NSW GOVERNMENT | Trade & Investment Resources & Energy

Public Accounts Committee

Inquiry into the Economics of Energy Generation

Responses to Questions on Notice

Question 1 – Has a comparison been done of the cost of maintaining gas pipelines as compared to transmission lines?

Response 1 - To the Division's knowledge no formal analysis has been conducted primarily because it's difficult to accurately compare operating and maintenance costs for different types of infrastructure.

Gas transmission pipelines such as the Moomba to Sydney Pipeline (MSP) and the Eastern Gas Pipeline (EGP) tend to run from a single gas production source such as the Moomba and Longford Gas Plants, to major load centres such as the Sydney, Newcastle and Wollongong gas distribution network. As a result the pipeline is normally considered to be a single linear asset. The MSP is only 1299 kilometres long while the EGP is shorter at 797 kilometres. Some laterals will link the main pipeline to loads along its route but these tend to be small capacity and low cost.

The electricity transmission system links multiple generators, including from interstate, to multiple load centres and hence tend to be more akin to very high voltage networks. For example, the NSW electricity transmission operator, TransGrid, operates over 12,650 kilometres of very high voltage power cables covering the whole of the state.

In addition, while the NSW electricity transmission system is operated by the monopoly State Owned Corporation, TransGrid, which is subject to detailed economic oversight by the Australian Energy Regulator (AER), the MSP and EGP are operated by competing private sector companies, the APA Group and Jemena. As a consequence economic regulation of gas pipelines is limited and operating expenditure is often considered commercially sensitive and not generally publically available.

Empirical information indicates the cost of construction of electricity transmission assets is in the range of $3.5 - $4.5 million per kilometre while gas transmission pipelines construction cost is generally in the order of $500,000 to $750,000 per kilometre.

In relation to operating and maintenance expenditure (Opex), the latest economic regulatory determination released by the AER set TransGrid's annual opex allowance for the 2009-14 regulatory period at an average of $172.5 million or $13,630 per kilometre of powerline.

The last publically available information for the MSP was for the 2003-09 regulatory period after which light handed regulation was applied due to the competition with the EGP. This last determination identified an annual Opex for the MSP of about $25 million or $19,245 per kilometre of pipeline, in 2003 dollars.

Hence, the opex costs for both types of assets are not significantly different, while initial capital cost of electricity assets is three to four times that of a gas pipeline. This tends to drive gas fired electricity generator proponents towards locating their projects near electricity transmission assets and building gas pipelines to bring the fuel from the gas field to the generating plant. The Wellington Gas Fired Power Station proposed by ERM Power Pty Ltd is an example of this.

Of course the preferred locations for gas fired generation are where access to both a gas pipeline and electricity transmission is available. The recently constructed Tallawarra, Uranquinty and Colongra Power Stations are examples of this.

Question 2 - Are there regulatory impediments to investment in new generation projects?

Response 2 – Based on the number and capacity of proposed generation facilities, either with development approval or undergoing assessment in the NSW planning regime, it is difficult to argue that barriers to development of new generation exist although some proponents regularly express concern over the time delays that the regulatory system around the NSW planning approvals process introduce.

As at the end of 2011, approximately 11,300MW of new generation had been approved including 2000 MW of wind generation and 3600 MW of gas fired generation. A further 10,300 MW of proposed generation was undergoing assessment including some 6500MW of wind power and 3700MW of gas fired projects.

Based on this it could be argued that the only issues preventing commencement of these projects is financial viability which is based on conditions in both the energy and financial markets. The Division does not consider that regulatory arrangements are constraining either of these markets now that the Carbon Tax has been finalised.

Question 3 - Most reports on Levelised Cost of Electricity indicate that the cost of any new type of generation (including coal) is higher than the average wholesale spot price in New South Wales. Does this suggest that wholesale electricity prices in New South Wales are unsustainably low?

Response 3 - A comparison of the levelised cost of electricity (LCOE) and the wholesale price is not a comparison of 'apples with apples'. The LCOE includes the capital costs, return on investment, operating & maintenance costs and thermal efficiencies and looks over the long term.

The wholesale market prices reflect the operating costs (including fuel and maintenance) but also reflect short and long terms strategies and responses to market conditions. As many of the generation plant in the NEM is of substantial age,

the capital costs are not necessarily being recouped from the current market. There are also hedging and other contracts in place that influence the wholesale prices.

