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Regulated assets
Trends and investment opportunities

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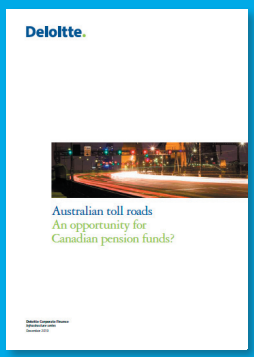

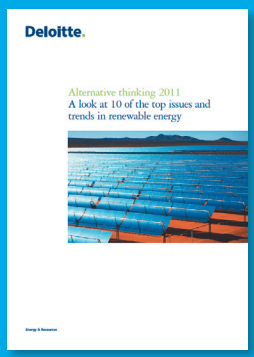

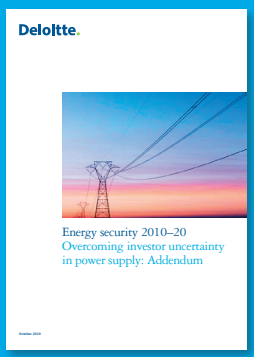

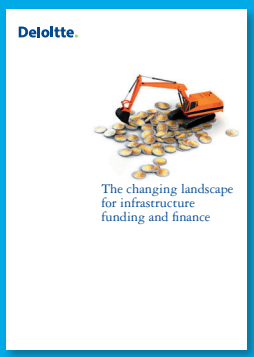

Introduction

About Deloitte Corporate Finance's *Infrastructure* series...

This series of short monographs explores individual infrastructure asset classes.

Upcoming monographs include:

- Carbon price implications for infrastructure assets
- Renewable energy assets.

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In this paper we explore a few valuation issues concerning regulated infrastructure assets.

Highly regulated infrastructure assets (such as energy transmission and distribution assets) are commonly considered a low-risk investment. Finance can be obtained at relatively low-cost and distribution to investors are relatively stable.

Historically, regulated infrastructure assets have been transacted (either off-market or on-market via listed investment vehicles) at relatively high multiples. Pursuant to the global financial crisis, transaction volumes of this class of assets have significantly diminished leaving investors with limited guidance on their current market value. In this paper, we investigate:

- Whether the required rate of return of a regulated infrastructure asset should be lower than that of an unregulated infrastructure asset of a similar type
- Whether there are compelling reasons for these assets to support price-to-regulated asset base (RAB) multiples greater than one.

In addition, demand in one area of regulated assets – the energy sector – is fuelling the need for capital expenditure in the order of more than $139.5 billion nationally over the coming decade. This represents a compelling investment opportunity for fund managers and other potential investors to consider. We explore the key areas of capital expenditure which relate to regulated assets or infrastructure assets with similar characteristics.

Required rate of return – Regulated vs. unregulated assets

Intuitively, it may be reasonable to expect the required rate of return of a regulated asset to be lower than that of an unregulated asset. In this paper we investigate whether this hypothesis is supported by qualitative and quantitative evidence and conclude that it is not. Under certain circumstances, an unregulated asset with long term contractual arrangements in place can be less risky than a regulated asset and is therefore likely to demand a lower required rate of return. It would also appear that the more 'intrusive' the level of regulation – or the more control over end-user pricing – the greater the possibility that the rate of return for a regulated asset can differ from that of an unregulated asset of the same class.

For example, in Australia most energy transmission and distribution assets are highly regulated, in terms of their ability to set end-user prices, compared to airports and other assets where only 'light-handed' regulation, in the form of price monitoring, applies. For the sake of the argument we have therefore focussed the following analysis on the highly regulated assets in energy transmission and distribution and have referenced other types of assets (such as water, airports, seaports, rail transport, toll roads, communication and social infrastructure[1]) as relevant in either supporting, or refuting, the proposition being considered.

Typically, energy infrastructure assets are regulated where they:

- Operate as a natural monopoly
- Provide 'essential' services
- Service communities of customers.

