SP ENERGY NETWORKS

Thursday 16th February 2023

GTC, EON & SP Energy Networks
ICP / IDNO Safety & Innovation Seminar

e·on

Thank you for joining - this session will start at 10:00.

gtc

Develop a network that is ready for Net Zero

Be a trusted partner for customers, communities and stakeholders

Ready our business for a digital and sustainable future

Housekeeping

Thank you for taking the time to attend today.

- *This session is being recorded.*
  - *please let Louise know if you are not comfortable with this and we will take your comments in the Chat section*

- *Please try and keep background noise to a minimum by using the mute button when you are not speaking.*

- *We are keen for this to be an interactive session as your feedback is important.*
  - *please raise your hand electronically or use the chat function if you would like to ask questions to the speakers*

We value your opinions, and we are keen to generate an open session with opportunities to hear your feedback.

Safety/Environmental Contact

SP Energy Networks
ICP Safety Seminar
Thursday 16th February 2023

Agenda

10:00 – Welcome, Housekeeping and Safety Contact
10:10 – HSE General Safety Statistics
10:20 - GTC Positioning UK plc as Smart Grid World Leader
10:40 – ICP / IDNO 5th Edition Safety Awareness
10:50 - Ofgem Access Significant Code Review Impact
11:10 – EON New ENA G100 Impact
11:50 - Questions
12:00 – Close

Thank you for taking the time to attend today.

We value your opinions, and we are keen to generate an open session with opportunities to hear your feedback.

sion will be recorded

SPEN & GTC attendees today:

- David Overman – GTC UK Electricity Networks Director
- Simon Dawson – GTC Installations Manager
- Zachary Gaiqui – EON Business Innovations Manager
- Natalia Savelova – EON Commercial & Technical Innovations Manager
- Ewan Gilliland – SP Distribution Delivery Manager
- Louise Taylor – SP Manweb Stakeholder Engagement Manager
- Stuart Walker – SP Distribution Stakeholder Engagement Manager

Safety Contact

Injury to UK Power Networks jointer from link box pavement cover

UK Power Networks (UKPN) have advised us of an incident in mid-January when a jointer was injured by a link box pavement cover that was ejected from the frame. UKPN believe it was caused by the ignition of gas within the link box chamber. The lid struck the jointer causing an injury that required first aid on site before they were transferred to hospital to undergo surgery. They were still in hospital some 10 days later.

The accident occurred after a number of people had attempted to release the pavement cover. It is now understood that a hand-held blow torch was being used in an attempt to un-freeze the cover when the gas was ignited.

It is sensible to advise anyone accessing a pavement cover (which could be for a cable tunnel, link box or confined space) which appear to have seized due to ice or corrosion that a naked flame should NEVER be used in an attempt to free the lid.

Similarly never use de-icer or any product that is flammable in nature e.g. WD-40 as any fumes may ignite when later inserting or removing links.

Recommendations and action points

Suggested methods for loosening a seized link box pavement cover:

- Small amounts of warm water (preferably salted) – use enough to melt the ice but avoid flooding the box
- Salt around the edges of the frame
- Gently tapping around the edge to help break the corrosive seal
- A link box lifting tool designed to apply greater force – e.g. by incorporating a method of applying leverage

NEVER use a naked flame or other flammable fluid in an attempt to free the lid.

Wear appropriate PPE when accessing a link box: boots, coveralls, gloves, minimum of light eye protection. Consider a helmet and visor if difficulty is encountered.

Always wear a visor and rubber gloves when carrying out LV switching.

Safety Contact

Preventing slips during wintry conditions

As you will be aware we have seen some wintry conditions recently. This has led to some of our colleagues suffering injuries due to slipping on icy surfaces.

We can prevent slips during periods of inclement weather by using the SLAM technique. Some recommendations are below.

Recommendations and action points

- Scan the area to identify any hazards
- Avoid rushing or taking shortcuts over areas where snow or ice removal is incomplete
- Select suitable footwear - flat footwear with rubber soles provides better traction on ice and snow than leather-soled or high-heeled shoes. Also check the condition of work footwear
- Use handrails where you can
- Take small steps to keep your centre of balance under you
- Walk slowly and never rush on icy ground
- Keep both hands free for balance, rather than in your pockets
- Always be aware of your surroundings - some places will stay icy for longer than others for example, places that do not get the sun
- Consider where you park vehicles and the route you will have to walk
- Be particularly careful getting into and out of vehicles - and hold on to the vehicle for support
- Keep paths clear of debris, water, ice and snow
- Use grit on areas of high and expected traffic (vehicles and pedestrian)
- If an area of concern is identified then take action (if safe to do so) by using grit bins, deploying cones/barriers, and reporting issue to depot manager and/or general services

HSE Stats – General

- Stuart Walker

HSE Stats – General

Health and safety at work
Summary statistics for Great Britain 2022

Key facts

1.8 million
Work-related ill health cases (new or long-standing) in 2021/22
Source: Estimates based on self-reports from the Labour Force Survey, people who worked in the last 12 months

36.8 million
Working days lost due to work-related ill health and non-fatal workplace injury in 2021/22
Source: Estimates based on self-reports from the Labour Force Survey

0.6 million
Workers sustaining a non-fatal injury in 2021/22
Source: Estimates based on self-reports ır Force Survey

0.9 million
Work-related stress, depression or anxiety cases (new or long-standing) in 2021/22
Source: Estimates based on self-reports from the Labour Force Survey, people who worked in the last 12 months

0.1 million
Workers suffering from COVID-19 in 2021/22 which they believe may have been from exposure to coronavirus at work (new or long-standing)
Source: Estimates based on self-reports from the Labour Force Survey, people who worked in the last 12 months

123
Workers killed in work-related accidents in 2021/22
Source: RIDDOR

0.5 million
Work-related musculoskeletal disorder cases (new or long-standing) in 2021/22
Source: Estimates based on self-reports from the Labour Force Survey, people who worked in the last 12 months

0.6 million
Workers suffering from a work-related illness caused or made worse by the effects of the coronavirus pandemic (new or long-standing) in 2021/22
Source: Estimates based on self-reports from the Labour Force Survey, people who worked in the last 12 months

12,000
Lung disease deaths each year estimated to be linked to past exposures at work
Source: Counts from death certificates and estimates from epidemiological information

£11.2 billion
Annual costs of new cases of ill health in 2019/20, excluding long latency illness such as cancer
Source: Estimates based on HSE Cost Model

£18.8 billion
Annual costs of work-related injury and new cases of ill health in 2019/20, excluding long latency illness such as cancer
Source: Estimates based on HSE Cost Model

£7.6 billion
Annual costs of work-related injury in 2019/20
Source: Estimates based on HSE Cost Model

HSE Stats – General

Health and safety at work
Summary statistics for Great Britain 2022

Workplace injury

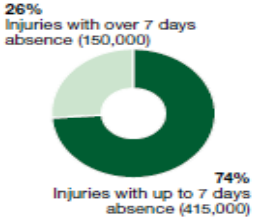
123
Workers killed in work-related accidents in 2021/22

