TASK XIII: MARKETPLACE OVERVIEW AUSTRALIA

Background:

In October 2003, the Executive Committee of the International Energy Agency (IEA) Demand Side Management Program approved a new project, entitled Task XIII. Twelve countries agreed to participate in the project, with the United States (via the US Department of Energy) in a lead role.

The objective of the project is to deliver necessary methodology, business processes, infrastructure, tools and implementation plans that will facilitate robust demand side participation in participating country electricity markets. The project will produce a "State of the Practice" database, economic valuation tools, and methods to enable participating countries to implement demand response into their market structures.

The objectives of the IEA DRR project are to:

1. Identify and develop the country-specific information needed to establish the potential for demand response.
2. Perform the market and institutional assessments within participating/member countries needed to set realistic goals for the contribution of DRR to sector objectives.
3. Mobilize technical and analytic resources needed to support the implementation of DRR programs within participating/member countries and track their performance.

Marketplace Overview Form Objective:

The enclosed questionnaire will provide the Operating Agent with a brief overview of each participating county's marketplace structure and demand response history. This will help the Operating Agent better understand the similarities and differences amongst the countries participating in Task XIII. This request is not intended to be an in depth research project. It is simply intended to be a brief overview to provide basic facts and understanding that can orient the project team and help share basic information across participants.

The Operating Agent will use the information develop thoughtful and thought provoking questions during the data gathering phase of the project.

Marketplace Overview Form Organization:

The following Marketplace Overview Form is organized utilizing a question and answer format. We have attempted to provide sample responses to each question so that you can see the type and depth of information desired.

There are three categories of questions:

1. **Electric Industry:** Basic overview of market structure and market actors.
2. **Demand Response:** Basic overview of demand response efforts.
3. **Market Transactions:** Basic overview of electricity market transactions.

We have provided a form with sample answers to guide you as complete the document.

Marketplace Overview Process:

Step 1: Please complete the enclosed form and email it to rmalme@retx.com by May 31, 2004. We realize that some questions may ask for data that are not readily available, and that some questions may not apply to certain countries. In this step 1, we are requesting that you fill out the "market overview" as best as you can, then in Step 2 we will contact you by phone to discuss any missing elements or questions that were difficult to interpret.

Step 2: We will schedule a brief telephone call with each country expert to review your response to ensure understanding. These calls will take place during the first two weeks in June.

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Section I: Electric Industry

1. ***Does your country operate as one national electricity marketplace or do you have multiple regional electricity marketplaces?***

There is one 'national electricity market' (NEM) covering the east-coast populous states of Australia (Queensland, New South Wales, Victoria, South Australia, and the autonomous Australian Capital Territory, with the island state of Tasmania to join on completion of the Bass Link Inter-connector in late 2005). There is no competitive market as such in Western Australia and the Northern Territory, nor are these states inter-connected with the others.

The NEM is essentially an interconnection of 5 state/territory regions, but is operated as one market, albeit with each region having a regional price.

2. ***If you have multiple regional marketplaces, how many exist in your country? Please explain.***

Essentially only one, known as the National Electricity Market (or NEM). The NEM is a gross pool market.

3. ***What market actors perform the following functions in your marketplace: (Please list and briefly describe)***

   a. ***Generation:*** all synchronized plant over 30 MW must bid into the power pool; this is optional for plant less than 30 MW, which may be dispatched at will. Dispatch is based on half-hourly bid prices 24 hours prior to dispatch, with adjustment and re-bidding options on the dispatch day.

   b. ***Transmission:*** nearly all inter-connectors are regulated, with some newer ones being unregulated (merchant) inter-connectors. Regulated inter-connectors have their 'postage stamp' price set by state-based regulators using 'CPI minus X' and 'regulated rate of return' formulae. Unregulated inter-connectors may have 'take or pay' type provisions underwritten by third parties (governments). An open access regime exists.

   c. ***Distribution:*** all distributors are regulated monopoly service providers, using similar price determinations as for transmission. An open access regime exists.

   d. ***Retail customer services:*** retailing is generally competitively-based with consumers free to select their retailer of choice. Retailers and a few other large

buyers generally purchase electricity from the pool, often backed by bilateral contracts with generators and ancillary services providers. Retailers and generators use a range of derivative instruments to manage price volatility and other risks.

e. ***Reliability management:*** Ancillary services are market-based with regulated requirements for quality and reliability of supply. The National Electricity Market Management Company (NEMMCO) is responsible for dispatch and reliability management issues in the NEM.

f. ***Other*** (please describe): market intermediaries exist to provide a range of energy and energy services related opportunities.

4. What market actors' work directly with the retail consumers (e.g. distribution company, competitive suppliers, energy service companies, etc)? Please provide brief description of their roles.

Large energy buyers may deal directly with generators and the NEM, but nearly all consumers purchase electricity and electricity related services from a retailer (and not a distributor, which are separated). Historically, retailers were geographically located with distribution, but increasingly multiple retailers operate across monopoly distribution areas. The separation of retailing and distribution is 'absolute'. Increasingly, there has been distribution network integration and separate retail integration to take advantage of size. Also retailers are increasingly engaged in distributed and central generation through cross-ownership arrangements.

5. Please list key regulatory players and their roles.

The National Electricity Market (NEM) commenced in December 1998 and included the Australian Capital Territory, New South Wales, Queensland, South Australia and Victoria.

The NEM provides for:

- a wholesale market for the generation and purchase of electricity;
- open access to transmission and distribution networks by generators, retailers and customers; and
- the co-ordinated planning of the interconnected power systems of the NEM jurisdictions and the maintenance of system security.

The NEM was established under the National Electricity (South Australia) Act 1996 and mirror legislation in the ACT, NSW, Queensland and Victoria. The National Electricity Market Management Company (NEMMCO) operates the wholesale market, co-ordinates the planning of the interconnected power system, and maintains the security of the system.

From 1998 to mid-2004, the detailed operation of the NEM was prescribed in the National Electricity Code, and subject to regulation by the Australian Competition and Consumer Commission (ACCC). The National Electricity Code was supervised, administered and enforced by the National Electricity Code Administrator (NECA). State/territory regulators also had responsibilities under the Code (see section B).

