



Forum

# Charging Futures Forum

05 September 2018

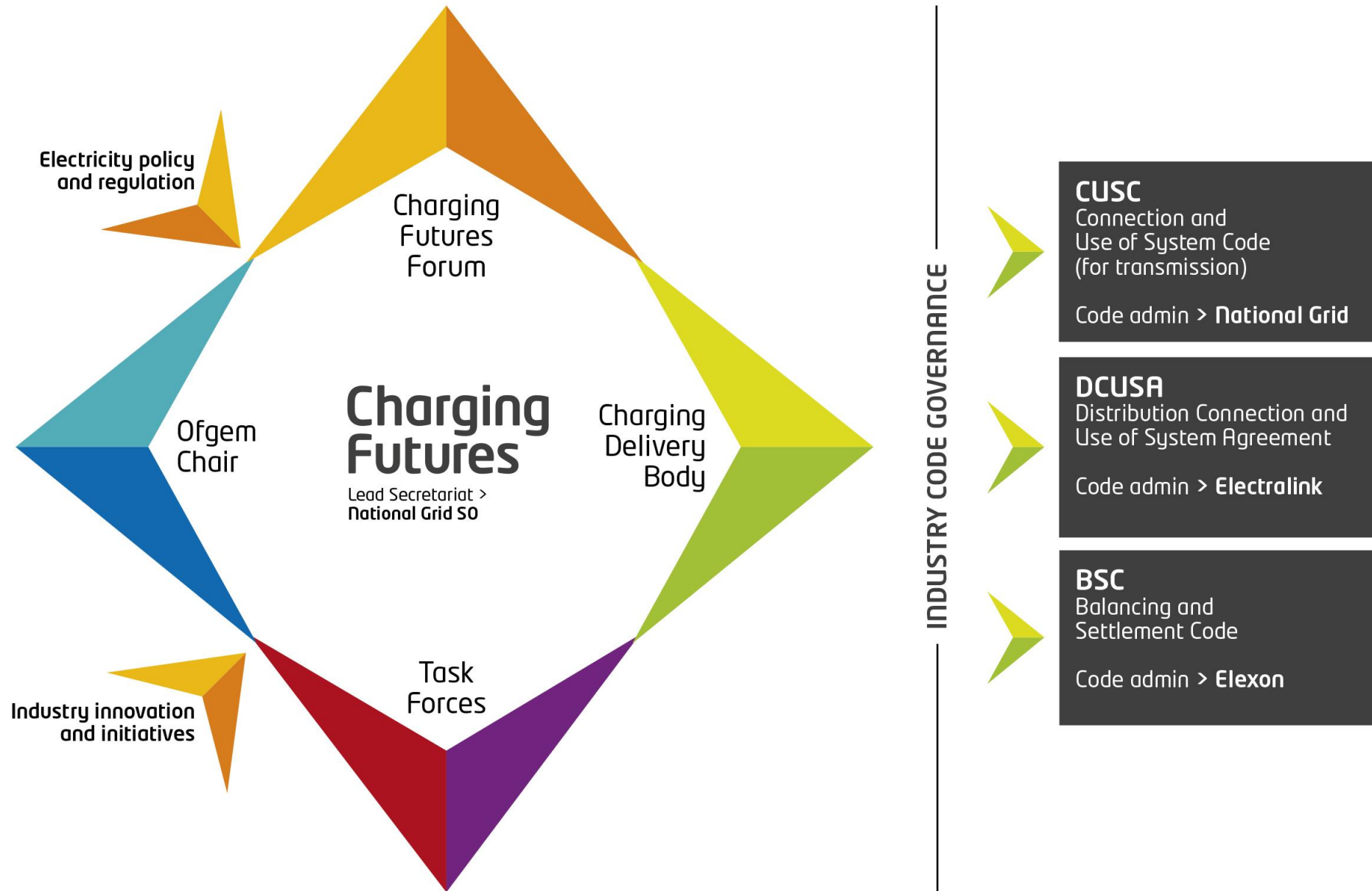


# Welcome

Rob Marshall, NG ESO - Lead Secretariat



# The Charging Futures ecosystem



# Your involvement



**Learn**



**Ask**



**Contribute**

# Overview of the day

Andy Burgess, Ofgem - Forum Chair



# Objectives

- **Learn** about RIIO, the framework for setting the network companies' allowed revenue
- **Learn** about recent developments of the Targeted Charging Review
- **Learn** about the Access and Forward-Looking Charges consultation
- **Ask** the network charging experts your questions
- **Contribute** your thoughts on the Access and Forward-Looking Charges consultation
- **Contribute** your views on other high-priority network charging topics



# Agenda, part 1

- > 10:00 – 10:10 **Welcome** - Andy Burgess, Ofgem
- > 10:10 – 10:25 **RIIO2** - Stephen McMahon, Ofgem
- > 10:25 – 10:45 **Targeted Charging Review** - Andrew Self, Ofgem
- > 10:45 – 11:00 **Q & A on RIIO2 and TCR** - Compered by Louise Schmitz, NG ESO
- > **11:00 – 11:15 Coffee break**
- > 11:15 – 11:30 **Access consultation overview** - Andy Burgess, Ofgem
- > 11:30 – 12:25 **Consultation discussion** - Jon Parker, Ofgem  
*Breakout session one - Access*
- > **12:25 – 13:10 Lunch**



## Agenda, part 2

- > 13:10 – 14:50 **Consultation discussion cont.** - Jon Parker, Ofgem  
*Breakout session two - Forward Looking Charges*  
*Breakout session three - How to take the work forwards*
- > **14:50 – 15:10 Coffee break**
- > 15:10 – 15:20 **ESO role in charging reform** - Louise Schmitz, NG ESO
- > 15:20 – 15:50 **Other high-priority topics** - Louise Schmitz, NG ESO
- > 15:50 – 16:20 **Q & A Panel**
- > 16:20 – 16:30 **Closing remarks** - Andy Burgess, Ofgem





# Ofgem's mission

To ensure the efficient development and operation of GB energy networks and wholesale markets so consumers have access to clean and reliable energy, with fair and cost-reflective network charges

Enable the transition to a low-carbon, smart and flexible energy system

Develop new regulations (or remove regulatory barriers) to enable new technologies and business models that could benefit consumers

**RIIO2**

Ensure that energy is transported efficiently through networks and costs are shared fairly amongst users

Set simpler, more efficient "price controls" (on allowed revenue) for network companies

Promote competition in networks

**Access and TCR**

Set rules for pricing network use that are fair and reflect network costs/benefits

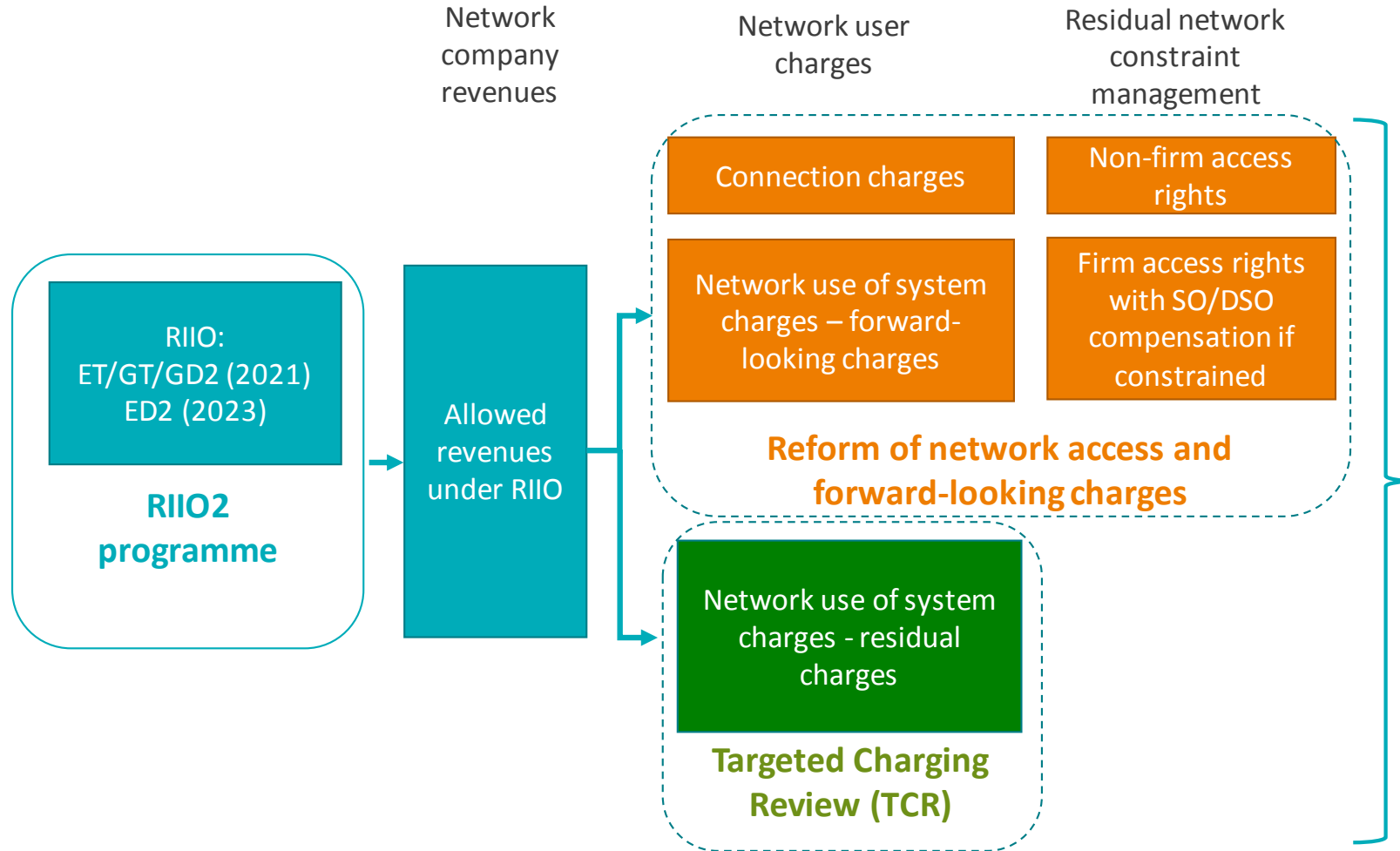
Build powerful system operators that can drive greater flexibility and competition across the networks

Ensure energy is traded efficiently in wholesale markets

- Regulate wholesale market
- Interconnectors
- Market conduct and enforcement
- Europe and Brexit