Question 4 - Do you see a role for measures to manage demand more effectively? How can governments assist in managing demand?

Response 4 – Managing the growth in peak demand has been a long term issue for NSW. Schedule 2 Section (6) (5) of the *Electricity Supply Act 1995* required the Minister to impose licence conditions on NSW electricity distributors to seek non network demand management solutions prior to investing capital in expanding the network.

The initial Demand Management Code of Practice (the DM Code) recognised by the Minister on 28 October 1999, allowed a choice between two frameworks for investigating and implementing demand management strategies. This reflected the views at the time and was subsequently modified in the second edition of the DM Code in May 2001 to a single framework designed to promote market based approaches to investigating non-network alternatives.

More recently, in 2008 the Ministerial Council on Energy (now the Standing Council on Energy and Resources) undertook policy work to establish a national framework for electricity distribution network planning and expansion. This framework included obligations for network operators to undertake demand management activities for all proposed network expansions greater than $2 million in value.

The Australian Energy Market Commission (AEMC) is currently preparing to undertake the statutory process to change the National Electricity Rules to give effect to the new framework. It is expected that these new rules will come into effect and replace the NSW DM Code, in late 2012.

So the Government will continue to seek to manage the growth in peak demand through the national framework and will continue to seek other approaches as they arise.

Question 5 - What do you think will be the impact of the Carbon Tax on electricity generation in New South Wales?

Response 5 – As indicated in responses to questions from the Committee, the primary impacts will be two fold. First, the Carbon Tax is designed to change the generation mix, making coal based generation less viable. As a consequence, it is considered unlikely that any new coal based generation will be constructed in the near to medium future in NSW. Investment in wind power, driven by the Renewable Energy Target (RET) scheme, supported by gas fired generation during peaks and low wind weather periods will become the norm. This issue is discussed in more detail in the Government's submission to the Committee.

The second impact is of course to contribute to the rise in retail electricity prices. The Division of Resources and Energy expects the Carbon Tax and the RET scheme will add up to 10% to the July 2012 retail electricity price determination currently being finalised by the Independent Pricing and regulatory Tribunal (IPART).

It is expected that this second impact will drive residential customers towards alternative energy sources such as gas and solar PV. The flow through effect, which is difficult to predict accurately, could be a reduction in electricity demand delaying the need for new generation investment for some time.

Question 6 – There are a number of different green energy schemes operating at a state and federal level. Can you suggest any changes to New South Wales schemes that would make them more cost efficient? Should New South Wales be involved in any schemes? If so, which ones? Should the Federal Government rationalise its schemes given that we now have the overarching Carbon Tax regime and 20 percent renewables target?

Response 6 – The NSW Government has taken effective action and improved coordination between State and Commonwealth energy policy measures including removal of costly duplication of renewable energy programs. These include:

- closing the NSW Solar Bonus Scheme to stop further costs being passed on to customers. IPART has provided advice on future feed in tariffs which do not incur costs for consumers or the State budget; and
- working collaboratively with the Victorian Government to increase harmonisation of respective state based energy efficiency schemes. Aligning the respective energy efficiency schemes will:
    - make it easier for firms creating energy efficiency certificates to operate in both States;
    - reduce compliance costs for electricity retailers that operate in both jurisdictions;
    - potentially broaden the range of activities that can occur in both jurisdictions; and
    - reduce duplication of government resources.

In recognition that removing duplicative programs reduces electricity costs for consumers and that governments' should take action to assist with alleviating electricity price rise pressures, the NSW Government has called on the Commonwealth Government to close down the RET scheme after commencement of the Carbon Tax. If not, then the Commonwealth should compensate households for the scheme costs or consider how the scheme could be made cost neutral.

With the introduction of the Carbon Tax secondary measures which drive reduced dependency on fossil fuel generation, including the RET, should be removed.

As with environmental programs, it is important that Commonwealth and State and Territory energy financial assistance measures are not duplicative and do not unnecessarily increase the regulatory burden on energy retailers who assist on the front line with concession and rebate delivery.