Distribution assets typically possess all these features and, as a result, the majority are regulated. By contrast transmission assets do not necessarily possess all three characteristics. For instance, a pipeline connecting an upstream energy product to a mine or to a port may compete with alternative transmission assets. In this case, the regulator may consider that negotiations between parties are sufficient to set market prices and that there is no need for price regulation.

Pricing and volumes

Regulated energy infrastructure owners set tariffs with customers based on a 'fair return' on their RAB after allowing for recovery of opex, capex and tax. Both the rate of return and the RAB are determined by the regulator, typically for a five year period, although the asset's owner is able to challenge underlying components of the regulator's analysis during the decision period.

This pricing mechanism guarantees relative predictability in the asset's earnings during the regulatory period. Variations in earnings depend on whether the volumes of energy transmitted or distributed are higher or lower than that assumed by the regulator, or whether the opex and/or capex undertaken by the asset is higher or lower than assumed by the regulator at the start of the determination period.

Unregulated energy infrastructure asset owners are free to set prices based on direct negotiations with their customers. In order to limit volatility, contracts for supply of services by unregulated energy infrastructure assets are typically for long periods, e.g. 20 years, and with pre-arranged price and volume mechanisms, typically via throughput agreements. Since pricing and volumes may be fixed for a period longer than the typical regulatory period of five years, it may therefore be argued that some unregulated energy infrastructure assets bear lower risks (and consequently a lower cost of capital) than regulated assets.

Margins and projected growth

In addition to pricing and volumes, two other factors that should be evaluated in order to assess an asset's required rate of return are margins and projected growth:

- Margins: To the extent that actual expenditure equals the estimate made by the regulator, opex and capex are effectively a pass-through cost for regulated energy assets and should therefore have limited impact on the margins achieved over the long run. By contrast, unregulated assets have limited scope to pass-through their costs once long-term contracts are in place, unless specific clauses allow for such variations. In this respect, regulated assets should be subject to a lower degree of margin volatility than unregulated assets.
- Growth: In general, the higher the growth resulting from projected expansionary capital expenditures, the greater the possibility that actual earnings may vary compared to those projected. As investors are likely to be more reluctant to fund new and unproven businesses, it may be argued that identical assets may be subject to different costs of capital

[1] In certain respects, pricing regulation of water distribution, seaports and certain telecommunication assets is similar to that of energy transmission and distribution assets.

if their growth profiles vary. However, to the extent that the capital expenditures underpinning growth are agreed with the regulator, regulated assets have a greater degree of certainty to generate a defined return in the long-term. Accordingly, it may be argued that growth is 'cheaper' for regulated assets than for unregulated assets.

In the table below, we have summarised the level of risk perceived on key valuation factors for regulated and unregulated (long-term contracted) assets.

Regulated vs. unregulated assets: level of risk by valuation factor

	Regulated asset	Unregulated asset (long-term contract)
Pricing	Low/medium[2]	Low
Volumes	Medium	Low
Margins (%)	Medium/low[3]	High
Growth (driven by expansionary capex)	Low	Medium

Depending on the terms of the contract in place (and how much capacity is covered by contracts), unregulated assets may bear lower risk than regulated assets.

Additionally, since regulated assets may also source part of their income from unregulated activities (typically on a short-term or non-contracted basis), such assets could be expected to bear an even greater risk profile compared to an unregulated (and long-term contracted) asset.

Key takeaways

Based on the above considerations, we observe that regulation:

- Decreases pricing risk over the short-term (five years)
- Smoothes an asset's earnings over the long-term due to the price reset mechanism.

However, there are compelling arguments to suggest that certain unregulated assets may be subject to lower volatility in pricing and volumes and therefore to a lower risk profile. A review of the contracts in place and of the growth assumptions underlying the assets must be undertaken to establish the level of risk and the required rate of return for that asset.

