Up-take of Renewable Energy in Bass Coast and South Gippsland Shires

Supporting information for the National Climate Change Adaptation Research Facility project ‘What would a climate adapted Australian Settlement look like in 2030?’

Prepared by Ashley Hall, Department of Sustainability and Environment
May 2012
NOT THE FINAL VERSION
Victoria’s Energy Mix

The percentage of Victoria’s electricity sourced from renewable sources in 2010 was 5.0 per cent compared to 3.9 per cent in 2009. The percentage that Victoria has historically quoted for electricity from renewable energy sources is calculated as the ratio of the renewable electricity supplied compared to total end use consumption in the State.

This paper is a snap shot at the current energy sector and the role of renewable energy sources. What are the trends towards renewable energy? It will also concentrate on 2 coastal shires within Gippsland. What is their usage makeup, trends towards renewable energy? Do they differ from the state averages and why?

In 2011 the Victorian energy sector was made up of 3 main sectors, brown coal making up the majority of electricity generation, followed by natural gas, then Renewable energy. The renewable sector is made up of 4 main components: Hydro (water), Wind, Biomass (biological material) and Solar (The Sun). The renewable energy sector (14%) is above the Australian average; nationally the renewable energy sector makes up just 9.6%.

Interestingly electricity generated energy has a state-wide grid whereas Natural Gas does not reach that many rural communities, if there was a natural gas grid, would this energy pie be so brown coal dominated?

Figure 1: Victoria’s energy mix, Electricity generation capacity at 2011

The table below gives an indication of how the Victorian renewable energy capacity is made up, showing a trend for growth for each component. In total, the sector more than doubled capacity from 2000 to 2010.
3.2 Summary Data
The table below shows a summary of the customer numbers across each Australian jurisdiction in 2010.

<table>
<thead>
<tr>
<th></th>
<th>NSW</th>
<th>VIC</th>
<th>QLD</th>
<th>SA</th>
<th>WA</th>
<th>ACT</th>
<th>TAS</th>
<th>NT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>172,525</td>
<td>264,814</td>
<td>228,401</td>
<td>77,535</td>
<td>18,934</td>
<td>17,198</td>
<td>47</td>
<td>15</td>
<td>779,469</td>
</tr>
<tr>
<td>Commercial</td>
<td>11,927</td>
<td>20,615</td>
<td>11,535</td>
<td>4,034</td>
<td>5,002</td>
<td>248</td>
<td>10</td>
<td>2</td>
<td>53,573</td>
</tr>
<tr>
<td>Total</td>
<td>184,452</td>
<td>285,629</td>
<td>239,936</td>
<td>81,569</td>
<td>23,936</td>
<td>17,445</td>
<td>57</td>
<td>17</td>
<td>833,042</td>
</tr>
</tbody>
</table>

The table below shows a summary of the GreenPower Sales across each Australian jurisdiction in 2010.

<table>
<thead>
<tr>
<th></th>
<th>NSW</th>
<th>VIC</th>
<th>QLD</th>
<th>SA</th>
<th>WA</th>
<th>ACT</th>
<th>TAS</th>
<th>NT</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>225,849</td>
<td>297,051</td>
<td>335,039</td>
<td>94,350</td>
<td>19,385</td>
<td>35,456</td>
<td>279</td>
<td>27</td>
<td>1,907,437</td>
</tr>
<tr>
<td>Commercial</td>
<td>233,150</td>
<td>392,006</td>
<td>215,752</td>
<td>152,515</td>
<td>40,102</td>
<td>92,940</td>
<td>586</td>
<td>30</td>
<td>1,187,091</td>
</tr>
<tr>
<td>Total</td>
<td>510,000</td>
<td>689,057</td>
<td>550,791</td>
<td>246,866</td>
<td>59,487</td>
<td>128,397</td>
<td>865</td>
<td>57</td>
<td>3,094,529</td>
</tr>
</tbody>
</table>

Figure 2: Renewable energy percentage contribution to consumption by year

Figure 3: National Customers whom have signed up to ‘Green Power’ and their usage
Figure 3 depicts customers and their sales usage that have chosen a form of “green Power” by their energy provider.

Since 2001 there has been steady growth of the Small Generation Unit (SGU) solar installations, growing from 12,000 installations from 2001 till 2009 and 52,427 units installed during the year 2011. This totals over 100,000 installations in the past 11 years achieving a capacity of some 194,827 (SGU Rated Output In kW) in Victoria.

The following graphs depict SGU solar installations and solar hot water installations all of these graphs are broken up into the totals per annum; however the data for the years 2001 – 2009 has been grouped.