Since July 2004, a transition to a single national regulator has commenced, which will see many of the state-based regulatory functions in the NEM states taken over by a single body.

A. Government / Policy Bodies

Ministerial Council on Energy

In 2001, the Council of Australian Governments (CoAG) established the Ministerial Council on Energy (MCE) to provide policy leadership to meet the opportunities and challenges facing the energy sector and to oversee the continued development of national energy policy. The Council comprises Ministers with responsibility for energy from the Australian Government and all States and Territories. The Australian Government Minister for Industry, Tourism and Resources chairs the Council and the Department provides secretariat support. The MCE supercedes the NEM Ministers Forum (NEMMF). Areas currently covered by MCE include:

- Energy Market Reform (major focus) – governance and institutions, economic regulation, electricity transmission, user participation, gas market development;
- National Appliance & Equipment Energy Efficiency Program;
- National Framework for Energy Efficiency (under development).

In December 2003 the MCE announced a program for major reforms to the Australian energy market to be implemented in the period 2004 to 2006. This reform package is intended to strengthen competition and encourage investment in the Australian energy market, and represents Governments' implementation of the CoAG Energy Market Reform programme resulting from the Parer report. (See www.energymarketreview.org)

Through the AEMA, governments have agreed that the MCE will not be engaged directly in the day-to-day operation of the energy market or the conduct of regulators. Instead, the function of the MCE will be to make policy in relation to the energy market, through:

- requesting the AEMC to carry out a review or inquiry, or to provide advice to the MCE, in relation to a market development issue;
- initiating a proposal to change the rules that relate to the National Electricity Market; and
- publishing a statement of policy principles (with which decisions of the AEMC are required to be consistent)

Further information: www.mce.gov.au

In addition to the new regulatory structure that has been created, MCE is undertaking a number of other processes that are relevant to demand response.

Electricity transmission
MCE has agreed that a national transmission network review be developed in 2004. The purpose is to facilitate new inter-connector developments on a robust and transparent basis. MCE also recommended:

- Comprehensive assessment of a national transmission planning function for cross-border transmission, with last-resort power of direction, to be undertaken as part of the NEM transmission review.

- That in 2004 MCE will make decisions in respect of the NEM on:
  - the need for, and scope of, a new national transmission planning mechanism
  - amendments to the regulatory regime, including the regulatory test and scope for asset optimization
  - the future arrangements for defining the boundaries of market regions in the NEM
  - improvements to inter-regional financial trading arrangements
  - incentives to maximize transmission availability and capacity
  - the nature or regulation applying to new inter-connectors

User participation
To enhance the participation of energy users in the markets, including through demand side management and the further introduction of retail competition, and increase the value of energy services to households and businesses, MCE recommended:

- In all jurisdictions where full retail competition is operating, each jurisdiction align their retail price caps with costs, and periodically review the need for price caps.

- Examination of options for a demand-side response pool in the NEM, and consideration of the costs and benefits of introducing interval metering.

Public consultation processes have been completed and it is anticipated that policy options will be considered by MCE at their meeting in August 2004.

Cwth: Department of Industry, Tourism and Resources
The Department has responsibility for domestic and international energy policy, including climate change, renewable energy and energy efficiency policies, and provides advice on the implications of sustainable development policies for industry and the economy. It also plays a significant role in energy market reform.

Further information:
http://www.industry.gov.au/content/itrinternet/cmsindexpage.cfm?objectid=48A33771-20E0-68D8-ED841A1501D565E3

Vic: Department of Infrastructure

The Department of Infrastructure (DOI) is the Government's primary agency for delivering Victoria's major infrastructure investments. DOI aims to be a leader in the development of integrated infrastructure that contributes to enhancing sustainable environmental, economic, and social development across the whole of Victoria.

DOI supports the Ministerial portfolios of Transport, Major Projects, Energy Industries and Information and Communication Technology. The Department and its associated agencies are responsible for improving and maintaining Victoria's road and rail transport infrastructure, building government, private sector and community capacity for improved information and communications technology, growing the State's important ports and marine sectors, and effectively managing the delivery of large scale development and construction projects for the Victorian Government

The Energy and Security Division is part of the Department of Infrastructure. Energy and Security provides strategic policy advice to the Minister for Energy Industries and Resources on energy policy, in particular the national gas and electricity markets. Energy and Security provides advice on energy sustainability; competition; market development; economic issues, legal and legislative issues including safety and economic regulation; system security and emergency management.

Energy and Security's key activities include:

- Participating in national processes to reform the national electricity and gas markets.
- Overseeing competition in electricity and gas retailing for residential and small business customers, and maintaining an appropriate consumer protection safety net in the transition to effective competition.
- Monitoring and facilitating energy supply security.
- Managing the Government's response to supply emergencies.

Energy and Security Division is also responsible for implementing the energy policy initiatives in the Energy for Victoria statement, which outlines the Victorian Government's initiatives to promote a socially responsible and environmentally sustainable energy supply.

NSW: Department of Energy, Utilities and Sustainability

The Department of Energy, Utilities and Sustainability (DEUS) was established on 1 January 2004, and reports to the Minister for Energy and Utilities. DEUS promotes affordable, safe, reliable and sustainable water and energy for NSW. On 17 February 2004 David Nemtzow was appointed Director-General of the Department.

The Department incorporates the policy and regulatory functions of the former Ministry of Energy and Utilities, and the program expertise of the former Sustainable Energy Development Authority (SEDA) in demand management, energy efficiency and renewable energy. DEUS has responsibility for the safety and performance of energy networks, water and energy policy and

the NSW Mandatory Greenhouse Benchmarks Scheme targeting greenhouse gas emissions from the electricity sector.

In relation to electricity markets, DEUS' role is to provide leadership in electricity policy and regulation. In line with this DEUS has overseen significant reforms to the NSW electricity industry including the development of a national wholesale energy market, the National Electricity Market, and the introduction of full retail competition. Concurrently, DEUS has driven the implementation of a robust customer protection regime to ensure that these reforms deliver the benefits of competition to the entire community.

