LCNI conference
Network Performance, session 2.4
25 November 2015

Kevin Hoban

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Smart Street project overview

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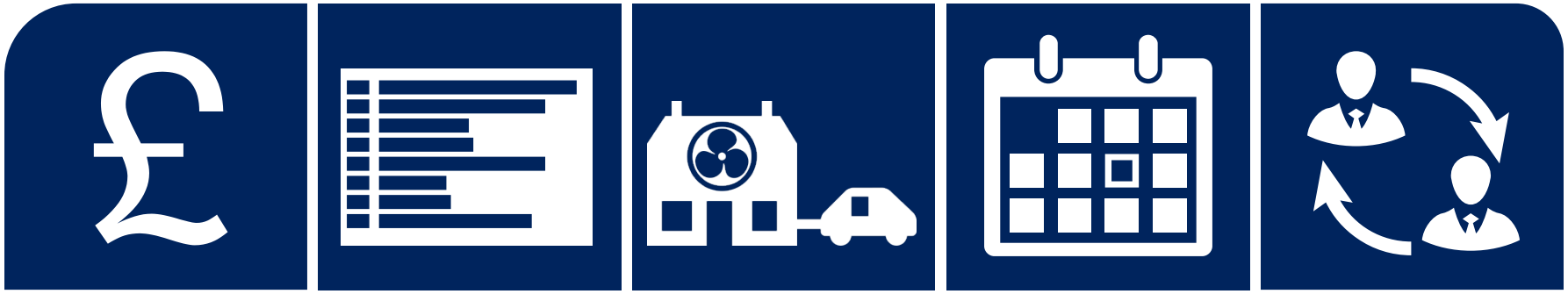
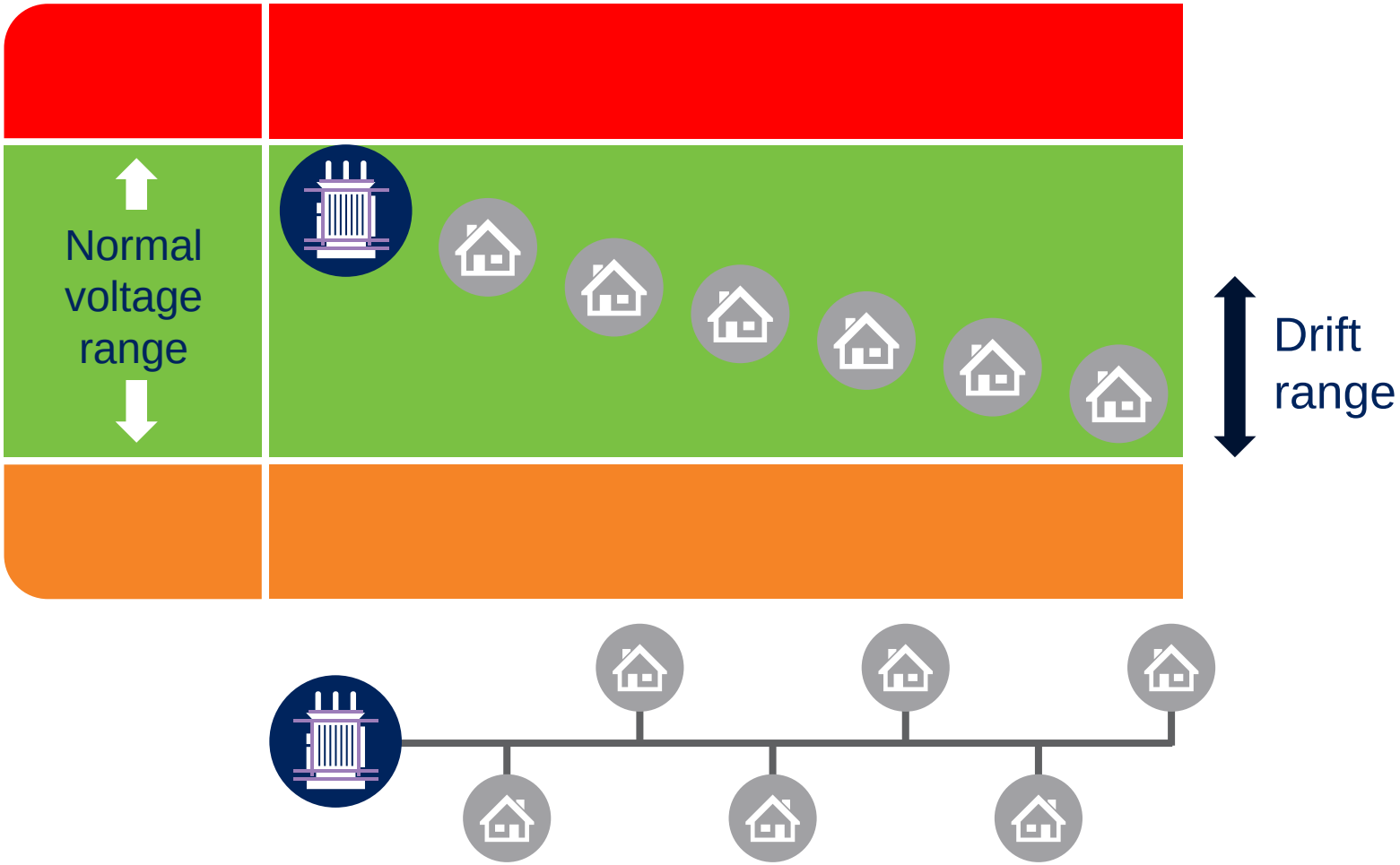


