Stakeholder Engagement Workshop

Swindon – 8 October 2018
Reading – 9 October 2018
Welcome

James Garland, Managing Director, EQ Communications
Welcome

- Housekeeping
- Objectives for the day
- Electronic voting
Electronic voting
If you could have dinner with one of the following, who would you choose?

1. David Attenborough
2. Graham Norton
3. Sandi Toksvig
4. Serena Williams
5. Madonna
6. Jacob Rees-Mogg
7. Meghan Markle
8. The Pope
9. Angela Merkel
10. Ozzy Osborne
Electronic Voting
What type of stakeholder are you?

1. Domestic customer / consumer interest body
2. Business customer (or representative)
3. Local authority officer / elected representative
4. Developer / connections representative
5. Environmental representative
6. Energy / utility company
7. Charity / non-profit organisation
8. Parish / town / community councillor
9. Housing / development
10. Other
## Agenda

<table>
<thead>
<tr>
<th>Session</th>
<th>Time</th>
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<tbody>
<tr>
<td>Registration, tea and coffee</td>
<td>09.30 – 10.00</td>
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<tr>
<td>Welcome and overview</td>
<td>10.00 – 10.05</td>
</tr>
<tr>
<td>Introduction, background and context</td>
<td>10.05 – 10.30</td>
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<tr>
<td>Safety</td>
<td>10.30 – 11.15</td>
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<tr>
<td>Coffee break</td>
<td>11:15 – 11:30</td>
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<tr>
<td>Network investment</td>
<td>11.30 – 12.15</td>
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<tr>
<td>Transition to Distribution System Operator (DSO)</td>
<td>12.15 – 13.00</td>
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<tr>
<td>Wrap up and next steps</td>
<td>13.00 – 13.05</td>
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<tr>
<td>Lunch break</td>
<td>13.05 – 14.00</td>
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</tbody>
</table>
Introduction
Ian Crawley, Operational Safety Manager
About Scottish and Southern Electricity Networks

Video
Distribution in Great Britain
To bring it to life...

We own:

132kV
275kV
400kV

100 Subsea cables

We deliver electricity to:

3.7 million Homes & Businesses

We manage:

130,000 km of overhead lines and underground cables
## Feedback from previous workshops

### PSR1+

- 65% of stakeholders said that we should create an additional category on our Priority Services Register for high risk customers without electricity

### Resilient Communities Fund

- 66% of stakeholders were of the view that communities in remote and isolated areas should be prioritised for Community Resilience Funding
- 71% supported prioritising projects from areas which have been identified as having especially low resilience which had not applied for funding before
- 83% believed projects which support areas where it can be difficult for emergency services to respond to should be prioritised for community funding

### Business Plan Commitments

- Stakeholders told us that their most important priorities are Reliability and Availability, followed by Safety
Actions taken

**PSR1+**

- Building category into current process
- Stage of implementation: updating the customer system to allow for additional category

**Resilient Communities Fund**

- 12 projects were funded in remote and isolated areas
- Used vulnerability mapping tool to identify communities of low resilience

**Business Plan Commitments**

- Ensured Reliability & Availability, and Safety are prominent in our Stakeholder Engagement Strategy
- Both areas will be a focus of today’s workshops
Discussion session

Your experience of working with SSEN
Safety

Ian Crawley, Operational Safety Manager
Safety in our business

Our vision
To continuously deliver safe outcomes for our people, our customers and our environment

Our licence
Every person who works on behalf of SSEN is empowered to stop if they believe something isn’t safe, or if they are not sure how to progress safely

Nothing is more important than the safety of our people, our customers and the environment – delivery against this is our primary objective
Our approach

- Vision
- Processes
- Leadership
- Behaviours
Our safety performance

SSEN Rolling TRIR* - 24 months

*Total Recordable Injury Rate
The SSEN and SHE team

• Relatively new team

• Dedicated resources

• Operating as the SHE conscience

• Positioned to have influence

• Providing professional SHE support to help facilitate safe and effective work delivery and a high standard of customer service
What do the statistics tell us?

*Also: interference / unauthorised trespass / climbing of structures
How has this shaped our strategy?

