Mounting expenses in store for energy

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DESPITE the global financial crisis, the Australian domestic energy industry is well down the road to spending more than $100 billion in the next decade in pursuit of supply reliability and a smaller environmental footprint. Even allowing for inflation, it is by far the largest level of energy industry capital expenditure in the country's history.

Leading the charge, to the surprise of many focused on the greenhouse gas emissions of power stations, are not the generators but the network businesses, half government-owned, that are already outlaying about $3.5 billion a year and have plans in train to spend as much as $60 billion between now and 2020.

The biggest budget belongs go the country's largest network operator, EnergyAustralia, owned by the NSW Government and unhappily in the headlines at present because of power blackouts in central Sydney. It has spent $3 billion on capital works in the past five years and says it will need to contribute another $16 billion by 2020 to meet growing demand and to replace aged assets, some 50 years old.

Most of the expenditure will occur on the eastern seaboard, home of the national electricity market and of nearly 90 per cent of the power load, but the stand-alone network in Western Australia requires a substantial budget, too.

Operator Western Power, owned by the WA Government, spent $1 billion augmenting and upgrading the system last financial year, at the height of the minerals boom, and has projected continuing spending at the rate of $2 billion annually until 2012.

The Energy Networks Association, a Canberra-based lobby group for the country's power and gas delivery businesses, says that, nationally, energy distribution and high-voltage electricity transmission businesses are spending more than $6.2 billion a year in operating the systems, reinforcing and expanding them, and undertaking greenfield extensions.

The need to address global warming issues also is starting to loom large in the networks' budgets. A recently released study for the association by consulting firm Parsons Brinckerhoff claims that network costs related to climate change will run to $2.5 billion during the next five years, the largest part of which will go on expanding power systems to accommodate the fast-rising use of airconditioning. Parsons Brinkerhoff says the networks will need to increase capital expenditure by $1.2 billion to reduce energy lost over the 857,000km of cables linking homes, hospitals, schools and businesses to power generators.

Projections by leading transmission businesses, including TransGrid, Powerlink Queensland, ElectraNet in South Australia and Tasmania's Transend, that they need to devote $16 billion to capital works in the next decade do not include the estimated cost of connecting a large number of new wind farms and other zero-emission generation to power grids when the Rudd Government's new renewable energy target is implemented. It is predicted that the target will require 6000 megawatts of new wind farms and an outlay of about $4.5 billion in connecting their remote sites — along with at least 2500MW of open-cycle gas turbines to provide back-up for the intermittent supply — to the main delivery system.

Estimates of what needs to be spent on power generation between now and 2020 fluctuate widely because it is hard to come up with accurate projections of the effect of carbon prices on demand as well as on the ability of older, high-emitting coal-fired generators to continue operating under the new policies. Projections range from $25 billion to more than $40 billion.

(One of the unknown factors is whether federal and state governments will go ahead

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with rolling out a revolution in householder metering to enable customers to better manage their electricity use and suppliers to intervene during extreme demand to reduce consumption. The cost of the smart-meter rollout is estimated at $7.5 billion. (This does not include high-cost IT investments by retailers to make full use of the system.)

Apart from the cost of wind farms — the 129MW set of turbines Roaring 40s plans to erect at Musselroe Bay on Tasmania's northeast cost will cost $230 million — companies such as Origin Energy, Santos and TRUenergy, the Australian subsidiary of Hong Kong-based China Light & Power, have large gas-fired developments in train in Victoria, NSW and Queensland, involving, when fully commissioned during the decade, capital outlays totalling about $10 billion.

One of the biggest question marks in Australian electricity supply is whether new clean-coal generation can be brought to the market by 2020.

Environmentalists and many industry analysts consider this unlikely, given the state of technology development, although international giant General Electric has offered to build a 1000MW carbon dioxide-capture ready coal plant for $3 billion. This does not cover infrastructure for carrying the greenhouse gas to burial in deep geological sites, nor the on-site costs of sequestration.

It has been estimated that building a government-owned, common carrier CO_2 pipeline to take Latrobe Valley gases from the brown coal generators to disused wells in the Bass Strait would cost at least $200 million.

Finding the necessary capital for these capital projects presents developers with serious hurdles, but Origin Energy chief executive Grant King argues that the global financial crisis will be seen as a blip by 2030.

King says he is still able to invest billions of dollars. Although there is less capital available, energy companies with strong balance sheets can access it, albeit at a higher cost, he says. Firms with highly geared balance sheets will have problems pursuing development, he says, "but Origin can find ways to invest for the long term. The current circumstances are largely irrelevant to major decisions we will make on capital investment."

The key issue today, he argues, is for government — especially the federal Government — to make carbon policy decisions to "avoid the problems of acting slowly" on global warming.

Failure to make good policy decisions now, he says, will affect investment decisions. "Government needs to set the direction of change by placing a cost on carbon. But it must balance purity of policy with pragmatism. It needs to appreciate the stranding risks for power plants with very long lives."

The ENA echoes this advice in its submission to the Senate select committee on climate change. The transition to emissions trading, it says, must avoid giving rise to energy supply insecurity. A poorly designed trading scheme could create investor uncertainty with "consequent negative impacts on clean energy-enabling infrastructure investment".

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