Charging Futures

Reforming electricity charging together

Targeted Charging Review

11 December 2018

We will begin the webinar shortly

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Today

- What is the Targeted Charging Review (TCR)?
  - How it fits into the wider programme of reform
- The minded to decision
  - Background
  - Ofgem's analysis
  - Other embedded benefits
- How to get involved
- Q & A through webex chat

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Quick poll

Today’s webinar hosts:

Andrew Self & Kayt Button
Ofgem

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Targeted Charging Review, stakeholder webinar

11 December 2018

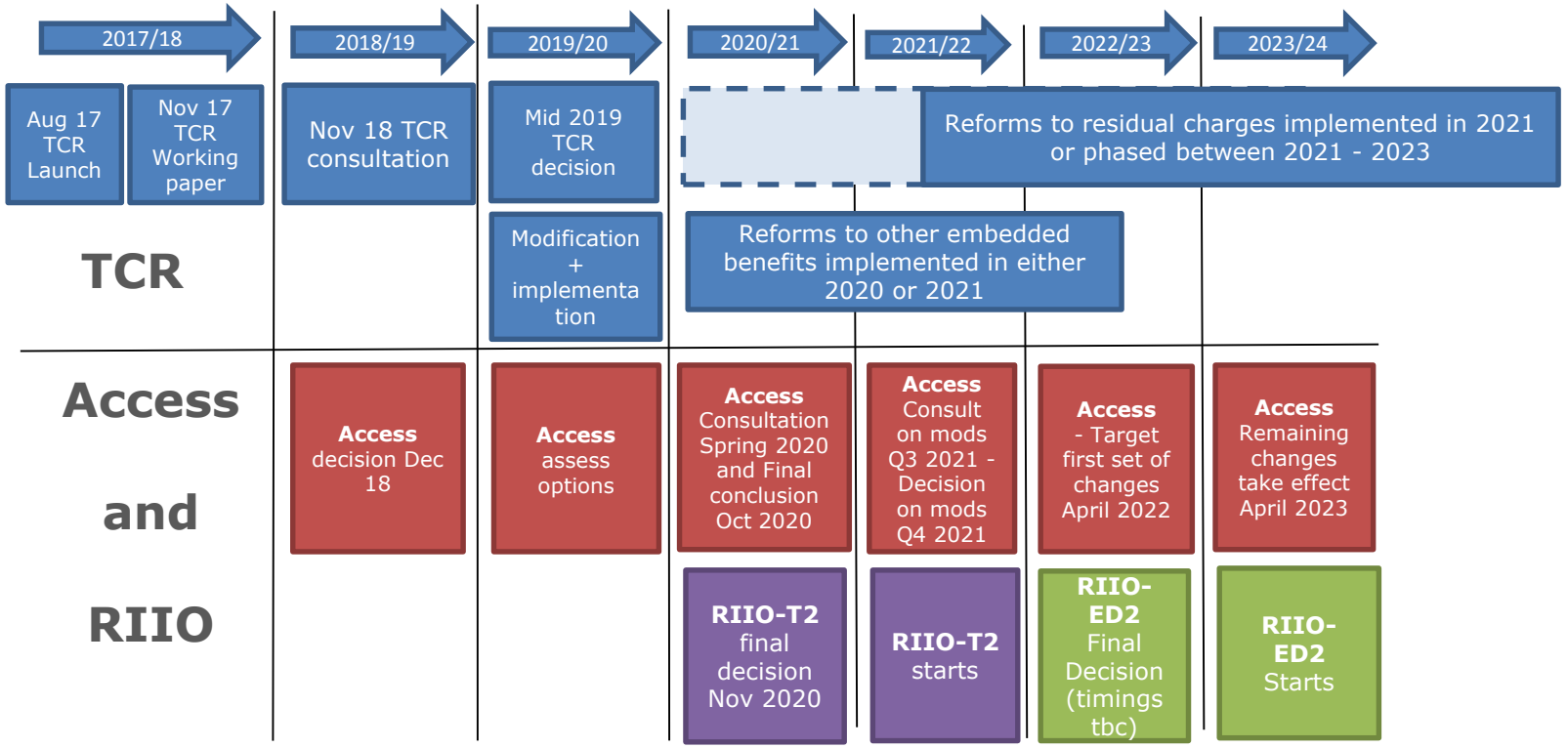
What is the Targeted Charging Review?

- The Targeted Charging Review (TCR) is one of a number of Ofgem initiatives to ensure regulatory and commercial arrangements help deliver the benefits of the changing energy system.
- It complements access reform, RIIO2, and the Smart Systems and Flexibility Plan.
- It aims to reduce the harmful distortions caused by the current charging arrangements and ensure residual charges are more fairly distributed.
- Under our current arrangements, both of our leading options results in a potential net system benefits.
- We are also proposing changes to some of the other embedded benefits which we believe will lead to a more level playing field between different types of generators

We are consulting on the proposed decisions in the TCR and welcome views by 4 February 2019. This is a consultation and not a decision.

TCR and interaction with other Ofgem projects

We are reviewing the charging framework holistically; working closely with the Electricity Network Access and RIIO project teams to ensure a consistent approach is taken to the different reforms underway across the energy system.