565,000
Workers sustaining a non-fatal injury according to self-reports from the Labour Force Survey in 2021/22

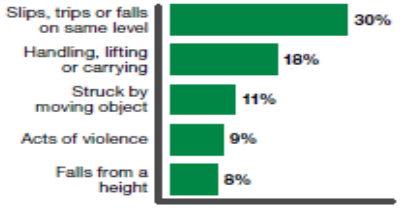
61,713
Employee non-fatal injuries reported by employers under RIDDOR in 2021/22

6.0 million
Working days lost due to non-fatal workplace injuries according to self-reports from the Labour Force Survey in 2021/22

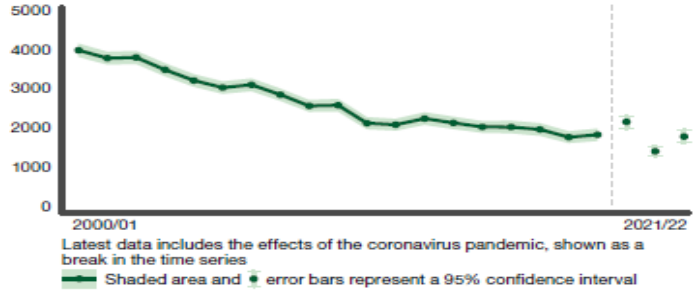
Estimated self-reported workplace non-fatal injuries, 2021/22



Non-fatal injuries to employees by most common accident kinds (as reported by employers), 2021/22



Estimated rate of self-reported workplace non-fatal injuries per 100,000 workers



Over the long-term, the rate of fatal injury to workers showed a downward trend though in the recent years prior to the coronavirus pandemic, the rate had been broadly flat. The current rate is broadly in line with pre-coronavirus levels.

Prior to the coronavirus pandemic, the rate of self-reported non-fatal injury to workers showed a generally downward trend. The current rate is similar to the 2018/19 pre-coronavirus levels.

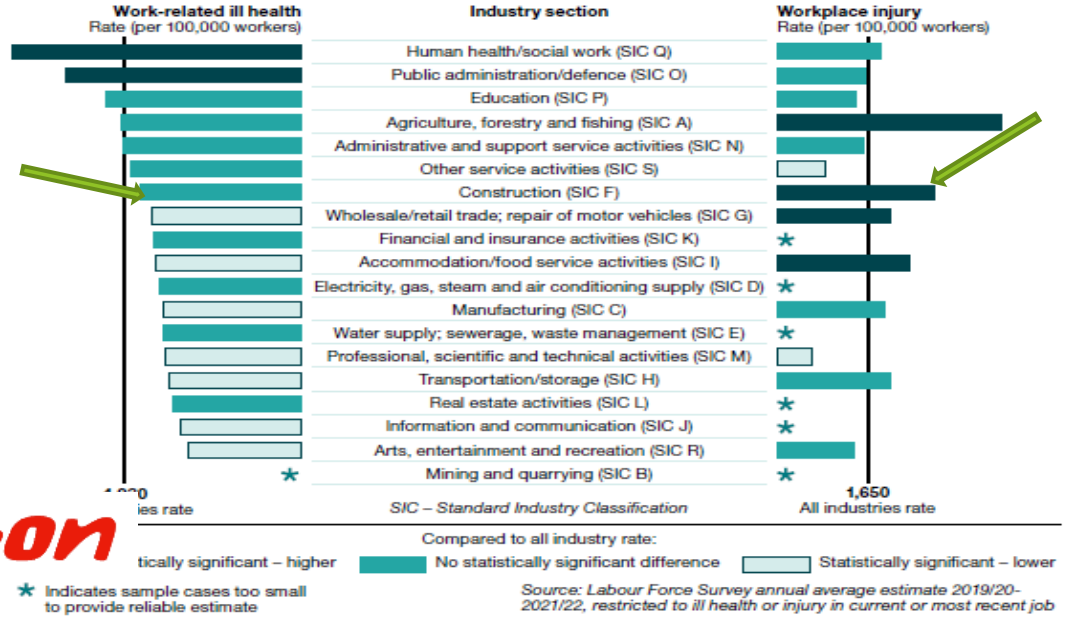
Prior to the coronavirus pandemic, the rate of non-fatal injury to employees reported by employers showed a downward trend. The current rate is below the pre-coronavirus levels.

To find out the story behind the key figures, visit http://www.hse.gov.uk/statistics/causinj/index.htm

HSE Stats – General

Industries

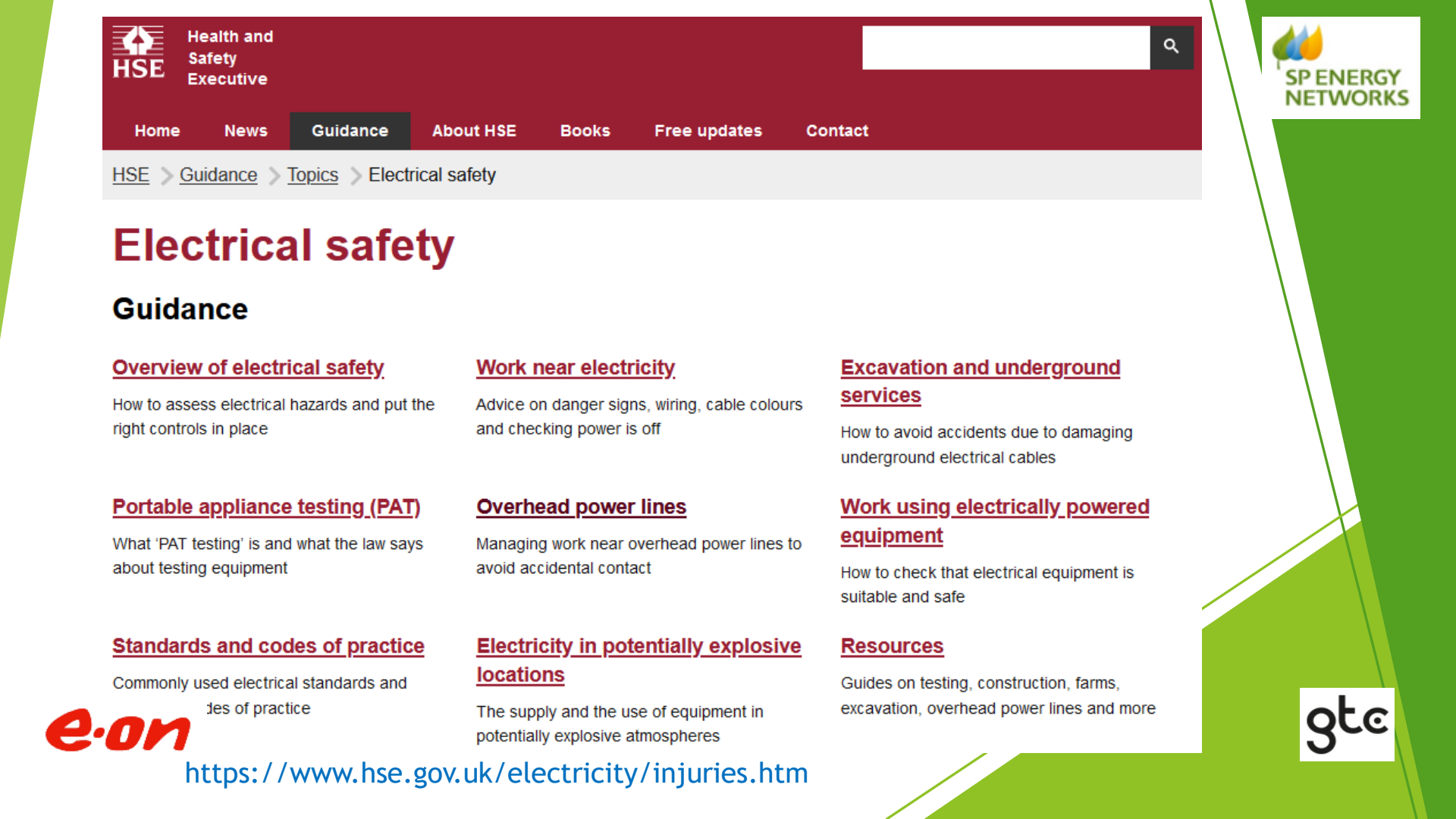
Rate of self-reported work-related ill health and non-fatal injury by industry