£11.5m, 4 year innovation project	Started in Jan 2014 and finishes in Apr 2018	Facilitates quicker cheaper connection of domestic LCTs	Trials period Jan 2016 – Dec 2017	Extensive customer engagement programme throughout project

Voltage profile



Historic networks have no active voltage regulation

Problem - LCTs create network issues

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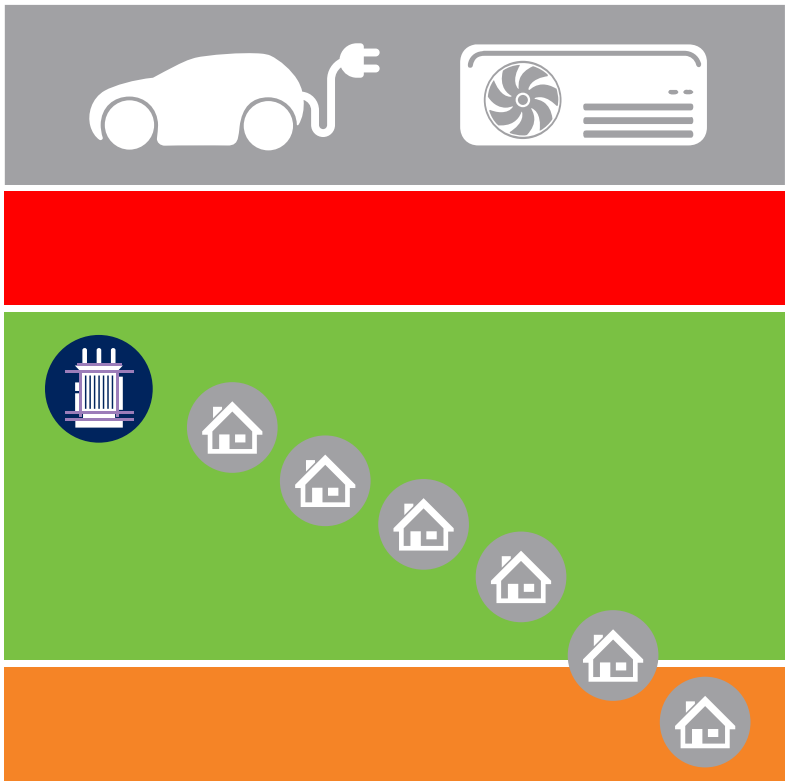
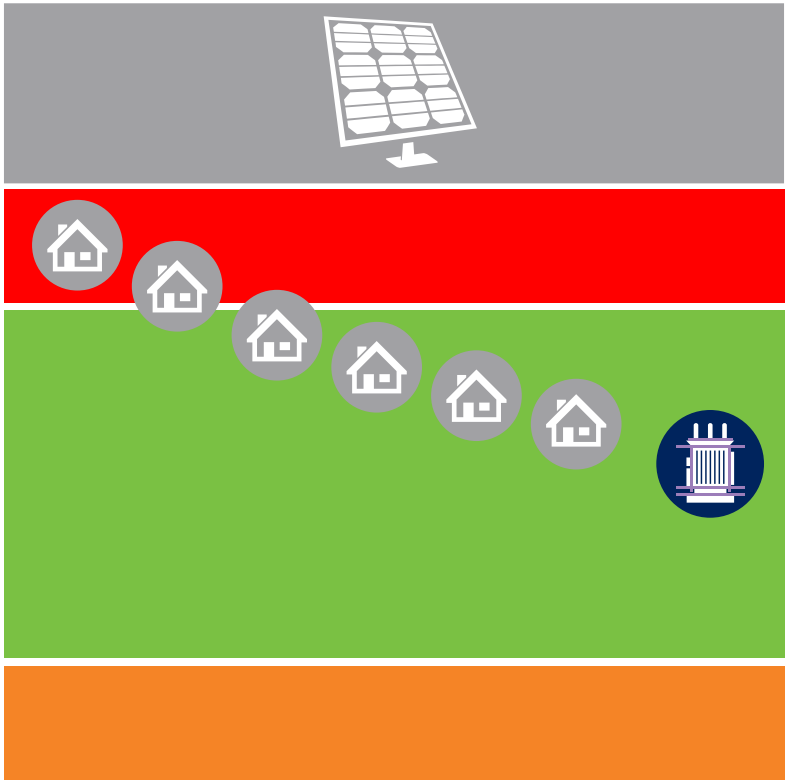
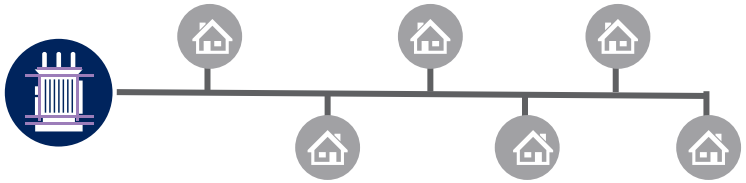