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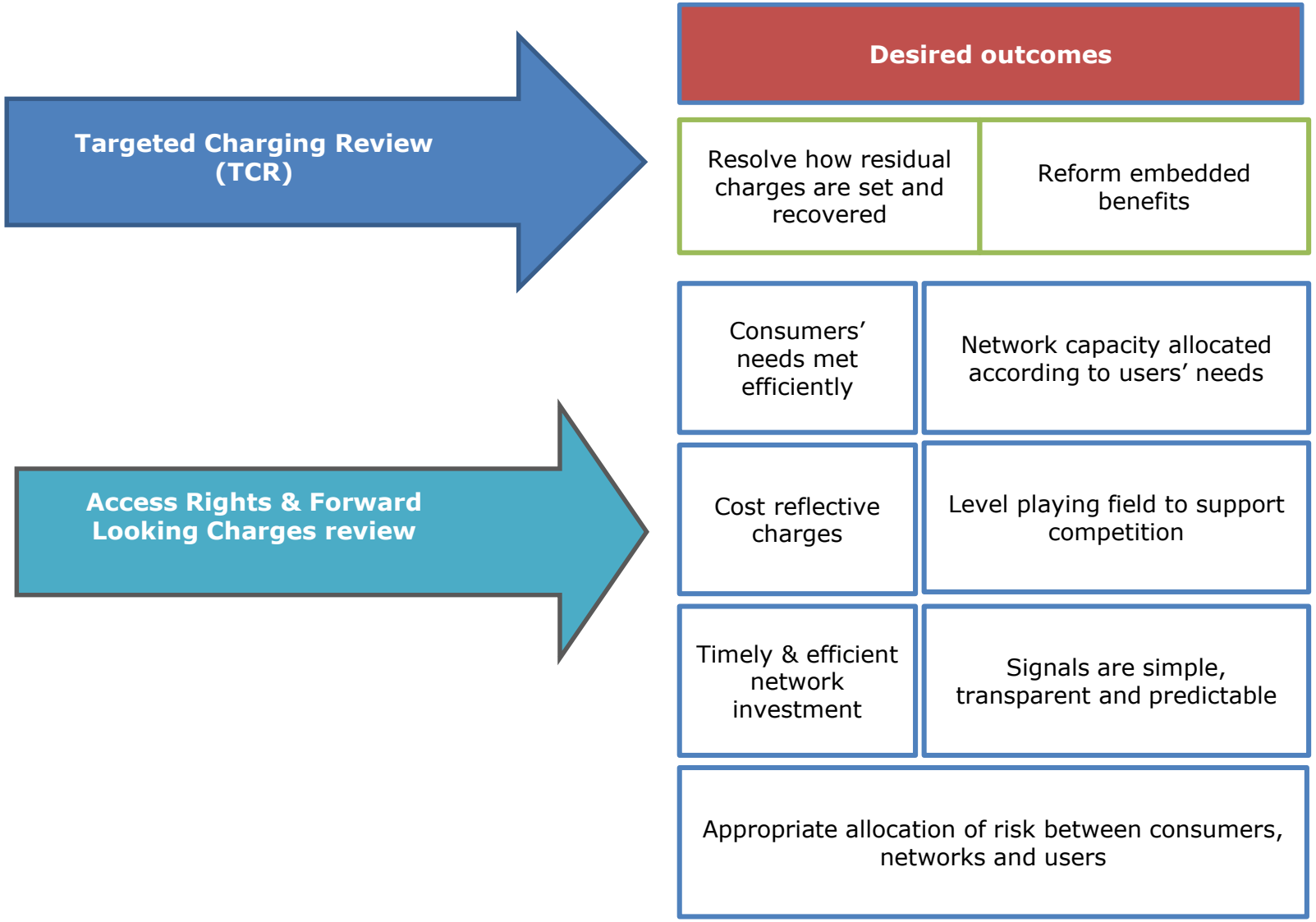
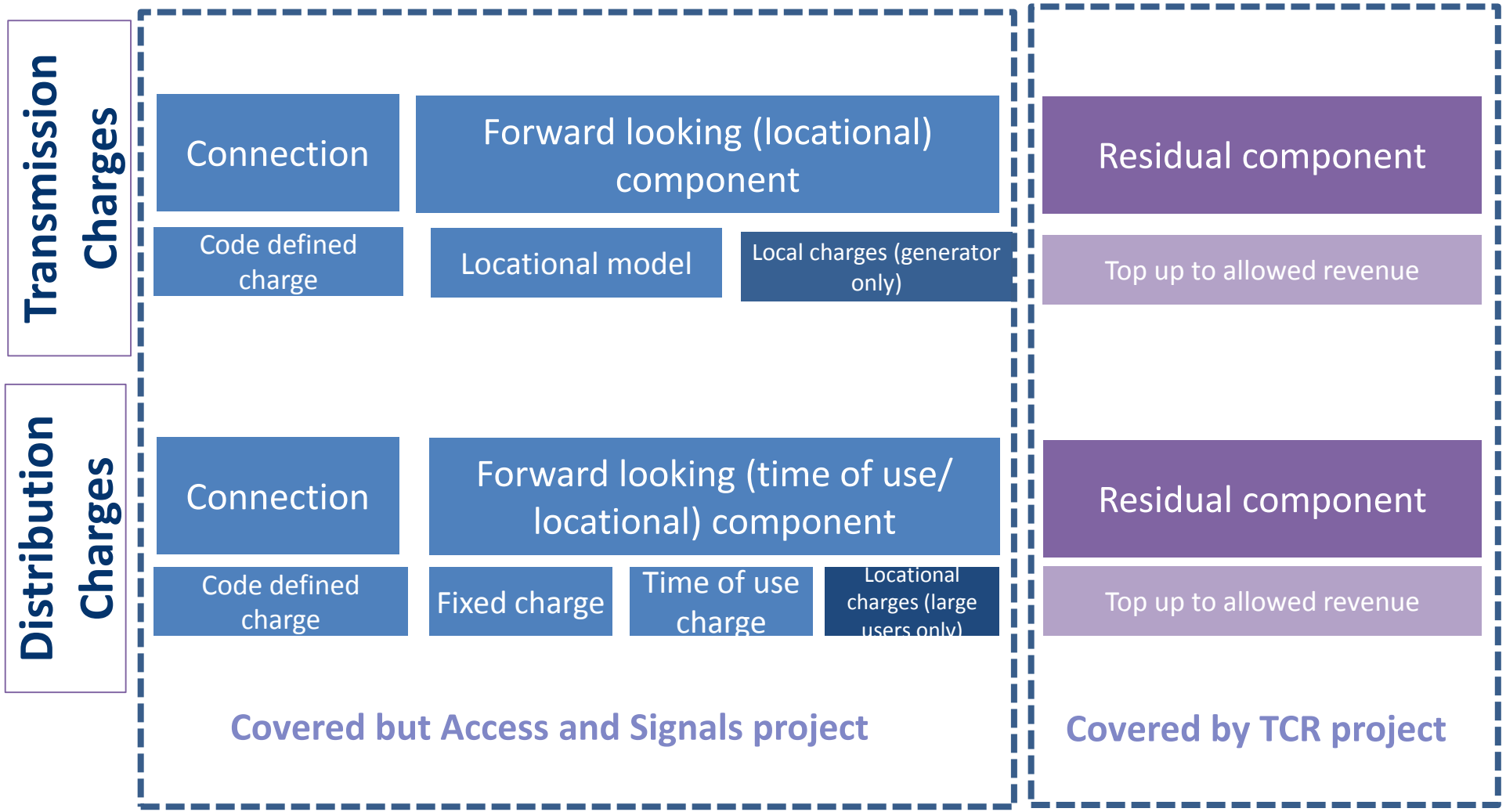
Objectives of the TCR and the Electricity Network Access projects



Background

Charging components: a reminder



Why reform residual the network charging framework?

We think that residual network charges should be reviewed in order to reduce harmful distortions, and so that costs are shared fairly.

What is the problem:

- The current charging framework for recovering the costs of building, maintaining and operating our electricity networks is designed for a system with very different characteristics than of today.
- The existing approach to reflecting the costs of the electricity networks in the charges people pay is becoming increasingly problematic. The rapid pace of changes in energy mean that the issues with the existing charging structure are likely to become worse over time.
- Ofgem is therefore taking action to address this and to ensure that network charging works in the interests of current and future consumers as a whole.

Why reform residual network charging framework?

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 reduce their net demand.
- 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.

Our analysis

Using the TCR principles to assess the refined options

Option	Reducing Distortions	Fairness	Proportionality and practicality	Distributional impact
1) Fixed charge (set by volume)	Removes existing distortions	Different charges for smaller and larger user groups is equitable	Relatively easy to implement, but boundary issues	Low distributional impact between segments, but some within
2) Agreed capacity charge (deemed for domestics and microbusiness)	Removes existing distortions	Lower transparency and justifiability	Requires deemed capacity values, and management of capacity values	Lower distributional impact within segments
3) Rolling ex ante capacity charges	Removes existing distortions but ex-post is avoidable	Lower transparency and justifiability	Ex-post element requires major system changes	Large redistribution of charges
4) Mostly Fixed charges (75%), with ex-post (25%)	Removes existing distortions but ex-post is avoidable	Complex and non transparent charge	Ex-post element requires major system changes	Modest redistribution of charges
5) Mostly agreed capacity (75%), with Net volumetric (25%)	Removes existing distortions	Lower transparency and justifiability	Requires deemed capacity values, and management of capacity values	Lower distributional impact within segments