# RIO2, Access and TCR



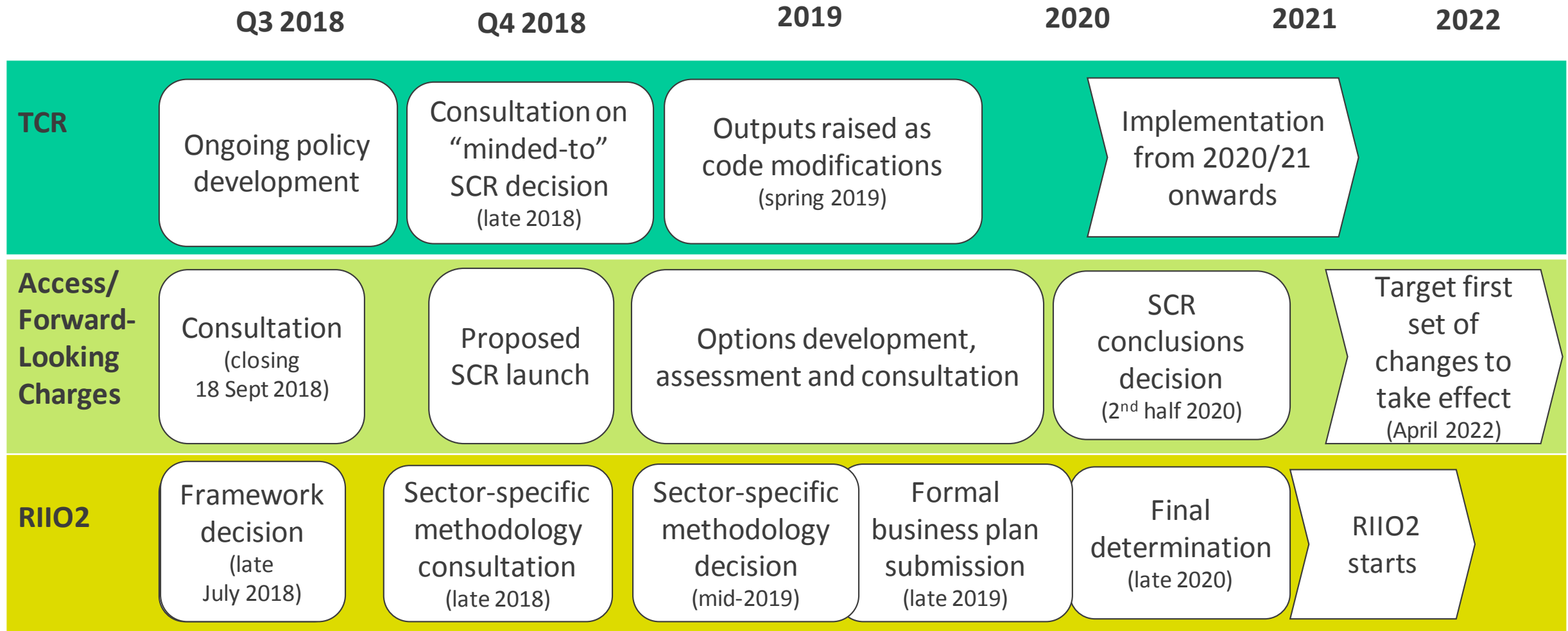
Current RIIO1 price control (elec): ~ £48bn

~ half connection/forward-looking charges;  
~ half residual/cost-recovery charges





# Consolidated timelines



# RIIO2

Steve McMahon, Ofgem

# RIO2 Framework

Key decisions to date and next steps



**Steve McMahon**  
Deputy Director, Electricity Distribution &  
Cross Sector Policy

CFF - 05/09/2018

- The electricity and gas networks are privately owned monopolies. Their customers have no choice but to use their services.
- Left unregulated, a private monopolist is likely to exploit its customers by restricting output and raising prices.
- We regulate networks by limiting how much they can charge customers – these are called “price controls”.
- In Ofgem we use the RIIO model where **Revenue = Incentives + Innovation + Outputs**
- This process sets the baseline outputs and financial parameters, sets the allowed revenues for TOs, DNOs and GDNs, and designs the incentive arrangements on network companies to make best use of networks and minimise future costs.
- Network companies earn their revenue allowance from users by charging them for use of the system.

# The RIIO price controls



## RIIO-GD1 – 2013-2021

### Gas Distribution licensees

- Cadent (x4)
- SGN (x2)
- Northern Gas Network (x1)
- Wales and West Utilities (x1)

## Electricity Transmission



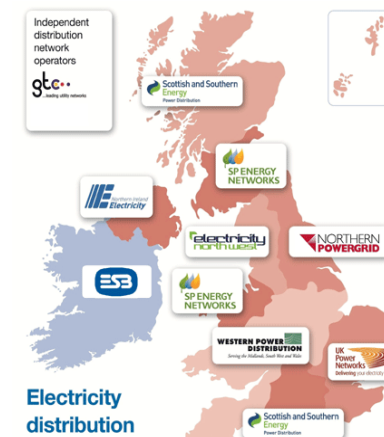
## RIIO-T1 – 2013-2021

### Gas Transmission licensees

- National Grid Gas Transmission (x1)

### Elec Transmission licensees

- National Grid Electricity Transmission (x1)
- Scottish Hydro Electricity Transmission (x1)
- SP Transmission (x1)



## RIIO-ED1 – 2015-2023

### Elec Distribution licensees

- Western Power Distribution (x4)
- UK Power Networks (x3)
- SP Energy Networks (x2)
- SSE Power Distribution (x2)
- Northern Powergrid (x2)
- Electricity North West (x1)

These price controls cover 14 gas and electricity network companies and are worth ~£90bn in total funding. Network charges are c. £250 per annum, and constitute c. 23% of the average annual dual fuel bill

### Demand-side

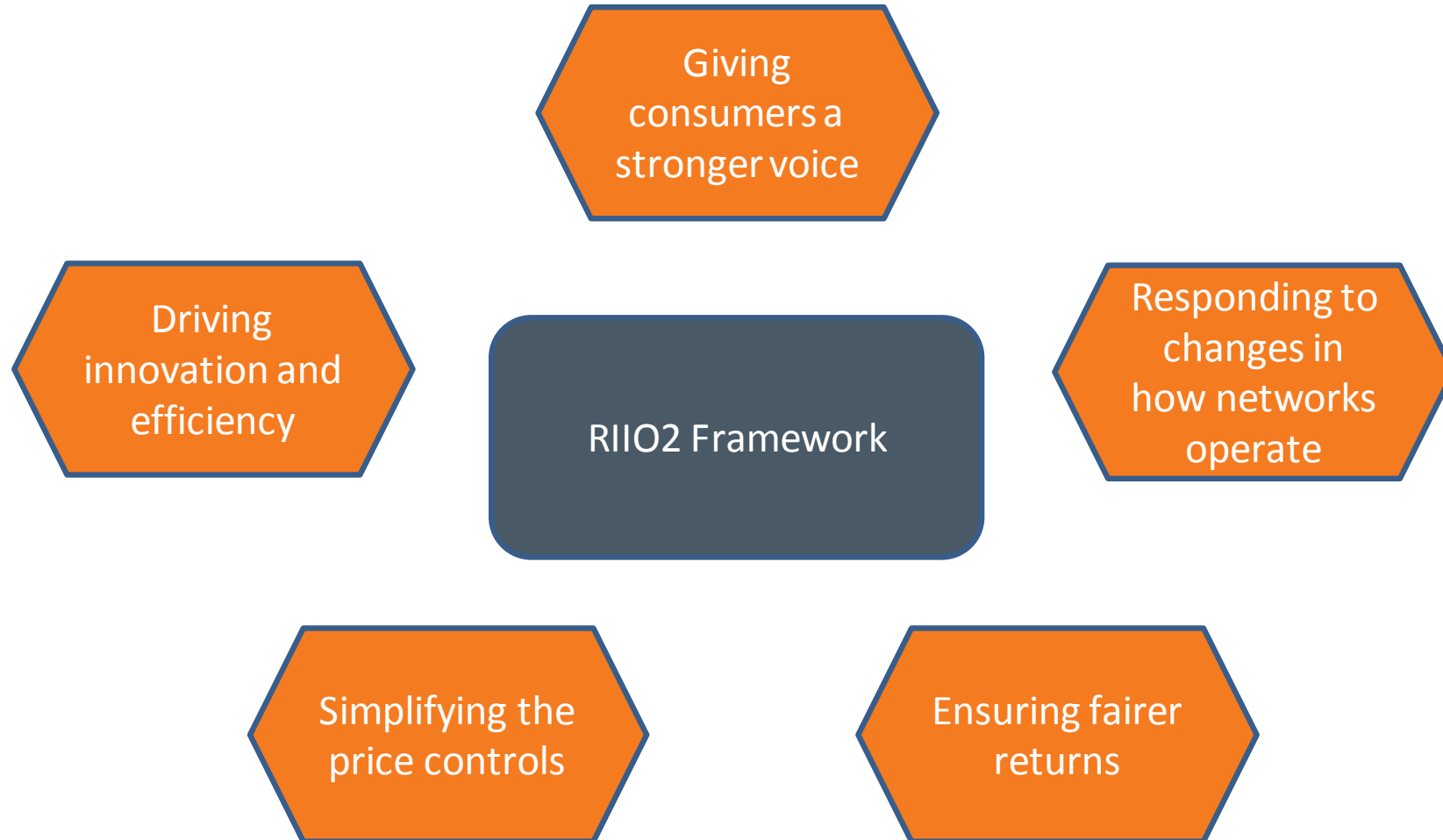
- The **demand for electricity** has been falling as the economy continues to de-industrialise...
- But new source of demand are now emerging, such as **electric vehicles**, which could also act as **storage devices** and sell energy back to the grid.
- **Smart meters** are being installed in each household. These could enable much smarter demand responses to price signals.
- The **demand for gas** has fallen as the power sector decarbonises. Its future as a fuel now depends on the way we decarbonise the heat supply (via electricity or renewable gas).

### Supply-side

- The **generation mix** is transforming rapidly away from coal and gas, towards **renewable energy** (offshore wind and solar) whose costs have fallen rapidly.
- The future of **nuclear energy** and **carbon capture and storage** is uncertain.
- More and more generation is now **connected to the distribution** rather than transmission network, with more households producing their own power.
- **Storage** technology (e.g. batteries) is getting better, faster and cheaper each year.
- The supply of gas is also shifting from its traditional source in the North Sea towards **a greater reliance on imports** via liquefied natural gas (LNG) terminals.
- The future of **shale gas** is uncertain.



