Charging Futures

Reforming electricity charging together

Targeted Charging Review: Significant Code Review

29 August 2018

What is Charging Futures?

INDUSTRY CODE GOVERNANCE

CUSC
Connection and Use of System Code (for transmission)

Code admin > **National Grid**

DCUSA
Distribution Connection and Use of System Agreement

Code admin > **Electralink**

BSC
Balancing and Settlement Code

Code admin > **Elexon**

Quick poll

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Targeted Charging Review: Significant Code Review, a webinar

Update on our analytical work

Andrew Self, Andrew Malley Ofgem

29 August 2018

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Objectives of this webinar

- Provide a project update on the Targeted Charging Review: Significant Code Review
- Provide an update and gather stakeholder views on the static analysis of the 'vanilla charging options', which set out illustrative differences between fixed, capacity and volumetric options
- Provide an update and gather stakeholder views on the potential policy refinements to the vanilla options

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Recap - Why reform residual network charging framework?

We think that residual network charges should be reviewed in order to reduce harmful distortions, and so that all network users pays a fair share.

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.**

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Recap: The TCR framework

Our Principles	Our work	Initial view
Reducing Harmful Distortions	Who should pay residual charges?	✓ Demand ✗ Generation
Practical Considerations	How should residual charges be recovered?	✓ Gross ✓ Fixed ✓ Ex ante ✓ Ex post ✗ Net volumetric ✗ Net import and export ✗ Peak import or export
Fairness	How should that mechanism be implemented?	? Triad ? Individual peaks ? Ratchet charges ? hybrids ? ….

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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; and
  - developed assessment criteria for proportionality and practical considerations.

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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

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Vanilla charging options static analysis

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Important caveats

This presentation is intended to provide an update on our quantitative assessment of some possible 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.

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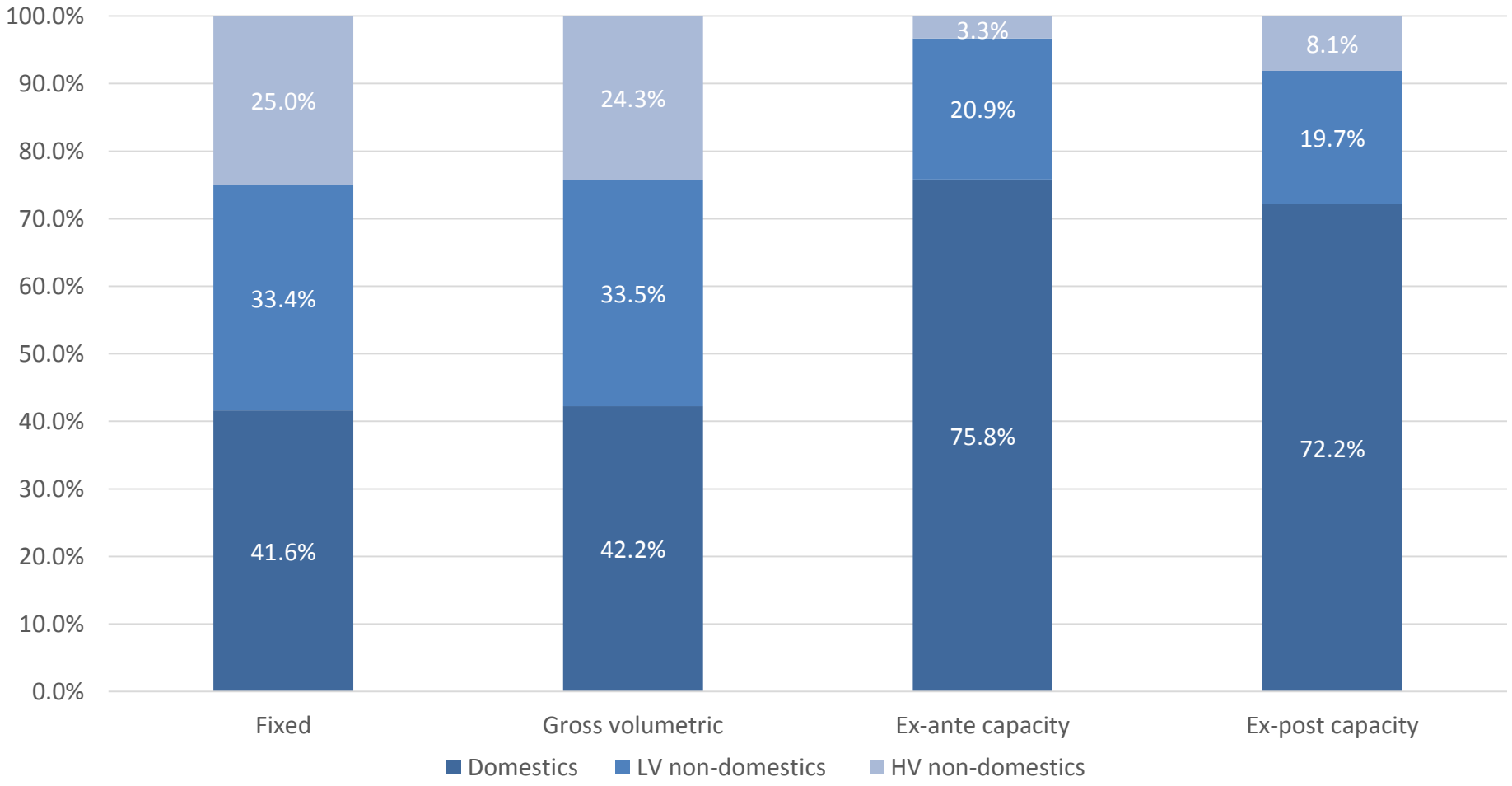
CDCM - Residual revenue recovery by segment for vanilla options (all DNO areas)



