

Targeted Charging Review Significant Code Review

Andrew Self, Head of TCR, Ofgem

Aim of this session

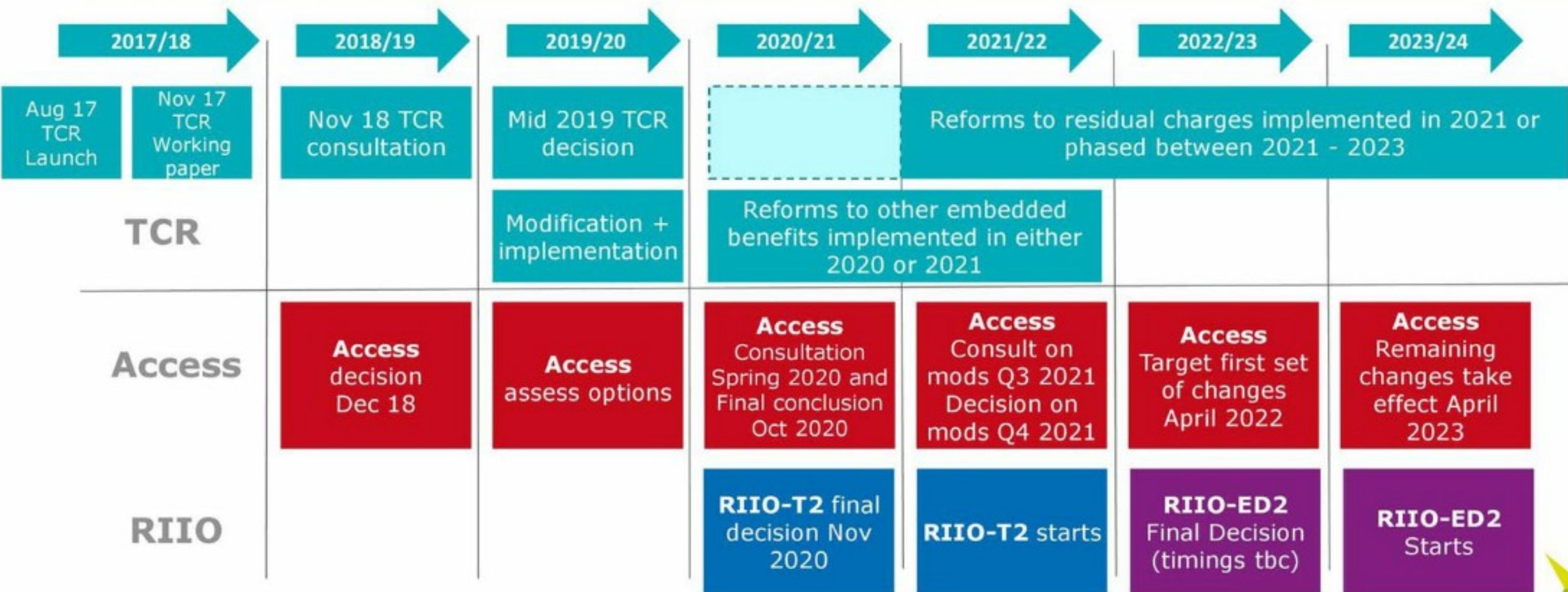
- Set out the objectives of the TCR and the links to other projects
- To present our draft findings and ensure our proposed policy positions are understood ahead of submitting responses to our consultation
- Listen to your feedback and early views on our proposals

This is a consultation and is not a final decision.

Our consultation closes on 4 February and we invite all stakeholders to submit responses.