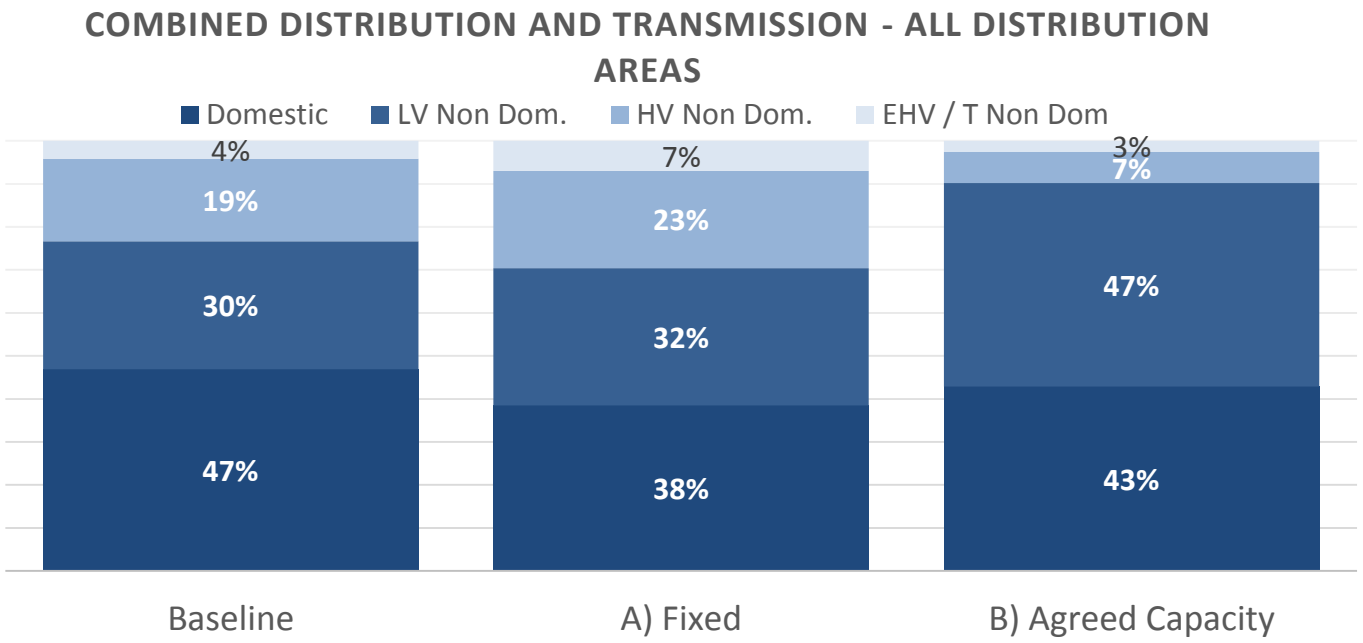
- To narrow down the 5 refined options we conducted a qualitative based assessment, comparing the options to the TCR principles.
- We identified 2 leading charges to continue for further analysis and consultation.

Our lead options

- Our two lead options are **Fixed** and **Agreed Capacity** (deemed and fixed for smaller users).

Option	Justification	Allocation approach		Charge basis	
A) Fixed Fixed charge is calculated for each user segment, defined by Line Loss Factor Classes. The allocation between segments is based on total segment metered volume (net).	There is a strong theoretical underpinning for fixed charges. Allocation is based on an easily measurable quantity, and updates annually for segments.	**Small users**	Allocated based on net volumes in segment.	Small **users**	Fixed charge
		Large users		**Large** users	
B) Agreed Capacity For those larger users which have agreed capacity, a charge is calculated directly. Deemed capacities are set for domestics and smaller non-domestics.	Ex ante capacity charges for larger users allow for more differentiation and fewer boundary effects. Reduces distributional impact by deeming capacity for small users.	**Small users**	Allocated based on deemed capacities, with bands for domestics and small businesses.	**Small users**	Fixed charge
		Large users	Allocated based on agreed capacities.	Large **users**	Agreed capacity charge

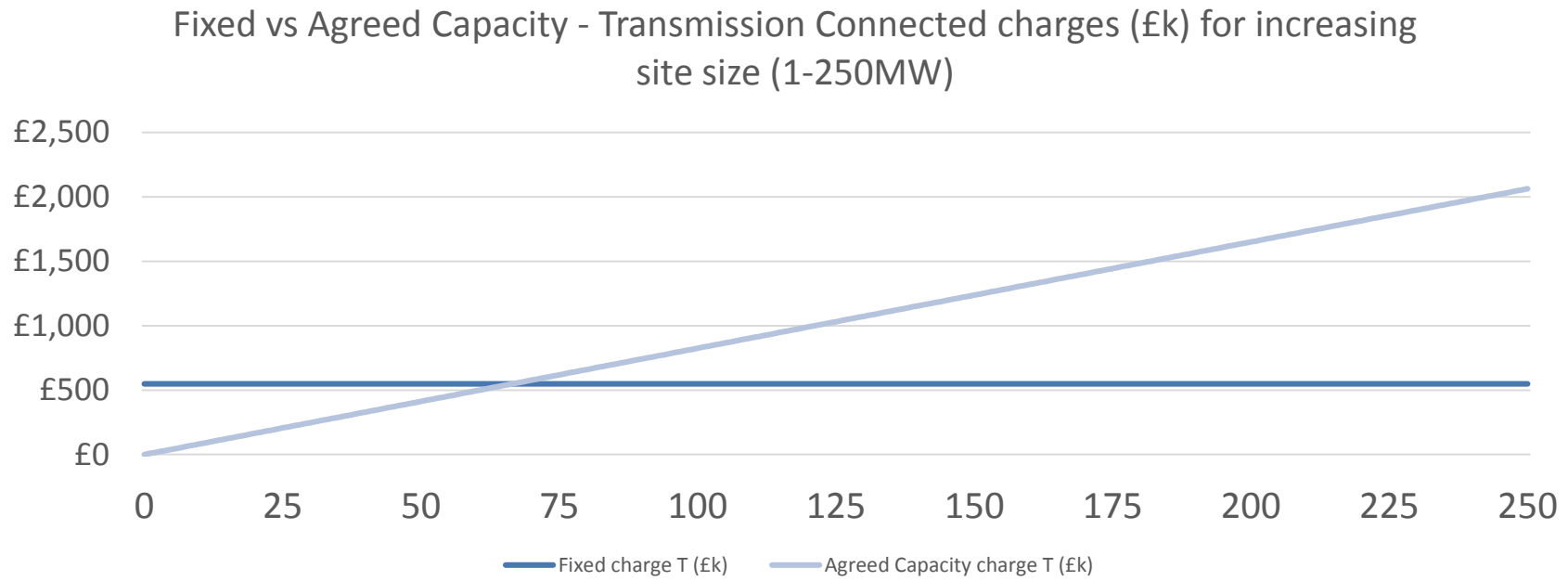
Impacts of leading options (North East, 2019/20)



- **Fixed charges** allocate more to non-domestic segments, **less** to domestic. Domestic charges for lowest consumers of electricity increase by around £20, and fall for other categories. Users currently managing their residual exposure currently will see increases. All users within a user class will pay same charge.