DEUS is also responsible for the oversight of network planning/demand management, quality of supply, reliability and safety within the electricity network industry.

Further information: http://www.deus.nsw.gov.au/

Queensland: Office of Energy

Part of the Department of Natural Resources, Mines and Energy. It is responsible for developing and implementing strategic policies, processes and legislative arrangements to further progress the development and delivery of energy to the Queensland community, and provides advice to the Minister for Energy and the Government. The Office of Energy is also responsible for delivering the Government's energy agenda to key stakeholders.

The primary legislation governing Queensland's electricity industry is the *Electricity Act 1994* and the *Electricity Regulation 1994*, which covers:

- licensing of electricity industry participants and monitoring of licence compliance;
- reviewing and making recommendations about standards and practices under the Act;
- settlement of disputes between electricity entities and between electricity entities and customers or other parties;
- approval of standard customer contracts of electricity distributors and retailers;
- approval of franchise electricity prices;
- administration of electricity restrictions and electricity rationing procedures; and
- retail competition/contestability.

Further information: http://www.nrme.qld.gov.au/energy/office_of_energy.html

South Australia: Electricity Supply Industry Planning Council

The Electricity Supply Industry Planning Council (the Planning Council) was established primarily to provide expert, independent advice to the South Australian Government and the Essential Services Commission of South Australia (ESCOSA) in relation to the state of the electricity supply industry in South Australia. Under section 6E of the *Electricity Act* 1996 the Planning Council has the following, explicit functions:

- to develop overall electricity load forecasts; to review and report to the Minister and the ESCOSA on the performance of the South Australian power system;

- to advise the Minister and the ESCOSA on matters relating to the future capacity and reliability;
- to prepare or review proposals for significant projects relating to the transmission network in South Australia;
- to advise the Minister and the ESCOSA, either on its own initiative or at the request of the Minister or the ESCOSA, on other electricity supply industry and market policy matters;
- to publish an annual review of the performance, future capacity and reliability of the South Australian power system;
- to carry out any functions appointed to the Planning Council under the National Electricity Code;
- to publish from time to time such information relating to the matters referred to above as the Planning Council considers appropriate;
- to perform any other function prescribed by regulation or assigned by or under any other Act.

Further information: http://www.esipc.sa.gov.au/site/page.cfm

Tas: Office of Energy Planning and Conservation

The Office of Energy Planning and Conservation provides policy advice on energy issues and input into the development of the framework for the regulation of participants, including consumers, in Tasmania's energy industry.

The Office of Energy Planning and Conservation liaises with the State's electricity businesses, (the Hydro-Electric Corporation, Aurora Energy Pty Ltd and Transend Networks Pty Ltd) and other private energy companies and is involved in interaction with community groups, universities, other agencies and governments. The current major issues and initiatives for the Office are Basslink, entry to the National Electricity Market and the creation of a framework for the regulation and introduction of natural gas into mainland Tasmania.

Further information: http://www.dier.tas.gov.au/energy/overview.html

Tas: Energy Markets Branch (EMB) of the Dept. of Treasury and Finance

The Energy Markets Branch (EMB) is charged with the facilitation of the Government's energy reform initiatives, in particular the framework for Tasmania's entry into the National Electricity Market (NEM). The EMB has responsibility for:

- developing policy advice on energy reform, particularly in relation to regulatory issues and market arrangements at the wholesale and retail levels for electricity and natural gas;
- assisting in the facilitation of major infrastructure opportunities in gas, Basslink and telecommunications; and
- coordinating the State's entry to, and ongoing participation in, the NEM.

Further information: http://www.treasury.tas.gov.au/domino/dtf/dtf.nsf/main-v/energy

Western Australia: Office of Energy

The Office of Energy provides energy policy advice to the Western Australian Government and coordinates economic and commercial matters in the energy sector of the State. The Office of Energy provides support to the Coordinator of Energy in undertaking his roles under the *Energy Coordination Act 1994* and other legislation.

The Coordinator of Energy is also the Chief Executive Officer of the Office of Energy and assists the Minister for Energy in planning and coordinating energy supply in Western Australia. Under the *Energy Corporations (Powers) Act 1979* and the *Electricity Act 1945*, the Coordinator authorises the provision of gas and electricity to the public from suppliers other than Western Power and AlintaGas. The Coordinator is also responsible for monitoring the operation of the State's energy industry, promoting the development of renewable energy applications and providing support in the resolution of energy related disputes.

The organisational structure of the Office of Energy recognises its role in policy matters and coordination, the need to encourage competition, the value of renewable energy and energy efficiency techniques.

Further information: http://www.energy.wa.gov.au/

Western Australia: Electricity Reform Implementation Unit

The Electricity Reform Implementation Unit is coordinating WA's transition to a competitive electricity market.

The Western Australian electricity industry lacks a competitive framework and has amongst the highest electricity prices in Australia. The plan endorsed by the State government involves establishing a competitive electricity industry, protecting consumers and keeping our WA's electricity assets in government ownership.

Electricity reform will deliver cheaper prices by introducing competition into the State's monopolistic electricity industry. This can only be done by creating four new businesses out of the existing Western Power – Generation, Networks, Retail and Regional Power. The key is breaking the link between the generation and retail businesses, which means new players will be able to compete on a level footing.

Changing the structure of Western Power is just part of the solution. Getting the electricity market right is just as important in encouraging competition in new and replacement generation. This will be done through the creation of a wholesale market with a range of features to encourage new entrants, increase investment in electricity infrastructure and improve reliability.

Further information: http://www.eriu.energy.wa.gov.au/

B. Independent Regulators

Australian Energy Market Commission

The AEMC has been established as a new statutory commission under the Australian Energy Market Commission Establishment Act 2004 (SA) from 1 July 2004, and has responsibility for rule-making and market development. It is accountable to and subject to the power of policy direction from the MCE, and will comprise three members, with two appointed by the states. The AEMC replaces NECA.

