

## ATTACHMENT A4 - ENERGY POLICIES

### A4.1 Energy policies and market trends

#### Emissions trading/carbon price assumptions

This section provides the carbon price assumptions for the scenarios used for the VAPR demand forecasts. The introduction of a carbon price will increase average electricity retail prices and is projected to have a significant impact on annual energy and maximum demand. This is reflected in the VAPR demand forecasts.

The scenarios and assumptions were developed before the Australian Government's February 2011 announcement of its intention to introduce a carbon price by 1 July 2012. They reflect the Government's announcement in April 2010 that a Carbon Pollution Reduction Scheme (CPRS) would not be introduced before 2013.

Nevertheless, the forecasts provide credible development paths for energy and maximum demand for the 10-year outlook period overall, as the only differences are to electricity prices in 2012/13 and 2013/14, early in the outlook period.

In Australia, efforts to introduce a carbon trading scheme have experienced setbacks over the last two years, with the original Carbon Pollution Reduction Scheme Bill failing to pass the Senate on three occasions in 2009 and 2010. Later, in April 2010, the Australian Government announced that the introduction of a carbon price would be delayed until at least 2013. However, in February 2011, it declared its intention to implement a carbon price by 1 July 2012 and a cap and trade<sup>53</sup> system within three to five years. Considerable progress still needs to be made to obtain agreement on the details of the policy. It is now possible that the carbon price policy will include a carbon tax as part of transitional arrangements in moving towards a trading scheme. Further, the government has yet to announce a final emissions target, although it has committed to an unequivocal reduction of 5% below 2000 levels by 2020. Nevertheless, emissions policies and reduction targets set in Australia will be contingent on international agreements.

Table A4-1 lists the carbon price assumptions for the demand forecast scenarios.

The medium scenario assumes that an international agreement on carbon emissions reductions is reached, but most countries advocate a slow and steady approach. Carbon price paths are universally adopted by the international community, but the overall price level is only moderate. In Australia, the carbon price (in 2009/10 prices) is set at \$37.44/t CO<sub>2</sub>-e in 2014/15.

The high scenario assumes strong international agreement on carbon emissions reductions targets, with relatively high carbon prices imposed within Australia and the rest of the world. Accordingly, the carbon price in Australia is set at \$49.97/t CO<sub>2</sub>-e in 2014/15. Conversely, the low scenario assumes that there is little support for emissions reduction policies, both within Australia and internationally. As a result, a low carbon price is introduced in Australia (\$26.91/t CO<sub>2</sub>-e in 2014/15) with a minimal response from the rest of the world.

<sup>53</sup> A 'cap and trade' emissions trading scheme allows the issuer of permits (the Australian Government) to restrict the volume of emissions, while the price of the obligatory emissions permits are determined by the market. The cost of purchasing permits (or reducing emissions) is legally borne by particular entities, including electricity generators, but passed on to energy consumers. As a result, an emissions trading scheme will affect both NEM energy and demand indirectly, through the general economic impact, and directly, through electricity prices.

**Table A4-1— Carbon price assumptions**

| Low Scenario                                                                                 | Medium Scenario                                                                               | High Scenario                                                                                 |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Low emissions reduction targets agreed internationally                                       | Moderate emissions reduction targets in Australia and internationally                         | International agreement of strong emissions reduction targets                                 |
| Carbon price based on Treasury estimates for a cut in emissions of 5% on 2000 levels by 2020 | Carbon price based on Treasury estimates for a cut in emissions of 15% on 2000 levels by 2020 | Carbon price based on Treasury estimates for a cut in emissions of 25% on 2000 levels by 2020 |
| <b>Carbon prices</b>                                                                         |                                                                                               |                                                                                               |
| • \$10.00/t CO <sub>2</sub> -e for 2013/14                                                   | • \$10.00/t CO <sub>2</sub> -e for 2013/14                                                    | • \$10.00/t CO <sub>2</sub> -e for 2013/14                                                    |
| • \$26.91/t CO <sub>2</sub> -e in 2014/15                                                    | • \$37.44/t CO <sub>2</sub> -e in 2014/15                                                     | • \$49.97/t CO <sub>2</sub> -e in 2014/15                                                     |
| • carbon price grows by real rate of 4% p.a. from 2014/15 onwards                            | • carbon price grows by real rate of 4% p.a. from 2014/15 onwards                             | • carbon price grows by real rate of 4% p.a. from 2014/15 onwards                             |
| • peaks at \$50.40/t CO <sub>2</sub> -e in 2030                                              | • peaks at \$70.12/t CO <sub>2</sub> -e in 2030                                               | • peaks at \$93.60/t CO <sub>2</sub> -e in 2030                                               |

Carbon prices considered by AEMO were established by the Australian Government Treasury<sup>54</sup> and Department of Climate Change and Energy Efficiency, analysing the economic impacts of mitigation policies, particularly the carbon policy, to reduce greenhouse gas emissions.