Question 7 – The submission from the National Generators Forum suggest that the NSW Greenhouse Gas Reduction Scheme was the least expensive scheme for emissions abatement in New South Wales. Can you explain how the scheme works and comment on its status given the introduction of the federal carbon price?

Response 7 – The Minister for Resources and Energy announced (5 April) that the NSW Government will close the Greenhouse Gas Reduction Scheme upon the commencement of the Carbon Tax to reduce duplication among the Federal and State schemes and to minimise costs for electricity consumers.

Background on GGAS
The Greenhouse Gas Reduction Scheme (GGAS) is a type of greenhouse gas emissions trading scheme. It has applied in NSW since January 2003. GGAS commenced in the ACT on 1 January 2005.

Under GGAS there is an annual state-wide greenhouse gas emissions benchmark for the electricity sector. The NSW electricity retailers and other large users of electricity (known as benchmark participants) are required to ensure that the greenhouse gas emissions associated with the electricity they purchase are below this benchmark. The benchmark is effectively allocated on a pro rata basis depending on the size of each retailer's share of the NSW electricity market.

Certain large electricity users can choose to manage their own liability rather than have a retailer manage the liability for them.

If retailers exceed their baseline, they must pay a penalty or surrender abatement certificates known as NSW Greenhouse Abatement Certificates (NGACs) to offset their greenhouse gas emissions above the baseline. The baseline is the level above which they must surrender certificates (credits).

Certificates are created by Accredited Certificate Providers for emissions abatement activities eligible under GGAS. Activities can include improving efficiency of coal fired power station operations and switching from high greenhouse gas emissions fuels eg coal to lower greenhouse gas emissions fuels (eg gas) or renewables.

Activities can occur across the National Electricity Market recognising that electricity consumed in NSW comes from a variety of sources. GGAS has certificate creators in Queensland, Victoria, Tasmania and South Australia.

Under GGAS the incentive to reduce greenhouse gas emissions comes from a financial 'benefit' i.e. companies can sell their certificates to recoup the cost of their investments to reduce emissions. Under the Commonwealth's carbon pricing mechanism, the financial incentive mechanism to reduce emissions is different. Companies are encouraged to reduce greenhouse gas emissions as they are required to pay for each tonne of greenhouse gas that they emit. The less a company emits, the less it must pay in Carbon Tax.

Question 8 – In December last year the Federal Government released a draft Energy White Paper. Do you have any comments on the paper and on how it may ultimately affect energy generation in New South Wales?

Response 8 – The NSW Government's response to the Draft Energy White Paper has been submitted to the Federal Government and will be made public on the Department of Resources, Energy and Tourism website: http://www.ret.gov.au/energy/facts/white_paper/submissions/Pages/submissions.aspx

Question 9 – What do you think are the most successful examples of emerging electricity generation projects?

Response 9 – Success can be measured in a number of ways depending on the objective of the project. If successful is defined as delivered by the market with out Government subsidy or direction, then in NSW gas fired generation is the most successful with three new power stations being built in recent years namely Tallawarra, Uranquinty and Colongra.

However, gas fired generation is not normally considered an emerging technology having been in the market for many years. Therefore, the most recent technologies which could be considered as emerging would be wind, solar PV, solar thermal, geothermal, tidal and wave.

The most prolific of these as mentioned in Response 2 above is wind generation followed by solar PV which has some 330 MW of installed capacity resulting from the Solar Bonus Scheme feed in tariff. The other technologies have significant technical issues limiting the ability to upscale their maximum capacities.

For example, geothermal requires management of deep drilling and fracking of hot rock formations while the world first base load solar thermal plant, the 20 MW Gemasolar facility in Spain, uses 2650 heliostats (mirrors) on 185 hectares. Up scaling such facilities to produce 400 or 600 MW of generation (the normal size of a gas fired plant) is some time away.

Question 10 – What are the externalities of energy generation? How can they be taken into account in planning energy policy?

Response 10 – The primary externality to be considered in planning energy policy is changes in federal arrangements. This causes uncertainty not just in relation to operating cost about also potentially future demand growth.

The uncertainty around the form and value of the carbon price over the last few years was a significant impediment to investment decision making and while this has now been resolved the potential for future changes exists if there is a change to the Federal Government in 2013. How such a change might impact investment in generation is unknown and hence cannot be factored into long term energy policy in NSW.