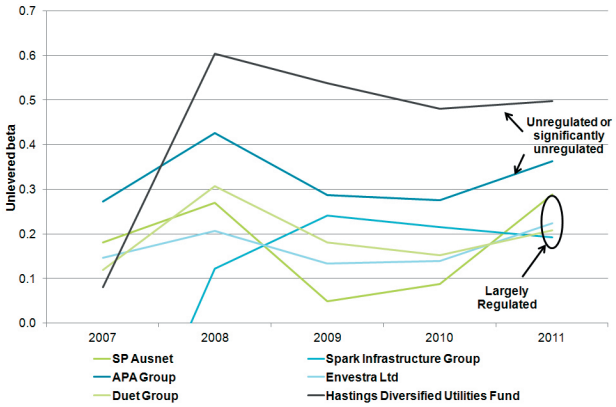
We also note that regulated assets may tend to face lower risk because of the assumed certainty of the underlying demand. For instance, while distribution assets providing electricity to a town would almost certainly continue to operate and grow in the future due to the civilian demand for the services, an unregulated electricity transmission asset servicing a mine in a remote area may be substantially reduced in value should the mine terminate or interrupt operations. However, this risk is associated with the nature of the asset rather than with the level of regulation. Pricing of infrastructure assets with certain demand tends to be regulated in part due to the price inelasticity of demand for their services.

[2] Pricing risk is low over the short/medium term (i.e. for up to the maximum five years of the reset period) and medium over the long term (as pricing at reset periods is uncertain)

[3] Margin risk is medium over the short term/medium term (given possible volume fluctuations during the reset period) and low over the long term given margins should be supported by the regulatory rate of return

Comparison of key valuation metrics

Testing the hypothesis: the figure below sets out the historical unlevered betas of Australian listed entities with substantial *regulated* energy transmission and distribution assets compared to similar businesses with significant *unregulated* operations.

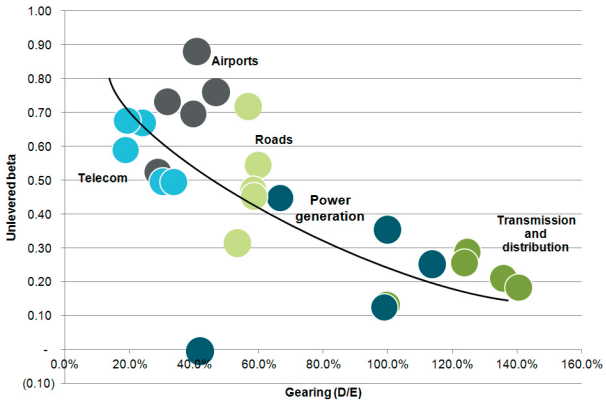


The data appears to support the thesis that unregulated assets are riskier than regulated assets, although it has a low statistical relevance given the limited number of entities observed.

Notwithstanding this evidence, we are of the view that the relative level of risk must be assessed case by case and that in selected (but not uncommon) circumstances it may be argued that unregulated assets are less risky than similar regulated assets.

Unlevered betas of selected listed infrastructure assets: high vs. low regulation

The relative risk of Australian energy transmission and distribution assets compared to that of other Australian listed infrastructure vehicles is set out in the figure below.



In particular, the historical unlevered betas in 2007, 2008, 2009, 2010 and at the current date are shown, together with the historical gearing levels in the same period (the gearing level considered as an indirect indicator of underlying operating risk given lenders would be more reluctant to provide debt capital to risky operations).

Each bubble represents the median of the gearing and beta for the underlying selected entities as at 30 June 2007, 2008, 2009, 2010 and 15 June 2011. Selected entities include Australian infrastructure investment vehicles listed on the Australian Securities Exchange as of 15 June 2011.

The figure appears to show a relatively clean trend with the highly regulated energy transmission and distribution assets at the low end of the risk spectrum and the lightly-regulated airport sector at the high end.

While the figure above supports the contention that unregulated assets show a greater degree of volatility, and that infrastructure assets with a greater degree of regulation have a relatively low risk, we are of the view that under certain circumstances unregulated assets bear a lower risk and consideration of their required rate of return must be assessed case by case.

RAB multiples

Another key valuation topic regarding regulated assets is the use of RAB as the base reference of value. Typically estimated via variations of the replacement cost approach, the RAB is the value of the regulated asset base from which end-user pricing is derived by the relevant regulator[4].