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.

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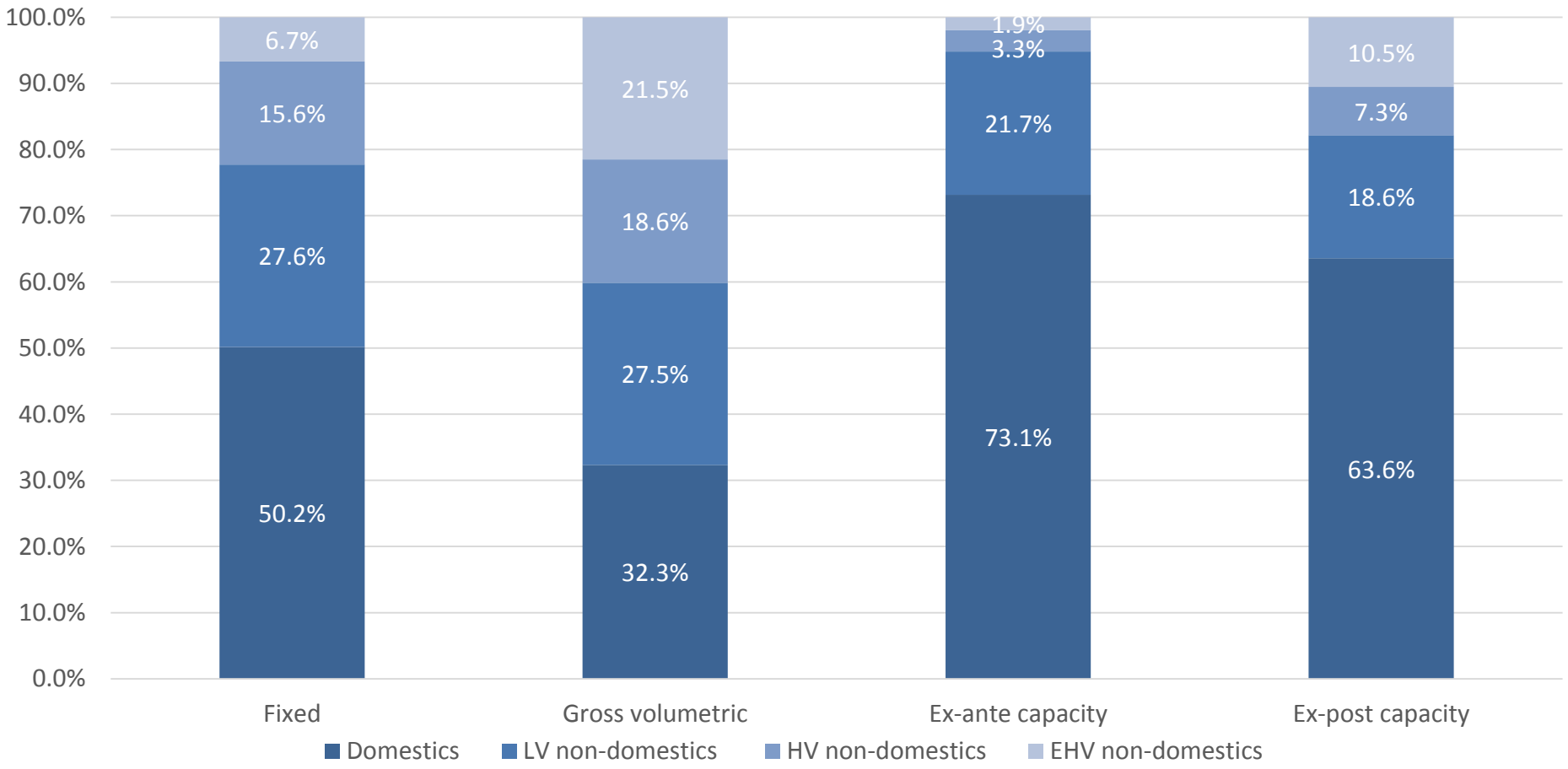
TNUoS – Residual revenue recovery by segment for vanilla options (all DNO areas)