Our strategy has been influenced by data, our experience and the collective information obtained through the Public Safety Committee.

SSEN are members of the Energy Networks Association UK (ENA)
• We are represented on the National Public Safety Committee
• Supported by the Health and Safety Executive

Our Key focus areas:
• Accidental contact with overhead power lines
• Wilful interference with SSEN assets (e.g. vandalism and metal theft)
• Damage to underground cables
• Communication and education on the dangers from electricity networks to raise awareness in certain risk groups
Our campaigns and more

• **105**: A simple number to call in the event of an emergency situation concerning the electricity supply. Calling this number anywhere in the country will put the caller in touch with the relevant Network Operator in that area.

• **SSEN Power Track**: An app that allows easy identification of areas affected by power interruptions and the simple reporting of faults, issues and concerns regarding the SSEN Network.
Look Out, Look Up!

Safety tips: Farmers risk lives due to dangerous overhead power lines

The UK's electricity network operators have joined forces to ensure those working in the agricultural industry understand the dangers of working near power lines, in a bid to reduce the number of incidents that take place each year.

Stay safe near power lines

Assess risk: Know where overhead power lines are and mark them on a map. Find out the height and reach of your equipment and how this compares to the maximum working height under overhead power lines. Share this information with workers and contractors.

Control measures: Don't work near an overhead power line if you don't have to. Speak to your electricity network operator for advice. Select suitable machinery and equipment and use it safely.

Avoid danger: Certain work should be avoided within 3m of overhead power lines, such as stacking bales and potato boxes, operating telehandlers and manoeuvring pipes.

Know what to do: If contact is made when you're in a vehicle, stay in the cab and try to drive clear. If it is not safe to stay in the vehicle, jump clear of the machine, move away and don't touch it once on the ground.

Stay away: It is crucial that farmers, farmworkers and contractors understand that when overhead power lines are damaged or fall to the ground, they should stay well away and contact their local electricity network operator by dialling 105.

Call 105 if there is an incident, contact your network operator by dialling the national 24-hour emergency number 105. According to the Energy Networks Association (ENA), more than four in five people do not know the number to call in case of an abnormality in electricity supply in their home or workplace.

(Source: ENA)
LOOK OUT
LOOK UP
LOOK AFTER YOURSELF
Our focus

1. Working with DIY supply chains
2. Generating the data to help GPS systems avoid coming into contact with our equipment
3. Engaging with farm and construction machinery manufacturers to encourage them to supply safety literature
4. Working with machinery suppliers to put information packs in used machines
Discussion session

Our approach to keeping people safe
Voting Question 1

Had you heard of the 105 phone number before?

1. Yes
2. Not sure
3. No
Voting Question 2

Did you know that the Power Track app was available for you to download for free?

1. Yes, but I haven’t downloaded it
2. Yes, I have downloaded it but not used it
3. Yes, I have downloaded it and used it
4. No
Voting Question 3

Now that you know about the app, how likely is it that you would download it and use it?

1. Very unlikely
2. Unlikely
3. Maybe
4. Likely
5. Very likely
Voting Question 4

Please place the following campaigns in order according to which you think we should prioritise:

1. Look out, Look up
2. Working with DIY supply chains
3. Generating the data to help GPS systems
4. Engaging with farm and construction machinery manufacturers
5. Working with machinery suppliers
Voting Question 5

How do you feel about the following statement: ‘I would be prepared to pay more on my bill to see more investment in safety campaigns.’

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
Coffee Break
Network Investment

Mark O’Connor, System Planning and Investment Engineer
Kate Markman, System Planning and Investment Engineer
What is investment in the electricity network?

**Reliability and availability:** providing long-term reliability of supply, minimising the number and duration of interruptions.

This includes:

- Replacement/refurbishment/maintenance
- Reinforcement of the network
- Innovation

The Objective

- Reducing Customer Interruptions (CI) and Customer Minutes Lost (CML)
Breakdown of an electricity bill

Wholesale Costs
Network Costs
Environmental & Social Obligation costs
Other Direct Costs
Operating Costs
Supplier pre-tax margin
VAT

Domestic customer insights
Duration and acceptability of power cuts

Q1 - How long does your power need to be off for you to consider this a power cut?

