the group's recommendations, including the development of the gas market bulletin board, a short-term trading market in gas and an annual national statement of opportunities on the gas market covering supply-demand conditions.

The bulletin board, which started on 1 July 2008, is a transparent, real-time and independent information source for gas market participants and market observers on the status of natural gas supplies around the country. Industry participants must publish three days ahead information on production and storage capabilities and pipeline capacity, to provide a snapshot for gas users.

24. AEMC, *Statement of approach—review of demand side participation in the National Electricity Market*, March 2008.

25. NERA, *Stage one final report—review of demand side participation in the National Electricity Market*, May 2008.

26. AEMC, *Stage two issues paper—review of demand side participation in the National Electricity Market*, August 2008.

27. CRA International, *Final report—the wholesale market and financial contracting: AEMC review of demand side participation in the NEM*, August 2008.

28. COAG, *Communiqué*, 13 April 2007.

29. NERA, *Cost-Benefit Analysis of Smart Metering and Direct Load Control Overview Report for Consultation*, 29 February 2008, for Smart Meter working Group, Phase 2.

30. MCE, *Energy reform market bulletin no. 55*, 7 December 2005.

The short-term trading market in gas is scheduled to begin by winter 2010. The proposed market will establish a mandatory price-based balancing mechanism at gas hubs in New South Wales and South Australia. Victoria already has a transparent balancing market in place. Structural and operational details of the market are undergoing further development during 2008.

An annual *Gas Statement of Opportunities*—similar to the annual *Statement of Opportunities* currently published for electricity—is intended to provide information to assist gas industry participants in their planning and commercial decisions on infrastructure investment. The Gas Market Leaders Group began work on the design of the publication in 2008.³¹

In 2006, the MCE and Ministerial Council on Mineral and Petroleum Resources created a Joint Working Group on Natural Gas Supply to consider the adequacy of domestic gas supplies and related infrastructure. A particular focus of the review was to look at balancing the exploitation of resources for export with ensuring sufficiency of gas supplies for domestic use. The final report of the Joint Working Group was released in September 2007.³²

Further details on the reforms to the gas wholesale sector are set out in chapter 8, section 8.7.

A.5 Review of the effectiveness of retail competition

In line with the Australian Energy Market Agreement, all jurisdictions have agreed to remove energy market retail price caps where it can be shown that effective competition exists. The AEMC is reviewing the effectiveness of retail competition in jurisdictions to inform these decisions.

In May 2007, the MCE requested that the AEMC provide advice on the state of energy retail competition in Victoria. The AEMC found that competition is effective in both electricity and gas retail markets.³³ In response to the review, the Victorian Government announced in September 2008 the introduction of new legislation to remove retail price caps. The legislation includes provisions for the Essential Services Commission of Victoria to undertake expanded price monitoring and report publicly on retail prices. Retailers will also be required to publish a range of their offers to assist consumers in comparing energy prices.³⁴ Other obligations on retailers, including the obligation to supply and the consumer protection framework, will not be affected by the removal of retail price regulation. The Victorian Government will retain a reserve power to reinstate retail price regulation if competition is found to be no longer effective in the future.

In 2008, the AEMC reviewed the South Australian electricity and gas retail markets. The AEMC's first final report, released in September 2008, found that retail competition in both markets was effective.³⁵

The next scheduled reviews are for New South Wales (2009) and the ACT (if required; 2010).³⁶ Further details of the AEMC review process are provided in chapter 6, box 6.1.

31. MCE, *Communiqué*, 13 June 2008.

32. Ministerial Council on Mineral and Petroleum Resources/Ministerial Council on Energy Joint Working Group on Natural Gas Supply, *Final Report*, September 2007.

33. AEMC, *Review of Effectiveness of Competition in Electricity and Gas Retail Markets in Victoria—First Final Report*, December 2007.

34. Premier of Victoria, *Brumby Government Boosts Transparency in Power Pricing*, media release, 11 September 2008.

35. AEMC, *Review of Effectiveness of Competition in Electricity and Gas Retail Markets in South Australia—First Final Report*, September 2007.

36. MCE, *Communiqué*, 25 May 2007.



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