Reminder: TCR and interaction with other Ofgem projects

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



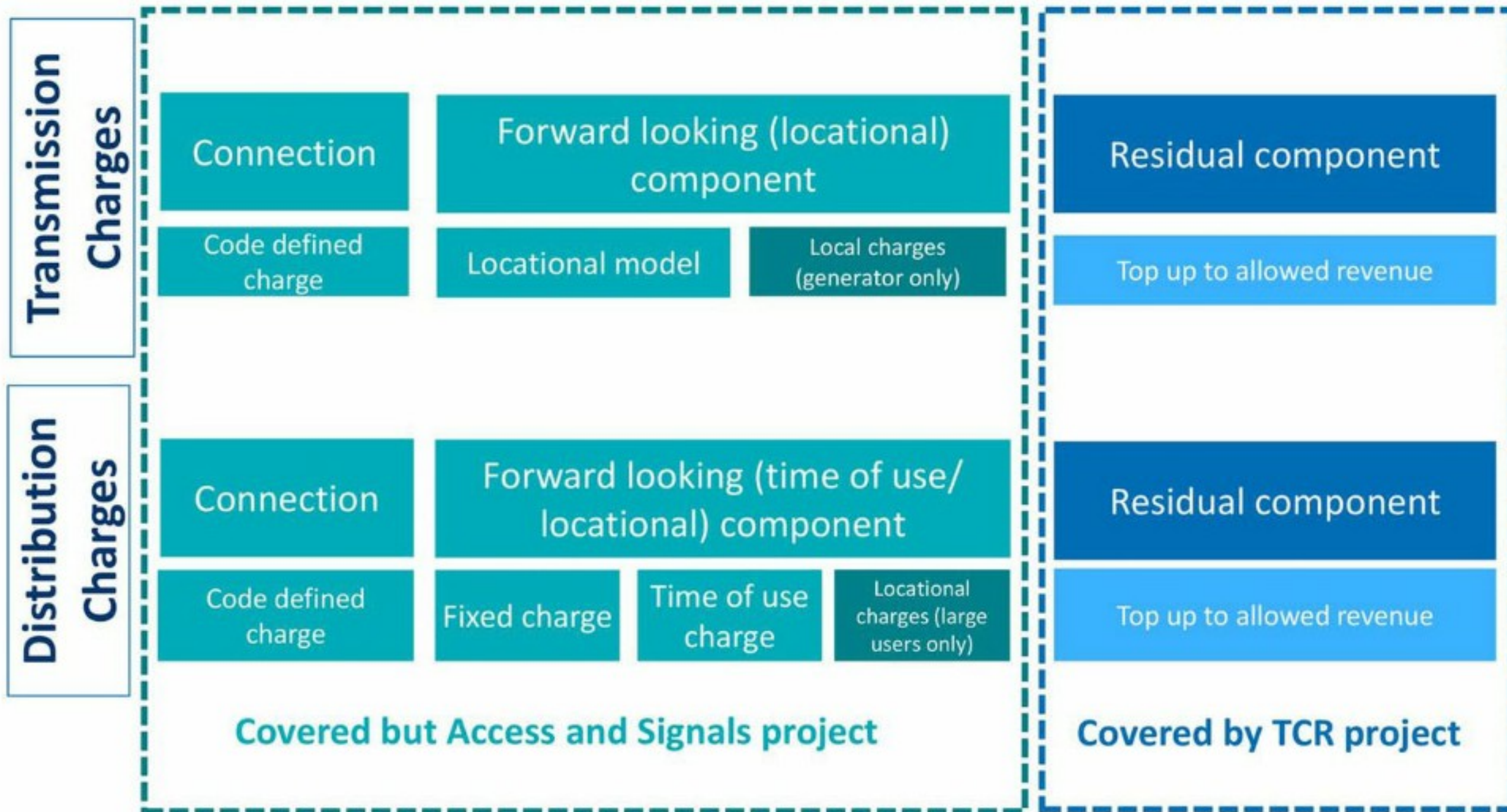


Reminder: what is the TCR

- It aims to reduce the harmful distortions caused by the current charging arrangements and ensure residual charges are fairly distributed.
- Three principles have guided our work:
 - a) Reducing harmful distortions
 - b) Fairness
 - c) Proportionality and practical considerations.
- The TCR has two key areas of proposed reform:
 - Residual network charges
 - Other embedded benefits



Reminder: charging components



Targeted Charging Review

No understanding

How well do you currently understand the proposals in our TCR consultation?