- EHV includes Transmission-connected and EHV demand
- 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
- NHH residual is not explicitly calculated as part of TNUoS charging methodology. Residuals derived by National Grid are therefore for illustrative purposes only

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Illustrative Unit rates - Northeast area and Median DNO

Ex-post capacity charge	£/kWh charge	
	Northeast	Median
TNUoS Charge (£/kWh)	26.48	26.48
CDCM Charge (£/kWh)	27.74	26.93
EDCM Charge (£/kWh)	13.86	14.04
Charge is based on HH period with highest annual kWh consumption		

Ex-ante capacity charge	£/kVA charge	
	Northeast	Median
TNUoS Charge (£/kVA)	3.78	3.78
CDCM Charge (£/kVA)	3.43	3.41
EDCM Charge (£/kVA)	4.14	4.23

Gross volumetric charge	p/kWh charge	
	Northeast	Median
TNUoS Charge (p/kWh)	0.83	0.83
CDCM Charge (p/kWh)	1.02	0.96
EDCM Charge (p/kWh)	0.10	0.13

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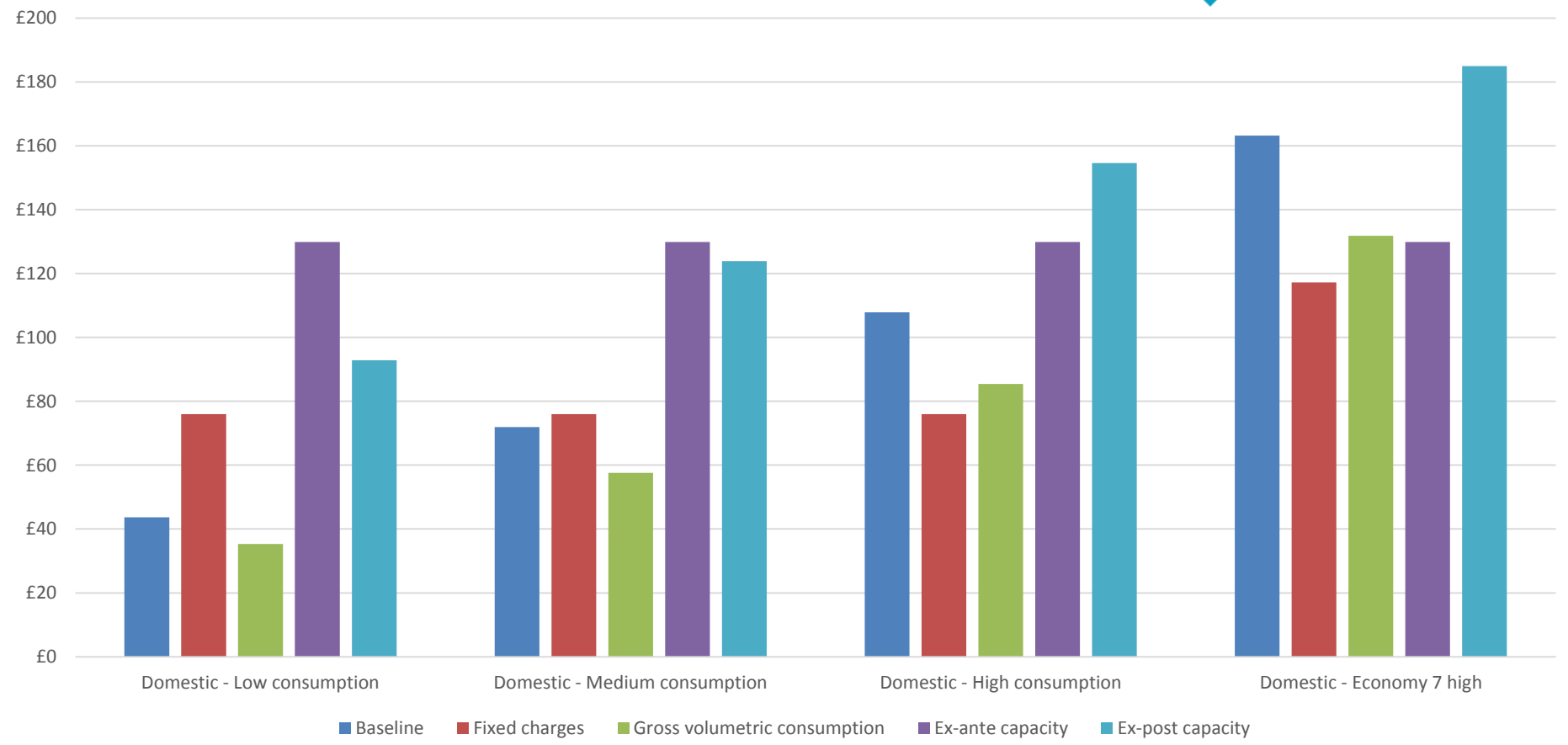
Domestic User Groups (North East) - Annual residual charges