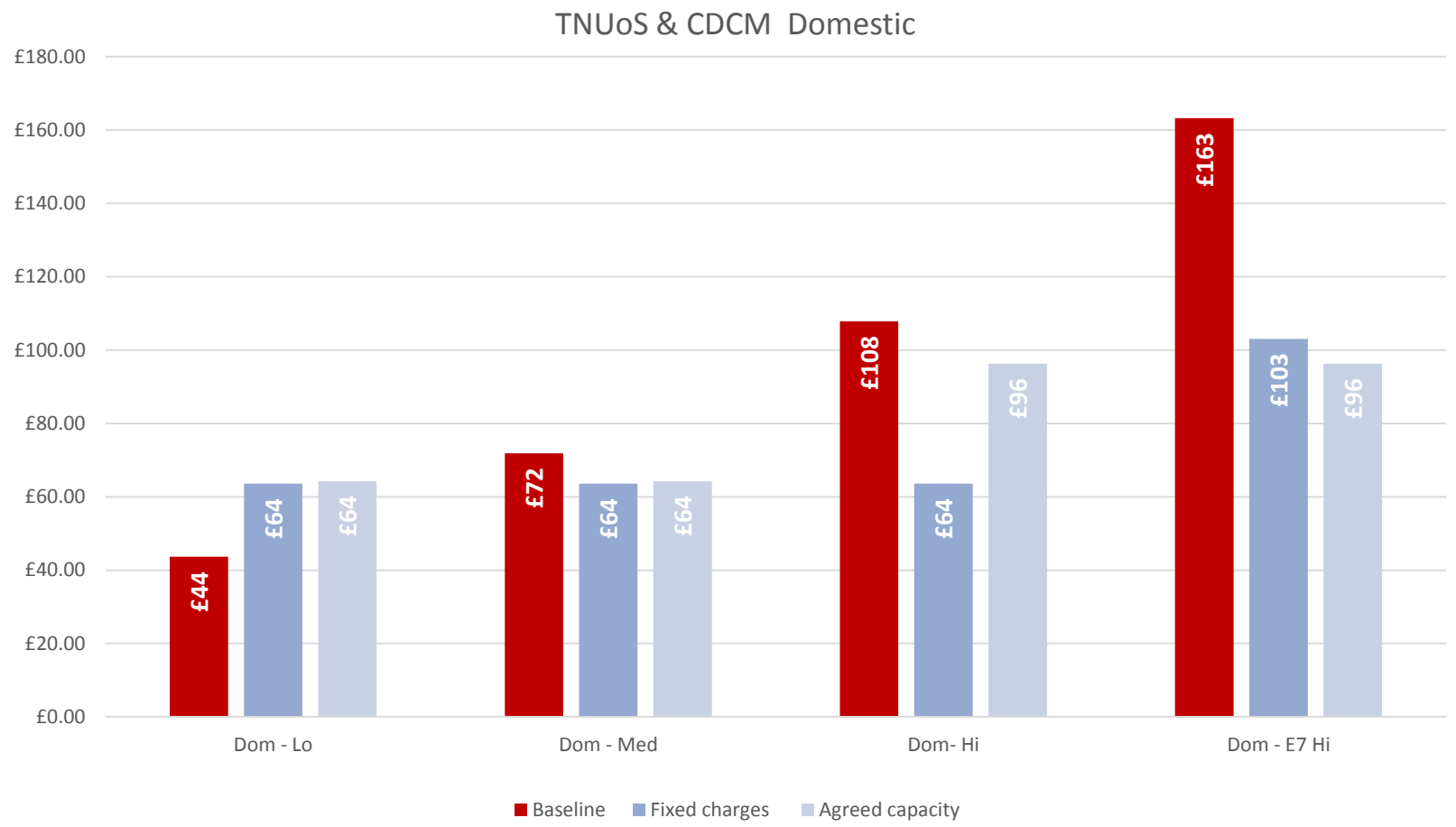
- **Agreed Capacity** charging allocates **less TNUoS** and slightly **more CDCM to domestic,** driven by assumption of domestic capacity. This moderately **increases charges for LV users. HV, EHV and T contributions all fall.** Domestic charges for the lowest consumers increase by around £20, and fall for other domestic groups. Users currently managing their residual exposure currently will see increases. Larger users pay higher charges.

Our leading options take different approaches to the size of charges paid by different users within a user class



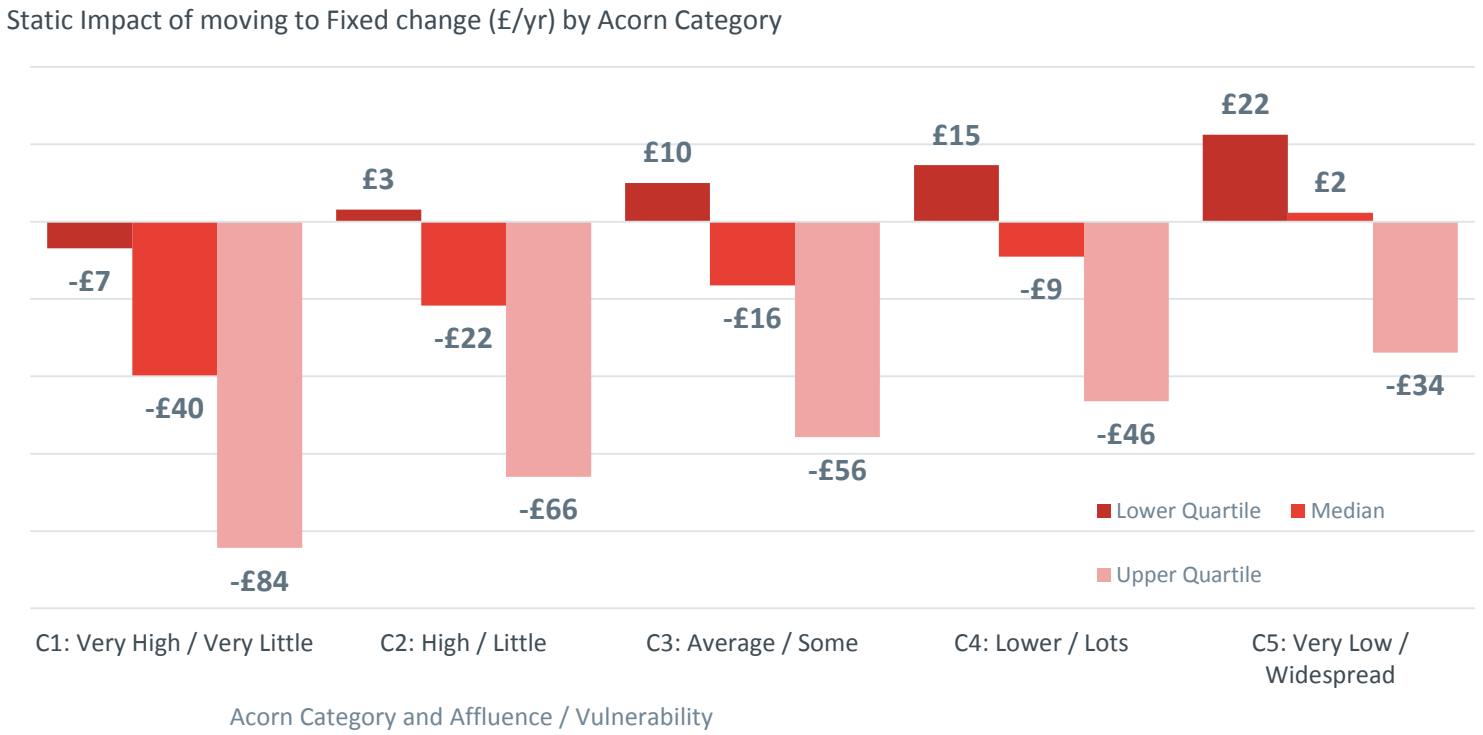
- **Fixed charges** - All users within a user class will pay same charge, set based on the *segment's* contribution to the volumes on the system.
- **Agreed Capacity -** User with agreed capacity holdings will pay based on the capacity they hold, so larger users will pay higher charges. Capacity charge reflects the *individual site's* share of capacity on the system.

