LoT-NET: WP4

Advisory Board 1

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WP4: Determine key end use and business requirements for timely adoption

WP4.1: Understanding household priorities [LDS Year 2]
Determine what a low-temperature network needs to deliver to users, including service requirements such as comfort, hygiene, affordability and barriers / enablers

WP4.2: From user requirements into technology design [LDS Year 2-3]
Identify user requirements to inform technology development and design

WP4.3: Consumer engagement with low carbon heating and cooling [LDS Year 2-3]
Determine information provision to assist consumers in their engagement with low-temperature heating and cooling systems and how this might impact on demand shifting

WP4.4: Energy transitions and competing for investment [WBS Year 1, 4]
Low temperature networks as competing investments in the energy transition

WP4.5: Low temp heat networks as an innovation system [WBS Year 2-4]
Assessing market penetration for low temperature networks as an innovation system requiring the cooperation and participation of a network of organisations along with policy and regulatory frameworks, standards and skills development.
WP4.4: Energy transitions and competing for investment

- Low temperature networks are in competition for investment against other choices for energy supply, storage and consumption
- There could be a shift on the following spectra:

<table>
<thead>
<tr>
<th>Incremental</th>
<th>Exponential</th>
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</thead>
<tbody>
<tr>
<td>Supply focus</td>
<td>Consumption &amp; storage focus</td>
</tr>
<tr>
<td>Large, centralised</td>
<td>Distributed</td>
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<tr>
<td>Technologies</td>
<td>Systems</td>
</tr>
<tr>
<td>Power</td>
<td>Heating &amp; Cooling</td>
</tr>
<tr>
<td>Unhealthy</td>
<td>Healthy</td>
</tr>
<tr>
<td>Rules</td>
<td>Principles</td>
</tr>
<tr>
<td>Not very smart</td>
<td>Much smarter</td>
</tr>
<tr>
<td>Markets</td>
<td>Governments</td>
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</tbody>
</table>
2017 Capital investment in the supply and use of energy

Global Capital Investment in the Supply & Use of Energy ($1.8Tn in 2017)

IEA, WEI (2018)
Future global energy *supply* investment by sector in the IEA’s New Policies Scenario, 2014-2035
Future global energy efficiency investment by sector in the IEA’s New Policies Scenario, 2014-2035
Current and forecast views of future investment in the more efficient use of energy

- In the IEA’s 2018 WEI…
  - Actual investment in efficient energy use was 13% of total investment in 2017

- In the 2014 IEA WEO…
  - The proportion of investment in efficient use over 2014-2035 was forecast to be 17%

- In the 2015 IEA WEO…
  - The proportion of investment in efficient use over 2015-2040 was forecast to be 32%

- In the 2016 IEA WEO…
  - The proportion of investment in efficient use over 2016-2040 was forecast to be 35%

- In the 2017 IEA WEO…
  - The proportion of investment in efficient use over 2017-2040 is forecast to be 31%

- In the 2018 IEA WEO…
  - The proportion of investment in efficient use over 2018-2040 is forecast to be 30%
And 1.5°C needs investment in efficient use to rise from 30-39%

Total investment in the Sustainable Development Scenario is only about 15% higher than in the New Policies Scenario, but there is a marked difference in capital allocation.

Note: Other includes battery storage and carbon capture, utilisation and storage.
LoT-NET can also answer if low temp networks achieve more as systems than we currently forecast.