- 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

User group	Domestic - Low consumption	Domestic - Medium consumption	Domestic - High consumption	Domestic - Economy 7
Annual net kWh / gross kWh	1,900 /1,900	3,100 / 3,100	4,600 /4,600	7,100 / 7,100
Connected capacity kVA	18	18	18	18

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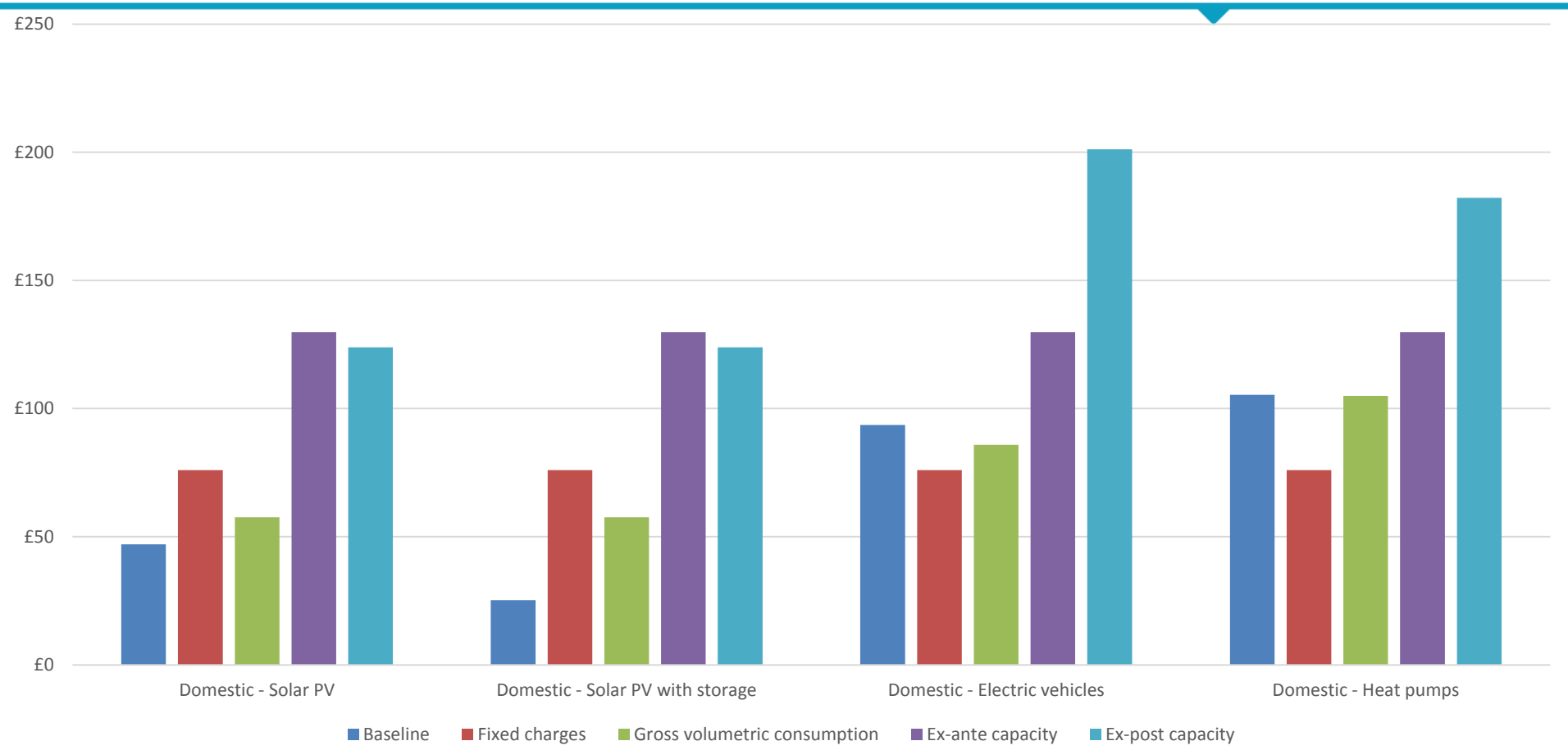
Domestic User Groups (North East) - Annual residual charges



- 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

User group	Domestic - Solar PV	Domestic - Solar PV with storage	Domestic - EVs	Domestic - HP
Annual net kWh / gross kWh	2,204 / 3,100	1,918 / 3,100	4,622 / 4,622	5,651 / 5,651
Connected capacity kVA	18	18	18	18