The rule-making, market development and other functions of the AEMC are to be conferred under the National Electricity Law, the National Electricity Code, the Gas Pipelines Access Law, the National Gas Access Code and any other agreed Commonwealth, State or Territory law that relates to energy.

AEMC will progressively take up its new functions. In relation to electricity markets, the AEMC will:

- initially be responsible for rule-making and market development in respect of the wholesale electricity market and electricity transmission networks in the National Electricity Market jurisdictions (and will take over the functions of NECA in this regard);
- by no later than 31 December 2006 assume responsibility for rule-making and market development in respect of electricity and gas distribution networks and retail markets (other than retail pricing) following the development of an agreed national framework.

The AEMC itself will not be empowered to initiate any change to NEM rules, but will be required to manage the rule change process and to consult and decide on rule changes that are proposed by the MCE, the Reliability Panel or any other person.

In the case of market development of the NEM, the primary objective will be to promote the long term interests of consumers of electricity with respect to price, quality and reliability of electricity services and economically efficient investment and innovation. The AEMC will be required to have regard to the following objectives:

- the market should be competitive;
- the operation and use of, and investment in, infrastructure in the electricity industry (including transmission and distribution services) should be economically efficient;
- customers should be able to choose which supplier (including generators and retailers) they will trade with;
- any person wishing to do so should be able to gain access to the interconnected transmission and distribution network;
- a person wishing to enter the market should not be treated more favorably or less favorably than if that person were already participating in the market;
- a particular energy source or technology should not be treated more favorably or less favorably than another energy source or technology; and

- the provisions regulating trading of electricity in the market should not treat intrastate trading more favorably or less favorably than interstate trading of electricity.

In undertaking its rule-making functions, the AEMC will apply a net benefit test based on the achievement of these objectives.

Australian Energy Regulator

The Australian Energy Regulator (AER) has responsibility for market regulation. It will be a constituent part of the Australian Competition and Consumer Commission (ACCC) but operate as a separate legal entity. State jurisdictions will appoint two AER Members, with the third drawn from the ACCC. It is intended that the AER take over the economic regulation of entities currently regulated by jurisdictional regulators.

The functions of the AER will be conferred on it under the National Electricity Law and any rules made under it (including the National Electricity Code), and any other agreed State or Territory law that relates to energy.

The AER will progressively take up its new functions. It will:

- initially be responsible for the economic regulation of the wholesale electricity market and electricity transmission networks in the National Electricity Market jurisdictions (and, to this end, will take over the ACCC's functions in relation to the regulation of electricity transmission pricing and NECA's functions in relation to monitoring, reporting on and enforcing compliance with the National Electricity Rules); and
- by no later than 31 December 2006 assume responsibility for the economic regulation of both National Electricity Market and gas distribution networks and retail markets (other than retail pricing) following the development of an agreed national framework - however, any jurisdiction may, at its discretion, subsequently elect to also transfer responsibility for retail pricing to the AER.

More specifically, the principal initial functions of the AER will include:

- making and amending transmission network revenue and price regulatory determinations;
- developing and publishing service standards to be applied to transmission networks;
- making and amending statements of regulatory practice and principles;
- making and amending guidelines in respect of the ringfencing of operations and information flows between activities, or within a business, of a regulated entity;
- applying tests in respect of augmentations to networks; and
- enforcing the National Electricity Law and rules made under it (including the National Electricity Rules.

Like the AEMC, the primary objective of the AER in the context of performing its economic regulatory functions for the National Electricity Market will be to promote the long term interests of consumers of electricity with respect to price, quality and reliability of electricity services and economically efficient investment and innovation.

Australian Competition and Consumer Commission (ACCC)

The Electricity Group is a branch of the Regulatory Affairs Division. Its main work was:

- assessing applications for authorisation of potentially anti-competitive conduct under Part VII of the Trade Practices Act, which includes changes to the National Electricity Code and vesting contract arrangements;
- assessing applications for acceptance of changes to the National Electricity Market Access Code under Part IIIA of the Act;
- assessing undertakings submitted under Part IIIA of the Act to the Commission by individual network service providers (NSP)—these undertakings propose how the NSP intends to allow third parties to obtain access to its network;
- regulating the annual revenue that transmission network service providers (TNSP) are allowed to receive from their customers as prescribed in the National Electricity Market Access Code;
- developing a set of principles for the regulation of revenues that a TNSP may receive;
- assessing applications for discounts on transmission charges under the National Electricity Market Access Code;
- liaising with industry, government departments and industry working groups aimed at market development;

Further information: http://www.accc.gov.au/content/index.phtml/itemId/3877

NSW: Independent Pricing and Regulatory Tribunal (IPART)

IPART is an independent body that oversees regulation in the water, gas, electricity and public transport industries in NSW. IPART has six core functions, which are conferred by legislation and codes and access regimes established by legislation:

- set maximum prices for monopoly services provided by government agencies in NSW
- regulate revenues or prices of electricity networks under the National Electricity Rules and electricity legislation (to be taken up by AER)
- regulate natural gas pricing and third party access to gas networks (to be taken up by AER)
- administer licensing or authorisation of water, electricity and gas businesses, and monitor compliance with license conditions
- register agreements for access to public infrastructure assets and arbitrate disputes about these agreements
- investigate complaints about competitive neutrality referred by the government

- Administer the Greenhouse Gas Abatement Scheme and its Register of abatement certificates.

Further information: http://www.ipart.nsw.gov.au/

Vic: Victorian Energy Networks Corporation (VENCorp)

VENCorp was formally established on December 11 1997 and plays a key role in Victoria's gas and electricity industries. VENCorp is the major State Government-owned entity within Victoria's privatised energy industries.

VENCorp is funded by energy industry participants, and has major operational, planning and development roles for both gas and electricity. Its key roles are:

- Independent system operator for the Victorian gas transmission network
- Manager and developer of the Victorian wholesale Gas Market
- System Planner providing planning services for the gas and electricity industries

In addition, VENCorp has operational and communications responsibilities during gas and electricity emergencies.