To determine future revenues/tariffs, typically for a five year period, the regulator determines first the rate of return required by capital providers of the asset and then applies this rate of return to the asset's RAB. Once the tariffs are fixed, the asset is subject to volume, but not pricing, risks. Greater or lower than expected volumes will affect the profitability of the asset during the regulatory period, unless there is a revenue cap in place. Any distortions to the rate of return due to unexpected variations in volume are addressed at the following regulatory reset period when the regulator has the benefit of actual data to estimate future volumes and therefore tariffs.

Past experience

In the Australian market there is extensive evidence of regulated assets traded both on-market and off-market at a premium to their RAB. This has been typically justified by factors such as:

- **Expected efficiencies:** the asset owner expects to be able to reduce the cost structure of the asset consistently beyond the regulator's expectations, especially during the final part of each regulatory period
- **Implementation of effective tax structures:** the asset owner expects to be able to minimise and/or significantly defer tax payments beyond the regulator's assumptions through means of sophisticated tax structures
- **Mispricing of the required rate of return:** the effective cost of capital borne by the asset owner may be lower than that assumed by the regulator due to either a cheaper cost of capital and/or greater leverage
- **Income from associated unregulated operations:** either at the time of the transaction or projected, regulated assets may be able to derive revenue from unregulated operations which do not form part of the asset's RAB
- **'Real' growth:** since the regulator allows the asset's owner to recover a market return on future expansionary investments (as approved by the regulator), the absolute return on the current RAB will be greater than that implied by the weighted average cost of capital allowed.

Current RAB multiples

Prior to the commencement of the global financial crisis in 2007, several transactions of Australian regulated assets took place at RAB multiples greater than 1.5. Since then off-market transactions have significantly diminished. However, the recently announced proposed acquisition of WA Gas Networks by ATCO Group – the largest transaction involving a pure regulated asset since 2007 – implies a RAB multiple of 1.26[5].

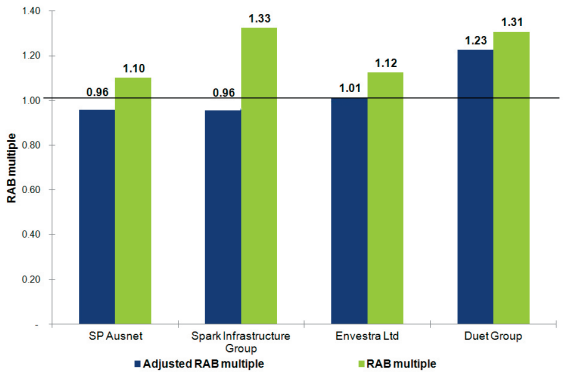
From market soundings this is indicative of a consensus view that RAB multiples have decreased substantially. Transactions are now expected to occur at RAB multiples closer to 1.0 as some of the factors traditionally supporting higher RAB multiples appear less achievable in the current market. In particular:

- While the cost of debt and equity capital have substantially increased at least in the short term, recent regulatory decisions do not appear to allow for this factor in the required rate of return
- The ability to realise efficiencies has been diminished because of the increase in real costs
- The implementation of sophisticated tax structures and of highly-geared investment vehicles may be more difficult to achieve given the more stringent terms on debt funding following the global financial crisis.

[4] In some cases the current RAB is simply the result of the initial RAB set and then rolled forward with new assets added and depreciation subtracted.

[5] We have also estimated this transaction implies an adjusted RAB multiple (i.e. excluding unregulated operations) of 1.17.