Industries with statistically significantly higher rates of work-related ill health compared to the average rate across all industries were human health and social work and public administration and defence.

Agriculture, forestry and fishing, construction, accommodation and food service activities and wholesale and retail trade (including motor vehicle repair) had statistically significantly higher workplace injury rates compared to the average rate across all industries.

To find out the story behind the key figures, visit www.hse.gov.uk/statistics/industry



https://www.hse.gov.uk/electricity/injuries.htm

The Virtual Powerplant

Positioning UK plc as the world leader in smart grid.

Dave Overman GTC


The Virtual Powerplant
Positioning UK plc as the world leader in smart grid.
Dave Overman GTC

About GTC

We are the chosen utility partner for housebuilders and developers across the UK, delivering leading multi-utility infrastructure solutions to all types of new-build developments.

GTC delivers a combination of low-carbon and conventional technologies. We construct, own, and operate multi-utility networks for new-build housing and mixed-use developments. GTC offers an innovative, customer-focused approach, and a single-supplier solution. **Find out more about our multi-utility services.**

Services for House Builders

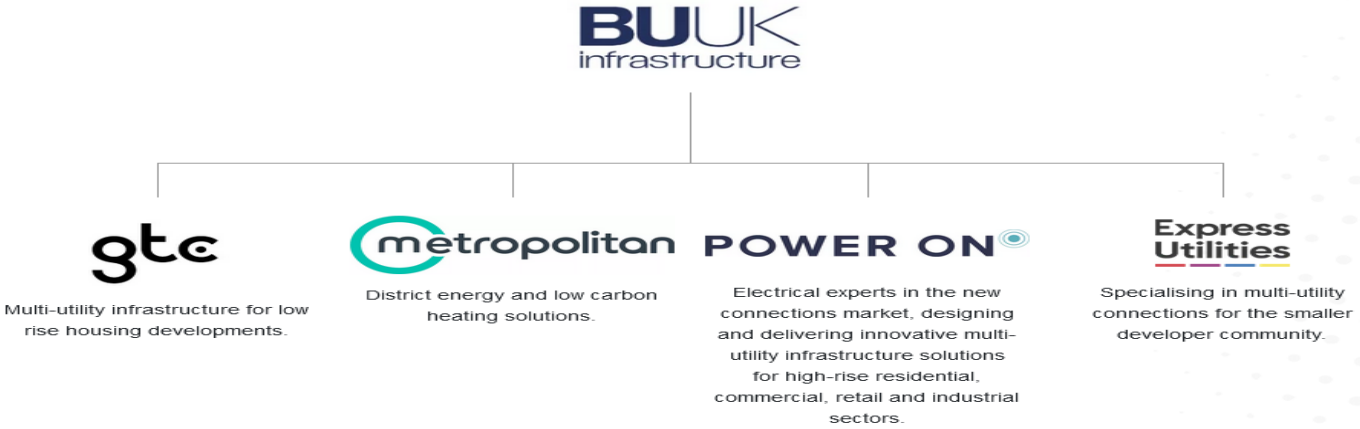
- Heat
- Electricity
- Gigabit Fibre
- Water
- Wastewater
- Gas

gtc

GTC is part of the BUUK Infrastructure Group, the leading provider of last-mile multi-utility networks in the UK, employing more than 1,700 people and operating networks serving more than 1.6 million homes.

As a group we are used to being first, it's in our DNA. First to break into new markets and the first independent company to own utility networks. We achieved this first with gas, then electricity, district energy, water, wastewater, and fibre broadband.

We invest long-term in our utility networks, so we understand the importance of constructing quality assets and getting it right first time. As a group, we construct, own, and operate all the utility networks for a development – providing the investment and expertise to lower the upfront installation costs, and deliver first-class utility infrastructure to our customers. GTC's sister company, Power On Connections, specialises in electricity and fibre for inner-city residential and high-rise developments, whilst Metropolitan provides innovative heat network solutions.



The utility of the future

Large Thermal Plants Closing, replaced by over 1 million points of generation.

Smaller generators injecting at distribution level

EV

Battery storage

HVAC load

Heat

The virtual powerplant smooths out demand reducing the reliance on carbon intensive thermal power plants.

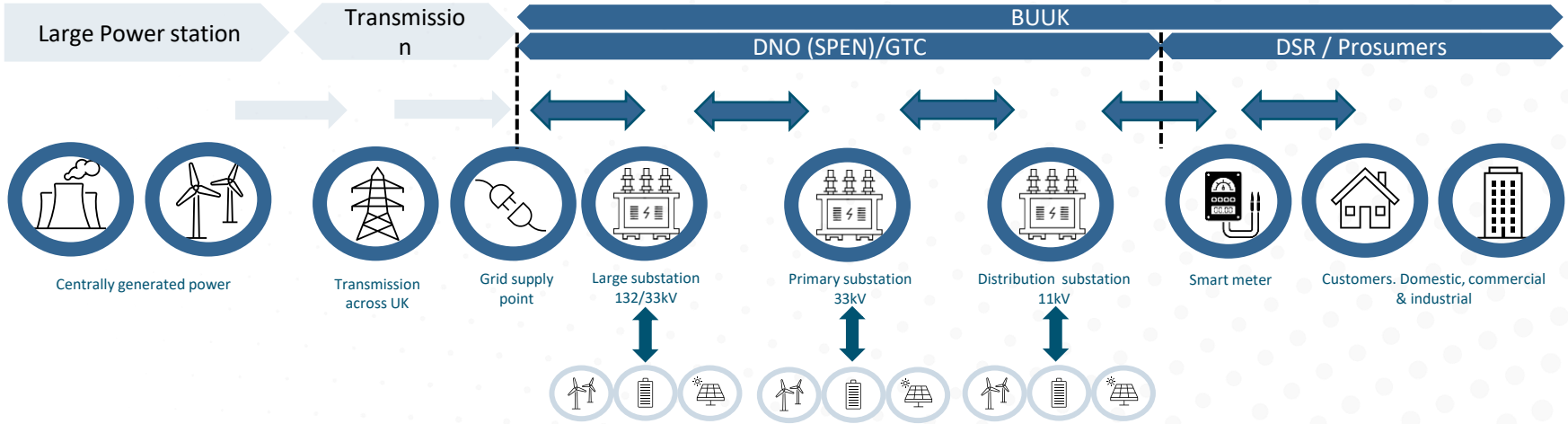
40Gw of offshore wind by 2030.