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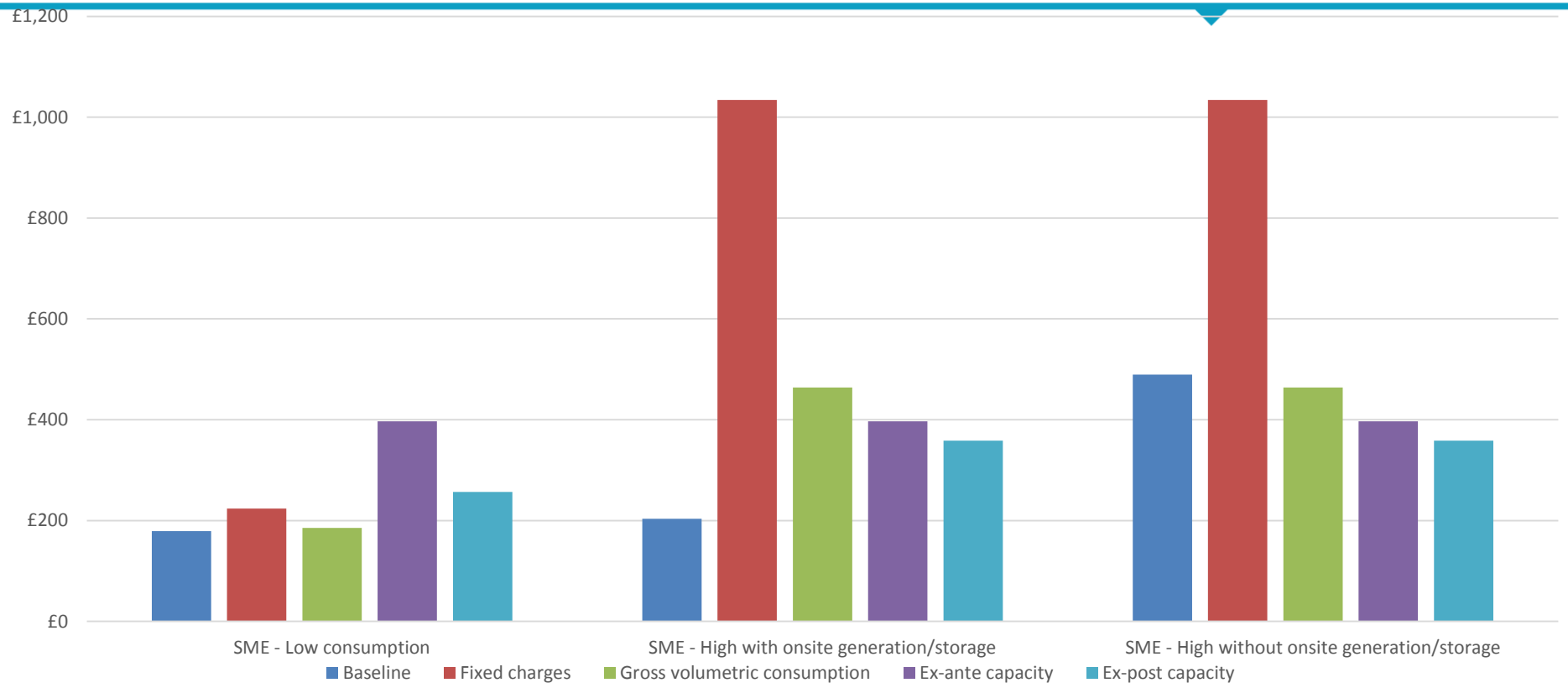
Commercial User Groups (North East) - Annual residual charges



- 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

User group	Commercial - Low consumption	Commercial - High with onsite generation/storage	Commercial - High without onsite generation/storage
Annual net kWh / gross kWh	10,000 /10,000	15,470 / 25,000	25,000 /25,000
Connected capacity kVA	55	55	55