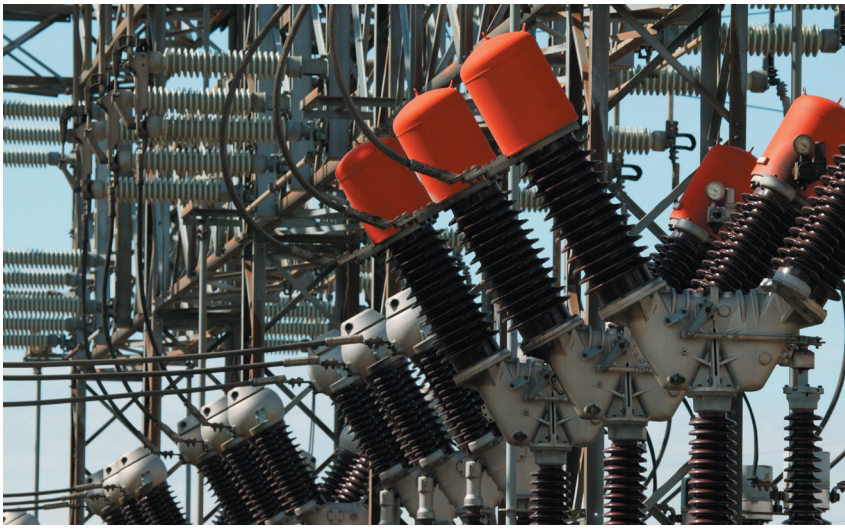
The figure below sets out current trading of listed infrastructure vehicles owning predominantly regulated assets. The infrastructure vehicles do not seem to be trading at a significant premium to their attributable RAB, especially when adjusted RAB multiples are taken into account.



Note: adjusted RAB multiple reflects only regulated operations. The percentage of unregulated earnings to total earnings has been used to adjust the enterprise value.

Additional explanations for the lack of recognition of a premium include the following:

- The securities traded are reflective of minority positions, with lack of control over the asset or portfolio of assets, resulting in a discount to its underlying value
- Not all the assets held by the entities are controlled and may therefore reflect some minority discount
- The regulator typically attributes value to franking credits yet the evidence to prove that market participants place equivalent value on this tax benefit is inconsistent
- Market concerns around the likelihood of the companies raising equity capital at a discount to restructure their financial position.



Energy sector financing – An attractive investment opportunity for Australian fund managers?

Introduction

According to industry commentators, capital expenditure of at least $139 billion is required across the energy sector nationally over the coming decade. In fact some commentators have put the figure required in excess of $200 billion.

This represents a compelling investment opportunity for fund managers and other potential investors to consider. Given the nature of the industry and the type of assets required, it is reasonable to assume that the majority of assets to be upgraded or constructed will be subject to regulation (or have characteristics closely related to those of regulated assets), therefore providing investment opportunities exhibiting low risk and a relative 'safe haven' for the long term investment of funds.

The following section explores the trends driving the need for this investment and the key areas where capital expenditure is expected to be required in the Australian energy sector over the coming decade.

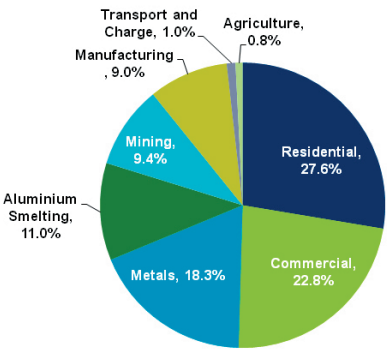
Global and Australian trends in energy demand

As per current projections in the International Energy Agency's *2010 World Energy Outlook*, global primary energy demand is expected to increase by 36% over the 2008-35 horizon, representing 1.2% growth annually, with renewable energy expected to contribute approximately 14% of the energy supply required to meet this demand. The key economies driving energy demand growth include China, the United States and the European Union.

In Australia, increasing energy demand fuelled by economic and population growth, physical expansion of urban areas, decarbonisation policy and stalled initiatives to replace ageing energy generation, transmission and distribution assets, will need to be met with adequate energy supply.

For the 2010 year, total electricity consumption reached 237,278GWh[6] , which represents a compound annual growth rate (CAGR) of 1.7% since 2006. Energy requirements for Australia are expected to increase by 30% to 70% over the next two decades.

Total Australian energy consumption – 2010



Source: ESAA

2010 total Australian energy consumption is set out in the chart above

Residential households represent approximately 28% of total energy consumption. Australia is currently experiencing significant population growth, which is projected to increase by 17% over the next decade. The growth in population is expected to drive regional economic growth and household peak power energy consumption.

