1. Rationale and opportunity
2. Opportunity in innovation
3. Market and policy challenges
4. Collaborative solutions
1. Rationale and opportunity
2. Opportunity in innovation
3. Market and policy challenges
4. Collaborative solutions
Australian Primary Energy Consumption

Frozen Energy Productivity

Energy Productivity Growth

Renewables

Natural Gas

Oil

Coal

Savings = ~ $46b p.a.

GDP Growth 108%

Energy Growth 46%

Rationale
Opportunity

NEPP:
9 of 34 NEPP measures relate to Innovation and Research

NISA: National Innovation & Science Agenda

Mission Innovation:
Doubling Australian clean energy research

2XEP:
Energy Productivity Roadmap

Job creation:
Over 2 million clean energy jobs in the US

Net zero emissions by 2050
Opportunity

HOW MANY JOBS COULD ENERGY PRODUCTIVITY CREATE IN AUSTRALIA?

Source: Clean Jobs America, 2016
1. Rationale and opportunity
2. Opportunity in innovation
3. Market and policy challenges
4. Collaborative solutions
Achieving EP targets needs innovation

**Traditional energy management:** Innovations in all energy end using technologies like improved lighting, drive systems, heating systems and onsite generation

**Systems optimisation:**
Opportunities through ICT as an enabler, optimisation to improve design of buildings/precincts/urban development, technologies to improve supply chain EP, and improved plant integration

**Innovation in business models:**
Business transformation involving different processing routes displacing more energy intensive ones e.g. 3D printing.
Examples of enabling EP innovation

[Images and charts related to EP innovation and sustainability]
1. Rationale and opportunity
2. Opportunity in innovation
3. Market and policy challenges
4. Collaborative solutions
Policy challenges

- Energy generation focus
- Centralised energy system
- Distributed benefits of EP
- Sectoral differences for EP

Market challenges

- Need for upfront investment
- Split incentives
- Information overload
- “Hassle Factor”
1. Rationale and opportunity
2. Opportunity in innovation
3. Market and policy challenges
4. Collaborative solutions
Challenge can be overcome by consensus
EPIC: Energy Productivity Innovation

Innovation
- Support for a new energy economy
- Start-up incubators
- Accelerator

Intelligence
- EPIC: Research
  - Data gathering, analysis & research
  - Economic modelling of 2XEP
  - Energy end use database
  - Development of sector 2XEP roadmaps

Industry engagement
- Diffusing innovation
- A2SE and partners
- 2XEP sector working groups
- Pilot of 2XEP Challenge
**THEME**

<table>
<thead>
<tr>
<th>FOCUS</th>
<th>Innovation</th>
<th>Intelligence</th>
<th>Industry Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOCUS</strong></td>
<td>Start-up Incubators &amp; Accelerators (EnergyLab)</td>
<td>Research, data &amp; market analysis</td>
<td>A2SE: 2XEP Roadmap process</td>
</tr>
</tbody>
</table>

**OUTCOMES**

<table>
<thead>
<tr>
<th>FOCUS</th>
<th>Innovation</th>
<th>Intelligence</th>
<th>Industry Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>OUTCOMES</strong></td>
<td>New jobs and businesses</td>
<td>Useful knowledge and continuous improvement</td>
<td>Lifting EP in existing business</td>
</tr>
</tbody>
</table>

Investment must also be collaborative.