- We are reforming our price control arrangements to deliver better value for money for consumers.
- Our objective for the RII02 price controls is to ensure that regulated network companies deliver the value for money services that both existing and future consumers want.
- In March we consulted on a number of ways we could enhance the RII0 framework to meet this objective.
- At the end of July we made firm decisions on certain elements of the framework across the sectors that are necessary to establish the structure of the price control.
- In other areas we narrowed down the options we are considering for reforms to the framework and signalled a direction of travel.



- **Confirmation of approach to enhanced engagement**
  - Transmission companies to each establish a User Group to report their views on company business plans
  - Distribution companies to each establish a Customer Engagement Group to report their views on company business plans
  - Ofgem to establish a RII02 Challenge Group covering all sectors to further scrutinise business plans
  - Open hearings to be held before final determinations
    - Focus on areas of disagreement and contention
    - Invite further evidence in support of, or against, company proposals
- **Ofgem retains ultimate responsibility to make initial and final determinations, but evidence from enhanced engagement will be one of the key inputs**

- **Default length of the price control set at five years**
- **No alignment of the start and end dates for the electricity transmission and electricity distribution price controls**
  - Further work to be carried out to investigate if reforms of the price control framework are needed to support delivery of whole system outcomes
- **Separate price control for the Electricity System Operator**
- **Network utilisation, stranding and investment risk**
  - Company business plans to subject new investment to high hurdles

- **Retain an innovation stimulus package linked to projects which might not otherwise be delivered under the core RIIO2 framework**
  - Further work to be carried out on increased alignment to energy transition challenges, greater coordination with public funding, and increased third party engagement (including potential direct access)
- **Extend the role of competition in monopoly activities**
  - Use of the electricity transmission criteria of new, separable, high value (>£100m capex) in other sectors
  - Developing the range of models for late competition, and consideration of early models
  - Further work to be carried out on the net benefits of competition in each of the sectors

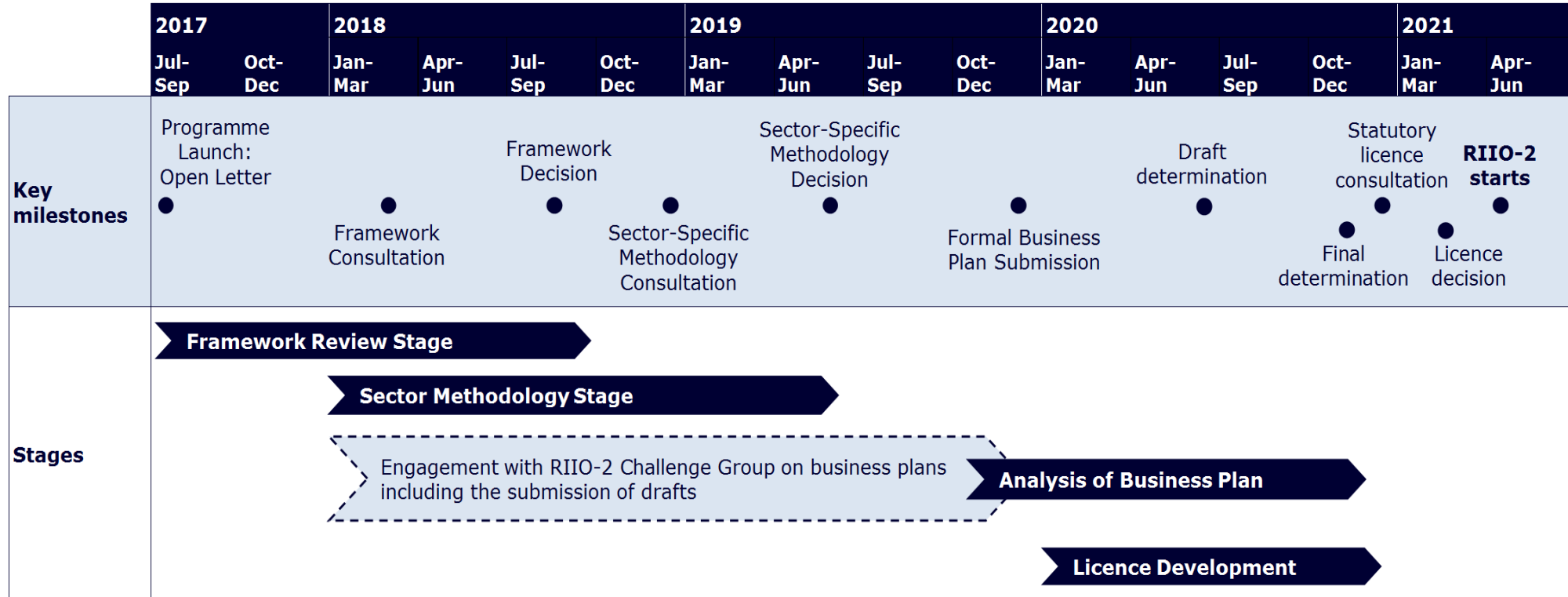
- **Continued use of outputs and incentives to drive improvements that consumers value**
  - Where we are confident we can accurately forecast costs, we will reward outperformance
  - Arrangements to enable automatic consumer refunds if outputs/deliverables for which funding has been provided are no longer required for reasons beyond the licensees' control
  - Further exploration of the indexing of Real Price Effects
  - Establish outputs that are up to date at the beginning of the price control, and remain current throughout
- **Information revealing devices**
  - Ruled out early settlement (a component of fast-tracking) for electricity transmission, gas transmission, and gas distribution
  - Business plan incentives, including the role of IQI, to be developed as part of the work on the individual sector methodologies

- **Cost of Equity**
  - CAPM used to estimate the cost of equity, and setting its key parameters
  - No update to the indicative range communicated in March, at this stage – we will update in December
- **Cost of debt**
  - Full debt pass-through option ruled out, high bar of evidence for a material change in approach
- **Corporation tax, Inflation, Depreciation**
  - Review of taxation included in our review of company financial arrangements
  - Intention to move away from RPI to CPIH in calculating RAV and allowed returns
  - Policy of using economic asset lives maintained as the basis for depreciating the RAV
- **Ensuring fair returns**
  - Hard cap and floor ruled out as a return adjustment mechanism option, further assessment of four remaining options

- **Sector-specific methodology consultation in December 2018 for following sectors**
  - Gas distribution
  - Gas transmission
  - Electricity transmission
  - Electricity System Operator
- **Business plan submission to Ofgem in Q4 2019**
- **Determinations**
  - Draft determination in Q2 2020
  - Final determination in November 2020
- **RIIO2 price control commences April 2021**



## Indicative High-Level RIIO2 Plan for ET, GT, GD and ESO Sectors



- We are facing a significant period of change in network usage.
- RII01 has worked well, but we have learnt lessons.
- We will continue to use the incentive based RII0 framework to set price controls.
- Higher returns are justified where these result from genuine innovation and efficiency.
- This will be a tougher price control for network companies but those who deliver great customer service at lower cost will be rewarded.
- We will retain an attractive environment for investors but returns should reflect the low level of risk of a stable, predictable regulatory framework.

**Our core purpose is to ensure that all consumers can get good value and service from the energy market. In support of this we favour market solutions where practical, incentive regulation for monopolies and an approach that seeks to enable innovation and beneficial change whilst protecting consumers.**

**We will ensure that Ofgem will operate as an efficient organisation, driven by skilled and empowered staff, that will act quickly, predictably and effectively in the consumer interest, based on independent and transparent insight into consumers' experiences and the operation of energy systems and markets.**

# Targeted Charging Review

Andrew Self, Ofgem

## **Targeted Charging Review: Significant Code Review, CFF**

**Andrew Self**

ofgem

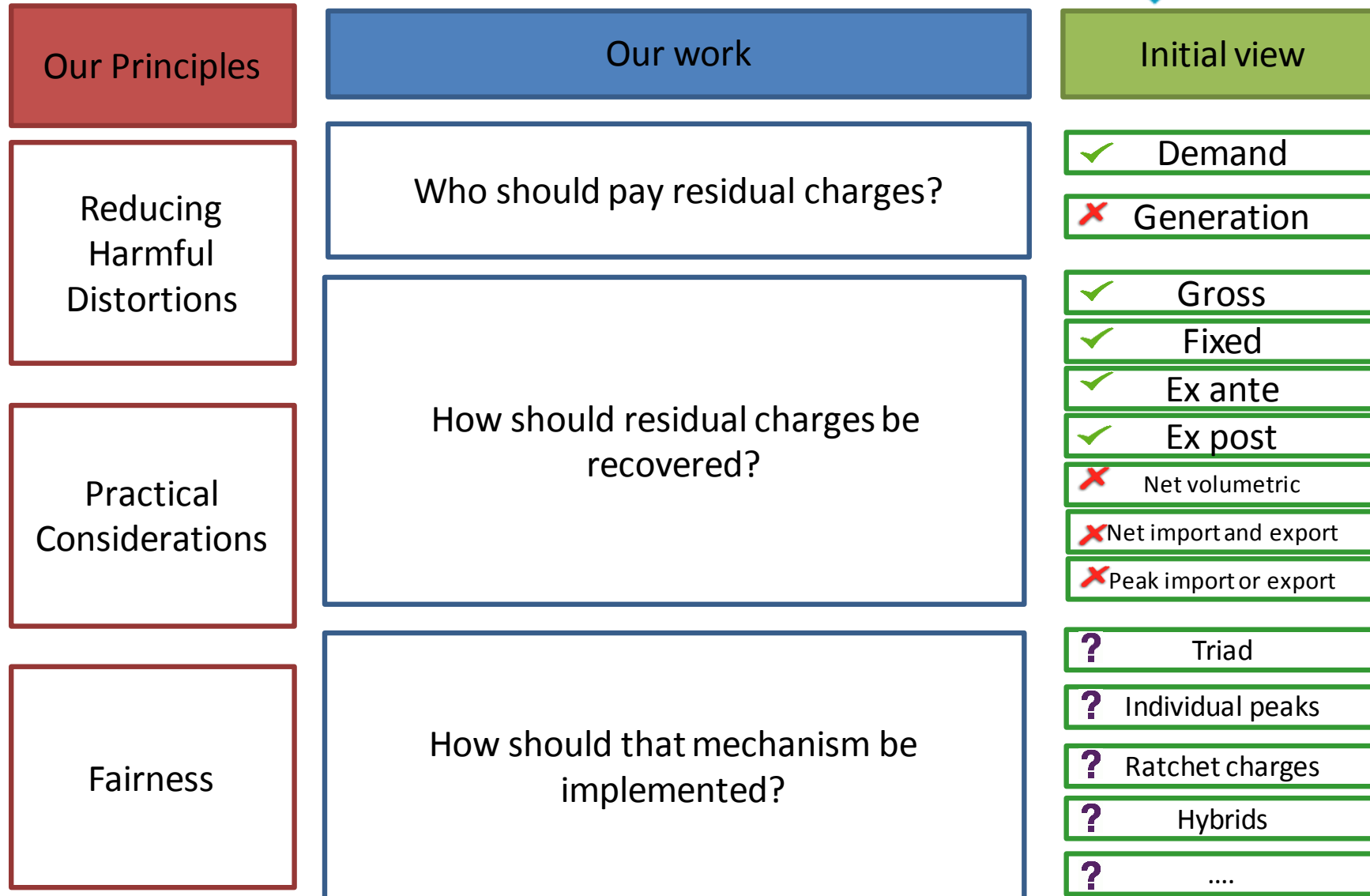
## Aim of today

- TCR update
- Re-cap on the webinar content
- View on next steps
- Chance for questions