The low, medium and high carbon price trajectories are listed in Table A4-2. In each case, it is assumed that a transitional scheme is put in place, which introduces a carbon price of \$10/t CO<sub>2</sub>-e in 2013/14, before the full scheme is implemented in 2014/15. The carbon price under each scenario is assumed to grow each year by a real rate of 4% from 2014/15 onwards, reflecting a 2% annual return and 2% risk premium on carbon permits.

**Table A4-2— Assumed carbon price trajectories**

|         | Low   | Medium | High  |
|---------|-------|--------|-------|
| 2013/14 | 10.00 | 10.00  | 10.00 |
| 2014/15 | 26.91 | 37.44  | 49.97 |
| 2015/16 | 27.98 | 38.93  | 51.97 |
| 2016/17 | 29.10 | 40.49  | 54.05 |
| 2017/18 | 30.27 | 42.11  | 56.21 |
| 2018/19 | 31.48 | 43.79  | 58.46 |
| 2019/20 | 32.74 | 45.55  | 60.80 |
| 2020/21 | 34.05 | 47.37  | 63.23 |
| 2021/22 | 35.41 | 49.26  | 65.76 |
| 2022/23 | 36.82 | 51.23  | 68.39 |
| 2023/24 | 38.30 | 53.28  | 71.13 |
| 2024/25 | 39.83 | 55.41  | 73.98 |
| 2025/26 | 41.42 | 57.63  | 76.93 |

<sup>54</sup> The Treasury and the Department of Climate Change and Energy Efficiency modelled the potential economic impacts of reducing emissions over the medium and long term and released the Report Australia's Low Pollution Future: The Economics of Climate Change Mitigation on the 30 October 2008.

|         | Low   | Medium | High  |
|---------|-------|--------|-------|
| 2026/27 | 43.08 | 59.94  | 80.01 |
| 2027/28 | 44.80 | 62.33  | 83.21 |
| 2028/29 | 46.59 | 64.83  | 86.54 |
| 2029/30 | 48.46 | 67.42  | 90.00 |
| 2029/31 | 50.40 | 70.12  | 93.60 |

Note: Units are in Australian dollars 2009/10 prices.

Considering the Australian Government announcement that a carbon price could be implemented by 1 July 2012, alternative potential carbon prices to 2015/16 are shown in Table A4-3.

**Table A4-3 — Carbon price trajectories under a potential carbon policy implementation from 1 July 2012**

|         | Low   | Medium | High  |
|---------|-------|--------|-------|
| 2012/13 | 20.00 | 20.00  | 20.00 |
| 2013/14 | 20.00 | 20.00  | 20.00 |
| 2014/15 | 26.91 | 37.44  | 49.97 |
| 2015/16 | 27.98 | 38.93  | 51.97 |

Note: Units are in Australian dollars 2009/10 prices.

The change to the alternative carbon prices would impact Victoria's electricity prices for the financial years 2012/13 and 2013/14, while for 2014/15 onwards carbon prices are forecast to remain at the same level as under the initial trajectories. The long-term carbon price is substantially the same as that used in the initial analysis and so will not affect the macro-economic parameters and will have a very small impact on electricity prices. Therefore, these alternative carbon prices have not been incorporated in the electricity forecasts.

### Outlook for retail electricity prices

Average retail electricity prices are an important driver of electricity annual energy consumption and maximum demand levels. Electricity prices are expected to increase, as global demand for commodities increases the price of coal and contributes to rising input costs for electricity generators. The assumed introduction of a carbon price by 2013/14 will also increase retail electricity prices, as a portion of the carbon price is passed on to consumers through higher retail prices.

### Renewable Energy Target

The national Renewable Energy Target (RET) scheme was implemented by the Australian Government in August 2009.<sup>55</sup> The scheme was designed to ensure that 20% of Australia's electricity supply will come from renewable sources by 2020. The Australian Government's Department of Climate Change and Energy Efficiency expects that in ten years time the electricity energy provided from sources like solar, wind and geothermal will be approximately equal to Australia's current household electricity use

In June 2010, the RET was divided into two parts —Large scale Renewable Energy Target (LRET) and Small scale Renewable Energy Scheme (SRES)— to start on January 2011. This modification is expected to deliver more

<sup>55</sup> The RET expands on the previous Mandatory Renewable Energy Target (MRET), which began in 2001.

renewable energy than the mandatory production target of 45,000 GWh in 2020 (which was estimated to be 20% of electricity supply)<sup>56</sup>.

