Where do new market opportunities lie?

Exploring Sustainable Products

Geoff Andrews
Genesis Now
8th August 2013
What’s he on about?

- Sustainable products
  - Energy efficient equipment
  - Renewable energy
    (and efficient energy generation)
  - Sustainable Housing
- A growing market, and drivers
- A good match?
- The way forward
How did we get here?

- Energy saving projects with > 100 manufacturers
- Working closely with staff, and understanding manufacturing processes
  
  and

- Across all sectors, seeing opportunities for new products.
- Developing new products.
- Joining the dots
A growing market!
Solar Installations

Solar PV generation capacity

- Japan
- US
- Italy
- Rest of World
- Germany
- Spain
- China

Gigawatts
Wind capacity, worldwide
Some drivers, .... Electricity Price Rises

Retail price index (inflation adjusted), Australian capital cities

Comparison based on annual residential consumption of 3,300 kWh - From 2005 to January 2013

and Natural Gas

Electricity Network Price Rises....

<table>
<thead>
<tr>
<th>Distribution Loss Factor</th>
<th>4.51%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Margin Loss Factor</td>
<td>0.31%</td>
</tr>
<tr>
<td>Total Loss Factor</td>
<td>4.83%</td>
</tr>
</tbody>
</table>

Highest actual metered demand this period is 501.84 kW (Recorded on 07/06/2011 at 13:30:00)

Contract Demand is 865.00 kW

<table>
<thead>
<tr>
<th>Period</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/06/2011 - 30/06/2011</td>
<td>30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Unit</th>
<th>Rate /Unit</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Energy Charges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak</td>
<td>118130.07 kWh</td>
<td>9.1394 c/kWh</td>
<td>$10,796.38</td>
</tr>
<tr>
<td>Off Peak</td>
<td>32060.23 kWh</td>
<td>3.7552 c/kWh</td>
<td>$1,203.93</td>
</tr>
<tr>
<td>GST Charge</td>
<td></td>
<td></td>
<td>$1,200.03</td>
</tr>
<tr>
<td>Sub Total</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Network</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Off Peak</td>
<td>32060.23 kWh</td>
<td>1.4802 c/kWh</td>
<td>$474.56</td>
</tr>
<tr>
<td>Peak</td>
<td>118130.07 kWh</td>
<td>2.3103 c/kWh</td>
<td>$2,729.16</td>
</tr>
<tr>
<td>Demand</td>
<td>865.00 kW</td>
<td>5.492775 $/kW</td>
<td>$4,751.25</td>
</tr>
<tr>
<td>GST Charge</td>
<td></td>
<td></td>
<td>$795.51</td>
</tr>
<tr>
<td>Sub Total</td>
<td></td>
<td></td>
<td>$8,750.48</td>
</tr>
<tr>
<td>3. Other</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REC Charge (LREC rate)</td>
<td>150190.30 kWh</td>
<td>0.3052 c/kWh</td>
<td>$458.38</td>
</tr>
<tr>
<td>REC Charge (SREC rate)</td>
<td>150190.30 kWh</td>
<td>0.6187 c/kWh</td>
<td>$929.23</td>
</tr>
<tr>
<td>NEMMCO Ancillary</td>
<td>150190.30 kWh</td>
<td>0.0468 c/kWh</td>
<td>$70.29</td>
</tr>
<tr>
<td>NEMMCO Charge</td>
<td>150190.30 kWh</td>
<td>0.0419 c/kWh</td>
<td>$62.93</td>
</tr>
<tr>
<td>Meter Provider/Data Agent Charges</td>
<td>2</td>
<td>73.333333 $/Bill</td>
<td>$146.67</td>
</tr>
<tr>
<td>Service Charge</td>
<td></td>
<td>30.000000 $/Bill</td>
<td>$30.00</td>
</tr>
<tr>
<td>GST Charge</td>
<td></td>
<td></td>
<td>$169.75</td>
</tr>
<tr>
<td>Sub Total</td>
<td></td>
<td></td>
<td>$1,867.25</td>
</tr>
</tbody>
</table>

Total New Charges | $23,818.07 |
Electricity Price Rises....

<table>
<thead>
<tr>
<th>Factor</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commodity (per kWh) prices</td>
<td>20%</td>
</tr>
<tr>
<td>Carbon tax</td>
<td>20%</td>
</tr>
<tr>
<td>Network infrastructure investment</td>
<td>25%</td>
</tr>
<tr>
<td>Overall increase</td>
<td>80%</td>
</tr>
<tr>
<td>Need to reduce electricity use by</td>
<td>44%</td>
</tr>
</tbody>
</table>
Motivational effect of 'carbon tax'

Who wants to pay tax?
2010 is second highest since 1980 with 960 events
- Φ10 years: 785
- Φ30 years: 615
Natural catastrophes 2010
Insured losses US$ 38bn - Percentage distribution per continent