We are reviewing residual network charges in order to reduce harmful distortions, and ensure they are recovered fairly

**Under the current system, we believe:**

- Some users may make decisions based (in part) on residual charges, and pay lower charges as a result, although their actions have **not reduced the total level of costs** which need to be recovered.
- The increase in availability and affordability of smaller scale generation means that **some consumers can more easily reduce their net demand and hence residual charges.**
- The current way that residual charges are set creates some incentives that could lead to a **more expensive system overall.**
- Current **residual charges fall increasingly on groups of customers who are less able to take action to reduce their residual charges.**





## Our progress since the May CFF

- In May 2018, we provided an update on our April stakeholder workshop, the user groups and the Frontier analysis assessing users' initial bill impacts.
- Since then we have:
  - progressed our analytical work to understand the potential impacts of change;
  - developed assessment criteria of fairness;
  - developed assessment criteria for proportionality and practical considerations; and
  - held a webinar to run through the static distributional analysis.

## Our 'vanilla' charging options

Relative to the baseline (no further reform) we are assessing the impact of moving to each of the four alternative 'vanilla charging options'.

### Fixed charges (per user fixed charges)

- As a starting point we consider the impact of options where the revenue raised from a particular segment is similar to historic levels.

### Gross consumption charges (based on all user's consumption incl. from onsite generation)

- Apply to non-domestic customers (i.e. industrial final demand and larger commercial sites) which includes sites on the HV network under the CDCM regime

### Ex ante capacity (charges related to user's agreed or connected capacity)

- Capacity charge based on individual customer connection capacity
- We assume the same connection capacity for all domestic consumers

### Ex post capacity (based on measure of individual peak system usage)

- We consider the impact of a measure of single individual

# Vanilla charging options static analysis

## Important caveats

This presentation is intended to provide an update on our quantitative assessment of the vanilla charging options being considered under the Targeted Charging Review SCR. This work has been undertaken for Ofgem by Frontier Economics based on assumptions agreed between Frontier Economics and Ofgem.

This analysis:

- Is a **draft work-in-progress view** of ongoing analysis which is subject to change and does not in anyway amount to a final impact assessment;
- Is for the purposes of supporting the policy work on the TCR project only, and does not constitute a wider official Ofgem forecast of future network charges or any other forecast;
- Is a summary of the analysis conducted so far to provide an overview.

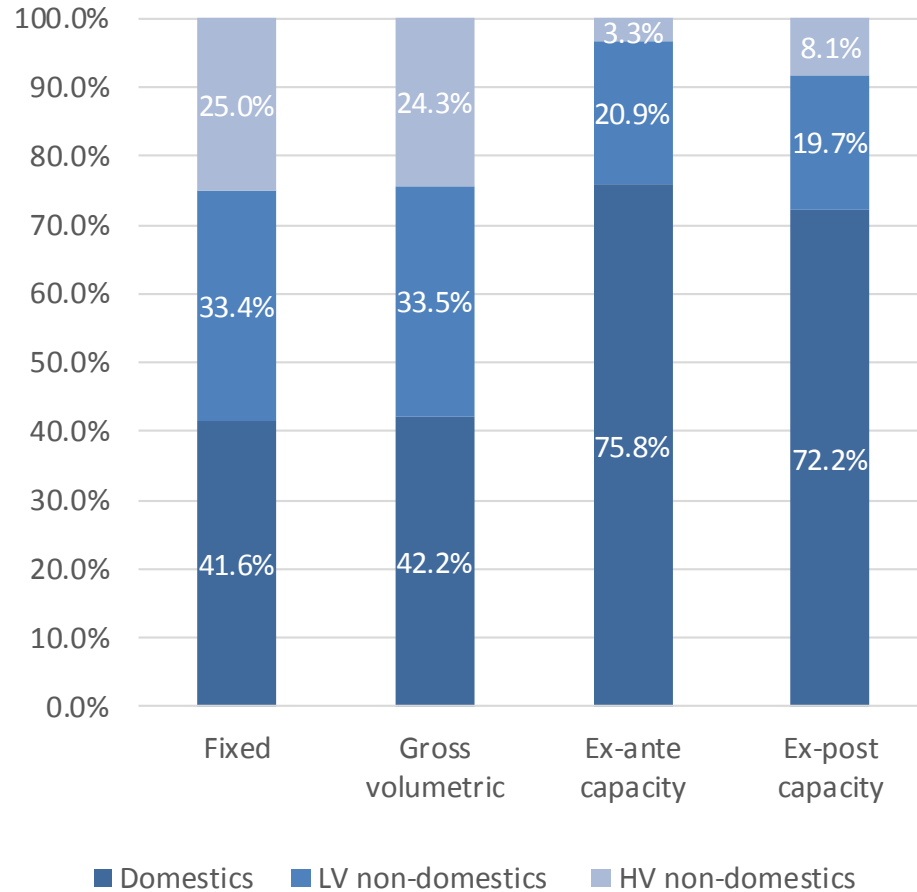
Throughout this presentation, example residual charge impacts are provided only rather than final bill impacts, with the majority of slides focusing on the Northeast DNO region, considered as reasonably representative of a typical DNO. The exception to this is the charts showing the level of residual contributions from each segment which are shown at a national level.

As these draft results are subject to change, **they should only be consider illustrative of impacts and then only for the “vanilla” version of these charges set out.** Other revenue distributions would be present under different assumption and Ofgem are considering a range of refinements to each option.

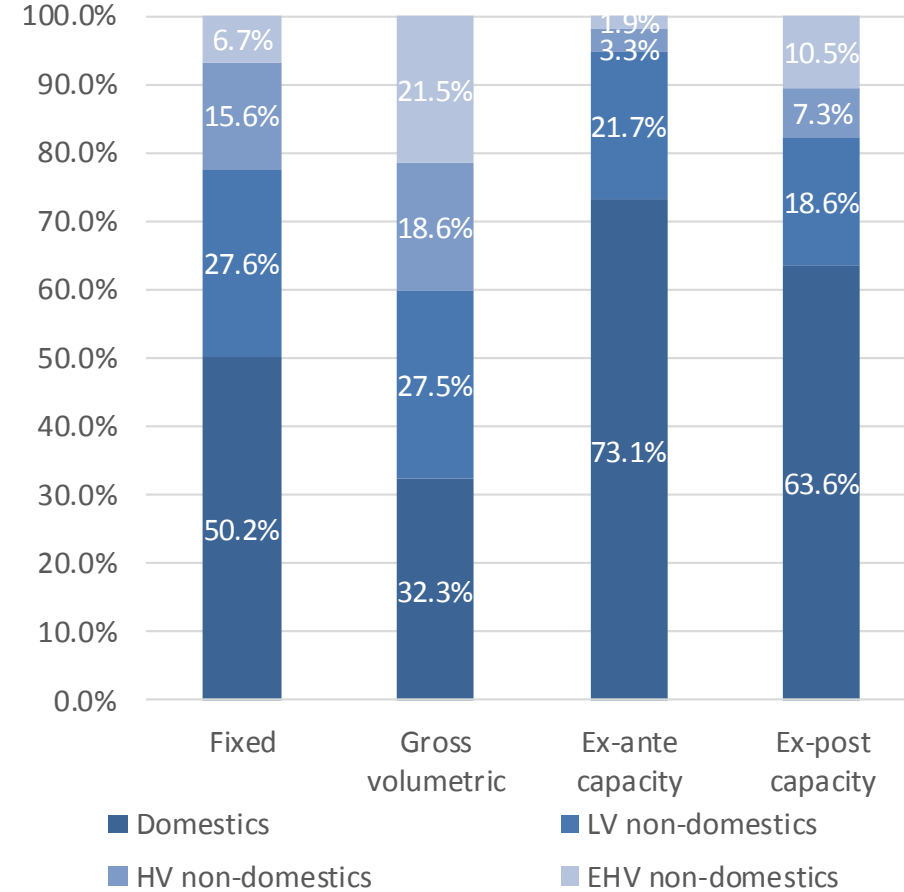
A full impact assessment on leading options will be published later this year.

## Vanilla Options static analysis

CDCM - Residual revenue recovery by segment for vanilla options (all DNO areas)