6.8

Detailed understanding

➤ Reminder: why reform residual the network charging framework?

What is the problem?

- The current charging framework is designed for a system with very different characteristics than today
- The rapid pace of changes in energy mean that the issues are likely to become worse over time
- Ofgem is therefore taking action to address this in the interests of current and future consumers as a whole.

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



Reminder: why reform residual the network charging framework?

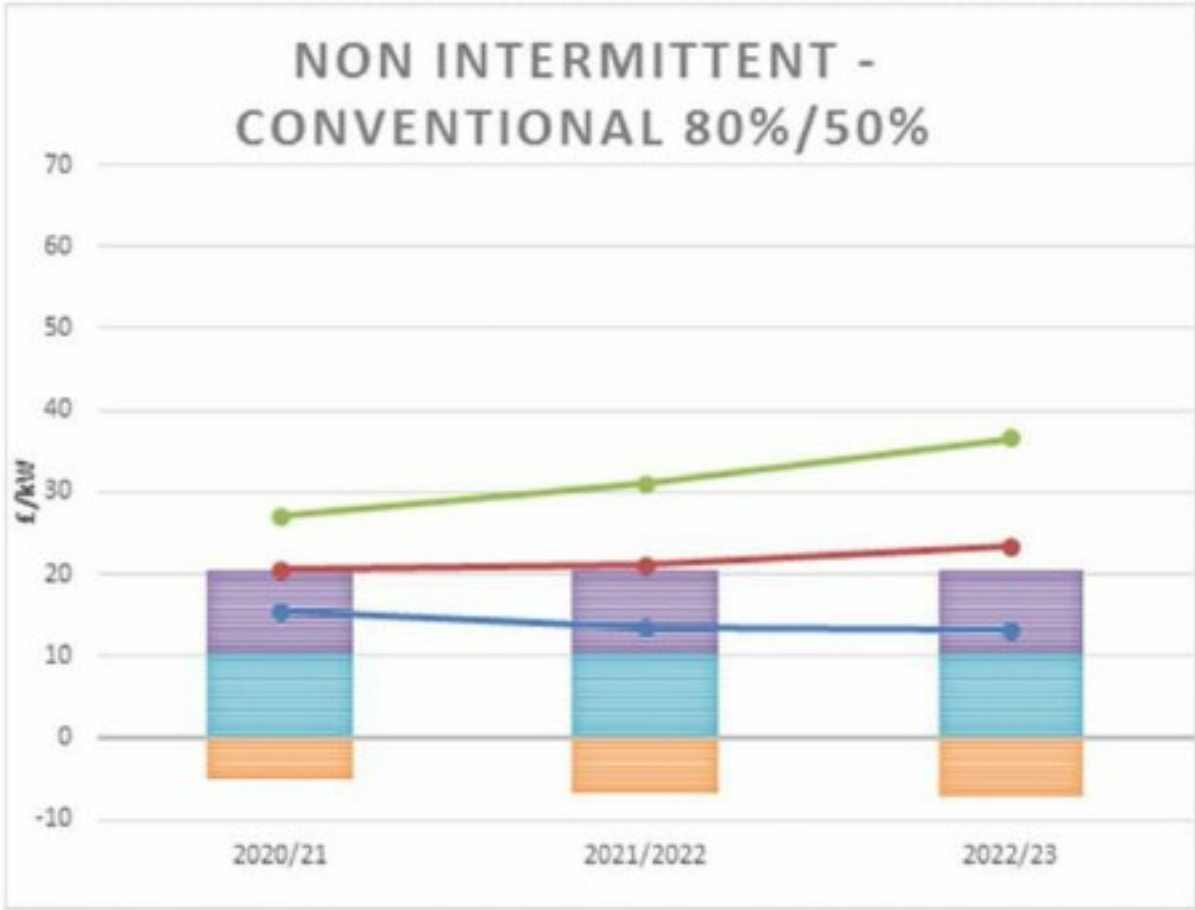
Under the current system, we believe:

- 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.