<table>
<thead>
<tr>
<th>Duration</th>
<th>Percentage</th>
<th>Duration</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less 1 min</td>
<td>6</td>
<td>3 – 5 min</td>
<td>16</td>
</tr>
<tr>
<td>1 – 3 min</td>
<td>10</td>
<td>5 min or longer</td>
<td>50</td>
</tr>
<tr>
<td>3 min</td>
<td>11</td>
<td>Other</td>
<td>7</td>
</tr>
</tbody>
</table>

Q2 - If your power went off for 3 minutes or less, how many times in three months would this be acceptable?

<table>
<thead>
<tr>
<th>Events</th>
<th>Percentage</th>
<th>Events</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>11</td>
<td>Three</td>
<td>20</td>
</tr>
<tr>
<td>Once</td>
<td>20</td>
<td>More*</td>
<td>17</td>
</tr>
<tr>
<td>Twice</td>
<td>22</td>
<td>Other</td>
<td>2</td>
</tr>
</tbody>
</table>

*Four, five or six times
Different types of network

- **EHV** – Extra High Voltage (similar to an A road)
- **HV** - High Voltage (similar to a B road)
- **LV** – Low Voltage (supplies to your house, similar to a country lane)
Themes for discussion

1. Reliability and availability
   a. HV automation
   b. Rutter Pole replacement

2. Customer Connections

3. Areas of Outstanding Natural Beauty
Reliability and availability
Things to consider

Proactive versus reactive investment

• Waiting until an asset fails is likely to get the most out of the asset, but would lead to significant safety issues and potentially long power outages

• Replacing an asset just before failure would be the lowest cost option, but may increase the probability and frequency of power cuts

• Investing proactively ahead of time would significantly reduce the number of outages on our network, but would come at a cost
Reliability and availability

A. HV automation

• We are focussing on the installation of automation systems on our high voltage (HV) networks

• The automation systems rapidly identify fault locations and operate switches on the network to restore as many customers as possible without the need for human intervention

• In 2016/17, our automation schemes operated 306 times and successfully avoided interruptions for 208,800 customers
Reliability & Availability

B. Rutter Pole replacement

• **Reliability**: This causes security of supply problems on our network

• **Safety issues**: Due to historic tower design and modern safety requirements, there is now a need to switch out both sides to undertake any maintenance or repairs

• **Cost**: Cost of proactively replacing these poles is likely to be far less than the cost incurred for customer interruptions
Customer Connections

London Electricity Working Group (2013)
- Working Group led by London Mayor
- Aims of this group was to review a better approach to investment to make the network fit for the future.
- Currently, we are required to make minimum cost Customer Connection offers under the Electricity Act 1989: ‘The charge will be based on minimum scheme’
- The working group concluded that legislation would need to be changed to enable investing ahead of customer requirements.

Our Options:
- Minimum Scheme
- Future Proofing
Prioritising Investment
Prioritising Investment
Prioritising Investment
## Summary

### Minimum Scheme

<table>
<thead>
<tr>
<th><strong>Advantages</strong></th>
<th><strong>Disadvantages</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Initial Customer Connection cost</td>
<td>It is piecemeal</td>
</tr>
<tr>
<td></td>
<td>Digging up the road again</td>
</tr>
<tr>
<td></td>
<td>Higher cost to rework</td>
</tr>
<tr>
<td></td>
<td>Longer lead time when rework required</td>
</tr>
<tr>
<td></td>
<td>Increased Land footprint required</td>
</tr>
<tr>
<td></td>
<td>Inefficient multiple Customer Connection delivery</td>
</tr>
</tbody>
</table>

### Future Proof

<table>
<thead>
<tr>
<th><strong>Advantages</strong></th>
<th><strong>Disadvantages</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Network capacity available for possible town regeneration programmes</td>
<td>Risk of stranded assets</td>
</tr>
<tr>
<td>More flexibility for future Customer Connection</td>
<td>Higher initial cost</td>
</tr>
<tr>
<td>Not digging up the highway again</td>
<td>Unclear funding options</td>
</tr>
<tr>
<td></td>
<td></td>
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Areas of Outstanding Natural Beauty (AONB)

• We have committed to reduce the visual impact of overhead lines within AONB, National Parks and National Scenic Areas (NSA) during our current regulatory period (RIIO-ED1) but investing £15m to underground 90km of overhead lines within these areas.

