Barriers to Energy Storage

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Recap / comparison

• **ERP Energy Storage report - 2011**
  – Considered role of ES
  – set out nature and scale of challenges
  – Innovation landscape / tech. dev focus

• **ERP Energy Storage report - 2016**
  – overview of **barriers** to Energy Storage / solutions
  – “light-touch” technical focus
  – draw together aspects from other ERP projects
  – Use–cases
  – **Scope:** electrical, thermal + hydrogen + gas + other???
Existing work to draw on & Use-Cases

• General work to draw on:
  – LCICG ES TINA, EU Parliament, Ofgem, Gratham Institute, Frontier Economics, Brattle Group etc.

• Existing ERP projects of relevance:
  – Hydrogen, Transport, Cities, Community Energy, Smart Energy, Managing Flexibility

• Existing work with use-cases:
  – DECC’s Smart Energy Team
  – Carbon Trust + 3 utilities + DECC + Scot Gov.
  – Carbon Trust, DECC + Imperial “Least Regrets” modelling
  – California case study
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<th>Storage Grid Domains</th>
<th>Regulatory Function</th>
<th>Use-case examples</th>
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<td>Transmission-Connected</td>
<td>Generation/Market</td>
<td>- (Co-located Energy Storage)</td>
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<td>- Concentrated Solar Power</td>
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<td>- Wind+Energy Storage</td>
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<td>Transmission Reliability</td>
<td>- Stand-Alone Energy Storage</td>
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<td>- Ancillary Services</td>
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<td>- Peak Shaving</td>
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<td>Distribution-Connected</td>
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<td>Generation/Market</td>
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<td>- Distributed Generation + Energy Storage</td>
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<td>Dual-Use (Reliability &amp; Market)</td>
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<td>Behind-the-Meter</td>
<td>Customer-Sited Storage</td>
<td>- Bill Mgt/Permanent Load Shifting</td>
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<td>- EV charging</td>
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Timeline, & Steering Group Support

• Timeline:
  – Approval of PID by ERP membership: Jan 2016
  – Scoping Workshop: Feb/March 2016
  – 70-80% project completion: July 2016

• Steering Group:
  – Chair: Peter Bance, Origami
  – SG Members: Keith MacLean (ERP), Atkins, SSE, GE, DECC, Ofgem, ScotEnt, National Grid, Carbon Trust, FSB
Member input & discussion

• Project Initiation Approved?
• Thoughts re scope & use-cases?

Project Aims & Impact:

• **Identify barriers** & possible ways to overcome them
• **Provide clarity** for: policy-makers, regulators, network operators, customers, investors & ES developers (tech & supply chain developers) to help:
• **Catalyse & mobilise an ES supply chain** of value to the UK

THANK YOU!
For discussion:

1. ERP response to the re-setting of Energy Policy
2. ERP’s future structure & future role