The industrial sector, which represents a significant portion of overall energy consumption, is also projected to increase its energy requirements, driven by an increase in international economic growth, particularly from China and other emerging markets.

[6] Energy Supply Association of Australia (ESAA) Annual Review

In addition, consistent with the global focus on environmental sustainability and decarbonisation, Australia has committed to increase its use of energy from renewable sources in the future, through scalable clean energy technology developments.

While to date the legislative uncertainty surrounding carbon pricing and associated implementation of subsidies such as a Federal feed-in tariff has to some extent hindered strategic capital expenditure decisions (in generation particularly), implementation of policies in alignment with Australia's current carbon abatement commitment has considerable implications for required capital expenditure, including the development of gas-fuelled power plants.

Allocation of required capital expenditure over the coming decade

Key areas of investment in the Australian energy sector projected over the next decade include:

- Distribution and transmission networks
- Renewable generation
- Gas-fired generation
- The Federal Government's Solar Flagship program (Solar program).

Distribution and transmission networks

According to the Australian Energy Regulator's (AER) 2010 industry report, required network investment for the eastern seaboard states is projected to reach $32 billion for distribution networks and $7 billion for transmission capabilities over the five years to 2015. Of this, approximately 40% is required to meet growth in demand and 30% is to replace ageing assets.

Over the subsequent determination period, from 2015 to 2020, investment is expected to grow by a further 54% for distribution and 84% for transmission networks, representing total capital expenditure in the nation's distribution and transmission network of approximately $100 billion over the next decade.

Distribution networks

Approximately 70-80% of capital expenditure is required to meet growth requirements (including peak demand requirements) and the replacement of aged assets. The balance is driven by regulatory requirements for improved reliability and quality of supply, particularly in light of recent natural disasters across the country, and the investment in transformers.

Transmission networks

In addition to ongoing annual investment of approximately $2 billion per annum (or $20 billion to 2020) the *National Transmission Network Development Plan* developed by the AER, outlines key proposals to address transmission capacity issues, including the *National Energy Market Link* (NEMlink) and the *Generator Clusters* initiatives. The planned capital investment associated with these initiatives is estimated at $8.3 billion, with full implementation expected by 2021. Accordingly, investment in the nation's transmission network will require approximately $30 billion over the next decade.

Key investments proposed

Some of the key distribution and transmission initiatives across Australia include:

- Augmenting the existing network to connect to alternative base and peak-load generators in the national grid (in light of proposed coal-fired plant retirements in South-East Queensland). This includes enhancement of the Queensland and New South Wales interconnector and the transmission grid expansion to remotely located renewable energy generators
- Introducing stricter network reliability standards in Queensland as a result of recent natural events
- Constructing a 500kV transmission ring supporting Sydney, Newcastle and Wollongong given significant increases in energy demands across major NSW load centres
- Rebuilding the transformer at Yass, NSW
- Replacing ageing transmission networks in the Latrobe Valley, Victoria
- Meeting more stringent Victorian State government network reliability policies (following implementation of new bushfire safety standards)

- Augmenting the existing grid for delivery of gas and wind-powered generation in various remote South-West Victorian locations
- Elevating energy demand capacity in the Adelaide load centre
- Upgrading the transmission network in South Australia to secure Torres Island renewable energy sources
- Building a large transformer in the centre of Adelaide
- Enhancing the network in Tasmania to capture potential renewable energy generating plants, including Hydro Tasmania's $400 million initiative to construct a wind farm located in Little Musselroe Bay.

Renewable Energy

The *Mandatory Renewable Energy Target* (MRET) Scheme was introduced in 2001, requiring energy enterprises to purchase a proportion of their energy from renewable energy sources. In 2009, the Federal Government implemented several amendments to the MRET scheme, aimed at enabling Australia to deliver upon a target of 20% of energy from renewable sources by 2020. The new measures include the division of the existing scheme into the *Large-scale Renewable Energy Target* (LRET) and the *Small-scale Renewable Energy Scheme* (SRES) which extend the overall renewable energy target (RET) to 45,000 GWh by 2020 and provide upfront capital subsidies for small renewable energy systems for household consumers.