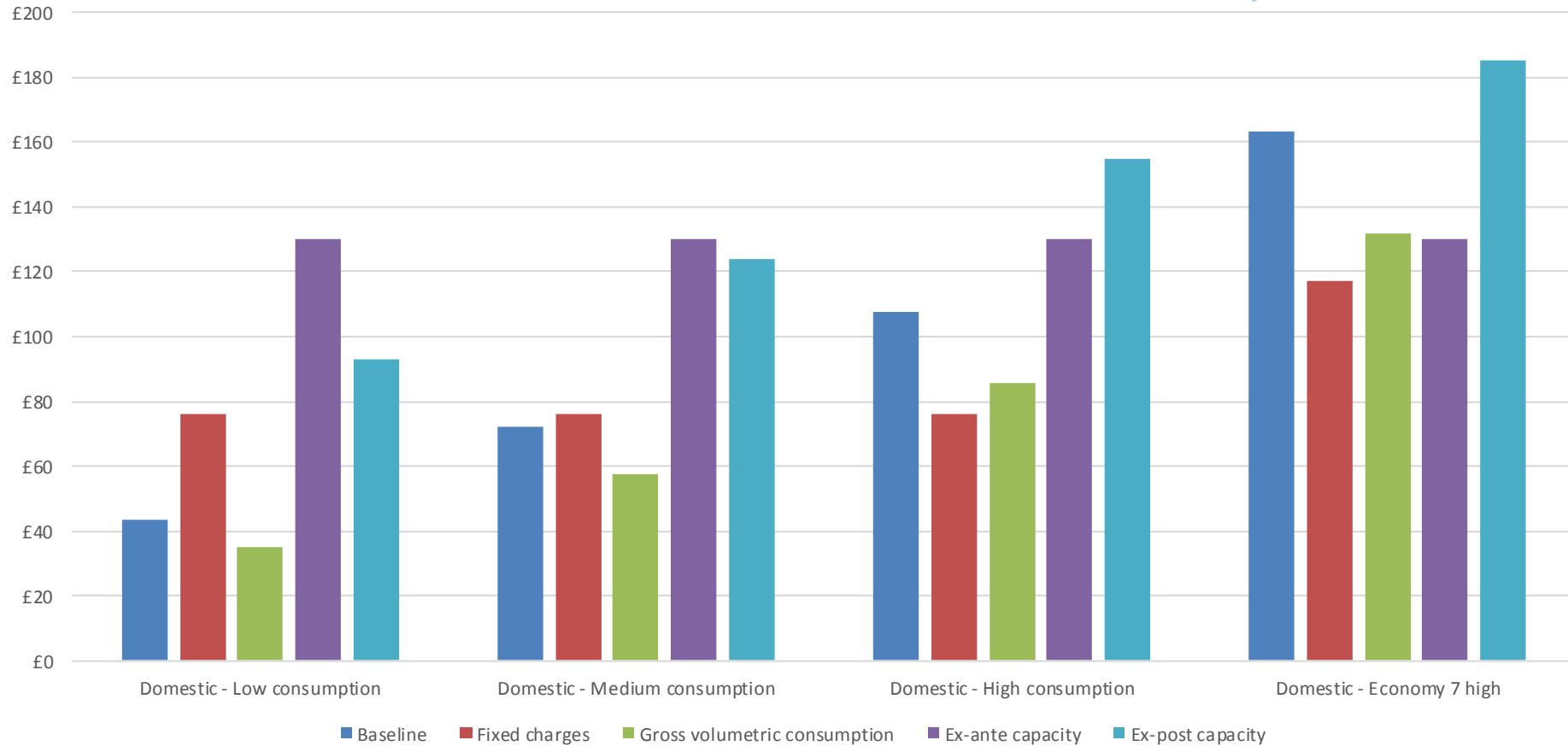
TNUoS – Residual revenue recovery by segment for vanilla options (all DNO areas)



NB The revenue distribution for the vanilla fixed charges is the same as the distribution in the baseline. This is because the Vanilla fixed charge option carries forward existing residual allocations, setting fixed charges based on historic segment levels.

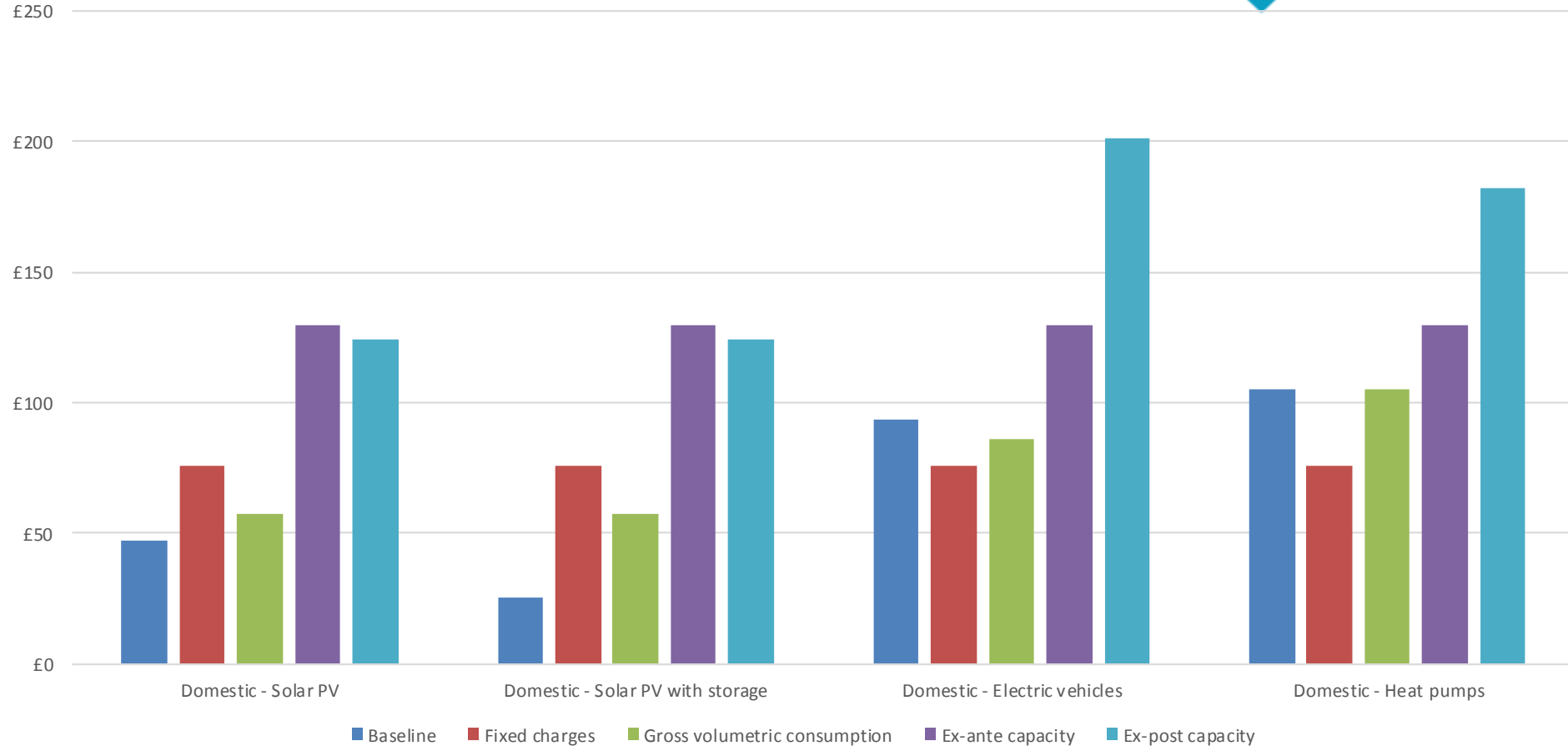
# Vanilla Options static analysis

Domestic User Groups (North East) - Annual residual charges



- Gross volumetric charges are not being considered for domestic users. Alternative charge method would be needed to recover revenues.
- Residual based on TNUoS and CDCM residuals

## Domestic User Groups (North East) - Annual residual charges

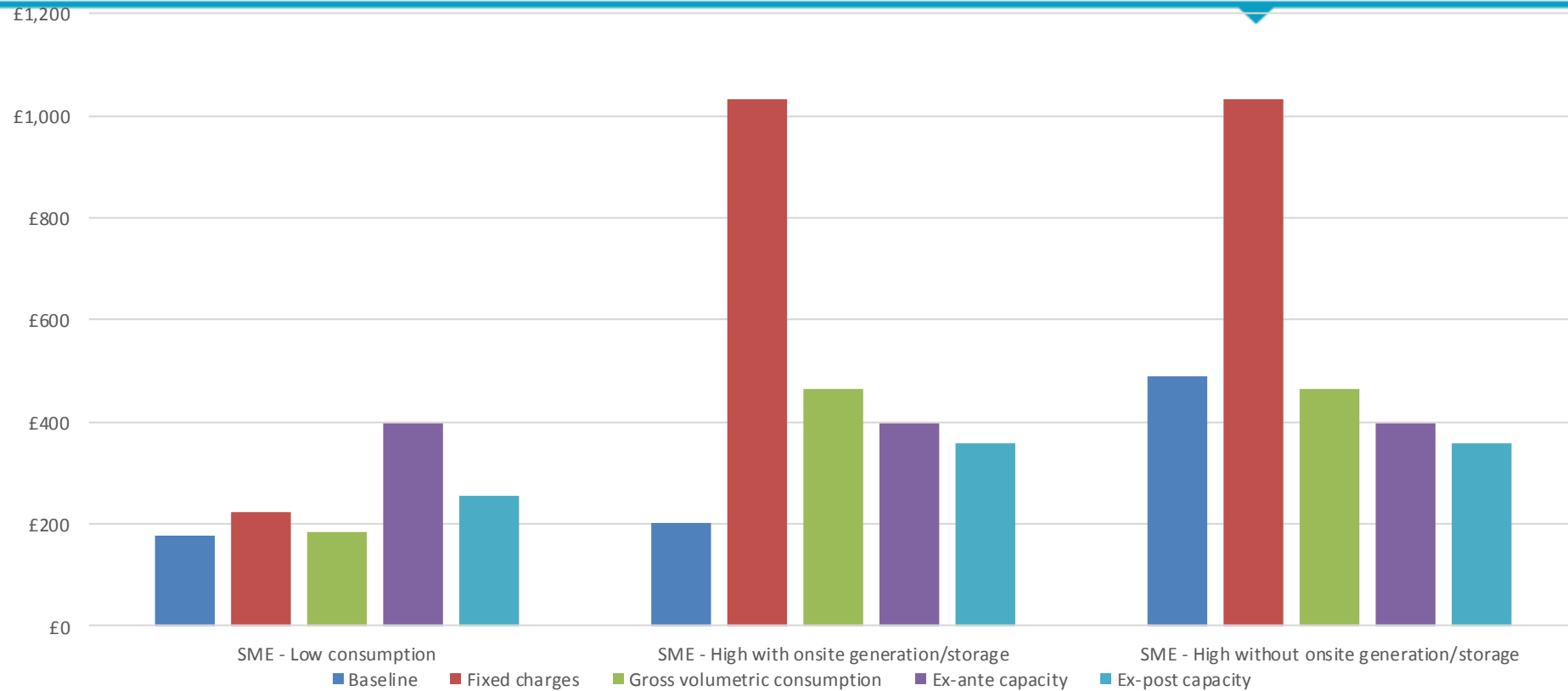


- Gross volumetric charges are not being considered for domestic users. Alternative charge method would be needed to recover revenues.
- Residual based on TNUoS and CDCM residuals