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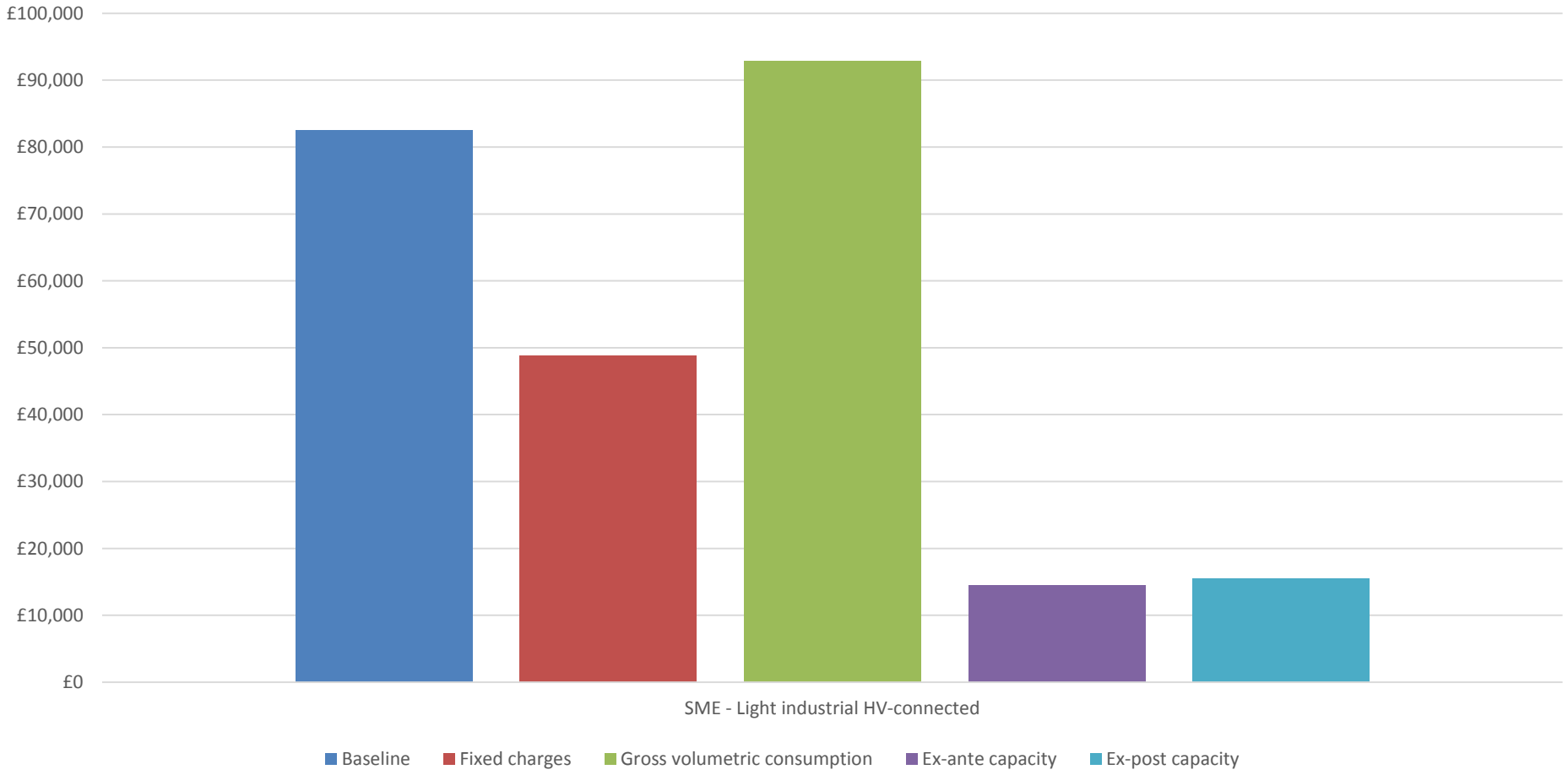
Light Industrial User Groups (North East) Annual residual charges



- Residual based on TNUoS and CDCM residuals

User group	Commercial - Light industrial HV-connected
Annual net kWh / gross kWh	5,000,000 / 5,000,000
Connected capacity kVA	2,000