Batteries used for storage, grid services, reinforcement of renewable generation and reduction in curtailment costs.

Progressive businesses & prosumers looking to self-generate, store, consume and sell to the grid via their buildings and homes.

New arrangements with distribution utilities (Microgrids / Community heating hubs / EV hubs)

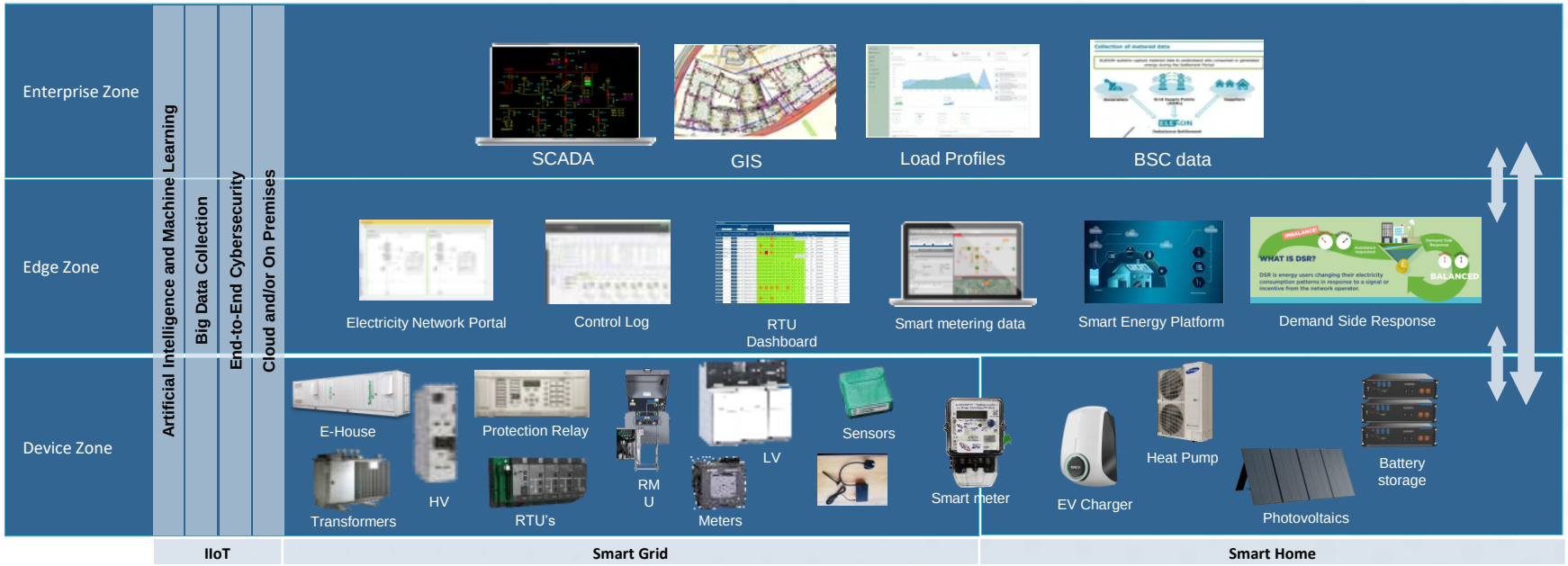
BUUK end to end solution



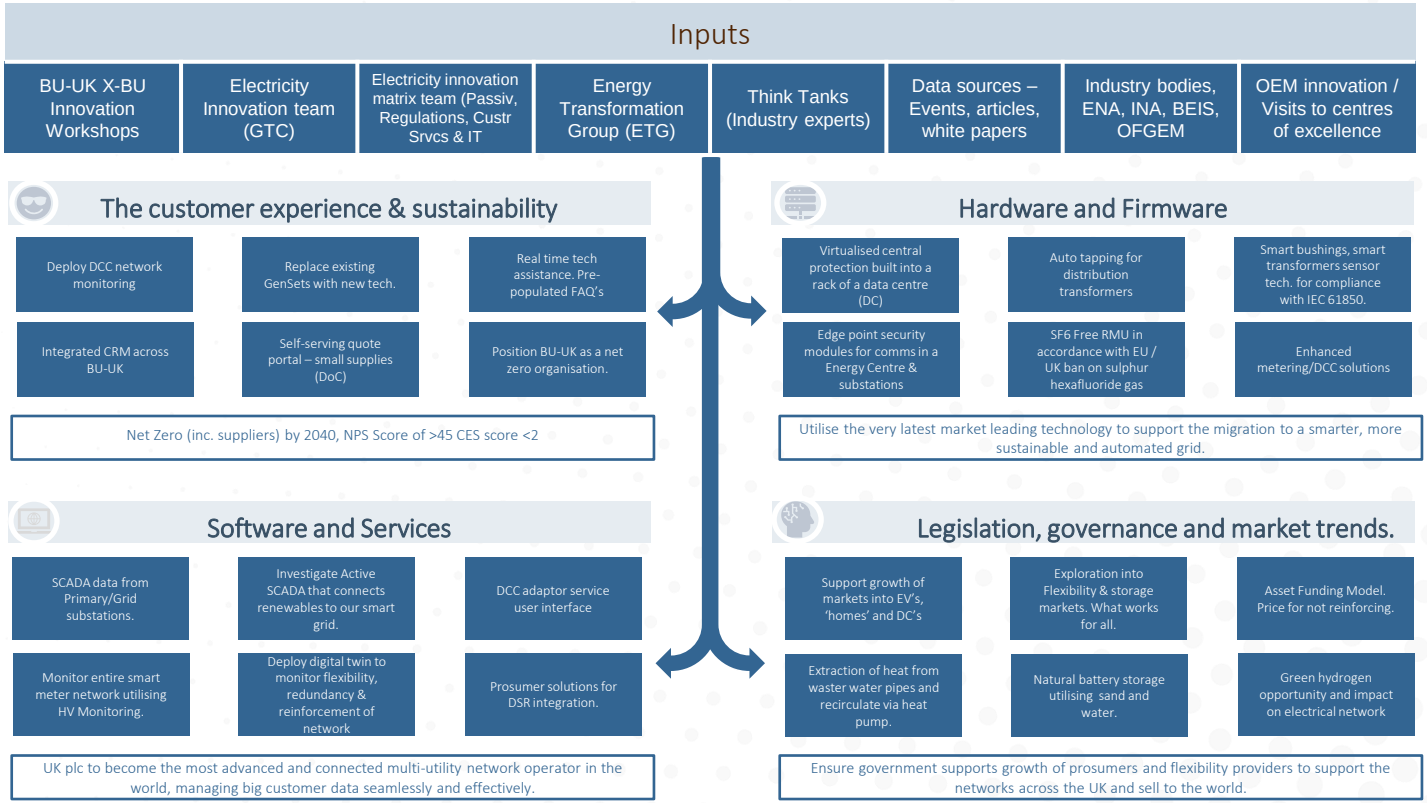
HV / MV	LV Monitoring	DCC Adapter	Demand Side Response
Real-time data prevents customer minutes lost and reduction in fines.	Load management – Loss of power, headroom on the transformer. Understand flexibility on the grid	Improved customer response experience	Strengthen customer proposition, reduce operating costs and unlock new revenue streams.
Temperature & harmonic checking - Predictive maintenance, review longevity of assets	Fault indication speed of response via relays and EFPI indicators	Outage consumption data planning and speed of response	Learns thermal dynamic and energy consumption patterns within the home
Trend plotting, digital twin. Future proofing network	Voltage control – Trend, link to plot types (EV/PV)	Keeps pace with the most progressive innovators	Balancing services to the electricity transmission operator and to suppliers to unlock further energy savings
		Improve our understanding of the network.	