Impacts of leading options on Domestic User Groups (North East, 2019/20)



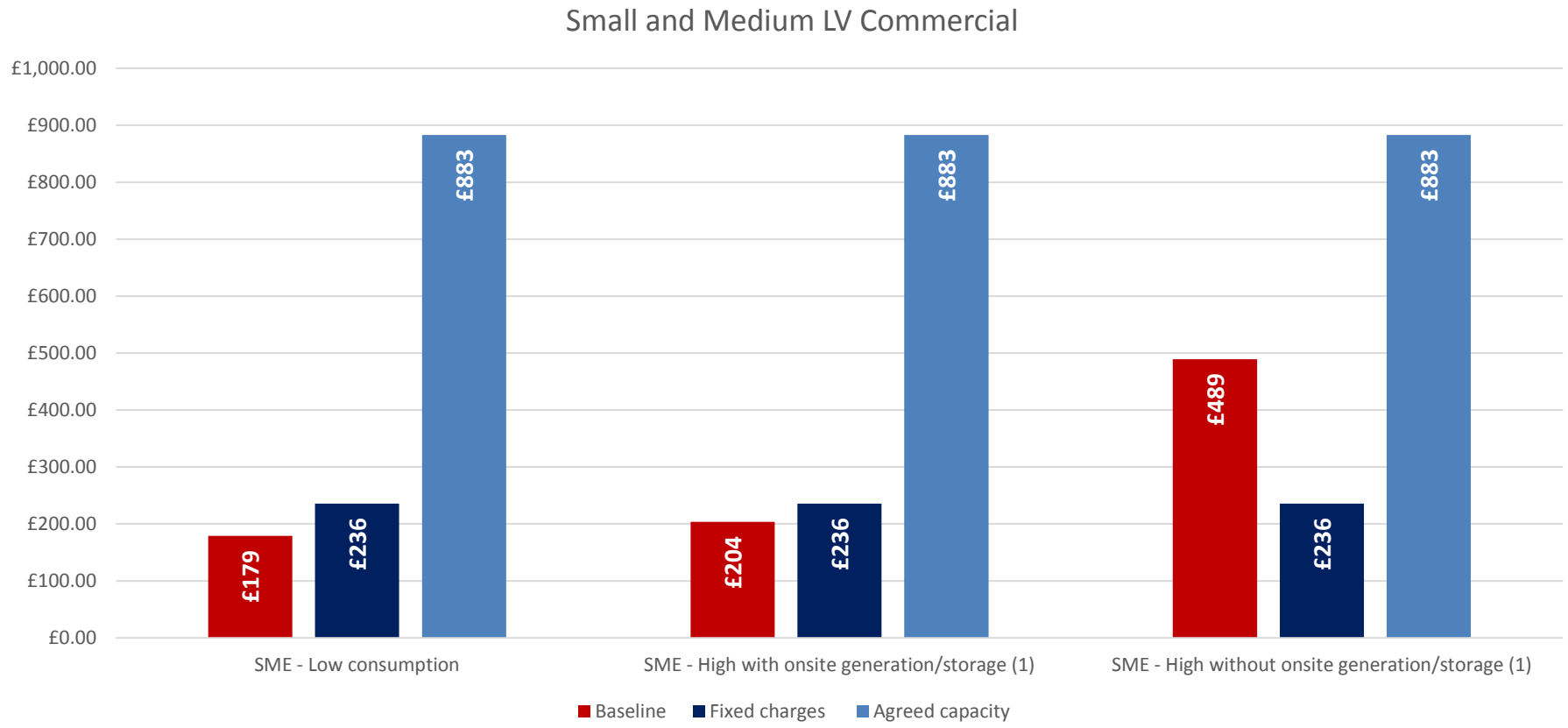
- Both of our leading options lead to **annual reductions in residual charges** of around **£8 for the median user**.
- Higher consuming users see reductions in their charges, and low consuming users will see increases.

Impact on vulnerable users



- Vulnerable consumers are present in most domestic consumptions groups. There is a large range of possible consumptions for vulnerable users, and so a range of bill impacts.
- Most vulnerable consumers will benefit from our leading option.

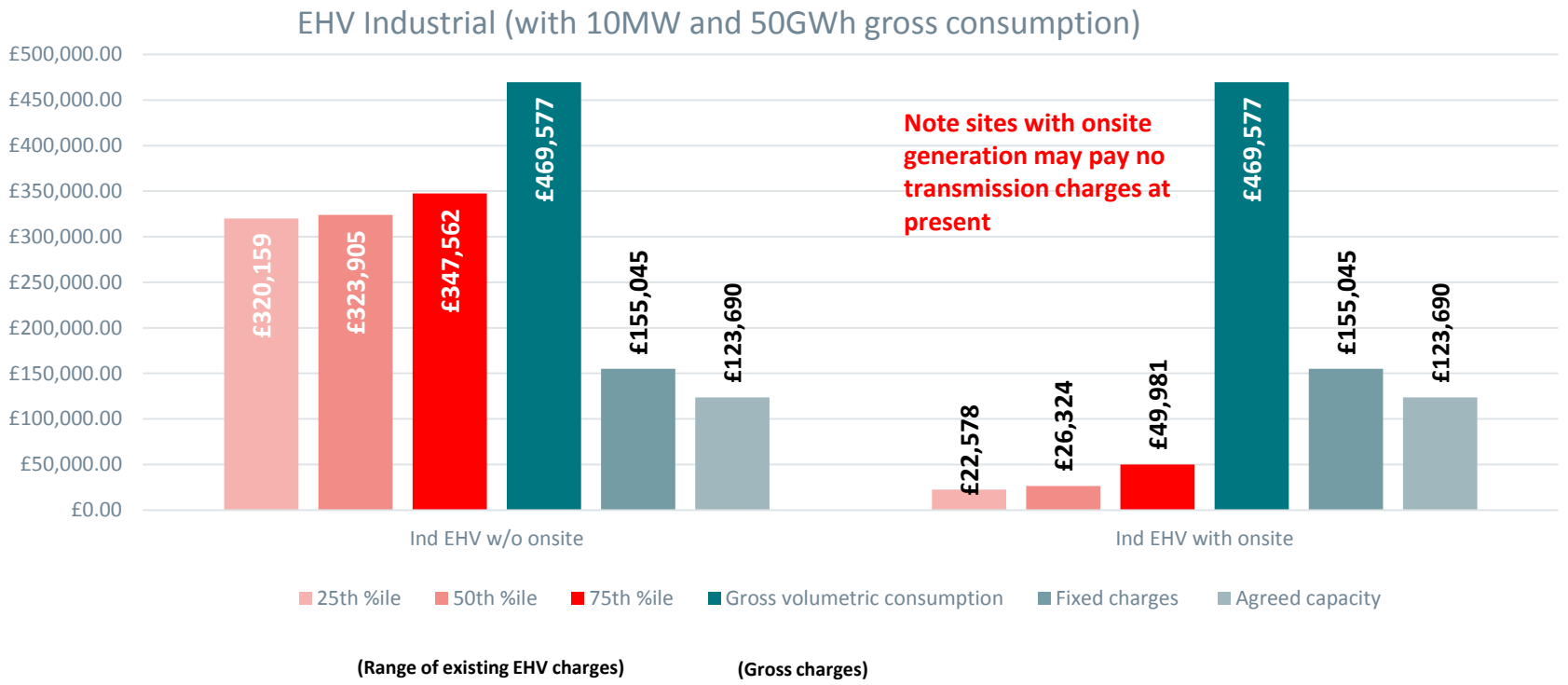
Impacts of leading refined options on Small and Medium LV Commercial (North East, 2019/20)



- Under a **fixed charge option,** all SMEs in the same LLFC will receive the same charge, meaning that **larger users will see reductions** and some users at the lower consuming end will **see moderate increases.**