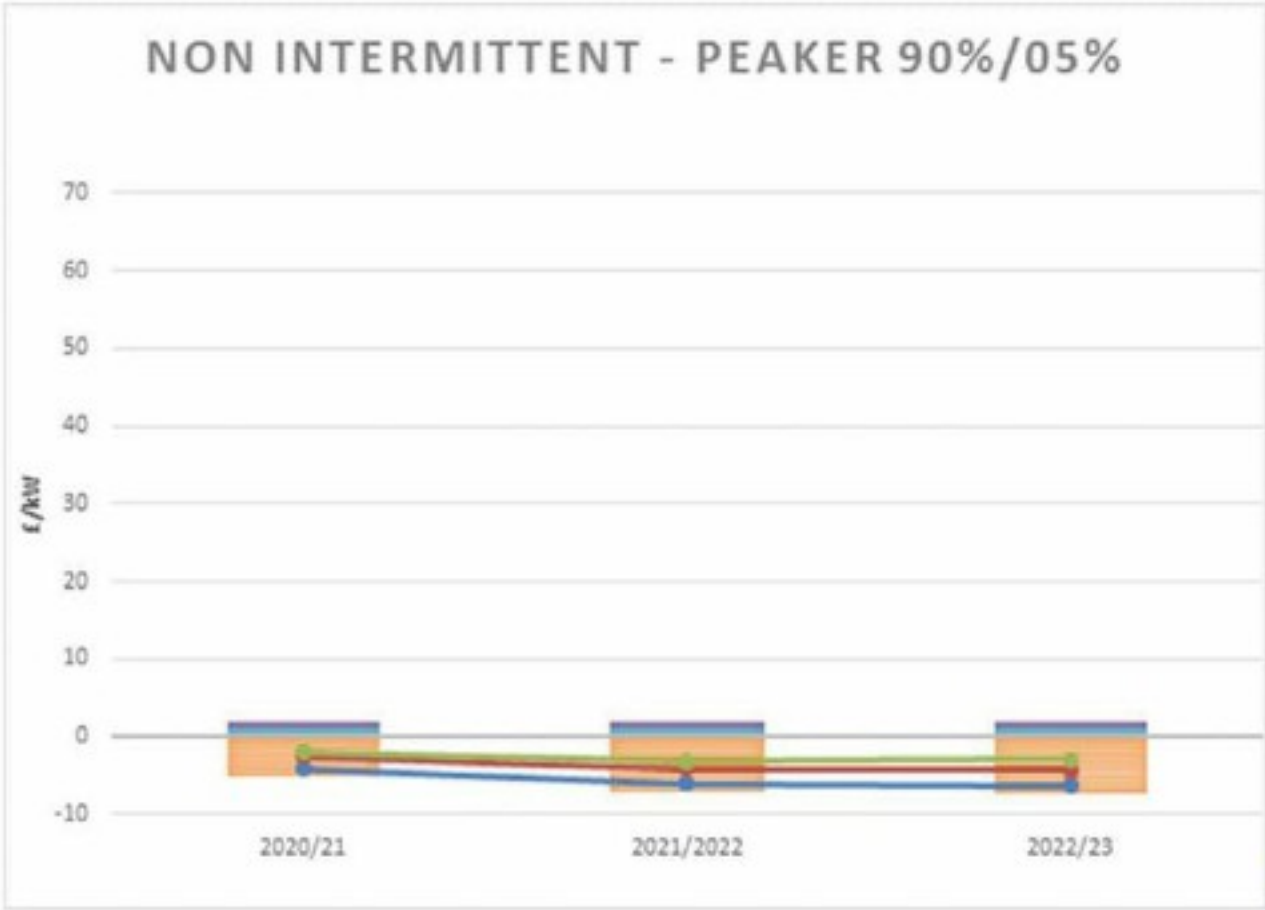
Reminder: why embedded benefits require reform?