Fix the network | Maintain equipment | Keep the power flowing | Connect customers | Operate smart systems

What is needed to plan for the digital grid.



Next 5/10 year considerations and goals



UK plc to become the most sustainable, digital and connected network operator in the world

Questions?

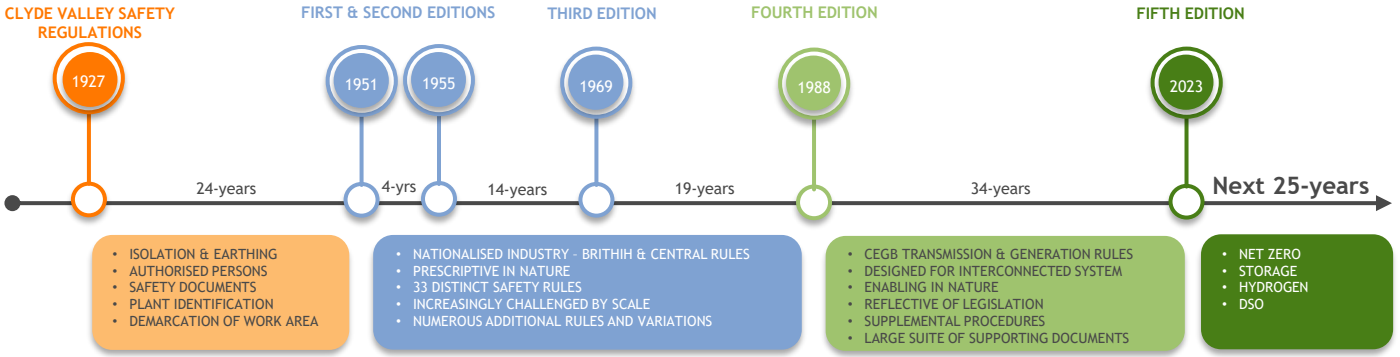
5th Edition of the Safety Rules

- Ewan Gilliland – SPD Delivery Manager

5th Edition of the Safety Rules (Ewan Gilliland)

Method of work

- Consolidate all related content within procedures dedicated to clearly defined topics
- Check that no content or context is lost
- Improve consolidated Safety Instructions – new procedures and content
- Retain business-specific content in the form of Approved Written Procedures



Access Significant Code Review

- Stuart Walker – SPD Stakeholder Engagement Manager

Introduction

Ofgem's Access Significant Code Review (Access SCR) will come into force on the 1st April 2023, changing the connection boundary and charging arrangements for our connecting customers.

Ofgem consider it will enable more LCT connections and allow DNOs to reinforce the network more strategically.

The decision will have significant impact on how we design, quote and manage connections, with large volumes of new connection applications anticipated following implementation.

Access SCR Decision – Summary

Connection Boundary

- **Demand Customers will not pay for upstream reinforcement.**
- **Generation Customers will only pay for reinforcement at the voltage level of their PoC**
- Retain and strengthen existing protections for bill payers:
  - Introducing a Demand High Cost Cap
  - Speculative developments definition refined
  - Treatment for 3 phase connections and voltage upgrades remains unchanged

Access Rights

- **Non-firm (curtailable) access arrangements** will be introduced for applicable users.
- Curtailable connections (e.g. ANM, LMS, Flexible) will have a limit on the level of curtailment set in the Connection Agreement,
- Curtailable connection will have a future date set where they will no longer be curtailed
- Curtailment as a result of constraints on the Transmission network will not be treated as curtailment on the Distribution networks

SCR Case Study 1

Treatment in ED1

- POC Only application for a new IDNO Connection requiring 213 kVA Load and 201 kVA for PV
- Reinforcement works based on previously installed reinforcement of £95.49 / kVA
- Connection at 11 kV (HV) with only 11 kV works required
- ED1 Quotation provided, including:
  - £20,339 Reinforcement works (213 kVA x £ 95.49 / kVA)
  - £20,229 Extension Asset connection works
  - **£40,568 Total**

SCR Case Study 1

Treatment in ED2

Project Information	
Reference	
Region	SPD
Application Date	01/05/2023

Technical Information		
Voltage	**Value**	**Measure**
POC Voltage	11kV	kV
Highest Voltage of Work	11kV	kV
Export Capacity		
Total Installed at connection (including this application)	201	kW
Total Contracted at connection (including this application)	201	kW
Requested on this application	201	kW
Import Capacity		
Total Installed at connection (including this application)	213	kVA
Total Contracted at connection (including this application)	213	kVA
Requested on this application	213	kVA
Whole Current Metered Connection?	No	
Multi-plot Housing Development?	No	
Does the Customer hold an existing Generation License for this connection?	No	
Is the generation for backup purposes only or Infrequent Short-Term Parallel Operation, as defined in ENA G99?	No	
Is the Contracted Import Capacity only required to support the Contracted Export Capacity?	No	
Is this connection to a BESS (Battery Energy Storage System) not downstream to a sole-use domestic connection?	No	
Highest driver for Reinforcement costs?	Import Capacity	

Financial Information	
Cost of Reinforcement Works at:	
Same Voltage of POC	£20,339
One Voltage above POC	£0
Other	£0

Other	
required)	Not used

User Inputs
Outputs

Outputs specific to this application	
Background	
Likely Ofgem Market Segment	HVHV
Site Type	Demand Connection Site
HCPT Triggered?	Demand HCPT not triggered
HCPT Value (Demand)	£1,720 / kVA
Summary of Connection Charges	
Customer Connection Charge = Extension Asset Costs + Transmission Works Costs (if applicable)	
Calculation of Connection Charges	
Extension asset costs	All costs associated with extension assets are fully chargeable to the customer.
Reinforcement Costs	None
HCPT Costs	None
Transmission Reinforcement Costs	All costs associated with Transmission Reinforcement assets are fully chargeable to the customer.