The April 2010 modifications to the scheme consisted of dividing it into a separate target of 41,000 GWh by 2020 for large-scale renewable technologies and an overall unchanged target of 45,000 GWh, with the difference expected to be met or exceeded by small-scale technologies.

Later, December 2010, the Government announced amendments to the solar credits multiplier that will apply from July 2011, in recognition of significant reductions in the cost of solar panels. As a result, the phase out of the Solar Credits multiplier will be brought forward by one year, from: 5 to 4 on 1 July 2011; 4 to 3 on 1 July 2012; 3 to 2 on 1 July 2013; and 2 to 1 from 1 July 2014.

Government initiatives and independent market trends could have an impact on energy markets. For this reason, AEMO engaged KPMG to evaluate the potential effect of developments, such as the Australian Government's Renewable Energy Target (RET).

The impact of this policy was tested on the low scenario, which estimates a cut in emission of 5% on 2000 levels by 2020.<sup>57</sup> Therefore, the carbon prices are assumed to be lower than the RET prices. The result of this assumption indicated a non-significant implication of the policy on the electricity price forecasts.

Considering these factors, the energy price forecasts did not incorporate the RET implications as part of the assumptions or key drivers to be taken into account in the modelling process. However, the carbon price assumptions specified by AEMO scenarios are explicitly taken into account.

### Smart meters

Smart meters are electricity meters that are capable of measuring and recording energy consumption in short intervals, and that include two-way communications to enable energy providers to read and control features of the meter remotely. The introduction of smart meters allows the introduction of time of day pricing to assist with managing peak demand.

The critical factor that will influence the success of smart meters in Australia is likely to be whether the Government mandates a rollout of smart meters in each jurisdiction. The only current mandated smart meter rollout is in Victoria with the Advanced Metering Infrastructure program applied to customers consuming less than 160 MWh of electricity per annum. Some stakeholders have expressed concerns about whether smart meters will indeed deliver a net benefit to the community, how to treat the cost recovery and political concerns about certain customers' capacity to pay.

Given these concerns, in addition to the price distortions created by regulated electricity retail sectors, it is unlikely that the full benefits of smart meters will be achieved in the medium term. This is also likely to be driven by the challenge to manage rising electricity prices paid by the end-user in the face of increasing network expenditure. As a result, governments are likely to be cautious about the introduction of any policies or schemes such as a smart meter rollout which would increase the price of electricity.

AEMO considered that this program for Victoria does not significantly impact on total revenue received by renewable energy producers and thus was not taken into account as part of the assumptions for the energy projections.

Table A4-4 lists the key developments in the smart meter rollout in Victoria since 2006.

<sup>56</sup> Further details on the new RET arrangements are described in Attachment 1 NEM governance and market development, Section 1.3 Current policy and regulatory developments.

<sup>57</sup> KPMG included the impacts of the expanded RET scheme based on the RET legislation passed in August 2009 and the low scenario commencing in 1 July 2013 as well as on 1 July 2014. The consultant also included the enhanced RET case (LRET/SRES) undertaking the changes to the scheme to commence on 1 January 2011.

**Table A4-4— Key smart meter developments in Victoria**

| Date                             | Milestone                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| February 2006                    | Victorian Government formally endorses the introduction of new smart meters to all Victorian residential and small business electricity customers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| August 2007 /<br>November 2008   | <p>The Advanced Metering Infrastructure Order in Council (OIC) is made under the Electricity Industry Act 2000 (Vic), to prescribe the regulatory framework governing the rollout of smart meters in Victoria:</p> <ul style="list-style-type: none"><li>• Regulator's role to establish a new price control for smart metering services.</li><li>• Rollout limited to customers consuming less than 160MWh per annum and to be completed by 2013.</li><li>• Until end-2015, prices are set in accordance with the OIC.</li><li>• 2016-onwards, prices are set in accordance with National Electricity Rules.</li></ul> |
| December 2007 /<br>December 2008 | The Essential Services Commission (ESC) released a consultation paper setting out the proposed framework and approach for the cost recovery of smart meters.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| January 2009                     | Responsibility for the economic regulation of Victorian electricity distribution businesses was transferred from the ESC to the AER, and the AER assumed responsibility for finalising the framework and approach process (started by the ESC).                                                                                                                                                                                                                                                                                                                                                                         |
| October 2009 /<br>2010           | The AER made determinations establishing the basis for metering charges payable (budgets and charges) by Victorian consumers using less than 160MWh per annum for 2010 and 2011.                                                                                                                                                                                                                                                                                                                                                                                                                                        |



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