



SMART STREET

Webinar

31 July 2014





SMART STREET

Webinar

Cara Blockley

Low Carbon Projects Manager



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north west

Bringing energy to your door

Webinar format



30 minutes presentation



10 minutes
questions & answers

Submit written questions online during the webinar

Agenda



SMART STREET

Introduction



Technology



Trials & customer
engagement



£8 billion of network assets



5 million



2.4 million



25 terawatt



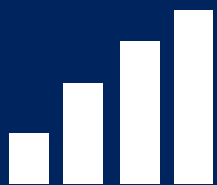
Our smart grid programme



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Bringing energy to your door

Leading work on developing smart solutions



Deliver value
from existing
assets



Customer choice



Three flagship products

£30 million

C2C
Capacity to
Customers

CLASS
Customer Load Active System Services

SMART STREET

Smart Street overview



Combines innovative technology with existing assets ...

... to enable networks and customers' appliances to work in harmony

Low carbon ● Lower bills ● Faster LCT adoption ● Less disruption

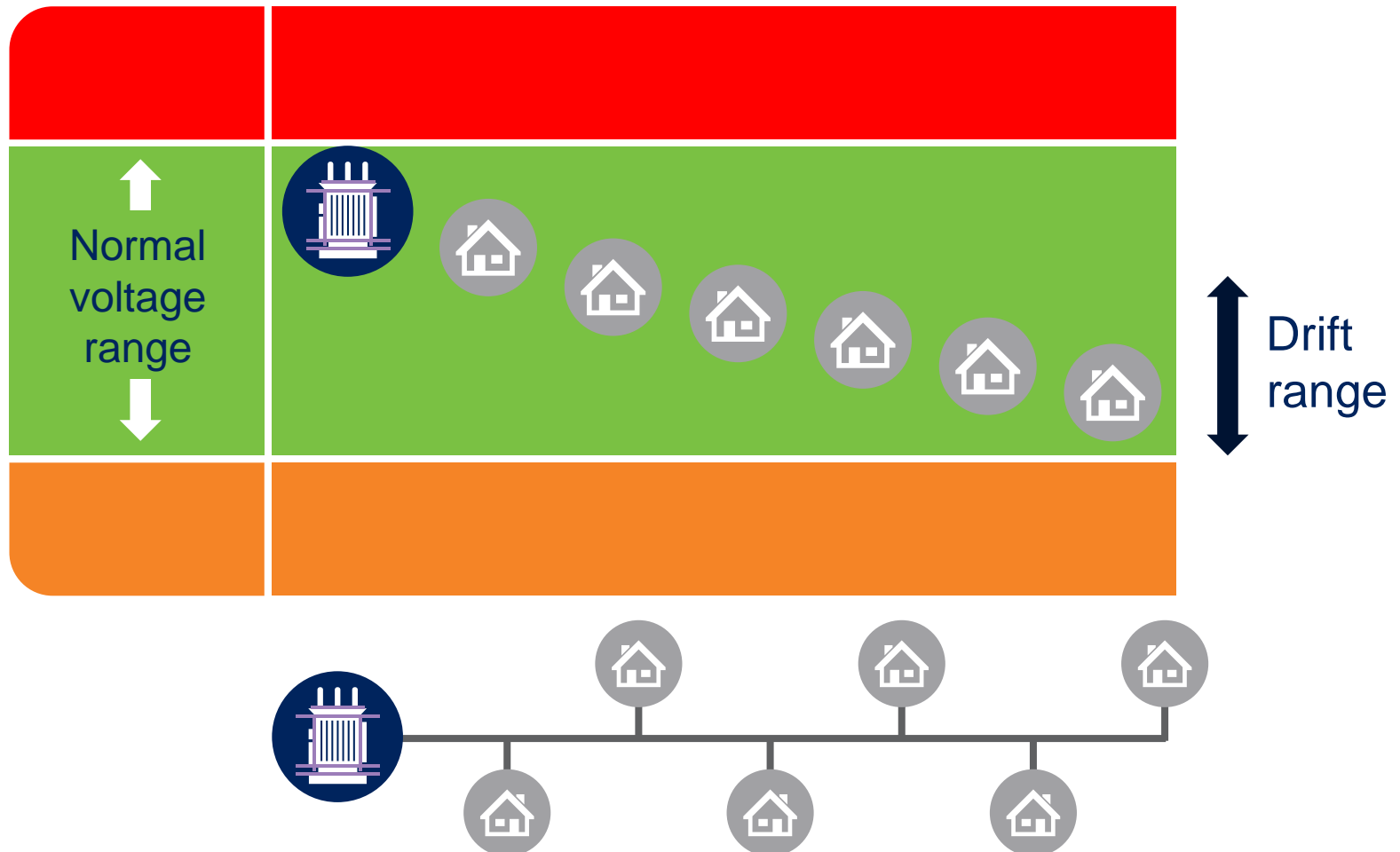
Video



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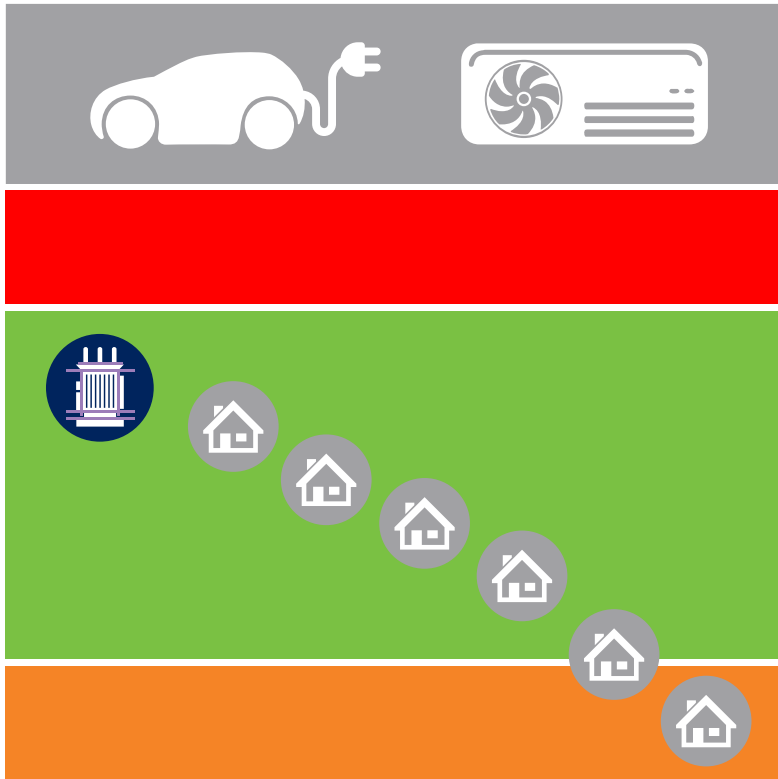
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Voltage regulation

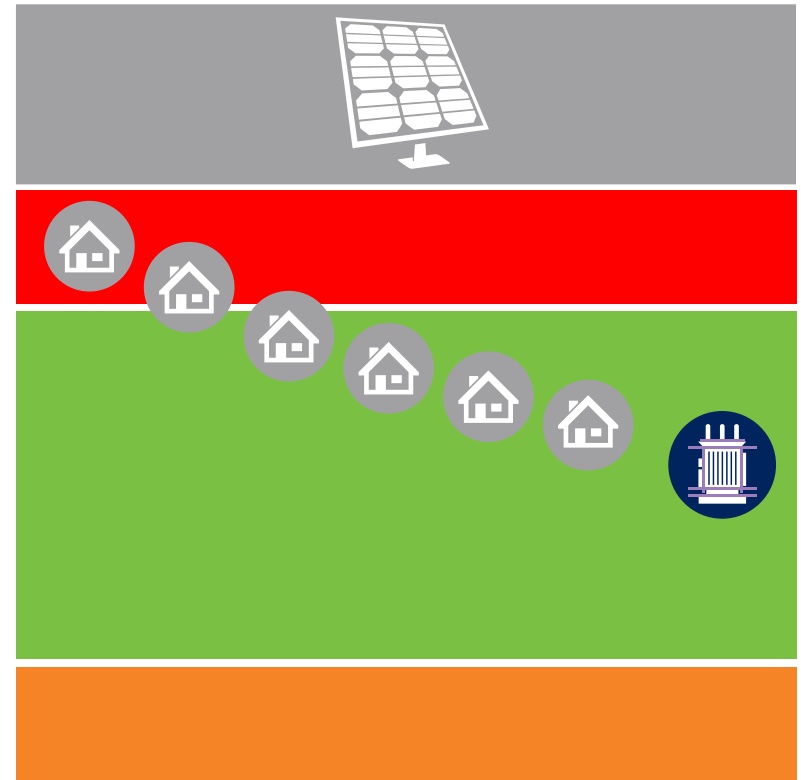


Historic networks have no active voltage regulation

Problem - LCTs create network issues

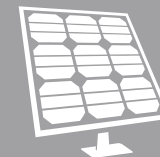


↑
Drift range
↓



LCTs rapidly surpass voltage and thermal network capacity

Smart Street – the first intervention



W



C



L



W



Low cost • Quick fit • Minimal disruption • Low carbon • Low loss • Invisible to customers

