UK Power Networks – Local flexibility markets
March 2019
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• Intro to UKPN

• What is Flexibility?

• Our Flexibility Roadmap

• EPN Focus

• Value

• Close
Hello, nice to meet you

- We own, operate and manage 3 of the 14 regulated electricity distribution networks in Great Britain
- Deliver electricity to 18 million people, 28% of UK’s population

- Energy distributed: 79,491 GWh
- Length of overhead network: 45,854km
- Length of underground network: 142,154km
- Distributed generation: 9.07 GW
- Peak Demand: 15,784 MW
- Number of people served: 18 million
What is flexibility?

Network users modifying their electricity use to help balance the system
Local Flexibility Markets

• Addressing the DNO’s operational issues

**Reinforcement Deferral**
Allowing us to delay the need to reinforce our load related EHV and HV network assets, until it is clear that reinforcement is required.

**Managing Planned Maintenance**
Helping us to carry out planned maintenance, asset replacement, and connection works more efficiently.

**Dealing with Unplanned Interruptions**
Mitigating the effect of network outages when they occur, minimising the impact on our customers.
Flexibility tender – Visualisation & Procurement
Future support to the wider electricity system

- The energy system is changing rapidly
- We will need a range of other flexibility services in the future

**LV flexibility products – Accessing micro-locational flexibility**
- EV and LCT penetration at residential level
- Potentially administered pricing

**Whole system products – Supporting the transmission system**
- Coordinate distribution connected resources for whole system benefits – DSO to TSO

**Demand turn-up – Widening the scope of flexibility**
- Manage export constraints
EPN FDG Rollout

- **Open**
- FDG zones in 2018
- FDG zones in Q1 2019
- FDG zones in Q2 2019
- FDG zones in Q3 2019
- FDG zones in Q4 2019
Active Network Management

• First project Flexible Plug and Play (2012-2014)
• Developing enhanced Active Network Management in 2019
• Will facilitate the rollout of more FDG connections
• We will offer FDG connections if technically and economically feasible
• Opportunities for flexibility to enhance the effectiveness
Value of Flexibility

- Efficient network operation
- Help meet decarbonisation targets
- Whole system benefits
- Mutually beneficial to network, customers and flexibility providers

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Revenue /contract</td>
<td>£9,000</td>
<td>£1,450,000</td>
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<td>Revenue /yr</td>
<td>£6,000</td>
<td>£523,500</td>
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<td>MW availability (2019)</td>
<td>0.2</td>
<td>10</td>
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<td>Revenue/MW/yr</td>
<td>£3,900</td>
<td>£906,250</td>
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Some closing thoughts

• Peak demand ~ 16GW
• Flexibility competition ~ 90MW
• Equivalent to 0.6% of our peak demand
• Smallest flexibility unit = 50kW
• 90MW/50kW = 1,800 units of flexibility
• Average domestic property ~7-23 kW
• Equivalent to ~4,000-13,000 homes
Thank you

Useful links
• Flexibility Roadmap – futuresmart.ukpowernetworks.co.uk
• Piclo Flex platform – picloflex.com

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