• Undergrounding of overhead lines in these areas not only improves public image and relationships, but also provides better network reliability.

• The objective was to target the sections of our network within these areas that provide the most visual improvement. This was achieved via Stakeholder events to receive nominations from the public.

• Within the SEPD area we have now received our target number of accepted nominations and are progressing project delivery.
## Areas of Outstanding Natural Beauty (AONB)

<table>
<thead>
<tr>
<th>Scheme Type</th>
<th>Number of Schemes</th>
<th>Length (km) of undergrounding</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivered</td>
<td>2</td>
<td>4.54</td>
<td>£809,091</td>
</tr>
<tr>
<td>Started in 2017/18</td>
<td>3</td>
<td>3.32</td>
<td>£406,573</td>
</tr>
<tr>
<td>Forecast to start 2018 onwards</td>
<td>10</td>
<td>20.45</td>
<td>£2,272,011</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>28.31</td>
<td>£3,487,675</td>
</tr>
</tbody>
</table>

**Note:** The cost figures are approximate and subject to change.
Distribution network investment

• **Reliability**: the distribution network has to be reliable, with investment aimed at restoring supplies quickly in the event of a fault.

• **Availability**: the distribution network needs to be reliable, with a proactive approach to asset management.

• **Capability**: the distribution network needs to be capable, with capacity to meet demand and generation requirements
Discussion session

How we maintain a reliable supply of electricity at an acceptable cost
Voting Question 1

When it comes to power supply interruptions, what would your preference be?

1. Lots of short interruptions
2. One long interruption
3. Not sure
Voting Question 2

Please rate on a scale of 1 to 10 what you think our approach to network investment should be:

1. The minimum cost option: replacing an asset when it fails

10. The maximum cost option: proactive investment in our assets ahead of time
Voting Question 3

How do you feel about the following statement: ‘SSEN should work to change the legislation in the Electricity Act which states that connection charges will always be based on a minimum scheme’

1. Strongly disagree

10. Strongly agree
Voting Question 4

What is your view on which charging method is most appropriate?

1. 100% customer funded
2. A socialised cost (over the country as a whole)
3. A socialised cost (applied locally)
4. A tax equivalent approach where larger users pay a higher percentage
5. Other
The Transition to DSO
Stewart Reid, Head of DSO and Innovation
SSEN (ENA) Video

- [https://www.youtube.com/watch?v=5Rzc4hsKA2s&feature=youtu.be](https://www.youtube.com/watch?v=5Rzc4hsKA2s&feature=youtu.be)
Impact on the network...
Growth in low carbon technologies

Our VISION is to make the best use of our electricity networks and emerging technology to facilitate the electrification of transport and heat at maximum pace, and minimal cost, to UK plc
The Primary Challenge.

The Energy Trilemma
- Affordable
- Reliable
- Sustainable

Carbon Targets
- Distributed Generation
- Electrification of Transport
- Electrification of Heat

Economic Stimulus
- Sustainable Growth
- Industrial Strategy
- Entrepreneurship

Political principles
- Democratization of energy
- Community Energy
- Market liberalization?

Technical advances
- Digitization
- Energy Storage and flexibility
- Smart Metering

Affordable
Reliable
Sustainable

Carbon Targets
Distributed Generation
Electrification of Transport
Electrification of Heat

Economic Stimulus
Sustainable Growth
Industrial Strategy
Entrepreneurship

Political principles
Democratization of energy
Community Energy
Market liberalization?