Relevant examples from the Statement of Methodology and Charges for Connection to SPD and SPM Electricity Distribution Systems (refer 'CCCM Examples' tab)
9, 10, 17, 18, 20, 31

Checks to consider	
☐	Please check that the information provided in the Yellow boxes is accurate.
☐	This project may be deemed to be a Demand Connection sits as the Total Contracted Import Capacity is marginally greater than the Total Contracted Export Capacity. Please review the requested demand load of this site with the Customer

- Designers will use an internal tool to determine key characteristics of the application, such as:
  - Site Type
  - Application of HCPT
  - Connection Charges attributable to the Customer

SCR Case Study 1

Treatment in ED2

Project Information	
Reference	
Region	SPD
Application Date	01/05/2023

Technical Information		
Voltage	**Value**	**Measure**
POC Voltage	11kV	kV
Highest Voltage of Work	11kV	kV
Export Capacity		
Total Installed at connection (including this application)	201	kW
Total Contracted at connection (including this application)	201	kW
Requested on this application	201	kW
Import Capacity		
Total Installed at connection (including this application)	213	kVA
Total Contracted at connection (including this application)	213	kVA
Requested on this application	213	kVA
Whole Current Metered Connection?	No	
Multi-plot Housing Development?	No	
Does the Customer hold an existing Generation License for this connection?	No	
Is the generation for backup purposes only or Infrequent Short-Term Parallel Operation, as defined in ENA G99?	No	
Is the Contracted Import Capacity only required to support the Contracted Export Capacity?	No	
Is this connection to a BESS (Battery Energy Storage System) not downstream to a sole-use domestic connection?	No	
Highest driver for Reinforcement costs?	Import Capacity	

Financial Information	
Cost of Reinforcement Works at:	
Same Voltage of POC	£20,339
One Voltage above POC	£0
Other	£0

Other	
required)	Not used

User Inputs
Outputs

Outputs specific to this application	
Background	
Likely Ofgem Market Segment	**HVHV**
Site Type	**Demand Connection Site**
HCPT Triggered?	**Demand HCPT not triggered**
HCPT Value (Demand)	**£1,720 / kVA**
Summary of Connection Charges	
Customer Connection Charge = Extension Asset Costs + Transmission Works Costs (if applicable)	
Calculation of Connection Charges	
Extension asset costs	**All costs associated with extension assets are fully chargeable to the customer.**
Reinforcement Costs	**None**
HCPT Costs	**None**
Transmission Reinforcement Costs	**All costs associated with Transmission Reinforcement assets are fully chargeable to the customer.**

Relevant examples from the Statement of Methodology and Charges for Connection to SPD and SPM Electricity Distribution Systems (refer 'CCCM Examples' tab)
9, 10, 17, 18, 20, 31

Checks to consider	
☐	**Please check that the information provided in the Yellow boxes is accurate.**
☐	**This project may be deemed to be a Demand Connection sits as the Total Contracted Import Capacity is marginally greater than the Total Contracted Export Capacity. Please review the requested demand load of this site with the Customer**

- In this instance:
  - Site identified as a **Demand Connection** site
  - HCPT has not been triggered
- Customer will not contribute to:
  - Reinforcement charges
  - Costs above HCPT
  - ECCR Charges

SCR Case Study 1

Summary

Aspect	ED1 Application	ED2 Application
Site Type	Not Applicable	Demand Connection site
High Cost Charges	Not Applicable	Not Triggered
Extension Asset Connection Charges	£20,229	£20,229
Reinforcement Charges	£20,339	£0
Total Connection Charges	**£40,568**	**£20,229**

Other Considerations:

- Influx of connection applications in ED2 may lead to later connection date
- SPEN Designers may need greater detail from the Customer to demonstrate the validity of the load

SCR Case Study 2

Treatment in ED1

- Embedded Generation application for a new 35kVA Domestic Generation installation

- Works including:
  - Upgrading 320m of existing 2-wire 11kV overhead line to 3phase
  - Installing 15m of LV cable to a new 100A cut-out Point of Connection

- Connection at LV with 11 kV (HV) reinforcement works required

- ED1 Quotation provided, including:
  - £10,394 Reinforcement works
  - £ 5,415 Extension Asset connection works
  - **£ 15,809 Total**

SCR Case Study 2

Treatment in ED2

Project Information	
Reference	
Region	SPD
Application Date	01/05/2023

Technical Information		
Voltage	**Value**	**Measure**
POC Voltage	LV	kV
Highest Voltage of Work	11kV	kV
Export Capacity		
Total Installed at connection (including this application)	35	kW
Total Contracted at connection (including this application)	35	kW
Requested on this application	35	kW
Import Capacity		
Total Installed at connection (including this application)	0	kVA
Total Contracted at connection (including this application)	0	kVA
Requested on this application	0	kVA
Whole Current Metered Connection?	Yes	
Multi-plot Housing Development?	No	
Does the Customer hold an existing Generation License for this connection?	No	
Is the generation for backup purposes only or Infrequent Short-Term Parallel Operation, as defined in ENA G99?	No	
Is the Contracted Import Capacity only required to support the Contracted Export Capacity?	No	
Is this connection to a BESS (Battery Energy Storage System) not downstream to a sole-use domestic connection?	No	
Highest driver for Reinforcement costs?	Export Capacity	

Financial Information	
Cost of Reinforcement Works at:	
Same Voltage of POC	£292
One Voltage above POC	£10,102
Other	£0

Other	
required)	Not used

User Inputs
Outputs

Outputs specific to this application	
Background	
Likely Ofgem Market Segment	DGHV
Site Type	Demand Connection Site
HCPT Triggered?	Demand HCPT not triggered
HCPT Value (Demand)	£1,720 / kVA
Summary of Connection Charges	
Customer Connection Charge = Extension Asset Costs + Transmission Works Costs (if applicable)	
Calculation of Connection Charges	
Extension asset costs	All costs associated with extension assets are fully chargeable to the customer.
Reinforcement Costs	None
HCPT Costs	None
Transmission Reinforcement Costs	All costs associated with Transmission Reinforcement assets are fully chargeable to the customer.

Relevant examples from the Statement of Methodology and Charges for Connection to SPD and SPM Electricity Distribution Systems (refer 'CCCM Examples' tab)
9, 10, 17, 18, 20, 31

Checks to consider
☐ Please check that the information provided in the Yellow boxes is accurate.

