

Australia-India Energy and Minerals Forum 2010

Smart Energy Infrastructure

Chris Locke

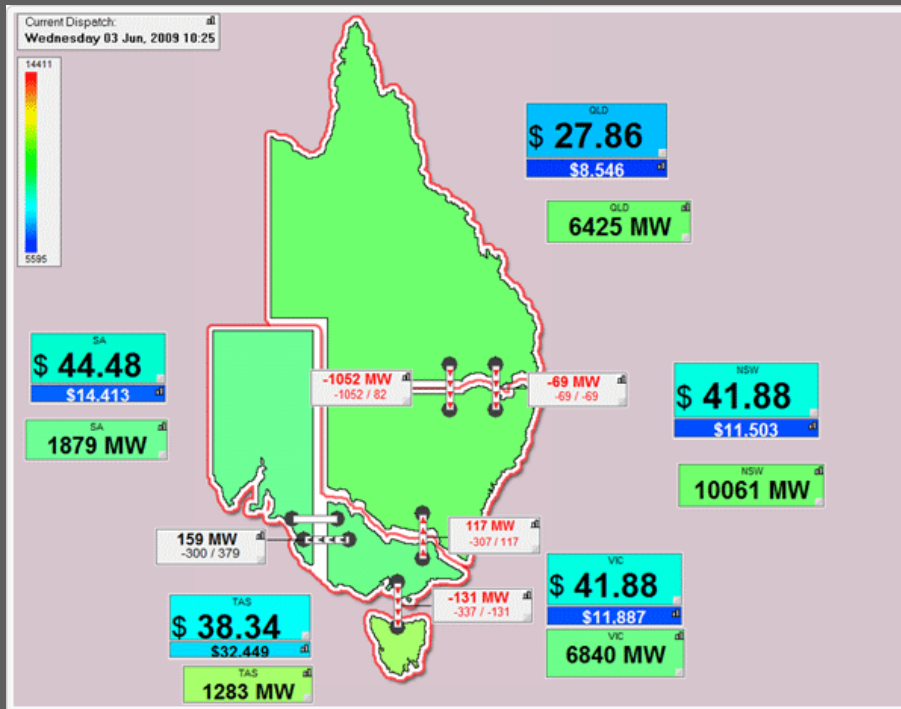
General Manager, National Energy Market Branch
Department of Resources Energy and Tourism

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Outline

- The National Electricity Market (NEM), its participants and institutions
- Smart infrastructure's contribution to market outcomes
- Projects underway
- Possible regulatory issues for review

The National Electricity Market



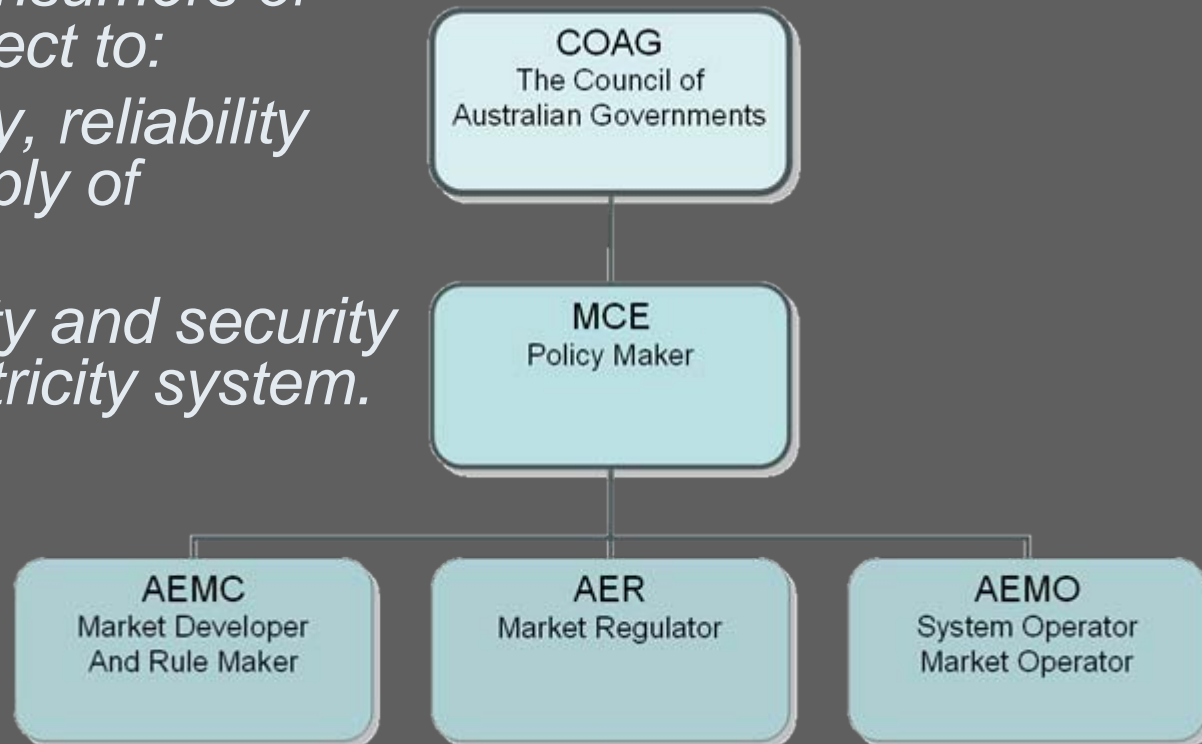
- Wholesale real-time market
- Network limits
- Security-constrained market