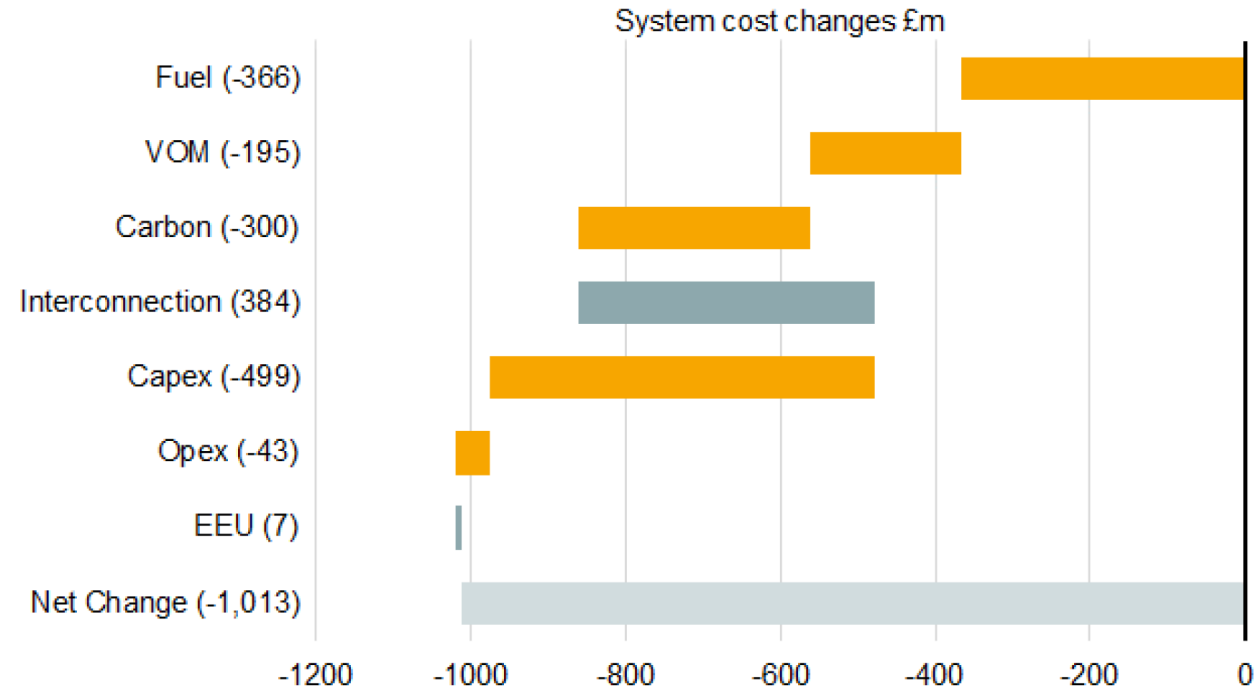
- Under an **agreed capacity option, some** users will face an **increase**. This is because these users will move from being charged on a volumetric basis on their own consumption, which may be similar to that of a household, to a Fixed Charge which reflects the average consumption within an SME Line Loss Factor Class, which is much higher.

Impacts of leading options on high-level segment contributions (North East, 2019/20)



- The degree of change seen by extra high voltage sites are dependent on their current charge.
- There is significant variation in charges due to location and whether the user manages their exposure to triad charges. For those who do not participate in triad management, both charging options may lead to significant reductions in charges.

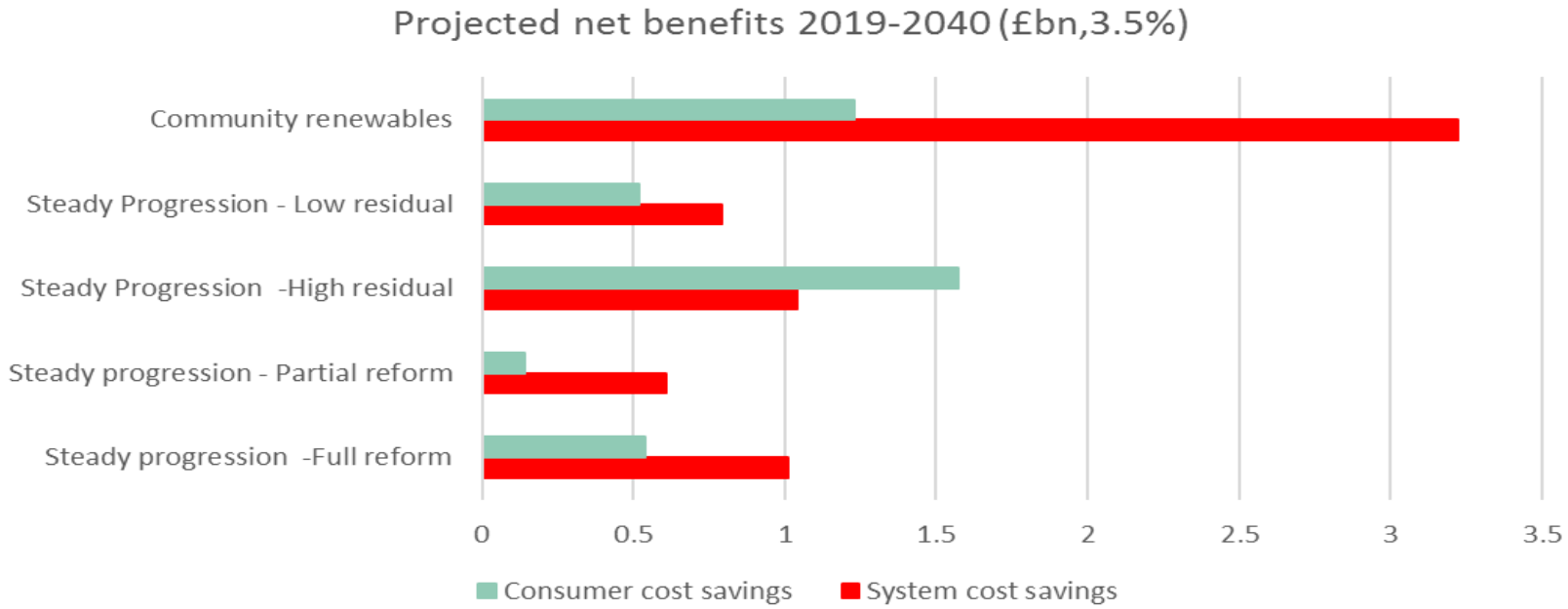
System benefits



Source: Frontier/LCP

- Overall our modelling shows that there is a **system cost saving** due to reduced fuel usage, CO_2 emissions, opex and capex spend.
- The fuel and carbon savings are significant and stem from the change in the technology mix that results from the scenario considered.
- Under Full Reform CCGT generation and Interconnector imports displace on-site gas reciprocating engines and gas CHP which no longer clear in the CM.

Wider systems modelling shows £bn of potential benefits to 2040



- Our modelling supports our principle-based assessment and indicates a strong long-term case for reform of residual charges

- Both leading options expected to yield:
  - System benefits between 2019 to 2040 in the range of **£0.8bn to £3.2bn** and
  - Consumer benefits in the range **of £0.5bn to £1.6bn**.