- In this instance:
  - Site identified as a **Demand Connection** site as it's a Whole Current Metered Domestic Property
- Customer will not contribute to:
  - Reinforcement charges
  - Costs above HCPT
  - ECCR Charges

SCR Case Study 2

Summary

Aspect	ED1 Application	ED2 Application
Site Type	Not Applicable	Demand Connection site
High Cost Charges	Not Applicable	Not Triggered
Extension Asset Connection Charges	£5,415	£5,415
Reinforcement Charges	£10,394	£0
Total Connection Charges	**£15,809**	**£5,415**

SCR Case Study 3

Treatment in ED1

- Application for a new BESS connection, requiring 63,200 kVA of generation and 63,200 kVA of load
- Connection at 33 kV (EHV)
- Works required:
  - New 1.7 km 33kV cabled circuit to an existing GSP
  - One 33 kV Point of Connection
- ED1 Quotation provided, including:
  - £0 Distribution Reinforcement works
  - ≈£5,000,000 Likely region of Transmission Reinforcement works
  - £2,800,044 Extension Asset connection works
  - **£7,800,044 Total**

SCR Case Study 3

Treatment in ED2

Project Information	
Reference	
Region	SPD
Application Date	01/05/2023

Technical Information		
Voltage	**Value**	**Measure**
POC Voltage	33kV	kV
Highest Voltage of Work	33kV	kV
Export Capacity		
Total Installed at connection (including this application)	63200	kW
Total Contracted at connection (including this application)	63200	kW
Requested on this application	63200	kW
Import Capacity		
Total Installed at connection (including this application)	63200	kVA
Total Contracted at connection (including this application)	63200	kVA
Requested on this application	63200	kVA
Whole Current Metered Connection?	No	
Multi-plot Housing Development?	No	
Does the Customer hold an existing Generation License for this connection?	No	
Is the generation for backup purposes only or Infrequent Short-Term Parallel Operation, as defined in ENA G99?	No	
Is the Contracted Import Capacity only required to support the Contracted Export Capacity?	No	
Is this connection to a BESS (Battery Energy Storage System) not downstream to a sole-use domestic connection?	Yes	
Highest driver for Reinforcement costs?	Both	

Financial Information	
Cost of Reinforcement Works at:	
Same Voltage of POC	£0
One Voltage above POC	£0
Other	£5,000,000

Other	
required)	Not used

User Inputs
Outputs

Outputs specific to this application	
Background	
Likely Ofgem Market Segment	EHVEHV
Site Type	Generation Connection Site
HCPT Triggered?	Generation HCPT not triggered
HCPT Value (Generation)	£200 / kW
Summary of Connection Charges	
Customer Connection Charge = Extension Asset Costs + Reinforcement Costs + ECCR (if applicable) + Transmission Works Costs (if applicable)	
Calculation of Connection Charges	
Extension asset costs	All costs associated with extension assets are fully chargeable to the customer.
Reinforcement Costs	Costs for Reinforcement works completed at the same voltage as the POC to be apportioned in line with the CAF rules detailed in the CCCM.
HCPT Costs	None
Transmission Reinforcement Costs	All costs associated with Transmission Reinforcement assets are fully chargeable to the customer.

Relevant examples from the Statement of Methodology and Charges for Connection to SPD and SPM Electricity Distribution Systems (refer 'CCCM Examples' tab)
11, 12, 13, 14, 15, 16, 19, 21, 22, 23, 24, 25, 26, 27, 28

Checks to consider
☐ Please check that the information provided in the Yellow boxes is accurate.

- In this instance:
  - Site identified as a **Generation Connection** site
  - HCPT has not been triggered
- Customer will contribute to:
  - Reinforcement charges
  - Transmission Works charges

SCR Case Study 3

Summary

Aspect	ED1 Application	ED2 Application
Site Type	Not Applicable	Generation Connection site
High Cost Charges	Not Applicable	Not Triggered
Extension Asset Connection Charges	£2,800,044	£2,800,044
Reinforcement Charges	£0	£0
Transmission Works Charges	≈£5,000,000	≈£5,000,000
Total Connection Charges	**£7,800,044**	**£7,800,044**

Summary

Case Study	Application Summary	Site Type	Connection Charge (ED1)	Connection Charge (ED2)
1	POC Only application for a new IDNO Connection requiring 213 kVA Load and 201 kVA for Generation	Demand Connection site	£40,568	£20,229
2	Embedded Generation application for a new 35kVA Domestic Generation installation	Demand Connection site	£15,809	£5,415
3	Application for a new BESS connection, requiring 63,200 kVA of generation and 63,200 kVA of load	Generation Connection site	£7,800,044	£7,800,044

Other Considerations:

- Influx of connection applications in ED2 may lead to later connection date
- Designers may need greater detail from the Customer to demonstrate the validity of the load

ECCR (Second Comer) Rules

- Expected Changes include:
  - Brought in line with Connection Boundary Changes
  - **Demand Connections** will not be entitled to ECCR rebates or be required to reimburse first comers
  - **Generation Connections** will be entitled to ECCR rebates and be required to reimburse first comers, but only proportionately to their initial contribution
  - **Speculative Developments** will not be entitled to ECCR rebates if the second comer is a Demand Connection but may be entitled to ECCR rebates if the second comer is a Generation Connection
  - **ED1 Connections** may only be entitled to ECCR rebates if the ED2 second comer is a Generation Connection

ENA G100 2022 Amendment

- Zachary Gaiqui – EON Business Innovations Manager
- Natalia Savelova – EON Commercial & Technical Innovations Manager

ENA G100 2022 Amendment - Scope

1 Scope

This document applies to all in **Customers' Installations** connected at any voltage, where new load or generation equipment is installed and commissioned on or after 01 May 2023[1], such that there is an agreed need to restrict the flow of current at the **Connection Point** or to prevent voltage limits on the **Distribution Network** from being exceeded. This may require the installation of a **CLS** or suitable overload or reverse power protection. For the avoidance of doubt, normal limitations on the connection or the operation of generation due to fault level exceedance will apply.

The focus of this document is **Customers' Installations** connected at voltages up to and including 20kV. The same principles will be applied for installations connected above this voltage. However in these cases the **DNO** may vary the exact requirements to suit the particular network characteristics at that location.

ENA ER G0 Issue 1 2012 (energynetworks.org)

