DISPELLING THE MYTH AROUND BASE-LOAD POWER

Australia has an abundance of clean energy technologies that can provide power when customers need it. To say that renewable energy is not 'base-load power' and therefore coal or nuclear energy must be relied upon to provide power is incorrect on two fronts:

1. Base load power is an artificial engineering construct

Base-load has more to do with the nature of the electricity demand or load than the generation source. The term implies inflexible large power stations that deliver power whether it is needed or not. To date, considerable effort has been directed towards encouraging power consumption overnight to take advantage of inflexible coal generation. This includes subsidising off-peak electric water heating. Also large energy intensive smelters have been subsidised through long term power price contracts.

The National Electricity Market (NEM) that operates in the east coast of Australia spans from far north Queensland to the Eyre Peninsula of South Australia. It is effectively a battery into which electricity is injected to supply the load (demand) from across its length and breadth. The NEM treats all power equally and does not differentiate base-load from peak or intermediate load.

Renewable power is injected into the grid in Far North Queensland from a number of sugar cogeneration projects and at the other end on the Eyre Peninsula in South Australia a number of wind farms inject power. These renewable projects offset the need to transfer coal fired electricity vast distances to meet customers' power needs.

Customers require electricity to be available when they need it. To effectively meet this demand, a certain amount of dispatchable or controllable electricity is required. But electricity systems can also accommodate a significant amount of variable generation, (such as wind). South Australia will have 15% of its power coming from wind by the end of 2007 and the network and system operator expects that 20% can easily be accommodated without much difficulty. The Western Australian regional towns of Denham and Hopetoun have been utilising wind energy to provide up to 70% of the towns' power needs – with the balance supplied by diesel generation.

There are no technical impediments to harnessing wind energy when it is available and then designing our fossil fuelled generation to meet the balance. To date, the NEM has been operated the other way round by building a system to accommodate inflexible coal fired generation. Australia should develop, build and operate electricity networks to maximise the potential of clean, replenishable technologies such as wind and solar.

2. Clean energy technologies can provide power on a controllable basis

Geothermal, bioenergy, hydro and natural gas are energy sources that can provide power on a controlled basis independent of the weather.

Currently renewable hydro and natural gas provide 7% and 14% of Australia's power needs on a controllable basis. These generators are dispatched when customers need power the most; typically in the middle of the day when demand is at its highest. Solar produces power in the middle of the day when we need it the most.

Hydro, gas as well as bioenergy and geothermal technologies, can easily provide power on a "24 hour a day" basis, but they do not need to because this is not the typical pattern of customer demand.

Wind can produce massive amounts of power in conjunction with fast-response cleaner gas and hydro to deliver a reliable stream of cleaner electricity. Also the wind is always blowing somewhere across the national electricity market, including at night time.