Voltage stabilised across the load range • Power flows optimised

Smart Street benefits



Now we can stabilise voltage
We can set the voltage level lower
This will lead to:


Reduced demand

Reduced customer energy consumption

Maximised DG output

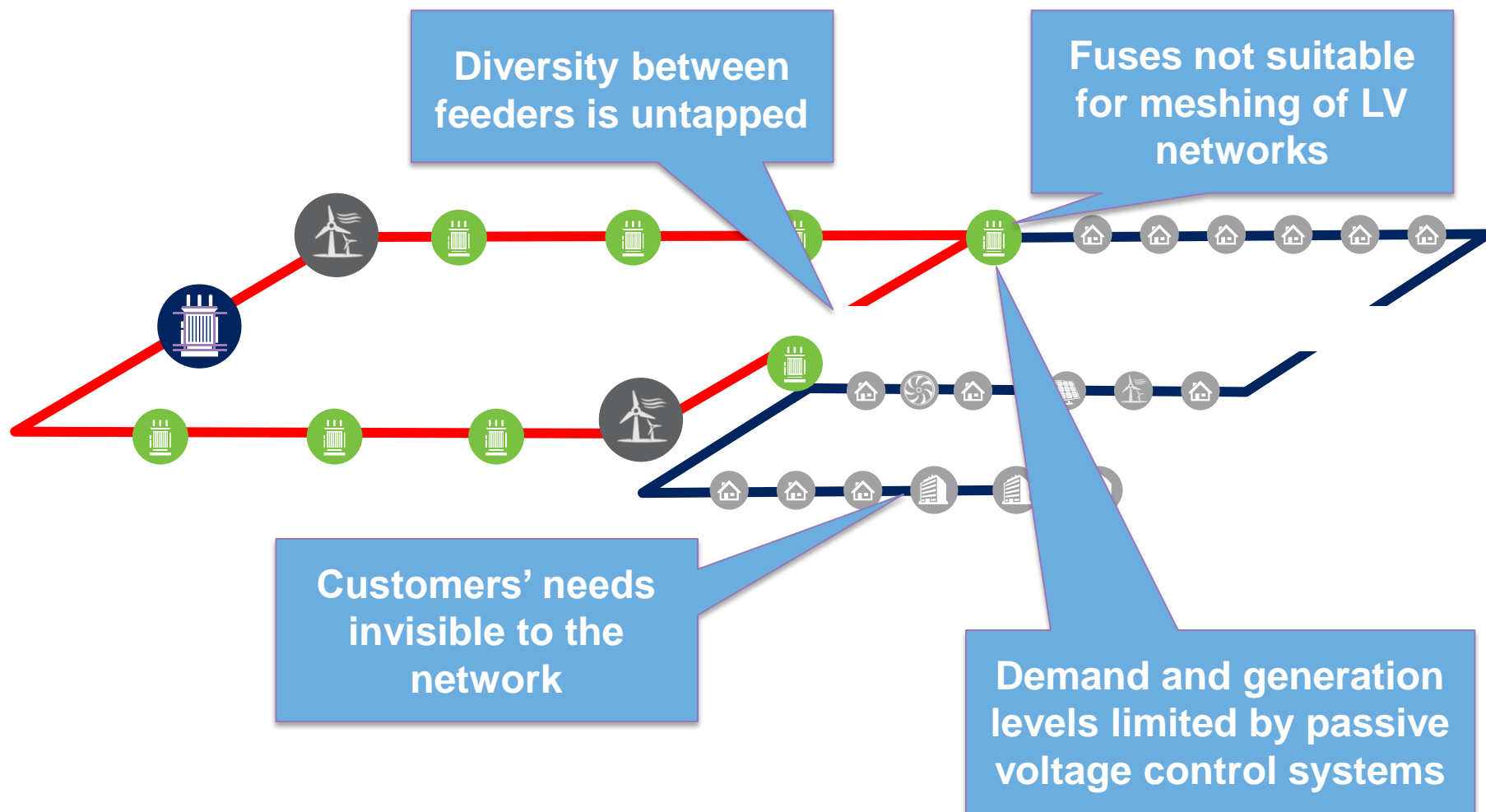


How much could customers save?