Customer Limiting Scheme

ENA Engineering Recommendation G100
Issue 2 Amendment 1 2022
Page 13

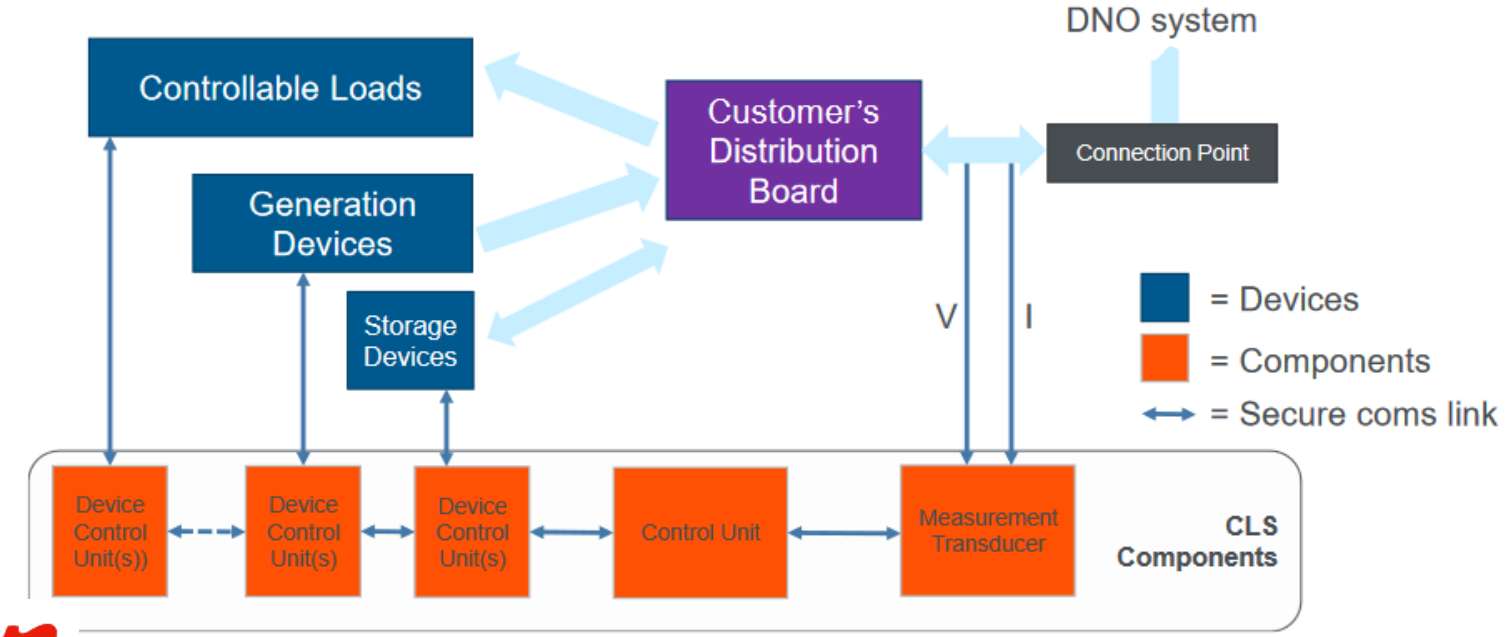


Figure 4-1 Conceptual Representation of a CLS

Purpose

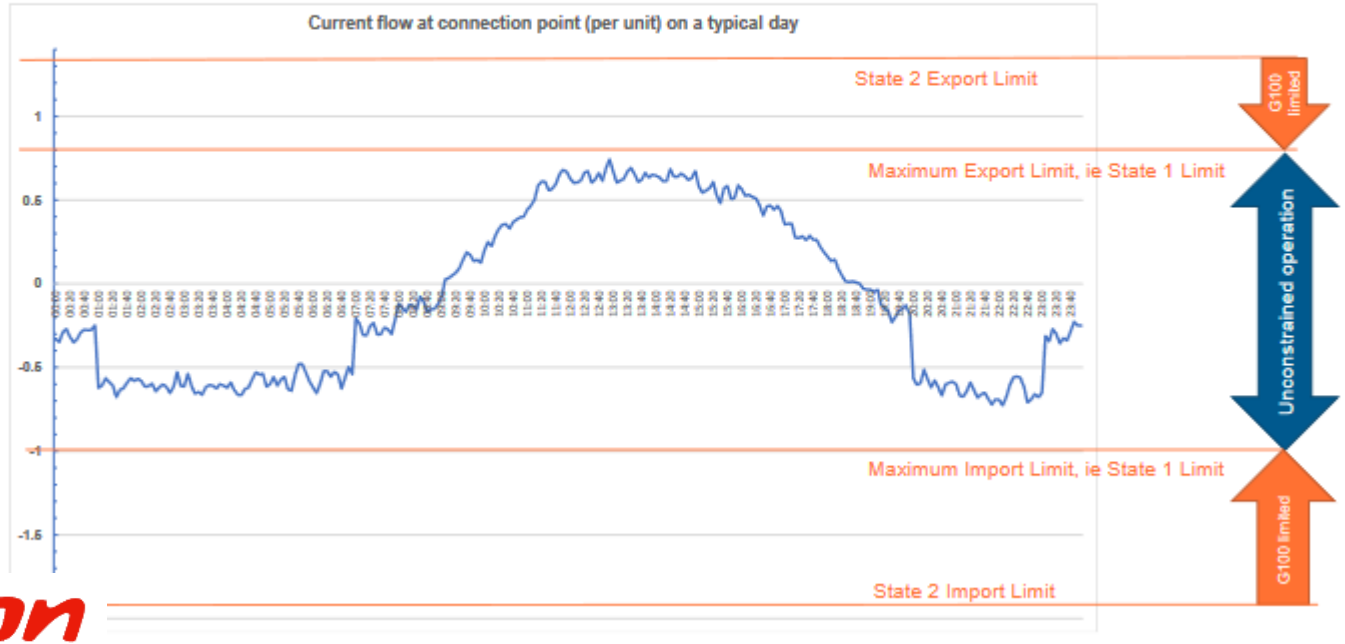
Customers are becoming increasingly aware of environmental issues and are seeking to install low carbon technology **Devices**, such as heat pumps, electric vehicle charging points and photovoltaic generation within their premises that might add significant load and/or generation (including electricity storage) on to **Distribution Networks**. Where the **DNO** has assessed that connection of such **Devices** will require costly reinforcement, or reinforcement that would take time to implement thus delaying the connection, some **Customers** may choose to restrict the net flows of electricity at their **Connection Point** rather than wait for, or contribute to, the reinforcement.

A typical **CLS** may be used in the following scenarios:

- Installing generation with an aggregate **Current Rating** greater than the permitted export to the network and limiting the peak export;
- Connecting significant new loads which cannot operate at their full capacities at the same time without exceeding the import capacity from the network;
- Using the flexibility of the **Customer**'s loads and generation to stay within import or export limits.

Example of Customer Limitation Scheme (CLS)

Figure 0-1 Operational State Concept



Ofgem SCR 1st April &
ENA G100 Amendment 1st May

Open debate on thoughts of impact

SP ENERGY NETWORKS

Thursday 16th February 2023

GTC , EON & SP Energy Networks
ICP / IDNO Safety & Innovation Seminar

Thank you for joining - this session will start at 10:00.

Develop a network that is ready for Net Zero

Be a trusted partner for customers, communities and stakeholders

Ready our business for a digital and sustainable future

Dates for the diary

Upcoming events:

- 08/03/23 - Preparing for Net Zero Conference
- 29/03/23- RAdAR Working Group

ICP Design Improvement workshop – Individual awareness sessions continuing and new documentation published on line with close out workshop TBD (March / April)

Please register for our next events at:

spenergynetworks.co.uk/stakeholderevents

Thank you for your time today.

Your feedback has been useful and we will incorporate your comments when planning our next engagements.

Please register as a stakeholder if your would like to receive further updates from us:

spenergynetworks.co.uk/register