Energy Efficiency Policy and Practice in Australia

Creating opportunities through ESCO's and Energy Performance Contracts

Patrick Crittenden
Director, Sustainable Business P/L
Energy Management Action NetworK (EMAK)
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Outline

1. Australian energy consumption and energy productivity potential
2. Conditions that support energy efficiency improvement
3. Financing options in Australia
4. The ESCO opportunity
5. Lessons learned and recommendations
Australian 2012-13 primary energy consumption

- Total consumption – 8,844 PJ
- 19th largest global consumer
Australian 2012-13 end use energy consumption by sector

- Transport 38%
- Manufacturing 27%
- Mining 12%
- Agriculture 2%
- Construction 1%
- Other 1%
- Commercial 8%
- Residential 11%

Industrial use is approximately 70% from gas.
The potential
– Energy Productivity in Australia to 2030 –

Energy productivity = $Gross Domestic Product/megajoule of primary energy
The Energy Efficiency Opportunities Act
– Achievements –

- Introduced in 2006
- Large energy users required to conduct energy efficiency assessments and report on the outcomes
- In first five years identified opportunity potential of 164PJ of which half were adopted
- Annual net financial benefit of adopted savings of $808 million
- Annual emissions abatement of 1.5% of Australia’s total emissions in 2010-11
### The Energy Efficiency Opportunities Act – Carbon reduction context –

<table>
<thead>
<tr>
<th>Industry sector</th>
<th>Identified emissions reductions (Mt CO$_2$-e)</th>
<th>Financial benefits ($m)</th>
<th>Financial savings if implemented ($/tonne CO$_2$-e)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>6.80</td>
<td>$412</td>
<td>$60.62</td>
</tr>
<tr>
<td>Oil and gas</td>
<td>2.90</td>
<td>$226</td>
<td>$77.83</td>
</tr>
<tr>
<td>Mining</td>
<td>1.88</td>
<td>$336</td>
<td>$178.07</td>
</tr>
<tr>
<td>Transport</td>
<td>1.23</td>
<td>$160</td>
<td>$130.35</td>
</tr>
<tr>
<td>Services</td>
<td>1.69</td>
<td>$109</td>
<td>$64.41</td>
</tr>
<tr>
<td><strong>All sectors</strong></td>
<td><strong>14.51</strong></td>
<td><strong>$1,243</strong></td>
<td><strong>$85.66</strong></td>
</tr>
</tbody>
</table>
The Energy Efficiency Opportunities Act – Lessons learned –

- Energy audits require a team-based approach to identify all opportunities and to broaden the value proposition for projects.
- Comprehensive energy management systems are important – particularly energy information systems.
- Energy champions at corporate and site level are critical.
- It takes time to develop the knowledge, skills and capability within organisations and across the energy services sector.
- Project implementation influenced by:
  - Risk appetite
  - Payback period
  - Capital requirements
  - Strategic priorities at the site and corporate level
An integrated policy approach is essential
Finance
– Government options for industry –

The Emissions Reduction Fund

CEFC
CLEAN ENERGY FINANCE CORPORATION

ARENA
Australian Renewable Energy Agency

ESS
ENERGY SAVINGS SCHEME

VICTORIAN ENERGY EFFICIENCY TARGET
Essential Services Commission
Finance
– Private sector options for industry –

• Energy Efficiency loans
• Operating and capital leases
• Environmental upgrade agreements
• Utility on bill financing
• Energy performance contract / Energy services agreement

Energy Efficiency and Renewables
Finance Guide
A Best Practice Guide to Energy Performance Contracts

Reducing operating costs through guaranteed outcomes

Developed in 2000 as a government/industry collaboration. Still in use today.
Advantages of an Energy Performance Contract

- Shift technical risk to the ESCO.
  - perform as designed
  - remain within budget
  - be maintained or operate properly after installation
- Project funded out of cash flow rather than capital expenditure
- Guaranteed savings
- ESCOs bring specialist expertise
Advantages of an Energy Performance Contract

- Greater initial savings
- Faster implementation
- Continuous improvement
- Performance contracting
- Innovation gap
- Traditional tendered approach
- Routine maintenance
- Do nothing
It's not for everyone ...

- If the organisation:
  - is not comfortable with a long term contractual relationship
  - does not have an appetite to adopt a relatively new and innovative approach

- If the project:
  - Is relatively small
  - Is difficult to measure and verify due to multiple influencing factors
5 steps – setting up an EPC in Australia

1. Decide whether to use an Energy Performance Contract
2. Select an Energy Service Company
3. Define the scope of the project
4. Negotiate an Energy Performance Contract
5. Modify the Standard Energy Performance Contract
Selecting ESCOs

• Consider experience with similar projects
• Listings established by the government and the Energy Efficiency Council assist end users
Lessons learned and recommendations

1. Maintain a ‘business’ as well as ‘energy focus’
   - Link projects to strategic priorities where possible
   - Measure multiple benefits – not just energy savings
   - Communicate and influence at multiple levels within the organisation

2. Support collaboration
   - Tension between legal requirements and building confidence/trust. Need to work together to achieve mutually beneficial outcomes
   - Develop partnering processes and ‘co-design’
     - “Share the problems then co-create solutions via workshops and stakeholder consultation and policy review
Lessons learned and recommendations

3. Encourage standardisation
   - Contracts
     - Save time and effort
     - Build understanding, familiarity, confidence
   - Measurement and verification methodologies
     - E.g. The International Performance Measurement and Verification Protocol (IPMVP)

4. Provide training opportunities
   - On contractual arrangements as well as technical aspects
   - Measurement and verification techniques
   - Educate financiers as well as end users
Contact Details

Patrick Crittenden
Sustainable Business Pty Ltd
+61 418 453779
patrick@sbusiness.com.au
www.climatechangethreestrategy.com