Further information: http://www.vencorp.com.au/html/index.htm

Vic: Essential Services Commission

The Essential Services Commission is the independent economic regulator established by the State Government of Victoria to regulate prescribed essential utility services supplied by the electricity, gas, water, ports, grain handling, rail freight industries and aspects of the insurance industry. The Commission commenced operations on 1 January 2002, subsuming the Office of the Regulator-General Victoria. Specific objectives of ESC are:

Regulating prices, service and promoting competition:

- makes price determinations and approves prices for various essential services provided by natural monopoly utility businesses.
- sets standards for natural monopoly services through enforceable codes of conduct, and sets financial and other incentives for regulated businesses to meet key performance standards.
- issues guidelines that detail how it interprets specific license or code obligations and approves market rules to assist customers to exercise choice in newly competitive markets.
- ensures that utility customers have an effective consumer protection framework and access to fair and efficient external dispute resolution processes.

Facilitating market entry and efficiency:

- issues licenses to new entrants and existing suppliers of essential services that set out licencees' rights and obligations.

- monitors, audits and enforces compliance with the regulatory obligations set out in licences and other statutory and regulatory arrangements and publishes reports on the financial and service performance of licensed businesses.
- makes binding decisions on access disputes about the terms on which a potential user has been offered the use of natural monopoly infrastructure services.

Further information: http://www.esc.vic.gov.au/index77.html

Qld: Queensland Competition Authority

The Queensland Competition Authority (QCA) was established by the Queensland Competition Authority Act 1997 (QCA Act). The QCA is an independent Statutory Authority consisting of members appointed by the Governor in Council. While the Authority is subject to the written directions of the Ministers in performing its functions, it is not subject to government direction in relation to the conduct of investigations, reports or access to services.

The Queensland Competition Authority, has responsibility for price regulation of electricity distribution networks. This will be undertaken by AER from 2006.

Further information: http://www.qca.org.au/www/welcome.cfm

SA: Essential Services Commission of SA

The Essential Services Commission of South Australia (ESCOSA) was established under the *Essential Services Commission Act 2002* (ESC Act), which came into effect on 12 September 2002. The functions of ESCOSA are to:

- regulate prices and perform licensing and other functions under relevant regulation Acts;
- monitor and enforce compliance with and promote improvement in standards and conditions of service and supply under relevant industry regulation Acts;
- make, monitor the operation of, and review from time to time, codes and rules relating to the conduct or operations of a regulated industry or regulated entities;
- provide and require consumer consultation processes in regulated industries and assist consumers and others with information and other services;
- advise the Minister on any matter referred by the Minister;
- in appropriate cases, to prosecute offences against this Act or a relevant industry regulation Act.

The Commission consists of a Chairperson and three part time Commissioners. The independence of ESCOSA results from legislative provisions which require that ESCOSA is not subject to Ministerial direction in the performance of its functions.

Further information: http://www.escosa.sa.gov.au/site/

ACT: Independent Competition and Regulatory Commission

The Independent Competition and Regulatory Commission (the Commission) is a statutory body set up to regulate prices, access to infrastructure services and other matters in relation to regulated industries and to investigate competitive neutrality complaints and government-

regulated activities. The Commission also has responsibility for licensing utility services and ensuring compliance with licence conditions.

The Commission's objectives in the ICRC Act are to:

- promote effective competition in the interests of consumers
- facilitate an appropriate balance between efficiency and environmental and social considerations
- ensure non-discriminatory access to monopoly and near-monopoly infrastructure

The Commission has roles in respect to the provision of energy in the ACT. While energy policy is the responsibility of the Energy Policy Unit, Department of Treasury, the Commission issues licences for energy and water network and retail service suppliers, establishes and reviews industry codes (eg. Consumer Protection Code, Network Boundary Code etc), and overseas compliance reporting. The Commission has responsibilities under the national gas and electricity codes for pricing, metrology and access to infrastructure amongst other things.

Further information: http://www.icrc.act.gov.au/aboutus/aboutus.html

Tas: Office of the Tasmanian Energy Regulator

The independent Regulator (and the Office) is an integral part of the reform of the energy supply industry. The Regulator was appointed and the Office established effective 1 July 1998 pursuant to amendments to the *Electricity Supply Industry Act 1995* (ESI Act), which established an independent economic, technical and safety regulator.

The Regulator's objectives include to:

- promote efficiency and competition in the electricity supply industry;
- establish and maintain a safe and efficient system of electricity generation, transmission, distribution and supply;
- establish and enforce proper standards of safety, security, reliability and quality in the electricity supply industry; and
- protect the interests of consumers of electricity.

The functions of the Regulator are to:

- administer the licensing system for electricity entities;
- monitor and regulate technical standards in the electricity supply industry;
- monitor the wholesale market for electricity in Tasmania;
- issue, maintain and enforce the Code; and
- carry out other functions assigned to the Regulator under the ESI Act, the regulations and the Code.

Further information:
http://www.energyregulator.tas.gov.au/domino/otter.nsf/9bb831001a28c1baca256c4e007b5228/1e299c305f874ab7ca256c4e007b69eb?OpenDocument

WA: Economic Regulatory Authority
www.era.wa.gov.au

C. Market Operators

National Electricity Market Management Company (NEMMCO)
NEMMCO was established in May 1996 to implement, administer and operate the wholesale National Electricity Market, continually improve its efficiency, and manage the security of the power system. It is a body corporate whose members are the governments of the Australian Capital Territory, New South Wales, Queensland, South Australia, Tasmania and Victoria.

NEMMCO has the dual roles of Market Operator and System Operator. Its objectives and Functions can be summarized as follows:

- establish and conduct the electricity market efficiently on a break-even basis;
- continually improve the NEM's efficiency;
- maintain the security of the power system; and
- coordinate planning for the power system.