# Vanilla Options static analysis



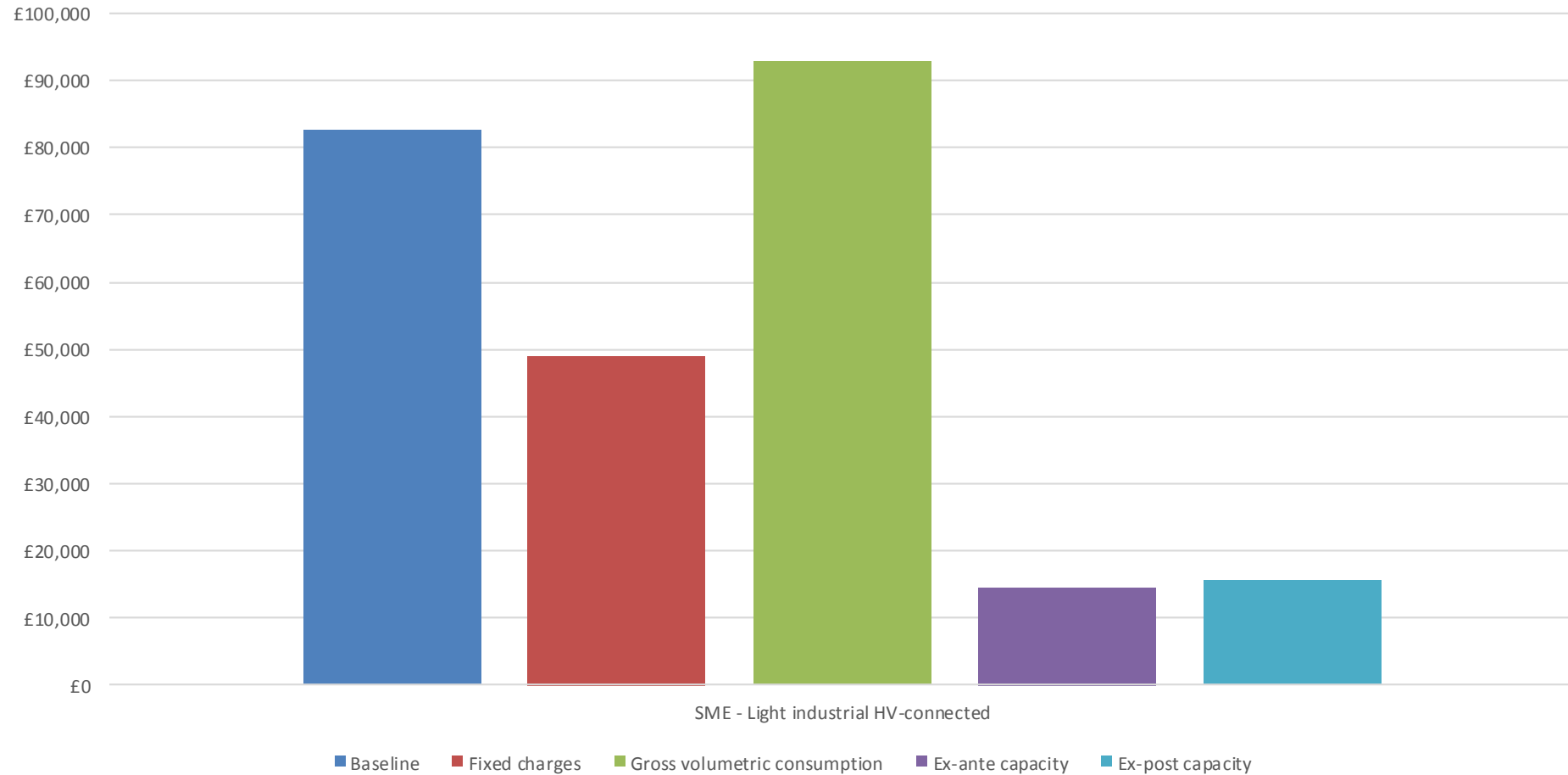
## Commercial User Groups (North East) - Annual residual charges



- Note that this illustrative fixed charge is based on a site with an below average consumption for its LLFC – the charge may vary significantly based on consumption and LLFC.
- Gross volumetric charges are currently being considered for large commercial and industrial users only. Alternative charge method would be needed to recover revenues for other users.
- Residual based on TNUoS and CDCM residuals



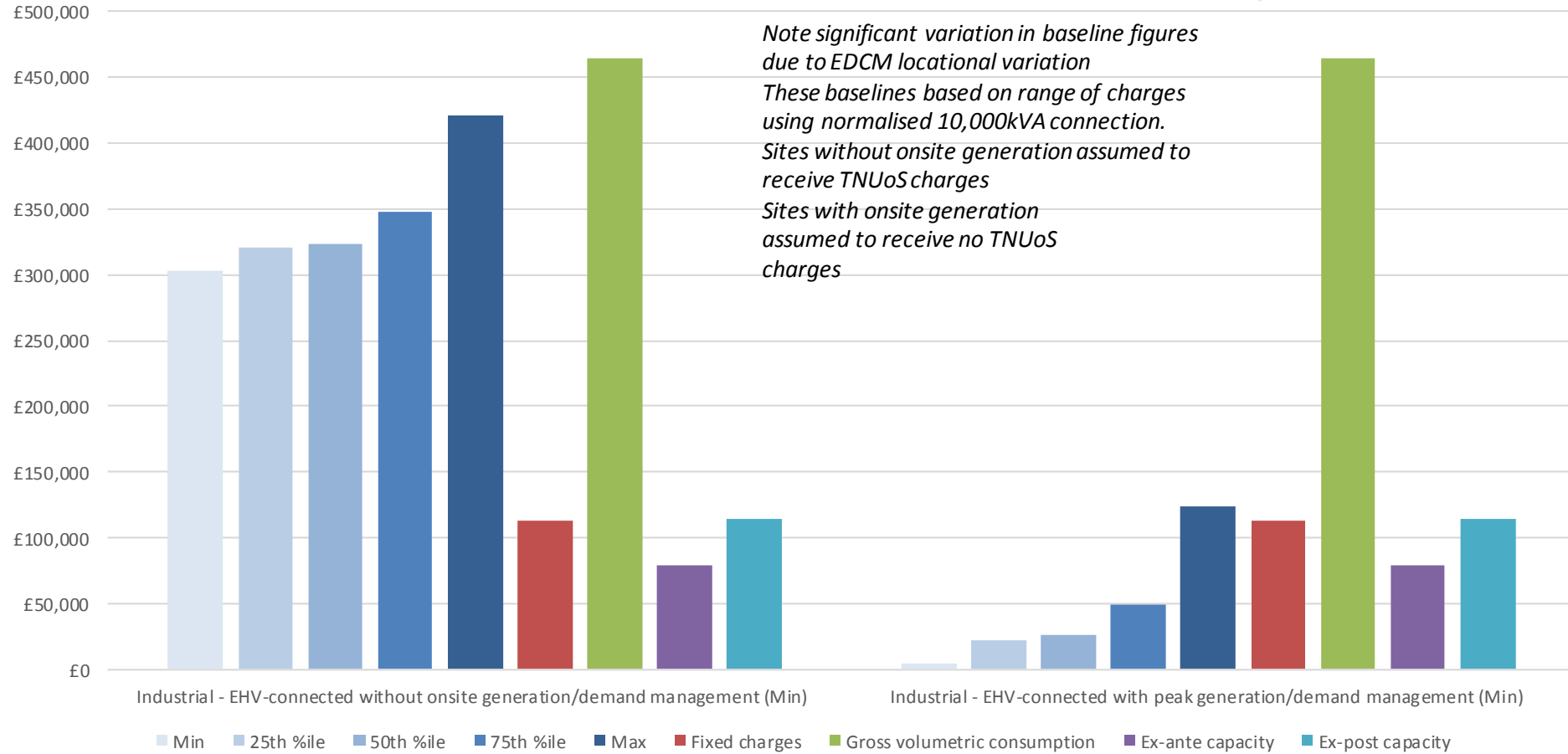
### Light Industrial User Groups (North East) Annual residual charges



- Residual based on TNUoS and CDCM residuals

# Vanilla Options static analysis

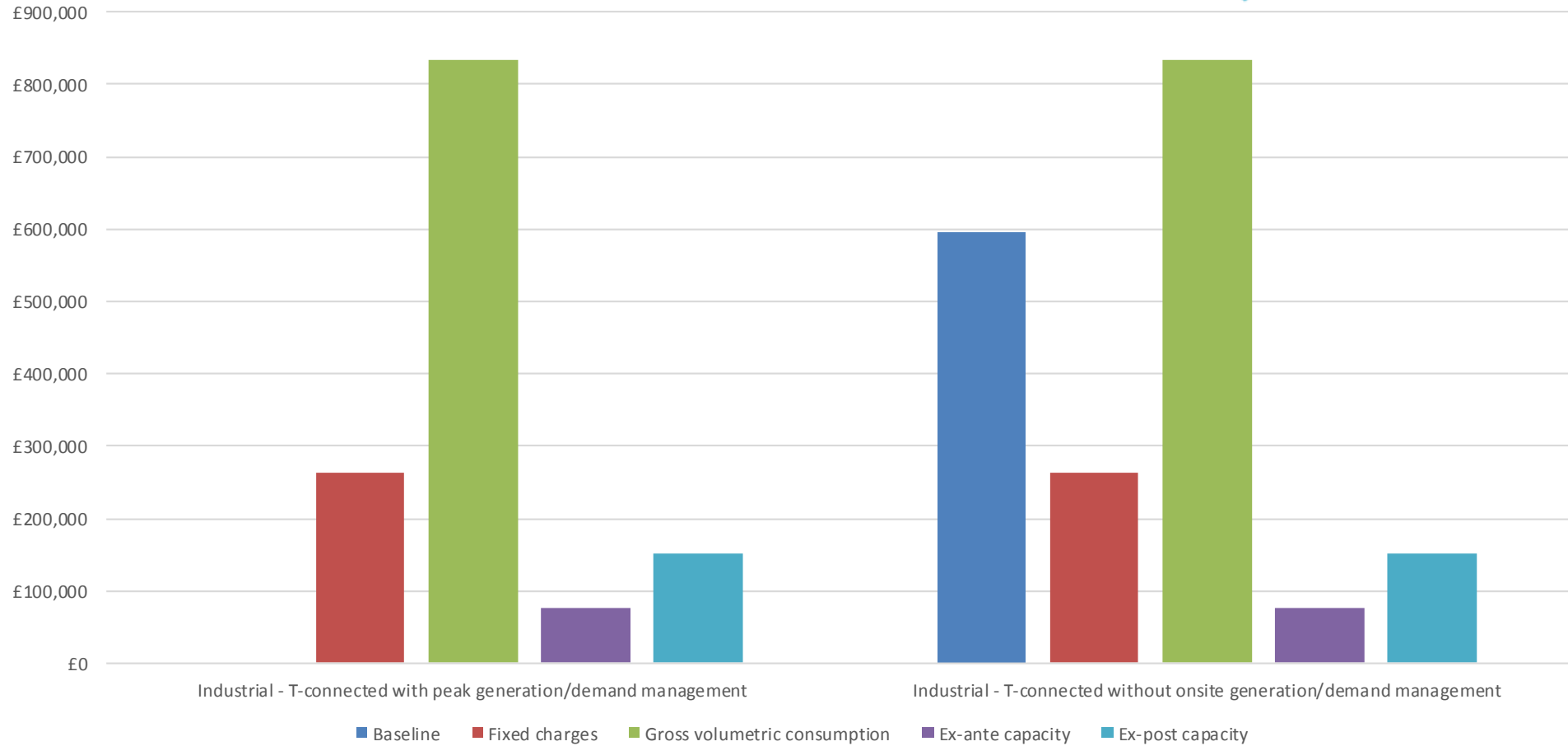
EHV Min, Q1, Q2, Q3, Max (North East) - Annual residual charges