Technical advances
Digitization
Energy Storage and flexibility
Smart Metering
PAST

Central Generation → Predictable Power Flows → Predictable energy consumption

Networks
PRESENT

Distributed Generation

New Demand Growth

Unpredictable Load flows

Intermittent Generation

Networks

Market driven demand flexibility
FUTURE

- New Demand Growth
- Unpredictable Load flows
- Market driven demand flexibility
- Distributed Generation
- Intermittent Generation

Networks
Challenges

Managing Congestion while facilitating Markets

Smart Solutions

Active Management

Price Signals

Network Investment
Low carbon technology as a flexibility resource
Our projects
Investing and preparing for DSO

- Asset management systems (£90m)
- Operational technology review (£35m)
- ANM centralization (£10m)
- Open Networks, DSO trials, studies and investments (£15m)
- EV readiness (£12m)
Introducing Constraint Managed Zones

CMZ

• **Definition:** A part of the existing network where constraints are alleviated not through traditional reinforcement but through flexibility services, such as Demand Side Response, Energy Storage and stand-by generation. These are delivered by third parties.

• **Objective:** to stimulate the local market to encourage flexibility services, while removing the need for reinforcement of the network
CMZ: recent zones

**DRAYTON-MILTON-FULSCOT**
33/11kV Reinforcement
Investment cost £2,480k
CMZ Value/Cost £256,760

**COXMOOR WOOD**
132/33kV Reinforcement
Investment cost £3,300k
CMZ Value/Cost £348,790

**BRAMLEY-ANDOVER-THATCHAM**
132kV Reinforcement
Investment cost £1,750k
CMZ Value/Cost £171,970

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**ZONES REVIEWED**

In 2018 SSEN has reviewed a further 14 schemes for potential CMZ application;

- 11 SHEPD schemes, value £14.5m
- 3 SEPD connection driven schemes, value £8.2m

However within the current parameters none resulted in commercial values sufficient to progress to tender.
Evolution of the Social CMZ

The challenges
- Lack of awareness
- Lack of technical know-how
- Lack of community leadership
- Lack of interest

The benefits
- Promoting energy efficiency
- Reducing energy costs
- Opportunity to benefit vulnerable customers
Social CMZ

**Definition:** Like a CMZ, but flexibility services are delivered locally

**Objective:** to stimulate the local market for flexibility services, while also actively encouraging flexibility that brings wider societal benefit

Market stimulation  Social value
Discussion session

The transition to DSO and the role of social CMZs
Voting Question 1

Had you heard of Distribution System Operator (DSO)?

1. No
2. Not sure
3. Yes
Voting Question 2

Had you heard of Social Constraint Managed Zones (S-CMZs)?

1. No
2. Not sure
3. Yes
Voting Question 3

How do you feel about the following statement: ‘Investing beyond the meter (in communities) is the right thing to do to help us manage the network more efficiently.’

1.  Strongly disagree

10. Strongly agree
Voting Question 4

How do you feel about the following statement: ‘*My community would be interested to participate in a social CMZ.*’

1. Strongly disagree

10. Strongly agree
Voting Question 5

What do you consider to be the biggest challenge for us in rolling out social CMZs?

1. Lack of awareness
2. Lack of technical know-how
3. Lack of community leadership
4. Lack of interest
5. Other
Wrap up and next steps
We all rely on electricity day to day for various things, but for some, a power cut can be particularly distressing and difficult. That’s why we offer extra help and support during a power cut. Customers can join our PSR if they:

- Are dependent on electricity for home medical care
- Have a chronic illness or short term condition
- Have communication requirements e.g. blind, deaf or hard of hearing
- Have children under 5 years old
- Are over 60 years old
- Are disabled
Power Track

Report a power cut in a flash!

Report it
Report new power cuts as and when they happen

Search it
Search for power cuts in your area

Updates
Receive power cut updates

Capture it
Take photos to report any damage near you

Available now for download on Apple & Android

Your free mobile app

www.ssen.co.uk/powertrack
Keep in touch

Email us – stakeholder.engagement@sse.com

Look out for future events – visit ssen.co.uk/stakeholderevent

Tweet us @ssencommunity

Follow us on Facebook ‘Scottish and Southern Electricity Networks’

Join our Online Community – visit ssen.explainonline.co.uk