Other embedded benefits

Embedded Benefits (EB) are defined as:

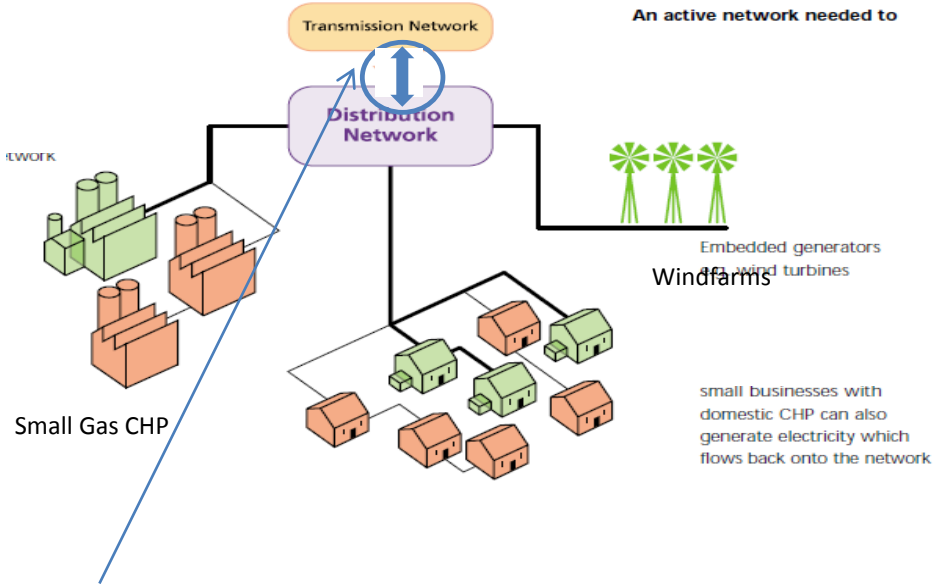
- the **treatment of 'Smaller Embedded Generators' (SEGs) as 'negative demand' in relation to transmission charges**, where:
  - **Smaller** means generators below 100 MW in size
  - ***Embedded* Generator** means a generator connected to the Distribution networks rather than Transmission
  - **Negative demand** means that output from SEG have historically been treated as reductions in demand (akin to warmer weather or energy efficiency) from the perspective of demand for electricity from the Transmission system
  - **Transmission charges** means Transmission Use of System (TNUoS) and Balancing System Use of System (BSUoS) charges

SEG is growing fast

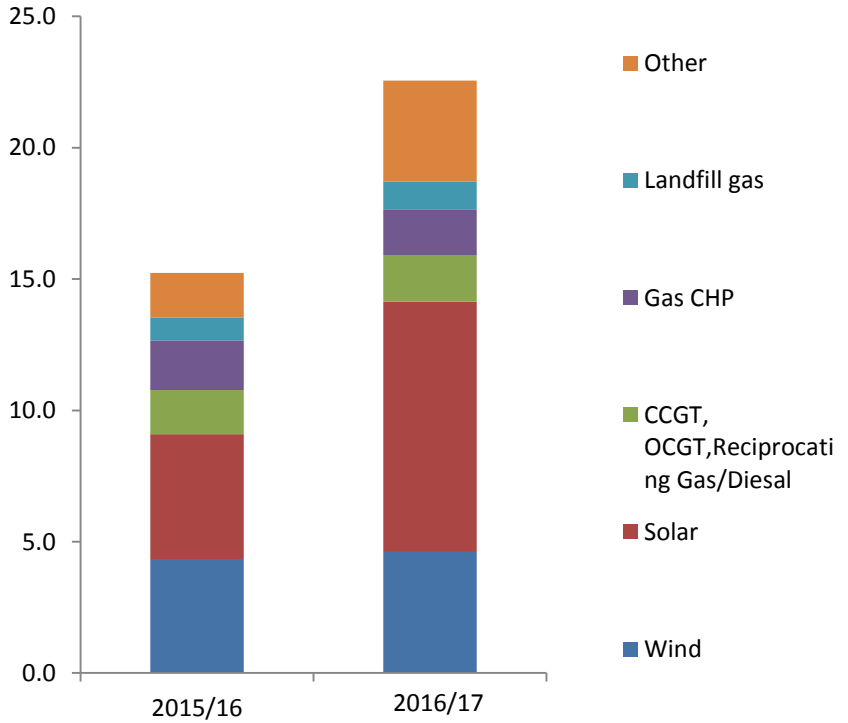
Suppliers are charged transmission charges (TNUoS) and system operation charges (BSUoS) based on their **NET DEMAND –** this leads to Embedded Benefits

Embedded Generation (EG) is increasing fast. Grid estimate that there is 25GW of EG connected. Both renewable and gas & diesel plant.

Last year it contributed 4-5GW (c.10%) towards peak demand



NET DEMAND
Demand measured here is net demand. National Grid measure demand here to charge transmission charges



- There are a range of embedded benefits - we removed the largest distortion, but others remain.

Issue	Description	Size
Transmission Demand Residual	Smaller embedded generation can receive these payments from suppliers and National Grid. On-site generators can receive the same payments when exporting and can save demand users the same charges	£47/kW *£350m/year cost to consumers and rising*
Transmission Generation Residual	Smaller embedded generation does not pay or receive the generation residual. Neither does on-site generation.	-£2.34/kW Payment to transmission generators increase size of Transmission Demand Residual and distorts wholesale markets
BSUoS charges: payments from suppliers	The demand BSUoS charge is based on a supplier's net consumption from the transmission system, so smaller embedded generation can offset demand and receive payments for reducing charges for suppliers. On-site generators can receive the same payments when exporting and can save demand users the same charges	£2-£2.50/MWh *£100m-£150m/year additional to consumers*
BSUoS charges: avoided charges	Smaller embedded generation currently does not pay generation BSUoS charges	£2-£2.50/MWh *£100m-£150m/year additional to consumers*

Two reform options for Embedded Benefits

We have considered two reform options for these Embedded Benefits:

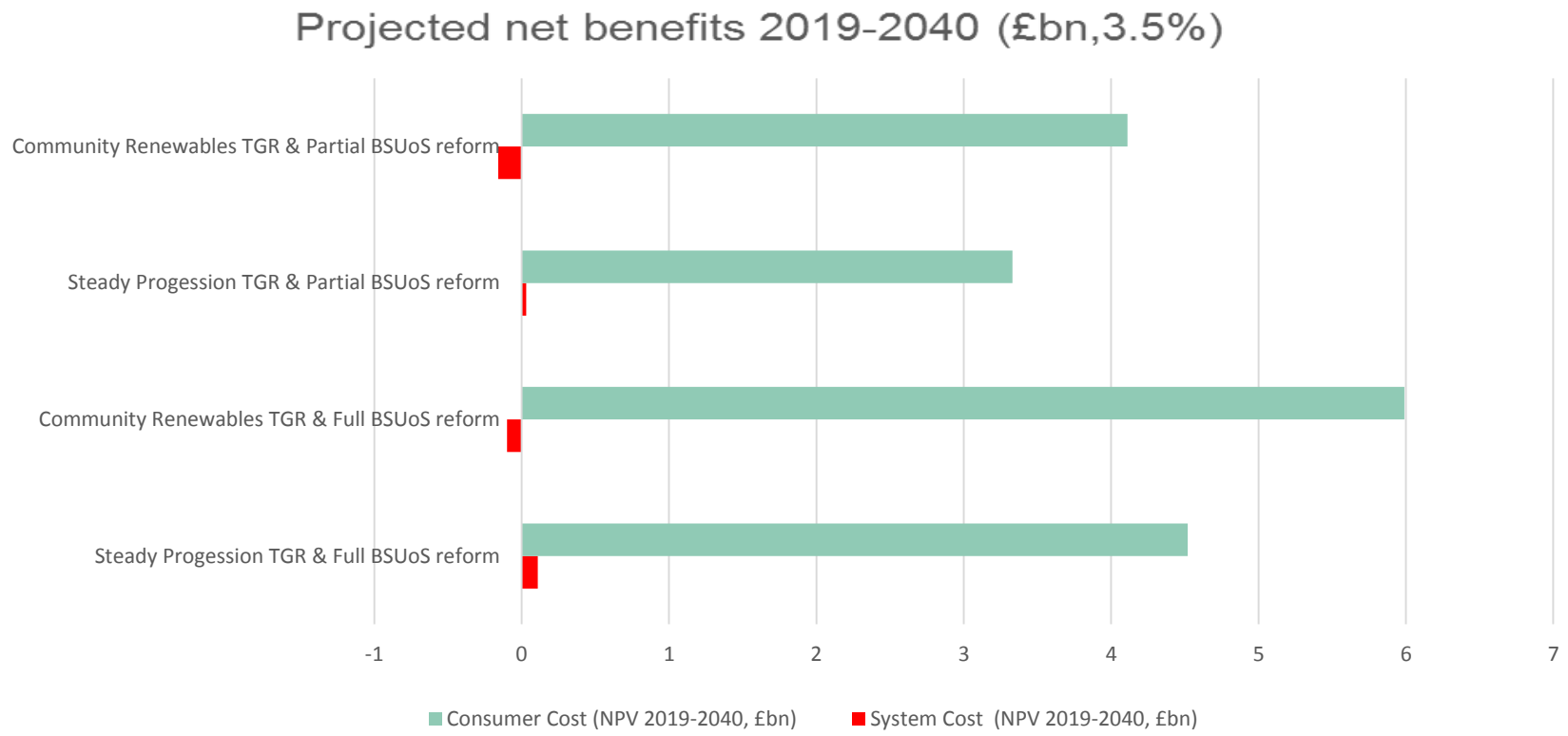
a) **TGR & partial BSUoS reform**: TGR reform and removing the ability of smaller embedded generators to receive payments from reducing suppliers' contributions to BSUoS charges.