- Residual based on TNUoS and EDCM residuals *using normalised 10,000kVA connection.*

# Vanilla Options static analysis

## Transmission User Groups (North East) - Annual residual charges



- Residual based on TNUoS residual

Charge	Key Challenges	Possible remedies
Fixed	<ul style="list-style-type: none"> <li>▪ Disconnection only way to reduce charge</li> <li>▪ Fairness concerns if same charge for significantly different users</li> </ul>	<ul style="list-style-type: none"> <li>▪ Hybrids with variable element</li> <li>▪ Greater numbers of user bands</li> </ul>
Gross volumetric	<ul style="list-style-type: none"> <li>▪ Data collection and metering</li> <li>▪ Complexity</li> </ul>	<ul style="list-style-type: none"> <li>▪ Restrictions to large users only</li> </ul>
Ex-ante capacity	<ul style="list-style-type: none"> <li>▪ Load reduction incentive</li> <li>▪ Missing data for some users</li> <li>▪ Fairness concerns if same charge for different users</li> </ul>	<ul style="list-style-type: none"> <li>▪ Hybrids with variable element</li> <li>▪ Deemed levels for data deficient users</li> </ul>
Ex-post capacity	<ul style="list-style-type: none"> <li>▪ Load reduction incentive</li> <li>▪ Residual influences operations</li> <li>▪ Metering capability</li> </ul>	<ul style="list-style-type: none"> <li>▪ Hybrids with fixed element</li> <li>▪ Deemed levels for data deficient users</li> </ul>

## How can the Vanilla options be refined?

Two-part tariffs	Segment specific charges	Segment residual allocations
Combine option with another, or with net kWh for “scale”	Segments specific charges e.g. fixed for small, ex-ante for larger	Revenue from each segment set using historic / capacity / peak / volumes / meters share
Segment boundaries	Frequency of charge	Deemed assumptions
Segment by voltage and LLF, or customer type	Monthly, annually, or over specific periods	Deemed levels fill data gaps but may alter revenue distribution

NB others have also been considered

## Next steps

- We plan to publish a preferred option for consultation later in the autumn.
- We plan to make a decision on any transitional arrangements alongside our minded to decision.
- Outputs expected to be raised as code mods through open governance process (spring 2019).
- If you have any further comments please send them to [TCR@Ofgem.gov.uk](mailto:TCR@Ofgem.gov.uk)

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# Q & A

Facilitated by Louise Schmitz, NG ESO





# ➤ Q & A members

➤ **Facilitator – Louise Schmitz, NG ESO**

➤ **Steve McMahon, Ofgem**

➤ **Andrew Self, Ofgem**



# Ask the experts

- > **Andy Burgess** – TCR & Access and Forward Looking Charges
- > **Steve McMahon** – RII02
- > **Andrew Self** – TCR
- > **Jon Parker** – Access and Forward Looking Charges
- > **Stephen Perry** – Access and Forward Looking Charges



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# Coffee break

11:00 – 11:15

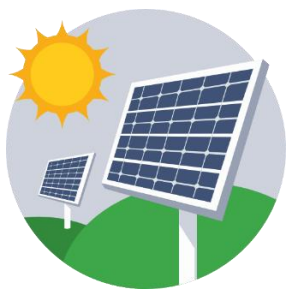
To ask questions  
Go to: [Sli.do](#) #chargingfutures

# Access and Forward Looking Charges consultation: Overview

Andy Burgess, Ofgem

# ➤ What do we want to achieve?

- > Energy system is going through a radical transformation.



- > These changes could create challenges and opportunities for our electricity networks.
- > We want to ensure that electricity networks can be used more efficiently and flexibly so that users can have the access needed, and benefit from new technologies and services, whilst avoiding unnecessary costs.



# What are access rights & forward-looking charges?

## Network access rights

- By this we mean **users' network access rights and how these rights are allocated.**
- Network access rights define the nature of users' access to the networks – eg how much they can import or export, when and for how long, where to/from, and how likely their access is to be interrupted and what happens if it is.

## Forward-looking charges

- The elements of network charges that **signal to users how their actions can either increase or decrease future network costs in different locations.**
- Includes connection charges and elements of use of system charges

## Residual charges ("scaling")

- Residual charges are 'top up' charges set to ensure that the network's efficient costs can be covered, after other charges have been levied.
- Residual charges are intended for revenue recovery, and are not meant to incentivise specific actions by network users.



## The work to date

- > In November 2017, we published a working paper on “Reform of electricity network access and forward looking charges”.
- > We commissioned Baringa to gather evidence to assess the materiality of current inefficiencies.
- > We set up two industry Task Forces (TFs) under the Charging Futures Forum (CFF) to help assess the options for the change. The TFs published three outputs. Their final report identified the initial options for further consideration.
- > We have presented at the last two CFFs and also held workshops on some potential options for change in Glasgow.



# The case for change

> We commissioned Baringa to help assess the materiality of issues with the current arrangements. Their analysis identified the three highest priority areas -

**A**

**Managing constraints on the distribution network as a result of growth in demand (eg EVs and heat pumps)**

**B**

**Managing constraints on the distribution network as a result of growth in distribution-connected generation**

**C**

**An effective interface between transmission and distribution arrangements**





# Our views on the priority areas to be reviewed

## Network access arrangements

Improving access choice and definition for larger users

Clarify access rights and choices for smaller users, including households

Improving the allocation of access rights, including enhancing the scope for markets

## Forward-looking charging arrangements

Comprehensive review of distribution use of system charges (DUoS)

Review of distribution connection charging boundary

Focused improvements to the transmission use of system charges (TNUoS)



# Taking forward this review

- > The proposed review could be Ofgem-led or system/network operator-led. We have the power to launch a Significant Code Review where we consider that Ofgem leadership is needed to drive forward reform of industry codes.

<b>We consider that a Significant Code Review should cover the following areas</b>	<b>We are seeking views on who should lead</b>	<b>We consider that the ESO and DNOs should lead</b>
<ul style="list-style-type: none"><li>&gt; Clarifying rights and choices for smaller users;</li><li>&gt; Improving forward-looking charging arrangements.</li></ul>	<ul style="list-style-type: none"><li>&gt; Improving the definition and choice of access for larger users.</li></ul>	<ul style="list-style-type: none"><li>&gt; Improving allocation of access, including enhancing scope for markets.</li></ul>

- > We are considering introducing a licence condition on the ESO and DNOs to provide assurance that they will lead their areas of the review in a timely way. We have published a draft licence condition alongside the consultation.



## Next steps

- > We are seeking views on our proposed scope of review and proposed way forward. The consultation closes 18 Sept.
- > We expect to make a decision on whether to launch an SCR by the end of year. If we launch an SCR, we expect changes to come into effect in 2022-23/23-24. Any industry-led changes (outside of the SCR) could be implemented in advance of this.

# Access and Forward Looking Charges Discussion:

Jon Parker, Ofgem



Forum

# Coffee break

14:50 – 15:10

To ask questions  
Go to: [Sli.do](#) #chargingfutures

# Electricity System Operator's role in change

Louise Schmitz, NG ESO

# ESO role in charging reform

Louise Schmitz



# Our role

- **Facilitate industry debate**
  - Highlight where arrangements need to be reformed
  - Where appropriate, lead through change
  - Support Ofgem in the delivery of SCRs
- **Use our voice to champion the consumer**





# Our goal

## Develop markets that create the right outcomes

- Enable market participants to make efficient business decisions
- Users are exposed to their cost and benefit to the whole system
- Deliver consumer value

## Facilitate an open process

- All users have had the opportunity to contribute to the reform

# ESO lead taskforce

## What could an ESO led package of work could look like?

### ESO form a task force on a specific topic

- Propose options for change to industry
- Collaborate with taskforce members to remove and refine options
- Take forward preferred option into code modification(s)