We think 'embedded benefits' are impacting various markets:

- Wholesale price and dispatch
- Capacity Market (CM)
- Contracts for Difference (CfDs)
- Inefficient investment in generation capacity
- Ancillary services
- Directly increased consumer costs



■ BSUoS payment
■ Generation residual
—●— Total - Rising to £3.50/MWh (straight line)

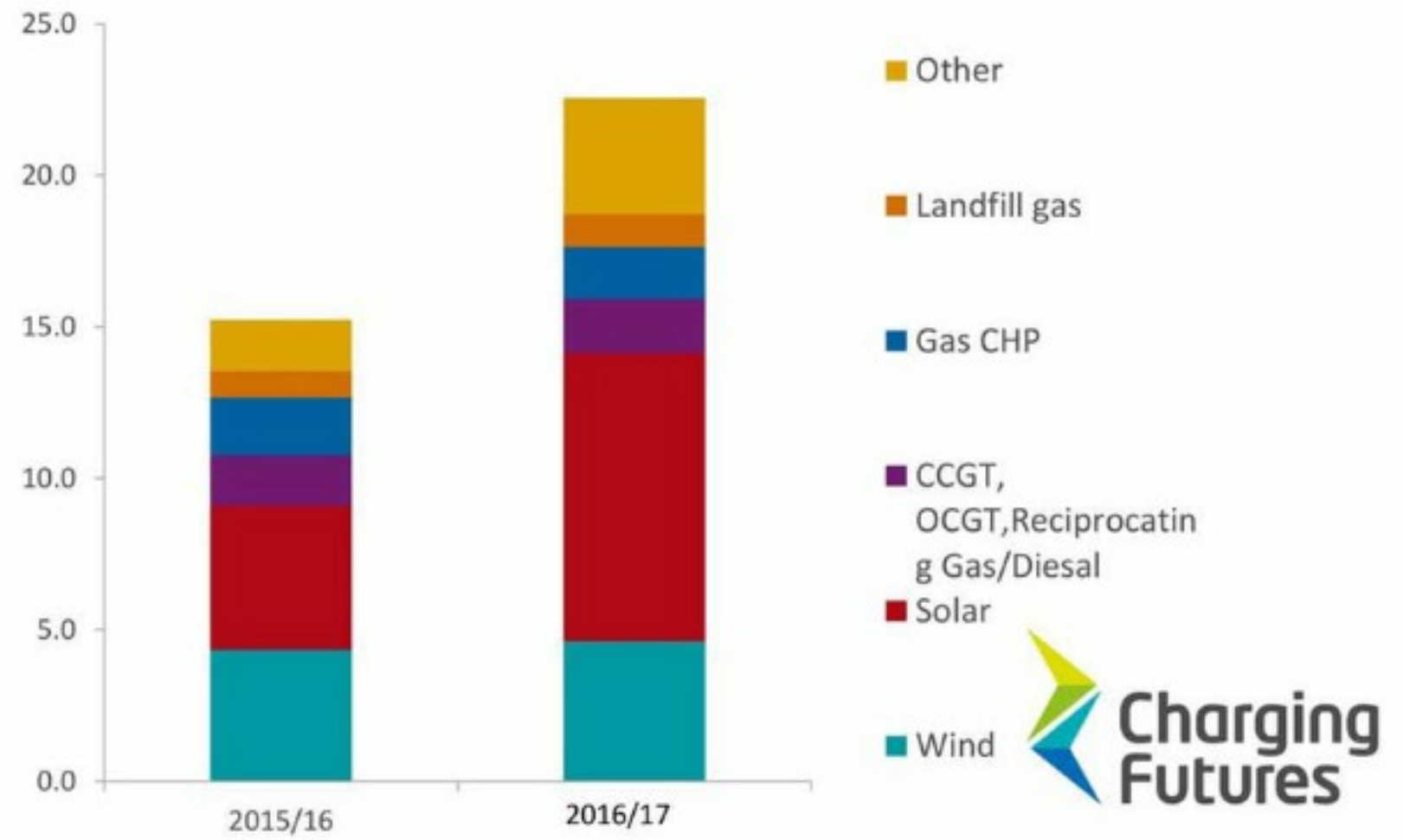
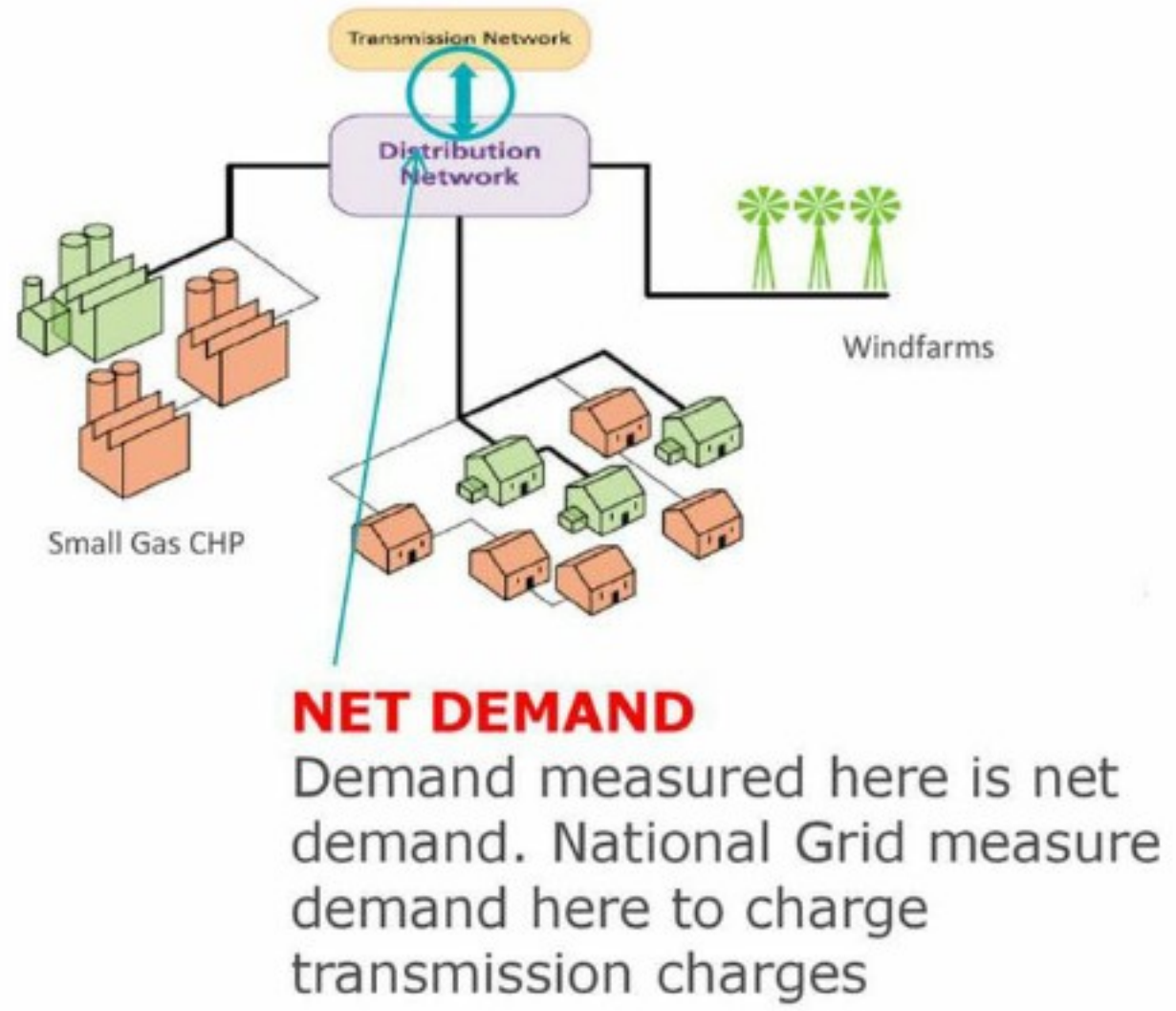