		GB
Reinforcement savings via DUoS	£330 over 25 years	£8.6b over 25 years
Reduced energy consumption, 2013 (from CVR ≈ 3 - 7%)	£15 - £30 pa	£390 - £780m pa
Maximise DG output (from maximising Feed In Tariff income)	£70 pa	£20m pa

Efficient network solutions ● Energy savings ● Carbon benefits

Existing radial network



● Reliability driven by fix on fail ●



Spectrum

SIEMENS

Measures, optimises and responds

CVR and losses benefits unlocked

Oversees network and customer needs

Builds on CLASS smart voltage control



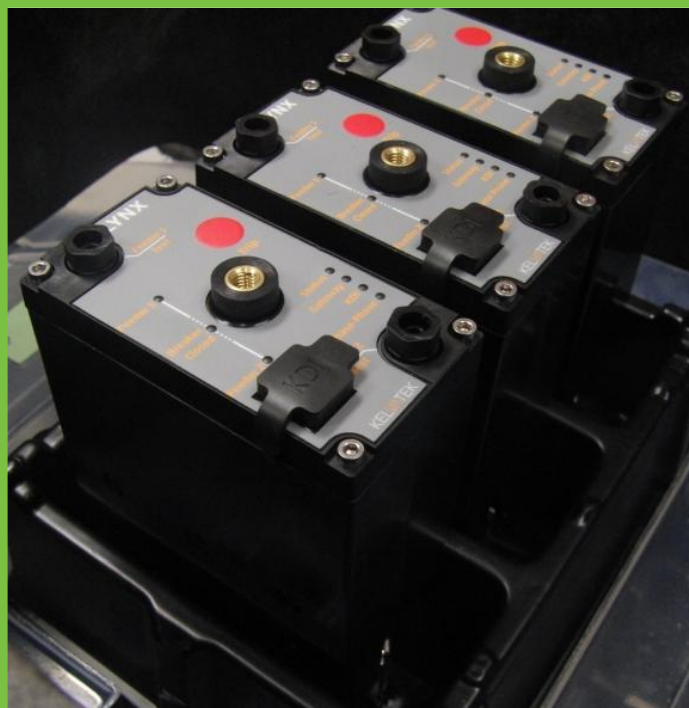
World leading LV vacuum circuit breaker

Advanced measurement and protection capability

Safe LV interconnection, live monitoring and control

Improves supply reliability and restoration through fault management and detection

KELVATEK



LV switch

Allows active network meshing and un-meshing

Advanced monitoring capabilities

Ability to close and open the circuit at the link box locally or remotely

KELVATEK

What customers will see – LV capacitors in street furniture



80 LV capacitors



One on each
closed ring



Tried and tested

What customers will see - HV capacitors



4 ground mounted
HV capacitors

Housed in containers
but not on street



4 pole mounted
HV capacitors

Installed similar to pole
mounted transformers

Smart Street trial areas



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Bringing energy to your door



6 primary substations
11 HV circuits



38 distribution substations
163 LV circuits



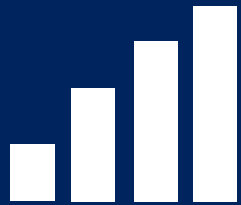
Around 62,000 customers



3 selected primary
substations in CLASS



Two years
One week on
One week off



One year's worth of
data



To be designed to
avoid placebo affect



Five trial regimes to
test full effects

Five trial techniques

LV voltage control

LV network management
and interconnection

HV voltage control

HV network management
and interconnection

Network configuration
and voltage optimisation



Customers will see increased activity while equipment is installed



Possible planned supply interruptions due to equipment installation



Higher number of faults of shorter duration



Less time off supply



To prove that customers will not perceive a change to their electricity supply

Customer engagement using multiple channels

Engaged customer panel to develop comms materials

Project leaflet for all customers in trial areas

Draw on information from CLASS and other projects

Qualitative research – three engaged customer panels

Feedback via customer contact centre, website and SMS

Findings published on dedicated project website

Smart Street summary



- Faster LCT adoption
- Less disruption
- Less embedded carbon
- Optimise energy and losses
- Re-usable technology



**Carbon
Footprint**



Low Risk

SMART STREET

- Maximise use of existing assets
- Leverage C₂C, CLASS and worldwide learning
- Configure off the shelf technology

- Combine into one end-to-end system
- Optimisation



Challenge

Benefit



- Lower energy bills
- More reliable supply
- Reinforcement savings



QUESTIONS ANSWERS &

Craig McNicol, Future Networks Programme Delivery Manager

Cara Blockley, Low Carbon Projects Manager

Kate Quigley, Future Networks Customer Delivery Manager

Damien Coyle, Future Networks Technical Engineer

Daniel Harber, Future Networks Trials & Research Engineer



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Want to know more?



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Thank you for your time and attention



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