b) **TGR & full BSUoS reform**: TGR reform, removing the BSUoS payments, and requiring smaller embedded generators to pay BSUoS charges.

Depending upon the outcome of our consultation, we propose to make the following reforms:

- Charge suppliers BSUoS using gross demand at GSP, having the effect of removing the BSUoS Embedded Benefit. Implemented in either April 2020 or April 2021.
- Charge BSUoS Charges to Small Embedded Generation, implemented in either April 2020 or April 2021. We propose to direct the ESO to raise the relevant CUSC modification. This will be dependent on the TGR & Full BSUoS reform continuing to be our preferred option.
- Set the Transmission Generation Residual to zero, subject to maintaining compliance with 838/2010.
- Launch a Statutory Consultation to extend the Small Generator Discount from the current end date of 31 March 2019 to a revised end date of 31 March 2021, with the intention that this will be set to zero once the changes set out above are implemented.

Projected net benefits 2019-2040

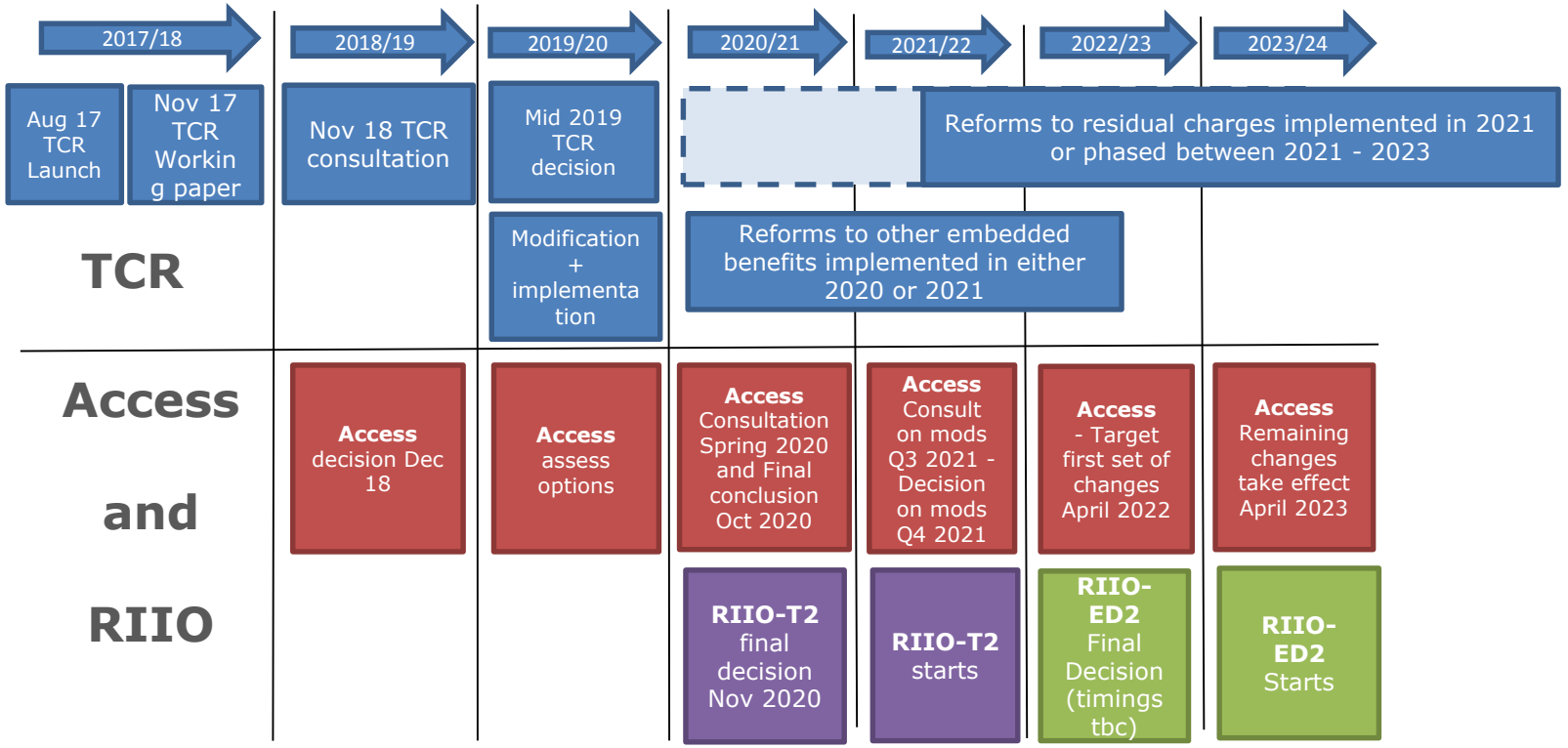


- The wider system analysis indicates that both options are broadly neutral with regards to system costs.
- TGR & Full BSUoS reform leads to a greater consumer benefit, which is consistent our assessment that it removes more harmful distortions.
- On this basis we currently propose TGR & Full BSUoS reform, but are consulting on both options, and will consider responses alongside the findings of the BSUoS charges task force.

Next steps

TCR and interaction with other Ofgem projects

We are reviewing the charging framework holistically; working closely with the Electricity Network Access and RIIO project teams to ensure a consistent approach is taken to the different reforms underway across the energy system.



- Our consultation period is now open and we invite you to respond to our minded to position consultation by 4 February here.

- If you have any future queries please contact TCR@ofgem.gov.uk.

Next steps

- Consultation responses submitted to Ofgem here – **closes 4 February**.
- The consultation will be discussed at the next Charging Futures Forum on 15 January 2019
- More information can be found at www.chargingfutures.com for:
  - Summary notes
  - Podcasts
  - Recorded webinars
  - Consultation document

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Quick poll

Q & A

Please use the chat box to ask your questions

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