Net zero energy building policy: benchmarking Australian practices against Asia Pacific

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Co Lead UN 10YFP SBC Programme
10YFP Sustainable Buildings and Construction Programme (SBC)

10 Year Framework of Programmes post Rio+20

• STP
• SLE
• SCI
• SPP
• SBC
• SFS
Leadership of the 10YFP programmes
SBC Multi-Stakeholder Advisory Committee (MAC)

Co-Leads

Ympäristöministeriö
Ministry of the Environment

RMIT UNIVERSITY

Governments: Argentina, France, Malaysia, Singapore, South Africa

Business organisations:
Skanska, WBCSD

Academia: Energies 2050 France+Africa, Politecnico Italy, Tsinghua China

IGOs: UN-Habitat, UNOPS

NGOs: Bioregional UK, Development Alternatives India, RICS, SEEA US, TERI India, UNEP-SBCI, WWF
Net Zero Energy Buildings
Definitions

• Net
• Operational vs embodied energy
• On site and off site
• Source energy
• Costs
• Energy is an important element of “green”
Australia

Goal is to reduce emissions to 26-28% on 2005 levels by 2030

» 50-52% reductions in emissions per capita

» 64-65% reduction in the emissions intensity of the economy between 2005 and 2030

Source: Department of the Environment analysis
Energy use in buildings

- Energy use of buildings contributes to 20% of national greenhouse gas emissions
- Heating and cooling 11% of national greenhouse gas emissions
- Typically:
  - Space heating and cooling: 41%
  - Domestic water heating: 30%

Source: Metricon Homes, Peninsula

Landscape in Australia

• Role of the NCC
• Voluntary targets set up by the GBCA
• BEED 2010
  • Over 2000 meter square
  • Point of lease of sale
  • NABERS rating

The NABERS rating scale:
For NABERS Indoor Environment, Energy and Water tools for offices, shopping centres and hotels:
6 stars........ Market leading performance
5 stars........ Excellent performance
4 stars........ Good performance
3 stars........ Average performance
2 stars........ Below average performance
1 star.......... Poor performance
0 stars........ Very poor performance

For NABERS Waste for offices:
5 stars........ Market leading performance
4 stars........ Excellent performance
3 stars........ Good performance
2.5 stars..... Average performance
2 star.......... Below average performance
1 star.......... Poor performance
0 stars........ Very poor performance

Source: NABERS: https://nabers.gov.au
Japan, Korea, China

Japan and Korea
• Homes to be NZE
• Government incentives and market drivers
• Targeting both residential and non residential buildings

China
• Strong focus on EE
• Energy efficiency codes
• Beyond EE to other capital and operational: e.g., water and materials
## Comparison

<table>
<thead>
<tr>
<th>Policies/legislation</th>
<th>Australia</th>
<th>China</th>
<th>Japan</th>
<th>S. Korea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainability as a guiding principle as policy/guideline</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Zero energy building policy</td>
<td>No (in early stages of dev.)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Energy efficiency in the building code/Energy efficiency mandated through regulation</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Applicability of energy efficiency to existing buildings</td>
<td>Yes not blanket though</td>
<td>Yes</td>
<td>Yes major renovations above a certain size</td>
<td>Yes voluntary labelling</td>
</tr>
<tr>
<td>Operational energy performance mandated</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Other market based mechanisms/voluntary schemes</td>
<td>Yes (Green Star)</td>
<td>Yes</td>
<td>Yes (BELS and CASBEE)</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Conclusions

• Lack of NZEB is not a hinderance
• Operational energy tracking is the only way to truly handle energy use
• Both residential and non-residential sectors need to be involved
Thank you