Further information: http://www.nemmco.com.au/

VENCorp operates the Victorian gas market

6. ***Please list key industry stakeholder groups (e.g. large customer associations, reliability organizations, trade associations, etc.)***

Electricity industry associations
Energy Suppliers Association of Australia (www.esaa.com.au)
Energy Networks Association of Australia (www.ena.asn.au)
Energy Retailers Association of Australia (www.eraa.com.au)
National Generators Forum
Electricity Transmission Network Owners Forum

Energy users associations
Energy Users Association of Australia (http://www.euaa.com.au/)
Energy Action Group (http://home.vicnet.net.au/~eag1/)

Trade organisations related to Demand Response
Business Council for Sustainable Energy (http://www.bcse.org.au/)
Australian Electricity Performance Contractors Association (www.aepca.asn.au/)

Environmental organisations with interest in Demand Response
Total Environment Centre (http://www.tec.nccnsw.org.au/)
Australian Conservation Fondation (http://www.acf.org.au)

General industry organisations
Australian Industry Group
Business Council of Australia
Australian Aluminum Council
Cement Federation of Australia
Minerals Council of Australia
Australian Chamber of Commerce and Industry
Australian Automobile Association
Australian Institute of Petroleum
Federal Chamber of Automotive Industries
Plastics and Chemicals Industries Association

7. How many commercial, industrial and residential customers exist in your marketplace (add additional customer classes, e.g. agricultural, as needed)?

Customer Class	Number of Customers	Summer Peak Demand (MW)	Winter Peak Demand (MW)	Annual MWHs
Commercial	1,220,046			41,954,000
Industrial	(with Commercial customers)			83,311,000
Residential	7,749,047			51,012,000
NEM ONLY (not coincident)		33,659	28,960	
NSW		12,456	12,156	63,328,000
VIC		8,819	7,283	39,006,000
QLD		7,914	6,768	39,544,000
SA		2,833	2,154	11,582,880

8. How many distribution companies operate in your marketplace? Please list the top five largest distribution companies.

Number of Distribution Companies: 9 in the NEM and 2 others.

Note that distribution companies only have retailers as customers and some other large users. Retailers have the 9 million customer base

Largest Retailer Companies	Number of Customers	Summer Peak Demand	Winter Peak Demand
Energy Australia	1.5 million	See states above	
Energex	1.2 million		
Origin Energy	2 million		
Ergon	570 000		
Integral Energy	750 000		
AGL	3 million		
TXU	1.1 million		

9. If you have retail competition, how many competitive suppliers exist in your marketplace?

There are about 30 retail licences in Australia

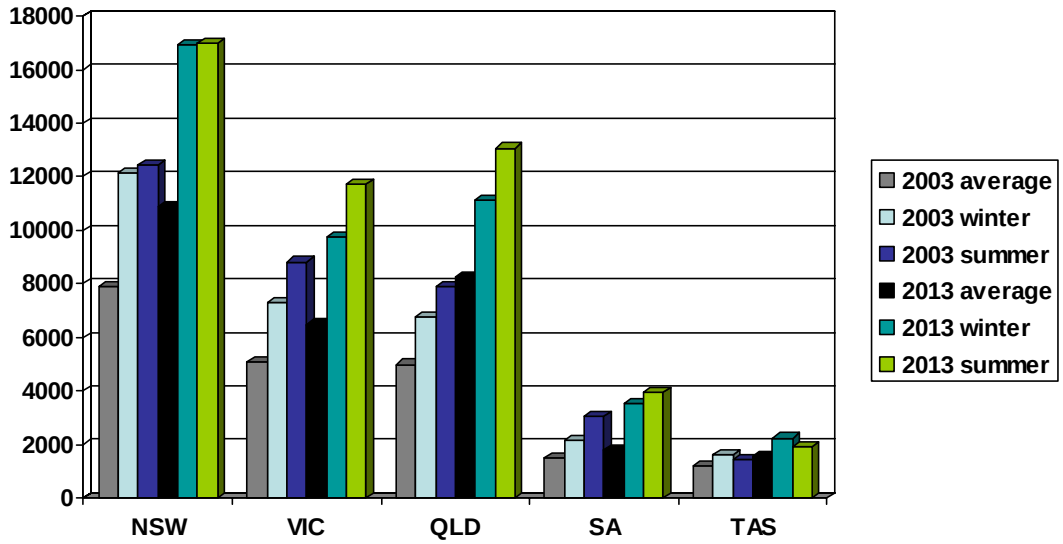
10. If you have retail competition, what percentage of the summer and winter peak demands do competitive suppliers supply?

100 percent in the NEM

11. What is the forecasted peak demand growth rate in your marketplace?

This is highly state specific and given as follows:

State	Summer Demand Growth rate	Winter demand Growth rate
NSW	3.1%	2.5%
Victoria	2.6%	1.8%
Queensland	3.5%	3.2%
South Australia	2.5%	1.5%
Tasmania	1.6%	1.5%
Western Australia	3.0%	2.0%



Source: ESAA

12. What is the projected supply (capacity) growth rate in your marketplace?

National energy-weighted (not capacity) growth is 2.6%, averaged for the next 10 years. The Graph above provides state capacity growth data for next 10 years.

Section II: Demand Response

13. Has demand response been attempted in your market? If so, please provide brief description of relevant successes and challenges.

Large customer supply contacts may contain a number of demand response provisions, including curtailment and interruptible load provisions. These contracts are bilateral agreements between a market participant and an end-user of electricity, and typically are used by the participant as part of its hedging portfolio. The existence and terms of such contracts are generally regarded as confidential information and details are not available to the market. However, NEMMCO (the market operator) surveys retailers and other market participants annually to ascertain an estimate of the level of such contracts as part of preparing long term supply-demand forecasts for the National Electricity Market. The 2004 Statement of Opportunities indicates that 'firm' demand side capacity totaling some 157 MW is available in Queensland, 14 MW in NSW and 163 MW in the combined SA-Victorian region. Additional volumes of 'non-firm' capacity are also reported to be available.