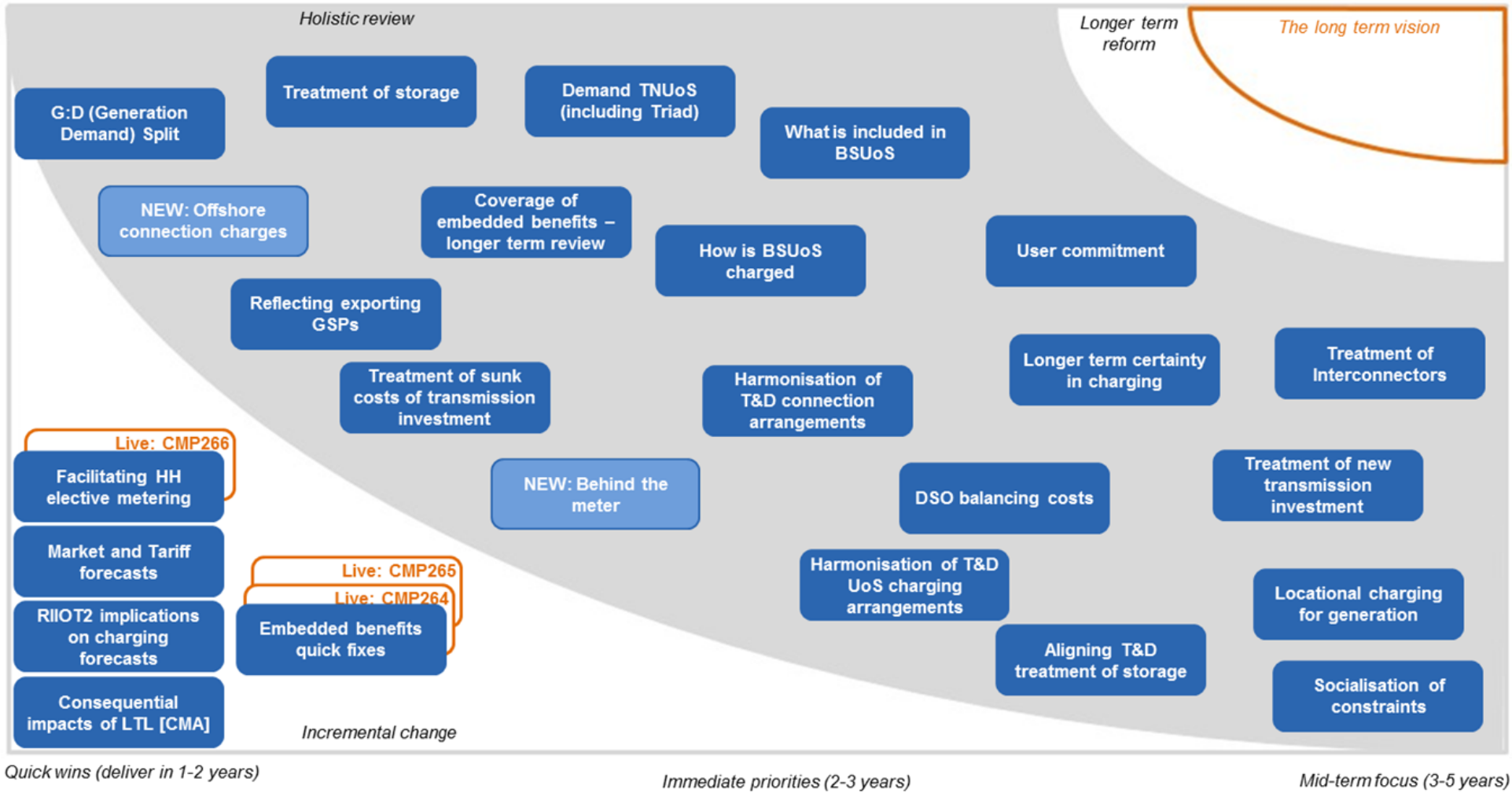
# Wider reform

Louise Schmitz, NG ESO

Rob Marshall, NG ESO



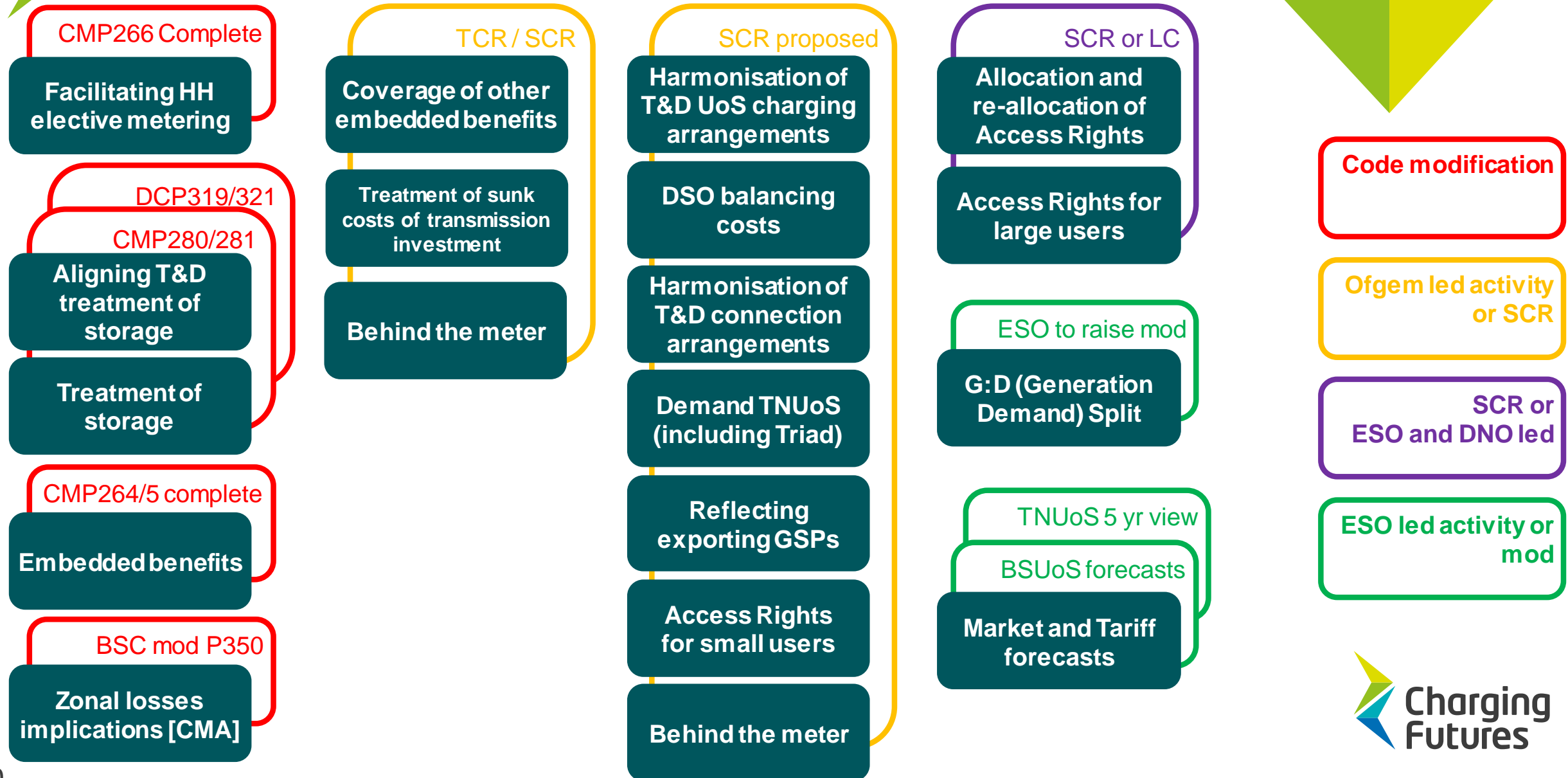
# National Grid Charging review seminars 2016



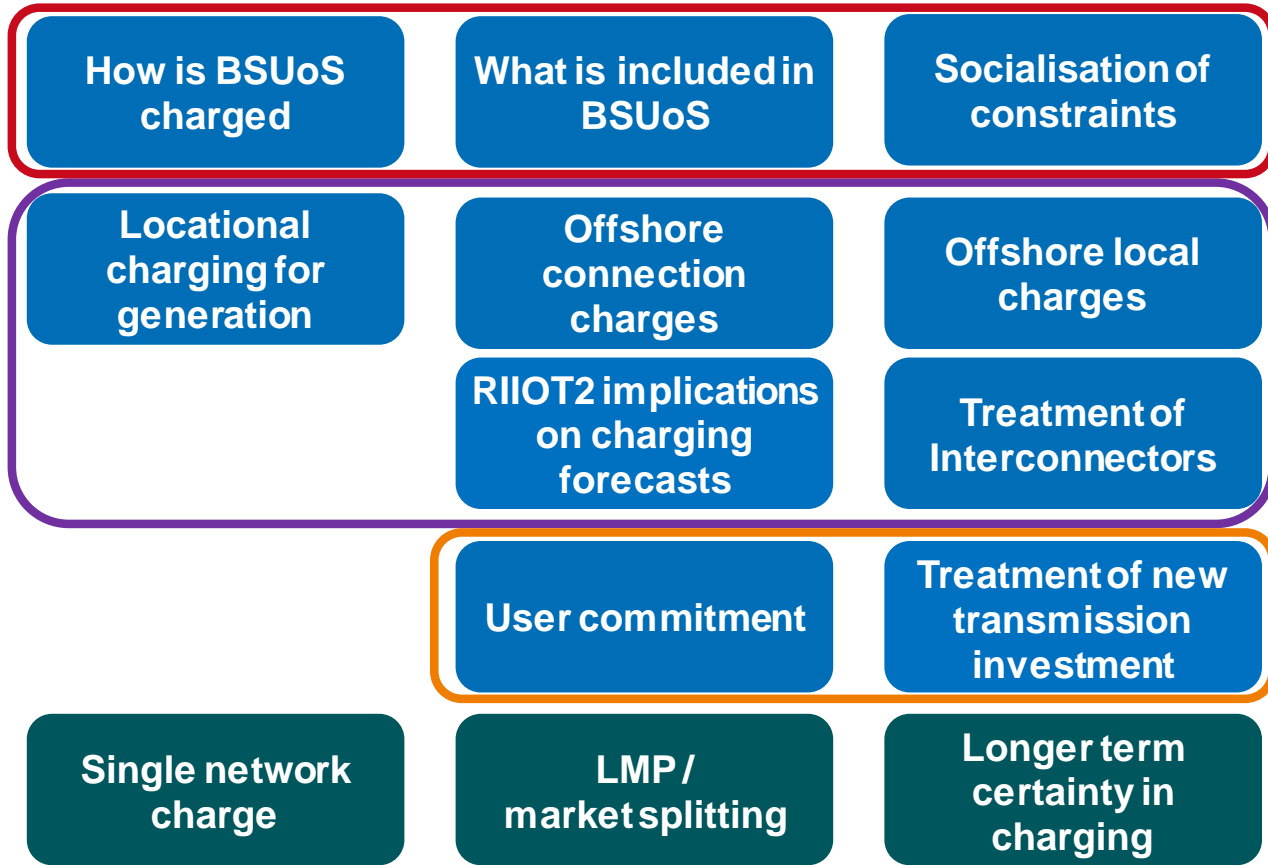
*Don't Do/Out of Scope:*

- Market splitting (LMP)
- Single network charge

# ESO assessment of current status



# Remaining elements



**Operational costs**

**Generation  
TNUoS signals**

**Treatment of  
new investments**

**Not taken forwards**

# Q & A Panel

Facilitated by Robert Longden



# Q & A members



**Facilitator – Robert Longden**



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**James Anderson, Scottish Power**



# Next steps and closing remarks

Andy Burgess, Ofgem



# Objectives

- **Learn** about RIIO, the framework for setting the network companies' allowed revenue
- **Learn** about recent developments of the Targeted Charging Review
- **Learn** about the Access and Forward-Looking Charges consultation
- **Ask** the network charging experts your questions
- **Contribute** your thoughts on the Access and Forward-Looking Charges consultation
- **Contribute** your views on other high-priority network charging topics

# Your feedback

Go to [sli.do](https://sli.do)

#chargingfutures

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 Not likely to Recommend

Extremely likely to Recommend 



Forum

**Thank you, and  
have a safe journey  
home**