Energy Market Institutions and Objective

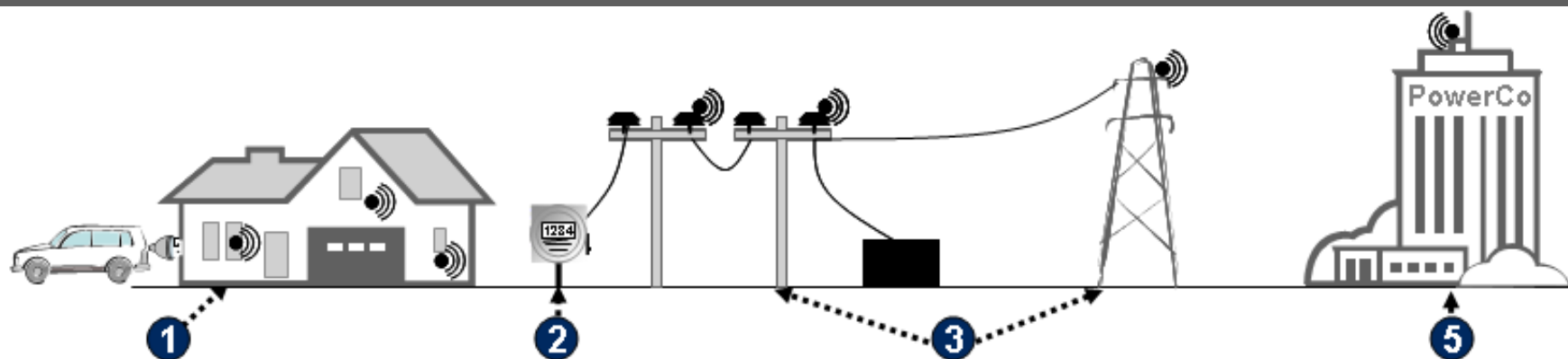
National Electricity Objective:

Promote efficient investment in, and efficient operation and use of electricity services for the long term interests of consumers of electricity with respect to:

- 1. Price, quality, safety, reliability and security of supply of electricity; and*
- 2. The reliability, safety and security of the national electricity system.*



A smarter energy system could mean:



Customer applications—support

- In-home display with real-time usage/pricing statistics
- 'Smart' appliances
- Home automation

Smart Meter—allows

- Report usage by time and outages in real time
- Remote connect/disconnect
- Operational improvements for distribution/retail companies

Grid applications—drive

- Automation of the grid
- Reduction in losses
- Remote monitoring
- More accurate balancing
- Preventative maintenance

Data collection, processing and back office—allow

- Integration of the various front-end systems to decision making tools

4 Better integration of renewables, distributed energy and electric vehicles—facilitate

- Integration of back-up, storage, distributed solar and wind generators
- Disconnection in case of network overload and for safety purposes
- Electric vehicles connect to grid to recharge and to provide additional storage for the network to be drawn on at peak times

Contribution to a better balance

- Facilitates a better balance between price, investment, reliability and security
- Facilitates more efficient use of energy as we move to a carbon-constrained economy.
- Benefits need to outweigh costs – evidence required

Smart energy: metering commitments

COAG Commitment on Smart Meters

- February 2006: COAG commitment to progressive national roll-out of smart electricity meters where benefits outweigh costs
- April 2007: COAG endorsed a staged approach for the roll-out. MCE to undertake cost-benefit analysis and implement
- June 2008: MCE agreed rollout to progress.
- Trials in most jurisdictions: review by June 2012
- Roll-out underway in Victoria.
- National framework to underpin new services

Smart energy: smart grids

Smart Grid Smart City project

- To demonstrate Australia's first fully integrated, commercial scale smart grid.
- EnergyAustralia's consortium the lead proponent
- Main demonstration site in Newcastle, NSW, with other parts of the trial to be conducted in Scone, Homebush, Ku-ring-gai and the Sydney CBD
- Will provide information on the costs and benefits of smart grid technologies and applications to inform better industry decisions

Smart energy: other projects

Solar cities: Commonwealth-funded trials (DCCEE)

- Covers solar power, energy efficiency, smart meters and time-of-use pricing
- Seven cities around Australia
- Blacktown, Townsville, Adelaide, Moreland, Central Victoria, Alice Springs and Perth

Industry activity

- Particularly grid-side applications

Australian Energy Market Commission proposal for review

AEMC has identified the following as areas for review in light of smart grid and smart meter technologies.

- Interaction between competitive and regulated services
- Access to infrastructure, data and customers
- Investment in new technology and services
- The ability for price signals to be passed through to customers
- Customer protections

References

Chris Locke

General Manager, National Energy Market Branch

+61-2-62761512

chris.locke@ret.gov.au

Ministerial Council on Energy:

www.mce.gov.au

Smart Grid Smart City:

environment.gov.au/smartgrid

Australian Energy Market Commission:

www.aemc.gov.au