Drift range





LCTs rapidly surpass voltage and thermal network capacity

Smart Street – the first intervention

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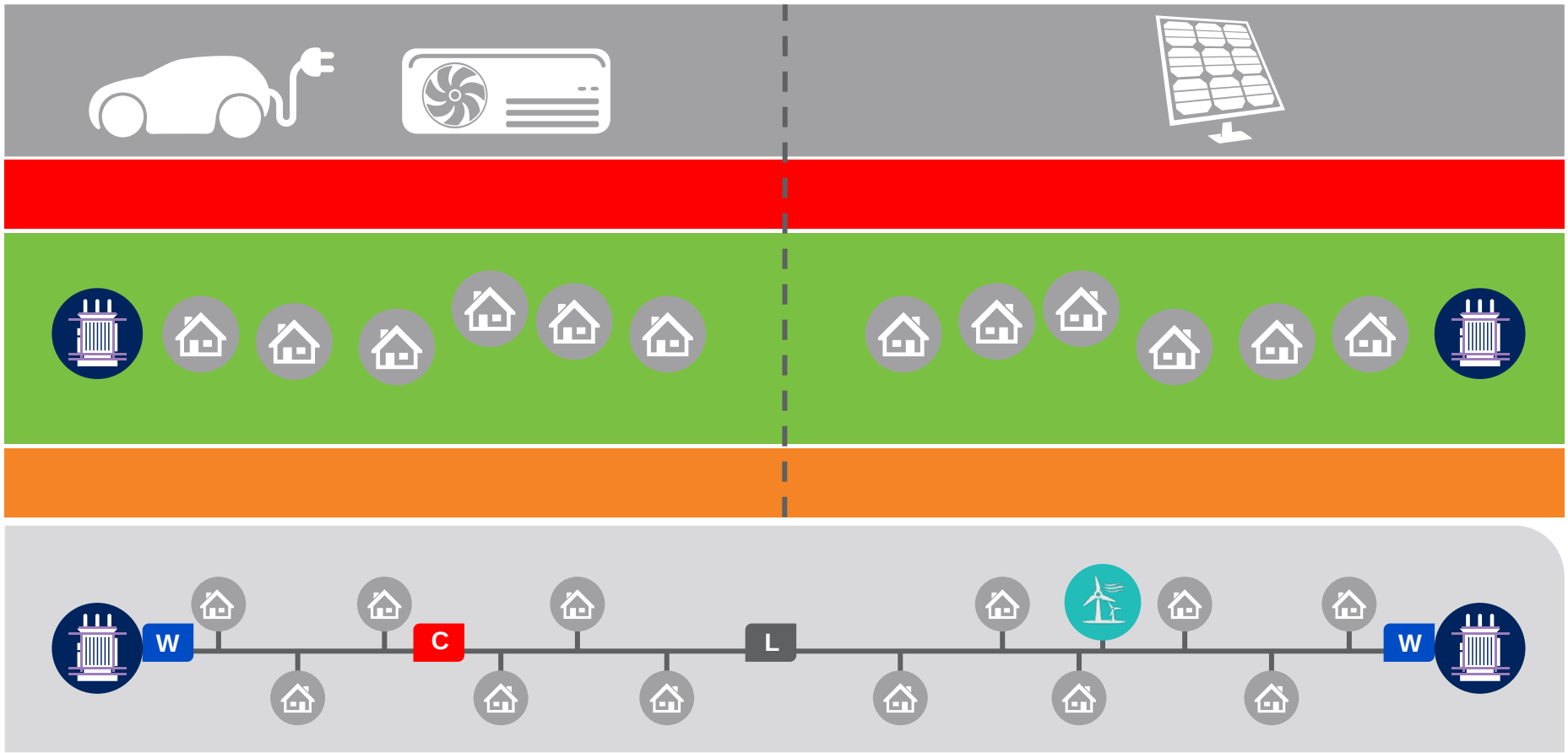

