

**Address to Committee for**  
**Economic Development of Australia (CEDA)**

**Executive Director**  
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**23 June 2010, Canberra**

Good morning. My name is Tony Concannon. I am a Chartered power engineer by profession and have worked in the electricity sector in Europe, Asia and Australia during the past 25 years. I will start with a short introduction, share with you some facts on the electricity generation sector, discuss what policy has worked and what hasn't, and suggest a way forward.

## **Introduction**

I am a Board Director for a FTSE 100 Company called International Power which owns and operates about 33,000MW in 23 countries. Our core business is the wholesale production of electricity and we have a diverse portfolio of fuel and technologies with 60% gas-fired, 20% renewables and the balance coal-fired.

For the past 7 years I have headed-up International Power's business in Australia (IPRA) which consists of coal, gas and renewable technologies and retail. It is the largest private producer of electricity generating 12% of the energy in the Eastern States, and supplying 360,000 electricity and gas accounts.

## **Electricity**

The future is electricity, and it will provide more and more of your energy needs including transportation. On a global basis, the electricity industry is now centre-stage and facing unprecedented pressure to transform and provide new energy solutions. It is simply the best time to be working in the electricity sector.

Turning to Australia, I read a lot of poorly-informed articles about the electricity sector and in particular about its starting point. So, let's first consider some facts about the electricity generation sector.

## **FACTS**

**Generation** - there is 48,000 MW of generating capacity installed and this produced 228 TWh of energy during 2009 to serve the needs of 21 million people in Australia. 90% of electricity supplied today in Queensland, NSW and Victoria is produced using coal<sup>1</sup> and peak demand continues to grow by around 2% pa in most States mainly due to population growth and the increased use of air conditioning and appliances.

**Electricity prices** - are some of the lowest in the OECD – they are still about half the prices in Europe. This is because there has to date been a disconnect between global energy prices and electricity prices in the Eastern States and large-scale, low cost, coal-fired generation continues to underpin the Australian economy. It is the main factor why 38% of Australia's GDP<sup>2</sup> comes from energy intensive industries such as aluminium, compared with an average of around 8% in the OECD.

**Emissions** – 35% of Australia's emissions are from the electricity sector (about 200 million tonnes per annum) and Australia's total emissions represent 1.5% of global greenhouse gas emissions. There is no commercial technology available today to capture and store greenhouse gas (GHG) emissions on a large-scale basis from any fossil-fuel source

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<sup>1</sup> Actual generation using coal-fired power plant during 2009 (black and brown coal)

<sup>2</sup> June 2007 Emissions Taskforce report

(coal or gas): the technology is in its infancy, and is not expected to be commercially developed until 2025-2030<sup>3</sup>.

**Capital** - the global financial crisis since the end of 2008 has resulted in less capital being available, and increased global competition for it. There is \$20 billion of existing debt in place in the electricity generation sector, and \$100 billion more is needed by 2020<sup>4</sup>. There is a very high risk this capital will not be secured for Australian generation projects for reasons that I will explain in a moment.

**Renewables** - the legislation is likely to be amended and passed. 41 TWh of energy pa by 2020 equates to the build of 14,000MW of wind<sup>5</sup> at a cost of \$35 billion<sup>6</sup>. But IPRA has always maintained that this is not the total cost for wind generation as you then need to add on the cost to reinforce the grid (\$2.5 to \$7 billion for wind generation only<sup>7</sup>), and additional fast-response capacity to “firm-up” intermittent renewable generation (8,000MW of OCGT and CCGT plant) at \$9 billion<sup>8</sup>.

This totals a figure of \$46 to \$51 billion to save 400 million tonnes of CO<sub>2</sub> over a period to 2030<sup>9</sup> which equates to \$127 per tonne of CO<sub>2</sub>. Let me pause there for a moment because I am conscious I have quoted a lot of figures.

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<sup>3</sup> Global CCS Institute ([www.globalccsinstitute.com](http://www.globalccsinstitute.com)).

<sup>4</sup> esaa survey Q1 2010.

<sup>5</sup> Using a 33% load factor for wind.

<sup>6</sup> Source: windfarm suppliers at \$2,500/ kW (2010 \$).

<sup>7</sup> Source: IPRA calculations.

<sup>8</sup> Using 4000MW of OCGT and \$900/kW and 4000 MW as CCGT at \$1,300/kW to meet a limit of 30% renewable beyond which IPRA considers there will be Grid stability problems.

<sup>9</sup> 700 million tonnes of CO<sub>2</sub> to 2030 less 300 million from gas-fired power plant to support wind farms gives a net saving of 400 million tonnes.

The true cost of this renewable generation (without including the cost of transmission augmentation) is at least \$150-\$200 per MWh<sup>10</sup>. Including the cost of transmission would see this number increase further. Currently the average cost of wholesale electricity is about \$40 per MWh

Put simply, to meet the renewable energy target, consumers will be required to pay at least four times the cost of current wholesale electricity prices.

The Renewable Electricity Certificate (REC) market is currently over-supplied due to the deliberate design of the solar PV scheme. REC prices at less than \$40 reflect this, and will (in our view) take 3 or so years to unwind. The current REC (\$40) and electricity price (\$40/ MWh) is not enough to support the economics of a windfarm project (and certainly not the other costs I have mentioned).