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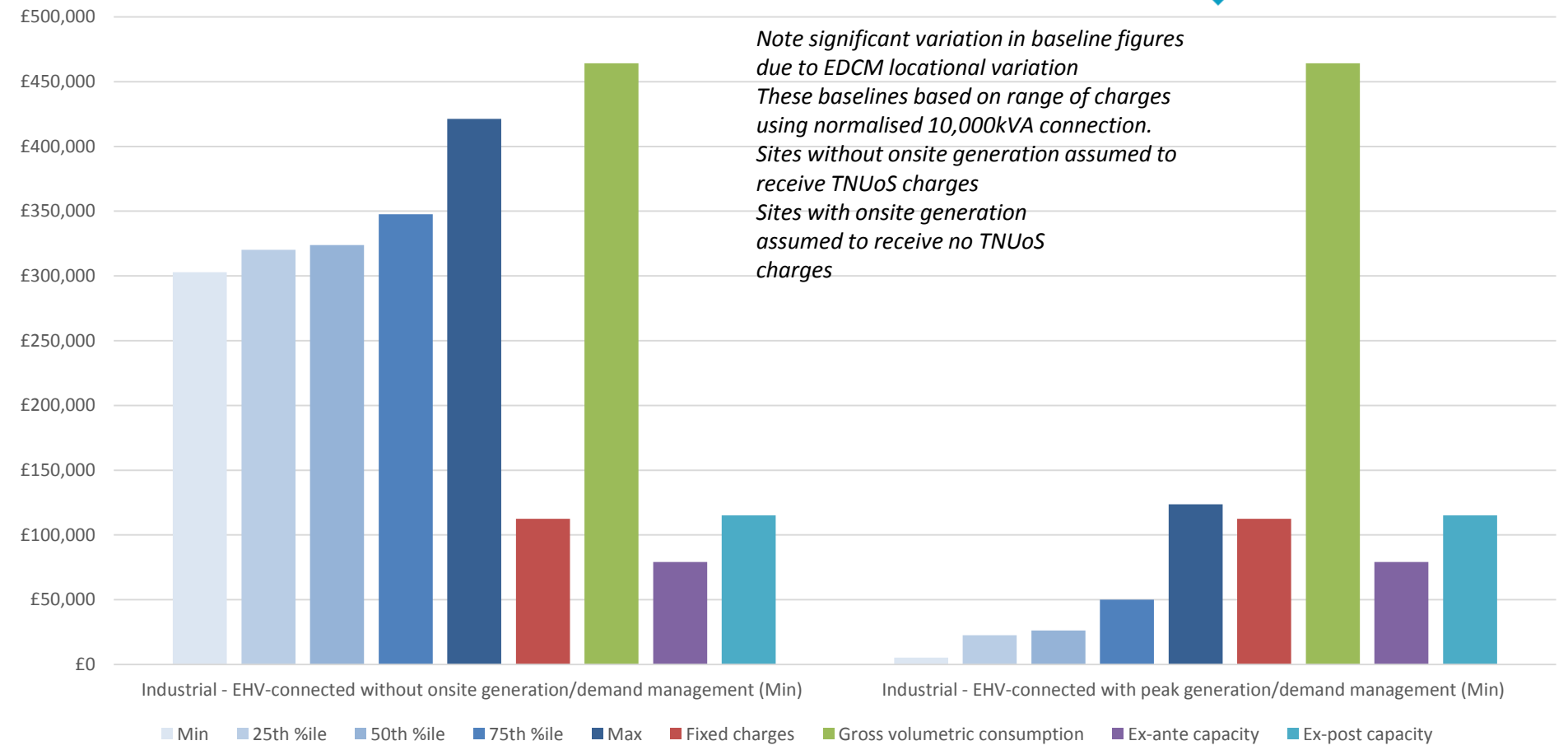
EHV Min, Q1, Q2, Q3, Max (North East) - Annual residual charges



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

User group	Industrial - EHV-connected without onsite generation/demand management	Industrial - EHV-connected with peak generation/demand management
Annual net kWh / gross kWh	50,000,000 / 50,000,000	0 / 50,000,000
Connected capacity kVA	10,000	10,000

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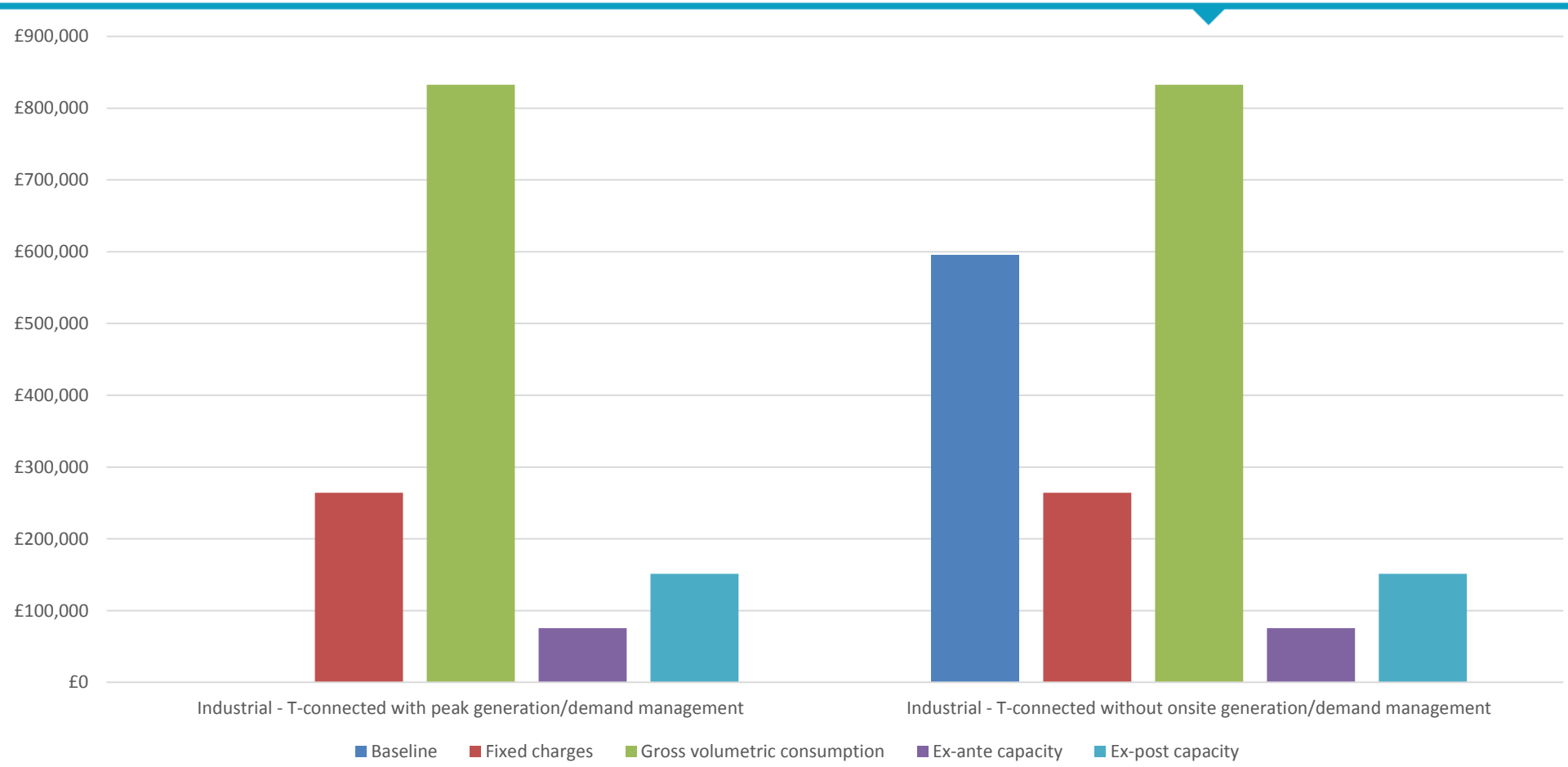
Transmission User Groups (North East) - Annual residual charges