Currently, Australia's electricity supply is predominantly sourced from coal-fired generators, with renewable energy generation accounting only for approximately 6% of total supply. There is a significant challenge - and required investment - for the industry to meet the stated renewable energy policy targets outlined above. In response to this, the Australian government has implemented a wide range of initiatives to support the substantial infrastructure investments required, including the *Renewable Energy Fund* which has committed to $652 million funding over four years to qualified wind, solar, biomass and geothermal projects and the *Clean Energy Initiative* which includes funding of $2 billion to the *Carbon Capture and Storage Flagships* program and $1.5 billion to the *Solar program*.

The Australian government's total investment in renewable and clean energy efficiency is expected to exceed $10 billion. However, total capital expenditure to meet the RET could be in the range of $20 billion to $45 billion over the ten years to 2020.

Gas-fired generation

To increase energy supply from lower emission sources there is an increasing focus on the development of gas-fuelled power generation. Some major decisions are required on gas-fired base load generation over the next few years:

- How to meet upcoming supply shortfalls in NSW
- How to potentially replace Latrobe Valley brown coal-fired power stations
- How to meet projected demand growth in Queensland.

The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) forecasts that overall electricity output derived from fossil fuels will grow to 297TWh by 2030, with natural gas generation to increase from 19% to 37% of total output. This represents growth in existing gas-fuelled power capacity of at least 5% per annum. Fitch Australia estimates that up to $7.8 billion will be invested in gas-fired generation over the next decade, predominantly in open cycle gas turbines (OCGTs), which are largely used to meet peak load demand. Dependent upon the carbon pricing regime adopted by Australia, and the strategic decisions of the new asset managers subsequent to the NSW privatisation process, Fitch estimates additional potential investment in gas-fired generation assets of $7.2 billion, taking total gas-fired investments to $15 billion.

This additional upside is driven by combined cycle gas turbine (CCGT) developments which can provide continuous base-load power generation. However, as these plants involve relatively high development costs they may not attract investment in the absence of a definitive carbon scheme.

Whilst on 10 July 2011 the Australian Prime Minister announced the long awaited details of Australia's carbon pricing mechanism, there is still uncertainty over the effective implementation of the scheme in its current form, legislation is still to be passed by Parliament.

Consequently, the lack of certainty over the carbon scheme coupled with increasing peak demands is expected to drive investment in the more economically viable OCGT power plants, which exhibit higher volatility in operating cash flows, resulting in an increase in power prices and the requirement to demand more from existing coal fired generators, potentially impacting reliability over time.

Solar program

The Federal government's *Solar program* commitment comprises $1.5 billion of the total $5.1 billion *Clean Energy Initiative.* A core focus of the *Solar program* is the construction of two solar thermal and two energy storage projects, with a target generating capacity of 1,000MW in additional electricity generation by 2015.

Industry commentators estimate required capital investment in the *Solar program* of $4.5 billion. With $1.5 billion to be provided by the government (over a six year horizon), the remaining $3 billion represents a funding gap.

Final comment

The previous outlines the enormous magnitude of the investment opportunity in energy sector financing for the next decade. Within the spectrum of opportunities some are currently more attractive than others given remaining uncertainty regarding carbon policy outcomes. However, the demand trajectory is clear: Australia is projected to experience increasing energy demand over the coming decade and significant capital investment in the nation's energy sector will be required to provide adequate energy supply. Key areas of capital expenditure include:

- Distribution and transmission networks – $100 billion
- Renewable energy – $20-45 billion
- Gas fired generation – $15 billion
- Solar program – $4.5 billion.

The above figures represent a total capital spend of at least $139.5 billion, however, the actual total outlay has potential to be far greater than estimates cited to date.

The investment in infrastructure to support the nation's electricity demand and supply requirements represents a compelling investment opportunity for fund managers and other potential investors seeking investment in assets of a regulated nature to give full and careful consideration.

For more information

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