There have been a number of recent attempts or trials related to demand response in Australia's electricity markets:

- In summer of 1999/00, Victorian government imposed restrictions on electricity use (eg air conditioning, lighting, etc) under the emergency services act in response to hot weather and a shortage of supply;

- In the summer of 2001/02, in response to a likely electricity shortage due to the temporary shutdown at one of the major generators, the Victorian government put in place a number of demand response measures:
    - Development of *Guidelines for Voluntary Electricity Demand Management Within Government,* and establishment of a network to implement measures if required;
    - Identification of government owned standby generators that could be brought on line if required
    - Demand tender based on distributed and stand-by generation and strategic load curtailment. A detailed tender process was set up for the 1997/98 summer but it was not needed.
    - In practice, these measures did not need to be implemented, as the summer was somewhat colder than predicted and the expected demand shortfall did not arise.

    - A demand management paper trial project was undertaken in South Australia by Business SA in 2001 which examined opportunities for end users to trade demand side response in the wholesale market. Peter Moser at Business SA (peterm@business-sa.com) is able to provide further details.

- In November and December 2002, the Energy Users Association of Australia, (supported by the Victorian, NSW and Commonwealth Governments) implemented a Demand Side

Response Facility Trial – this was a *paper trial* undertaken as an off-market activity. (see http://www.euaa.com.au/) End users participating in the Trial offered 93 items of plant with a total dispatch capacity of 119.4MW. The plant was located in three NEM regions (NSW, SA and Victoria) and each plant item was offered for scheduling and dispatch on the basis of individual bids with different prices and dispatch conditions. The end-users were providers and sellers of DSR and electricity retailers and distributors were buyers of aggregated DRS.

- MCE is currently examining the need for changes to the policy framework which would facilitate a commercial demand side management facility in the NEM, taking into account the results of the Energy Users' Association of Australia's (EUAA) demand aggregation trial. See; http://www.industry.gov.au/assets/documents/itrinternet/UPWGdiscussionpaper20040312161714.pdf?CFID=175261&CFTOKEN=90760894

14. Which market actors might be most supportive of demand response in your marketplace? Please explain why.

Mostly governments (and their agencies), large energy users and some other consumers. Also, a number of key retailers.

The following market actors are likely to be most supportive of demand response:

- Electricity retailers – AGL Retail, Energy Australia, and Origin Energy participated in the DSR Aggregation Trial. Main benefit for retailers is reduced risk due to reduced exposure to price volatility in the wholesale market

- Electricity distributors – AGL (Agility), Energy Australia, and United Energy participated in the DSR Aggregation Trial. Main benefit for distributors is increased reliability especially in areas with network constraints (eg Sydney CBD)

- Large industrial energy users – AMCOR, OneSteel, and Selkirk Bricks participated in the DSR Aggregation Trial. Main benefit is the potential to generate revenue from use of demand side assets

- Large commercial energy users – 101 Collins Street (Melbourne), CSIRO, Frankston Hospital, Telstra, Victorian Office of Housing, Victorian Magistrates Court participated in the DSR Aggregation Trial. Main benefit is the potential to generate revenue from use of demand side assets, eg standby generators

- State governments, especially in areas where summer peak demand growth is being driven by increased air conditioner penetration and black-outs have occurred recently (eg QLD, WA, NSW) should also be supportive.

15. Which market actors would be the most likely to offer demand response services to the consumer? Please explain why.

Electricity retailers and to a lesser extent electricity distributors would be the most likely organisations to offer demand response services to the consumer, for the reasons stated in 14 above. Under the current market structure, retailers have the most obvious commercial benefit from the provision of DSR services.

In areas with network constraints, electricity distributors would have an increased incentive to offer demand response services.

The ability and desire to provide demand response services may be greater in those areas where it is proposed to roll out interval metering, eg Victoria where a final decision to require the phased roll out of interval meters was announced by the Essential Services Commission on 13 July 2004.

If the DSR Aggregation Facility is developed commercially, then a third party might offer such DSR services.

16. Can demand response resources participate in electric market transactions today? If so, how?

Registered market participants *can* bid scheduled loads in the National Electricity Market (NEM), but little use made of this option (mainly for off-peak hot water / pumped storage). There are significant barriers for companies not involved directly in the NEM to participate in this demand side bidding.

Most demand response taking place currently is retailer sponsored off-market initiatives based on bilateral contracts:

- Load shedding/shifting, standby generation
- Utility monitors prices & advises customers of looming price spikes
- Customers free to set trigger points & respond
- Benefits generally shared between retailer / customers

17. What are the most important objectives for demand response? Please explain.

Most important objectives is likely to vary, depending on the role of the market participants.

Governments

- Reliability / security of supply, especially in states with rapid growth in summer peak demand driven by air conditioning
- Potential to reduce/defer investment in electricity supply infrastructure
- Economic efficiency of markets and reduced price volatility

- Possibility that demand response will complement energy efficiency initiatives, and vice versa

Electricity retailers

- Reduced wholesale price variability and reduced risk
- Enabling technologies such as interval meters may facilitate the development of other value added products

Electricity distributors

- In constrained networks will significantly reduce the amount of installed capacity investment required to meet short-term peak demands

Electricity consumers

- Reduced price volatility and lower wholesale prices on average

18. Do energy consumers see different electricity prices at different times of the day? (Please explain in terms of how many and by class or size)

Time-of-use pricing applies to a small number of time, energy, demand, kVA metered customers. All 'contestable' customers have a negotiated tariff structure, which vary widely in nature. Nearly all customers have access to an off-peak power supply (for industry use and home use – mainly water and space heating and cooling). The bulk of customers have access to a simple peak and off-peak undifferentiated tariff. There are a small number of block tariffs.

19. ***Have any energy efficiency and/or a demand response market potential studies been completed in your marketplace in the last ten years?*** **YES**

    If yes, please provide a reference location or attach the report.

(Copies can be obtained from Ian McNicol, SEAV, ian.mcnicol@seav.vic.gov.au.)

Energy efficiency market potential

A National Framework for Energy Efficiency (NFEE) is currently under development. This work is being undertaken by the Energy Efficiency Working Group, which reports to the Ministerial Council on Energy (MCE) via the Standing Committee of Officials (SCO), and has included recent studies on the economic energy efficiency potential across industrial, commercial and residential sectors, as well as modelling of the economy wide impacts and impacts on the energy supply system of implementing higher levels of energy efficiency.