<table>
<thead>
<tr>
<th>Continent</th>
<th>Overall losses [US$ m]</th>
<th>Insured losses [US$ m]</th>
<th>Fatalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>110</td>
<td>Minor losses</td>
<td>1,300</td>
</tr>
<tr>
<td>America (North and South America)</td>
<td>75,000</td>
<td>23,600</td>
<td>225,000</td>
</tr>
<tr>
<td>Asia</td>
<td>36,000</td>
<td>900</td>
<td>12,400</td>
</tr>
<tr>
<td>Australia/Oceania</td>
<td>16,000</td>
<td>8,200</td>
<td>40</td>
</tr>
<tr>
<td>Europe</td>
<td>22,000</td>
<td>5,600</td>
<td>56,500</td>
</tr>
</tbody>
</table>

11% of premium income was paid by MR for natural catastrophes in 2010
(avg. 6-7% in normal year!)
## Disasters, Australian Costs

### Current Disaster Statistics at March, 2012

<table>
<thead>
<tr>
<th>Event</th>
<th>Catastrophe number if declared</th>
<th>Date dd/mm/yy</th>
<th>Location</th>
<th>State</th>
<th>Number of claims</th>
<th>Cost (current figures)</th>
</tr>
</thead>
<tbody>
<tr>
<td>QLD Flooding</td>
<td>CAT 105, 111 &amp; 112</td>
<td>21/12/10 to 14/01/11</td>
<td>QLD, Rural, Toowoomba, Lockyer Valley</td>
<td>QLD</td>
<td>58,685</td>
<td>$2,377,000,000</td>
</tr>
<tr>
<td>VIC Flooding</td>
<td>CAT 113</td>
<td>13/01/11 to 18/01/11</td>
<td>VIC</td>
<td>VIC</td>
<td>7,983</td>
<td>$122,465,000</td>
</tr>
<tr>
<td>QLD Cyclone YASI</td>
<td>CAT 114</td>
<td>02/02/11 to 07/02/11</td>
<td>QLD</td>
<td>QLD</td>
<td>73,250</td>
<td>$1,405,000,000</td>
</tr>
<tr>
<td>VIC Severe Storms</td>
<td>CAT 115</td>
<td>04/02/11 to 06/02/11</td>
<td>Melbourne &amp; Suburbs</td>
<td>VIC</td>
<td>50,063</td>
<td>$418,670,000</td>
</tr>
<tr>
<td>WA Perth Bushfires</td>
<td>CAT 116</td>
<td>05/02/11 to 07/02/11</td>
<td>Perth &amp; Surrounds</td>
<td>WA</td>
<td>410</td>
<td>$35,000,000</td>
</tr>
<tr>
<td>WA Margaret River Bushfires</td>
<td>CAT 117</td>
<td>22/11/11 to 24/11/11</td>
<td>Margaret River</td>
<td>WA</td>
<td>405</td>
<td>$53,000,000</td>
</tr>
<tr>
<td>VIC Christmas Day Storms</td>
<td>CAT 118</td>
<td>25/12/2011</td>
<td>Melbourne</td>
<td>VIC</td>
<td>108,564</td>
<td>$680,724,000</td>
</tr>
<tr>
<td>SW QLD Border Flooding</td>
<td>CAT 121</td>
<td>24/01/12 - 15/02/12</td>
<td>SW QLD</td>
<td>QLD</td>
<td>6,408</td>
<td>$124,688,000</td>
</tr>
<tr>
<td>NSW &amp; VIC Flooding</td>
<td>CAT 122</td>
<td>24/02/12 - 16/03/12</td>
<td>NSW Riverina, NSW Central West and northern Victoria</td>
<td>NSW &amp; VIC</td>
<td>8,914</td>
<td>$108,212,000</td>
</tr>
</tbody>
</table>

**TOTAL** $5,324,759,000
Some Sustainable Products
Renewable Energy

Ocean current turbine

Biodigester

Small - medium wind turbine

Solar thermal, with storage
Anaerobic digesters:

Range from small low tech to municipal scale
Components: tank, pumps, stirrer, heat exchanger
Selling price could be from $20,000...
Potential Australian market 10,000 / year

Driven by: waste problems, energy prices
Energy Efficiency:

- Lighting:
  - LEDs
  - controls

- Heat pump water heater

- Dairy energy system
Heat pump water heaters:

Range from domestic to industrial scale
Components similar to air-conditioner
Selling price could be from $1500...
Potential Australian market 1,000,000 / year

Driven by:

• gas prices,
• electric heater ban,
• more apartments,
• greenhouse
Sustainable Buildings

- modular
- efficient
- effective
- affordable
- convenient
- comfortable
- flexible, configurable.
Sustainable Building Products

- Double glazing
- Phase change materials
- Building modules and components
A Great Match
A great match

New Products need:

- wide range of manufacturing skills
- flexible manufacturing
- ability to break through Catch 22 / price and volume
- existing (spare) capacity
The way ahead

Team Approach

Combine,

- your
  - manufacturing expertise, quality, performance outcomes
  - ability to refine designs
  - adapting to changing volume
- our
  - knowledge of product needs and markets
  - product invention, design, development
  - helping to develop markets / sell product
  - knowledge of manufacturers and processes
  - sourcing grant funding, investor funding, etc.
  - ability to work effectively with manufacturers
To discuss, explore… phone:

Genesis Now
271 Burke Road
Glen Iris  VIC  3146

• T:  1800 22 99 11
• E:  genesis@genesisnow.com.au
• W:  genesisnow.com.au

autoCRC / ASEA