**Figure 4:** Victorian SGU solar panel installations per annum (2001-2009 data grouped)

**Figure 5:** Victorian SHW installations per annum (2001-2009 data grouped)
Local Context

Electricity consumption in the South Gippsland Shire and Bass Coast Shire is nearly double when compared to the Victorian Average of just under 6 mWh per household. This could be due to the lack of natural gas within the Region.

![Electricity/Gas consumption in the Bass Coast Shire compared to the Victorian Average](image1)

![Electricity/Gas consumption in the South Gippsland Shire compared to the Victorian Average](image2)

Figure 6: Electricity/Gas consumption in the Bass Coast Shire compared to the Victorian Average

Figure 7: Electricity/Gas consumption in the South Gippsland Shire compared to the Victorian Average

<table>
<thead>
<tr>
<th>2011</th>
<th>Population</th>
<th>PV Installations</th>
<th>Percentage per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>Place</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Gippsland</td>
<td>28,500</td>
<td>1,059</td>
<td>4%</td>
</tr>
<tr>
<td>Bass Coast</td>
<td>32,100</td>
<td>1,142</td>
<td>4%</td>
</tr>
<tr>
<td>Victoria</td>
<td>5,621,200</td>
<td>52,427.00</td>
<td>1%</td>
</tr>
</tbody>
</table>

Table 2: Population and solar panel installations, comparing the Victorian and the Bass Coast and South Gippsland Shires

When comparing the total SGU solar installations during the year 2011, we found that on a population basis, the 2 South Gippsland Shires have installed 4 times the amount of solar panels. This could be due to the fact that they do not have access to natural gas. All of their energy needs comes from electricity,
which we do not have the data about their “Green Power” preferences. There is also a local energy Co-op servicing the region, so the assumption for the higher amount of installations could be a mix of localised knowledge and expertise in solar installation the access to bulk buy and personal help with paperwork. It could also be driven by the lack of natural gas.

The next 3 graphs and table give the actual SGU solar panel installations totals per year, grouped 2001 – 2009 then individually for both shires and by the actual project township.

**Figure 8:** South Gippsland PV solar panel installations (2001-2009 data grouped)

**Figure 9:** Bass Coast PV solar panel installations (2001-2009 data grouped)
**Figure 10:** Installations of solar panels by project town (2001-2009 data grouped)

**Table 3:** Population and solar hot water installations, comparing the Victorian and the Bass Coast and South Gippsland Shires

<table>
<thead>
<tr>
<th>Place</th>
<th>Populations</th>
<th>solar hot water installations</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Gippsland</td>
<td>28,500</td>
<td>290</td>
<td>1.0%</td>
</tr>
<tr>
<td>Bass Coast</td>
<td>32,100</td>
<td>228</td>
<td>0.7%</td>
</tr>
<tr>
<td>Victoria</td>
<td>5,621,200</td>
<td>18,305</td>
<td>0.3%</td>
</tr>
</tbody>
</table>
The next 2 tables and graphs give the actual solar hot water installations totals per year, grouped 2001-2009 then individually for both shires.

**Figure 11:** South Gippsland Shire solar hot water installations (2001-2009 data grouped)

**Figure 12:** Bass Coast Shire solar hot water installations (2001-2009 data grouped)
Conclusions

The state-wide reliance on fossil fuel (Coal) will remain well into the short term future, however the renewable sector continues to grow, there is also a state-wide switch to Green Power for their electricity provisions. It was found that Victorians rely on 14% of their energy to come from renewable some 5% more than nationally.

The communities of Bass coast and South Gippsland Shire’s use nearly twice the electricity than the average Victorian. There are a number of possible causes for this high reliance on electricity, one of them could be attributed to the lack of access to natural gas. Within the two municipalities their uptake of SGU Solar panels and solar hot water is greater than the Victorian average; this could be due to the local energy co-op which supplies local expertise in alternative energy supplies and it could be due to the community trying to reduce their reliance on electricity due to the lack of natural gas.

The assumptions and graphs depicting growth in the renewable energy and SGU solar Pv installations could in fact slow down due to the change in the Feed In tariff. Damien Moyse from the Alternative Technology Association has grave concerns for the solar power sector. “As we all know, household solar is fast approaching cost competitiveness with grid electricity and it is universally accepted that we will get to this point well before the end of this decade,” Mr Moyse said. “In fact, under some scenarios, we could reach this point in the next two to three years.” “The last thing we need now is to end the tariff scheme too early, killing the Victorian solar industry and consumer confidence with it.”
References:


d) Melbourne Victoria 3000


g) www.dpi.vic.gov.au/energy/science-and-research/etis/energy-technology-factsheet


i) www.basscoast.vic.gov.au

j) www.southgippsland.vic.gov.au