- Armstrong/SEAV, *Preliminary Assessment of Demand-Side Energy Efficiency Improvement Potential and Costs*, SEAV, November 2003
- EMET Consultants*, Energy Efficiency Improvement in the Commercial Sub-Sectors*, SEAV, February 2004
- Energetics, *NFEE: Energy Efficiency Improvement Potential Case Studies – Industrial Sector*, SEAV, March 2004
- George Wilkenfeld & Associates, *NFEE – Energy efficiency improvement potential case studies, residential water heating*, SEAV, February 2004
- EMET Consultants, *Energy Efficiency Improvement in the Residential Sector*, SEAV, April 2004.
- The Allen Consulting Group, *Economic Impact Analysis of Improved Energy Efficiency,* Phase 2 Report, Draft, April 2004
- The Allen Consulting Group, *Economic Impacts of a National Energy Efficiency Target,* Draft, April 2004
- McLennan Magasanik Associates, *National Energy Efficiency Target,* Draft, April 2004 (This report concentrates on the impacts on the energy supply system, eg reduced demand, reduced investments in supply infrastructure, prices, etc)

Further information: Copies of presentations summarizing the results, and the full reports are available from http://www.seav.vic.gov.au/news/NFEE/index.html

Demand response market potential

- Charles River Associates Pty Ltd, *Electricity Demand Side Management Study – Review of Issues and Options for Governmen*t, for VENCorp, September 2002. (Victoria) (http://www.vencorp.com.au/docs/Electricity_Transmission/Transmission_Planning/CRA%20Final%20report.pdf)

- IPART*, Inquiry into the Role of Demand Management and Other Options in the Provision of Energy Services, Final Report*, IPART, October 2002. (NSW) (http://www.ipart.nsw.gov.au/)

- Pareto Associates Pty Ltd, *Trial of a Demand Side Response Facility for the National Electricity Market: Independent Consultant's Report*, EUAA, April 2004. (http://www.euaa.com.au/)

- *2003 Statement of Opportunities*, NEMMCO, (http://www.nemmco.com.au/publications/soo/soo2003.htm)

- *Improving User Participation in the Australian Energy Market, Discussion Paper*, User Participation Working Group, MCE, March 2004. (http://www.industry.gov.au/content/itrinternet/cmscontent.cfm?objectID=1C92DAAD-8F2B-4BFD-8D06513B424C83B8&CFID=175261&CFTOKEN=90760894)

Other studies / reports related to demand response

- The Electricity Demand Side Measures Task Force was established in October 2001 on the recommendation of the SA National Electricity Market (NEM) Task Force, which reported to the Premier in June 2001. It included representatives of industry, community and Government and

reported to the Premier and the Minister for Energy on 12 June 2002. The Task Force made twenty-four individual recommendations. A copy of the Task Force's final report is available at www.sustainable.energy.sa.gov.au/pages/programs/dsm/elec_dsm/outputs/outputs.htm. The Government has responded to each of the Task Force's recommendations taking into account Government budget constraints and broader policy objectives. The Government's response is available at: www.sustainable.energy.sa.gov.au/pages/programs/dsm/elec_dsm/govt_response.htm

- *Installing Interval Meters for Electricity Customers – Costs and Benefits*, Essential Services Commission (Victoria), November 2002 (http://www.esc.vic.gov.au/electricity819.html)

- Mandatory Rollout of Interval Meters for Electricity Customers, Essential Services Commission (Victoria), Draft Decision March 2004; Final Decision July 2004. (http://www.esc.vic.gov.au/electricity819.html)

- The following recent demand response reports have been prepared for the South Australian Essential Services Commission. Both reports are available on the Commission's website (www.escosa.sa.gov.au).
- Charles River & Associates study and report "*Peak Demand on the ETSA Utilities System*", Feb 2004. (http://www.saiir.sa.gov.au/resources/documents/040225-R-CRAPeakDemandETSANetwork.pdf)

- Charles River & Associates report "Assessment of Demand Management and Metering Strategy Options", July 2004 (http://www.saiir.sa.gov.au/resources/documents/040831-R-CRADemandManagement.pdf)

- The SA Essential Services Commission has also published a number of papers on Embedded Generation on its website (www.escosa.sa.gov.au) and it has set up an industry working group to develop a Guideline for Embedded Generation in South Australia. This guideline will provide a transparent description of the rights and obligation of embedded generators and ETSA Utilities (the distribution network owner).

- In addition, as part of the 2005-10 Distribution Network Price Review, the SA Essential Services Commission is considering funding the distribution network owner to carry out a number of pilot programs in the next regulatory period (July 2005 until June 2010) , targeting such areas as:
    - Power factor correction
    - Embedded generation
    - Direct load control
    - Critical peak pricing
    - Voluntary load control
    - Load surveys and customer mapping

  The Commission has released a discussion paper on these initiatives. http://www.saiir.sa.gov.au/resources/documents/040831-R-CRADemandManagement.pdf

Section III: Market Transactions

20. What type of electricity products traded in your marketplace (e.g. 5-minute spinning reserve, 30-minute non-spin, day ahead, capacity, hourly energy/spot, etc.)?

Virtually all types of products are traded in the NEM, based on a platform of 24 hour ahead 30 minute interval, but 'rebiddable' energy market. This includes all ancillary services and spinning reserve. There is no capacity market.

21. Do you have a central trading exchange in your marketplace?

Yes, a dynamic, live trading pool through which all energy output from generation plant over 30 MW must be bid in. Refer to the NEMMCO website for details and data. (http://www.nemmco.com.au)

22. How are reserve margin targets established in your marketplace? Please explain.

The Australian NEM uses sophisticated modeling processes to determine the level of reserves required within each region. Chapter six of NEMMCO's 2004 Statement of Opportunities describes in detail how reserve levels are established. Chapter two describes the current and prospective levels within each region.

23. What is the current reserve margin target in your marketplace?

See question 22

24. Does your market currently exceed or fall short of the current reserve margin target? Please explain.

See question 22