- Residual based on TNUoS residual

User group	T-connected with peak generation/demand management	T-connected without onsite generation/demand management
Annual net kWh / gross kWh	0 / 100,000,000	100,000,000 / 100,000,000
Connected capacity kVA	20,000	20,000

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Key points - vanilla options

Charge	Key Challenges	Possible remedies
Fixed	▪ Disconnection only way to reduce charge ▪ Fairness concerns if same charge for significantly different users	▪ Hybrids with variable element ▪ Greater numbers of user bands
Gross volumetric	▪ Data collection and metering ▪ Complexity	▪ Restrictions to large users only
Ex-ante capacity	▪ Load reduction incentive ▪ Data deficiencies for some users ▪ Fairness concerns if same charge for different users	▪ Hybrids with variable element ▪ Deemed levels for data deficient users
Ex-post capacity	▪ Load reduction incentive ▪ Residual influences operations ▪ Metering capability	▪ Hybrids with fixed element ▪ Deemed levels for data deficient users

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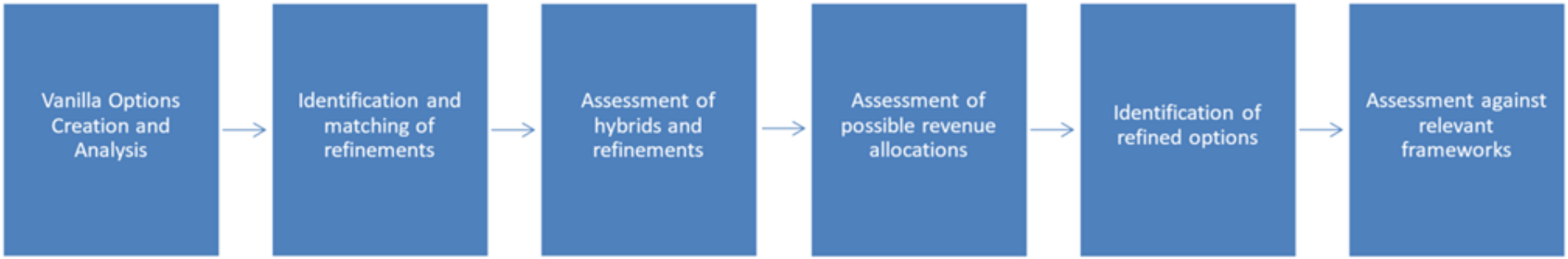
We identified four "Vanilla" options that were simple, straightforward charges that were designed to:

- Give a reasonable insight into the impacts of a simple charge of that type on revenue redistribution, charge size, and possible behavioural impacts
- Provide a starting point for a more refined charging methodology that could mitigate shortfalls of individual charges
- Allow us to explore more focused options to begin with



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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

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We want to receive views on potential option refinements and implementation options and would like to hear your views on any areas of this presentation, and also on the below questions:

- Would you support multi part / hybrid charges?
- Would you support charges that were predominately fixed or ex-ante capacity based with a smaller variable (ex-post or kWh) element?
- Would you be supportive of transitional arrangements for users, and if so, what type of arrangements?
- Why?

Please feel free to send your thoughts on these or other issues to TCR@Ofgem.gov.uk

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Next steps

- We plan to publish a minded to decision later in the year.
- 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

Quick poll

Q & A

Please use the chat box to ask your questions

Contact:

TCR@ofgem.gov.uk

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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.