Low cost ● Quick fit ● Minimal disruption ● Low carbon ● Low loss ● Invisible to customers

Voltage stabilised across the load range ● Power flows optimised

Smart Street benefits

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New controllable equipment on network stabilises voltage

Allows us to lower voltage levels

Enables networks and appliances to work in harmony

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

Smart Street trial areas

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6 primary substations
11 HV circuits

38 distribution substations
163 LV circuits

Around 62,000 customers

3 selected primary substations in CLASS

Network reliability improvement

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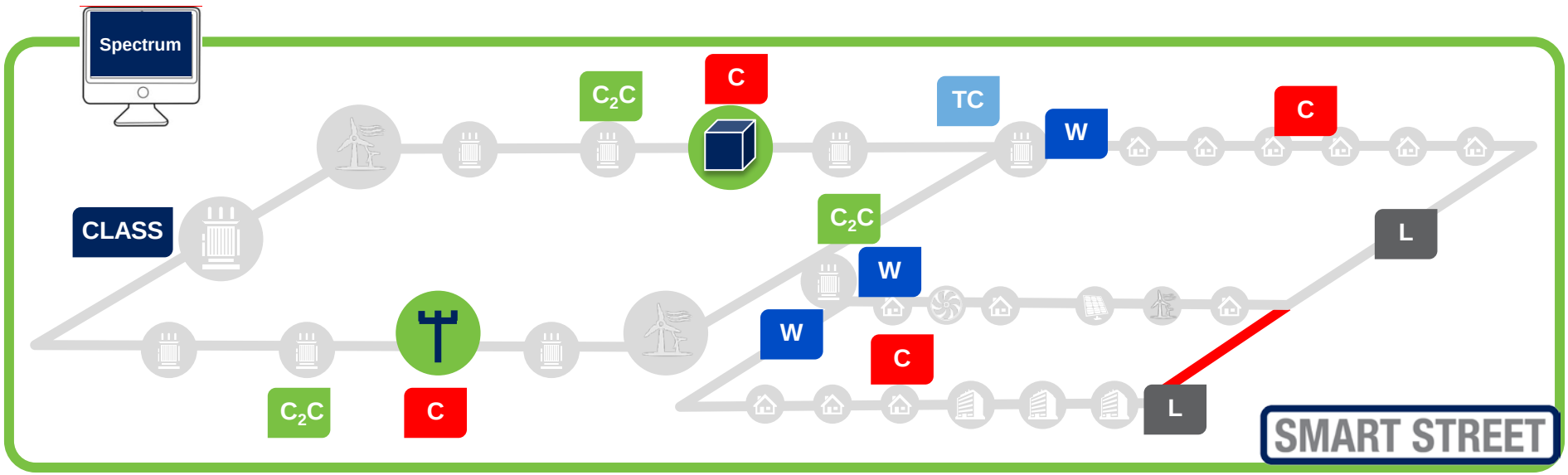