And finally...

**Regulation and reform** – suffice to say this remains as unfinished business. The electricity market is a muddle of part-privatised businesses, retail price regulation continues, and there are a plethora of overlapping policies between State to State, and State to Federal (all of which result in increased costs to users).

**So how do we transition from where the sector is, to where we want to be ?**

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<sup>10</sup> Based on current Renewable Energy Target and trajectory.

There is a lot of work to be done over the next 10 to 20 years. There needs to be more renewable sources, increased energy efficiency and demand-side management, upgrades to transmission and distribution systems, more gas-fired generation, and electric transport is expected to evolve as a source of demand, as well as a potential energy storage over the next 10-15 years.

The electricity generation sector is in a difficult space right now. The issues affecting it are much broader than just emissions reduction and include the need for firm transmission access, completing the 16 year old privatisation process, dismantling disparate State by State energy policies, and de-regulating all retail prices.

It all hinges on good policy and investor confidence being in place which will encourage innovation, and being able to compete for both global and domestic capital. Before we look forward to new policy, let's have a short look back at what Policy process has worked well in the generation sector.

### **What Policy process worked well ?**

After careful deliberation, in 1998/99 Australia launched arguably the world's most complex, near-real time electricity markets (called the "NEM") which covered all of the Eastern States. It was a resounding success with near real-time pricing, and a well thought through process with business. It still settles \$8 to \$10 billion per annum.

A number of electricity assets were sold by State Governments with a remaining life of 40+ years and over \$100 billion dollars was raised from both Australian and foreign capital which was in turn used to clear State debt and invest in other public sectors. Competition thrived, world's best practice permeated through the industry, reliability of supply improved and customer choice increased dramatically.

Investors trusted the Government, its policy and regulation, and \$20 billion of debt was raised in the generation sector from both Australian and foreign sources. This is not a long look back, for example, in only mid 2007 IPRA re-structured \$617 million of debt for the most modern (only 14 years old) 1000MW brown coal-fired power plant in Victoria.

### **And what of today ?**

Some tangible evidence is now unfolding.

The reality is no new debt has been raised for any coal-fired power plant (black or brown coal, new or old) in Australia – and recall 90% of the energy is generated using it in the three most populated States. Investors have been spooked by the prospect of abrupt regulation since 2008, and increased sovereign risk.

Lenders want their money back fast, with no new lending against power plant. This is not the case in other countries<sup>11</sup>. The Government has

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<sup>11</sup> March 2010. 815MW coal-fired at Paiton 3, Indonesia. \$1.215 billion debt secured for a term of 17 years.

essentially crippled the majority of the generation sector which does the heavy lifting to produce electricity.

Investment in the generation sector has been largely paralysed since 2008, and the term for debt for Australian generation projects is now less than half the international norm<sup>12</sup>.

Finally, the electricity market is no longer trading as it used to. One year deals are now the norm, not 3 to 4 years. As creditworthiness concerns increase the electricity market will be forced to become far more volatile as more and more energy is sold onto the spot market. This is not good for either the industry or consumers.

### **So what has happened ?**

In November 2009 the Government showed its true colours in terms of sovereign risk. I will not go into the detail here today, but despite a 7 month exhaustive (but still secret) independent report, the Government had effectively confirmed with a revised emissions trading scheme that it was prepared to destroy \$7 billion of investors equity value (using Treasury's own figures). There was no genuine engagement with the electricity generation sector over an 18 month period.

It is essentially a form of indirect expropriation and not expected of doing business or of policy making in Australia .

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<sup>12</sup> 210MW wind farm in Western Australia with 15 year term offtake; 5 year debt. Equivalent wind project in Morocco; 17 year debt.

I see a similar pattern emerging with the proposed super profits mining tax. The electricity generation sector does not have the might of the mining sector but it does have the resolve to not be short-changed by Government due to a material change in law.

### **So where to from here ?**

The renewable energy target legislation is an important piece of the jigsaw puzzle, but just one piece.

Large-scale investors are feeling bruised at present.

Carbon capture technology is evolving but remains largely experimental today.

Society will not tolerate a loss of electricity supply.

The price for electricity will increase from the low base it has historically been at, but it must remain affordable.

Good electricity policy has been produced with business before in Australia. It is needed again.

A smooth transition which respects investors is paramount, particularly for infrastructure with a design-life which equates to 10 or more Federal Government terms.

So in summary I see two potential outcomes from here. The first, is where investment continues to be largely paralysed and when parts of the NEM start to falter I expect Government to blame business (not itself as the root cause of the problem). It will then either re-nationalise distressed assets (which would mark the end of the NEM, and underscore expropriation risk is very real in Australia), and/ or be forced to enter into long-term contracted purchase agreements and effectively underwrite market risk.

The second, is a prompt and genuine engagement with the electricity generation business by both Government, and the Opposition, with the objective of producing well designed policy for the electricity sector. This is necessary to restore investor and lender trust (both domestic and foreign), but it should be recognised that this trust will not return overnight and the electricity sector has long lead times.

I continue to favour this second approach. It is a complex matter but I remain convinced the best solution will be formed by Government talking to business, rather than at it.

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