C2C Capacity to Customers

C Capacitor

W WEEZAP

L LYNX

TC On-load tap changer

Builds on C_2C and CLASS ● Storage compatible ● Transferable solutions

Technology – Spectrum

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SIEMENS

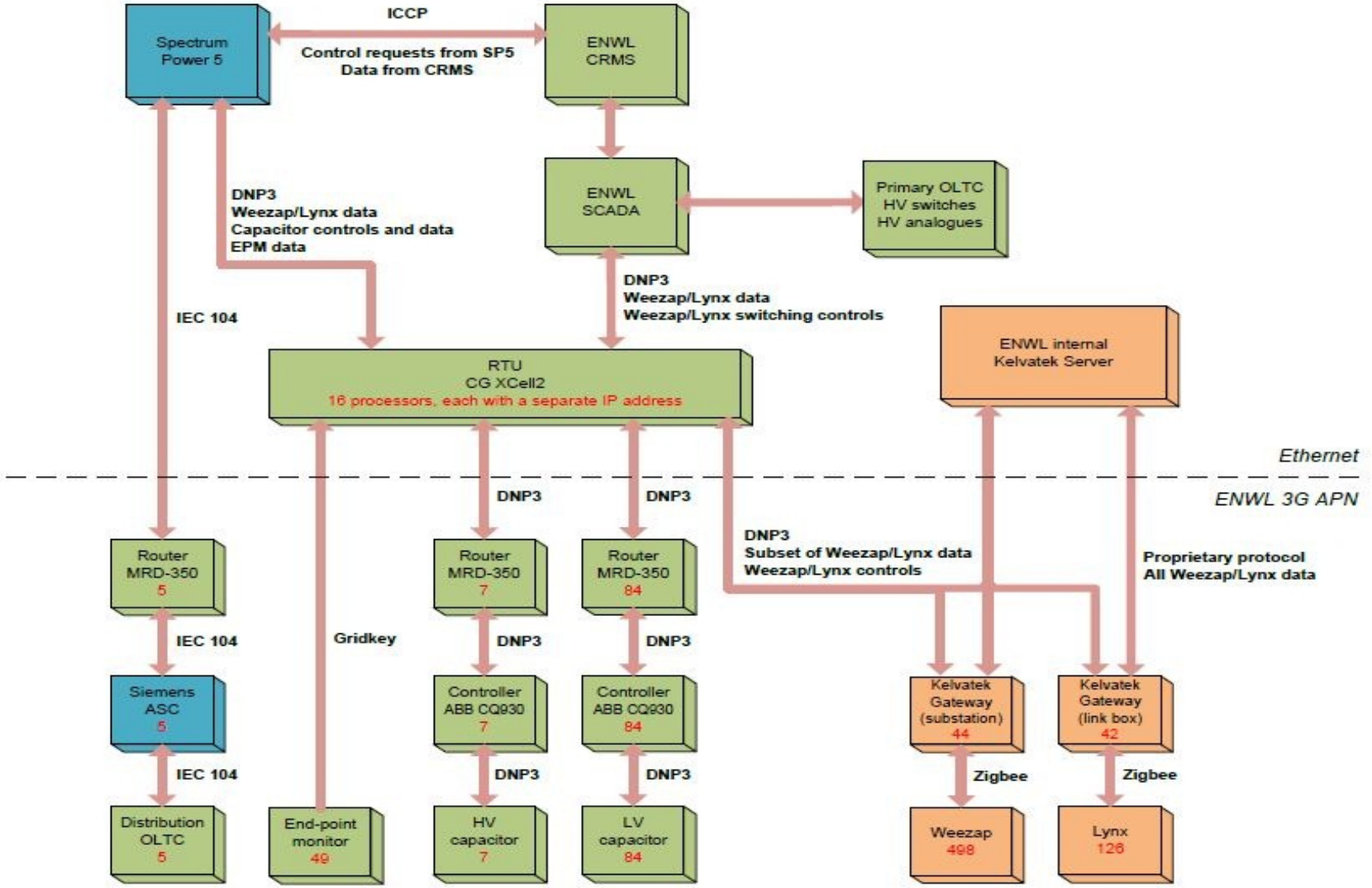
Measures, optimises and responds

CVR and losses benefits unlocked

Oversees network and customer needs

Builds on CLASS smart voltage control

System architecture



Distribution voltage regulated transformer

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5 OLTCs

9 taps

Local or remote

WEEZAP

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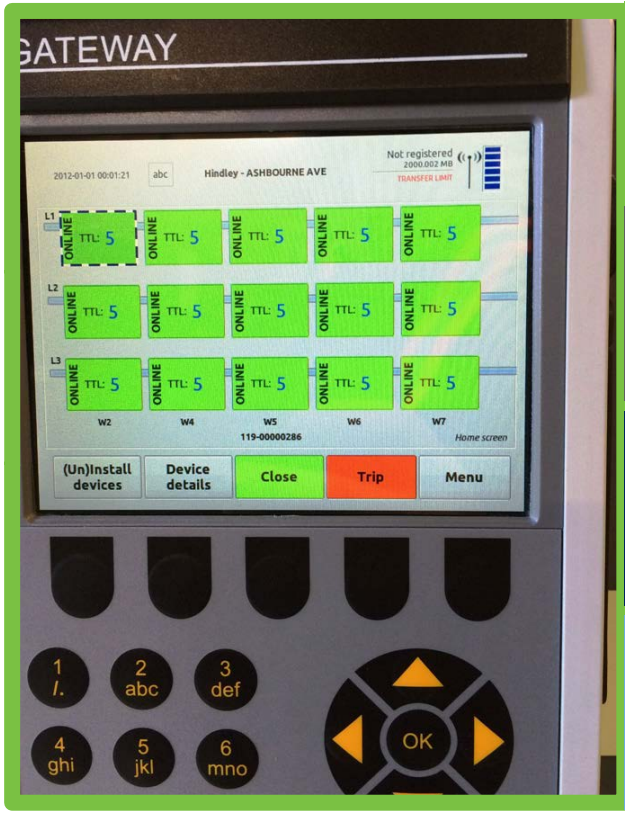


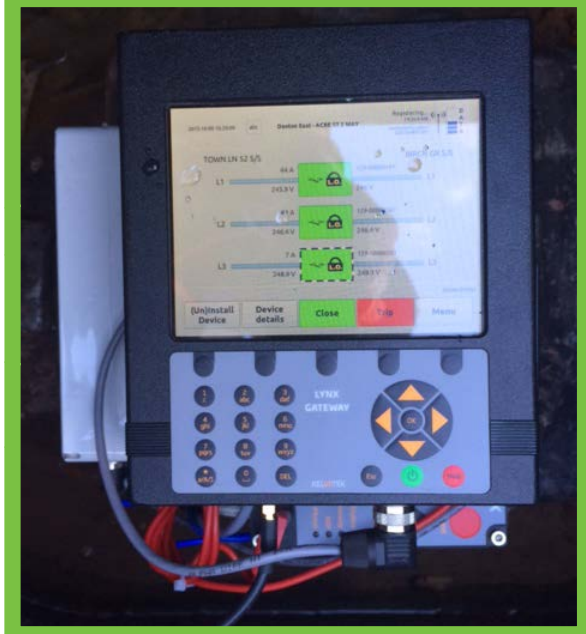
World leading LV vacuum circuit breaker

Advanced measurement and protection capability

Safe LV interconnection, live monitoring and control

Improves supply reliability and restoration through fault management and detection

LYNX



KELVATEK

LV switch

Allows active network meshing and un-meshing

Advanced monitoring capabilities

Ability to control the circuit locally or remotely

What customers will see – LV capacitors in street furniture

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84 LV capacitors

One on each closed ring

Multi staged

Technology – monitoring

Gridkey monitoring device

Measures voltage at LV cable end

Data storage 10 minute intervals

Technology overview

84 LV capacitors installed	43 Lynx systems 498 Weezaps
50 end-point controllers installed	Spectrum 5 installed on network

Next steps → Commission system → Briefing and training → Go live!

SMART STREET

QUESTIONS & ANSWERS

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Want to know more?

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