■ BSUoS avoided charges
—●— Total - Flat at £2.33/MWh
—●— Total - Rising to £5.00/MWh (straight line)

Distributed Generation is growing fast

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

National Grid estimate that there is 25GW of DG connected. Both renewable and gas & diesel plant. Last year it contributed 4-5GW (c.10%) towards peak demand



Embedded benefits

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

Issue	Description	Size
Transmission Demand Residual	Smaller distributed 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 <i>£350m/year cost to consumers and rising</i>
Transmission Generation Residual	Smaller distributed 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 distributed 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 <i>£100m-£150m/year additional to consumers</i>
BSUoS charges: avoided charges	Smaller embedded generation currently does not pay generation BSUoS charges	£2-£2.50/MWh <i>£100m-£150m/year additional to consumers</i>

Residual charges – our proposals



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 most distortions, but leaves in place some volumetric charge	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

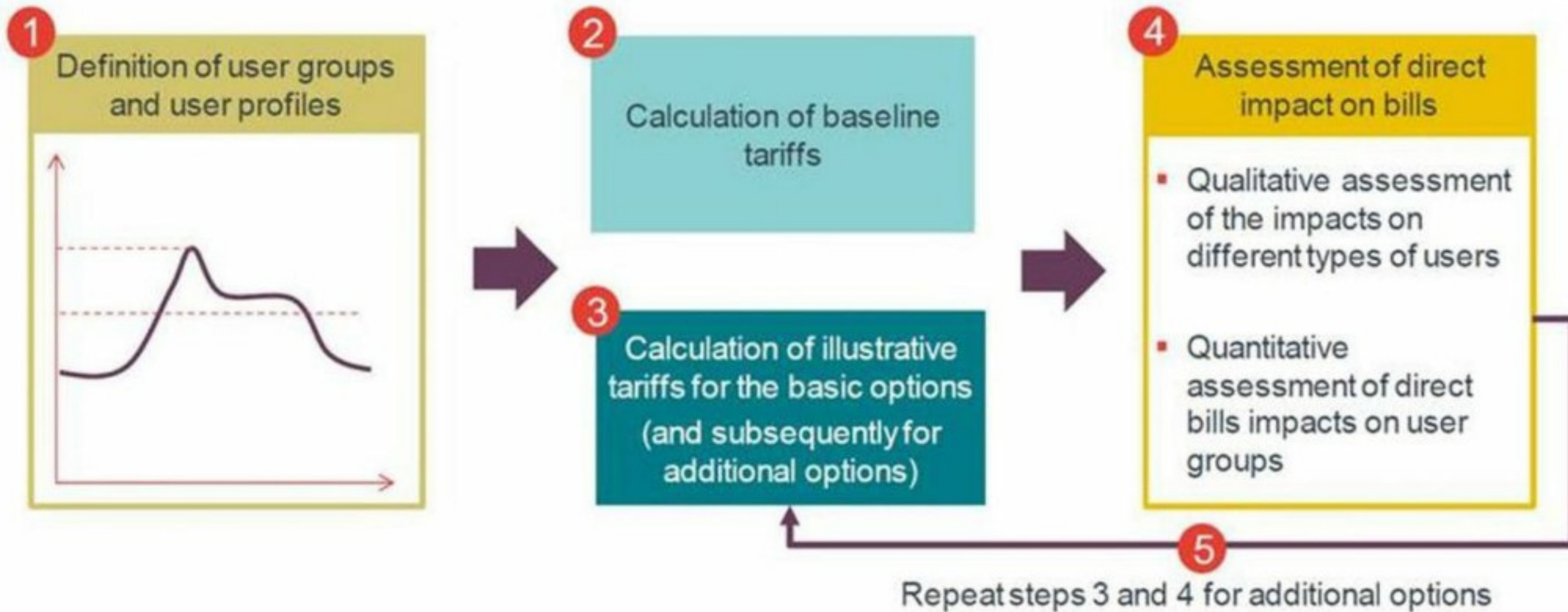


Our lead options

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

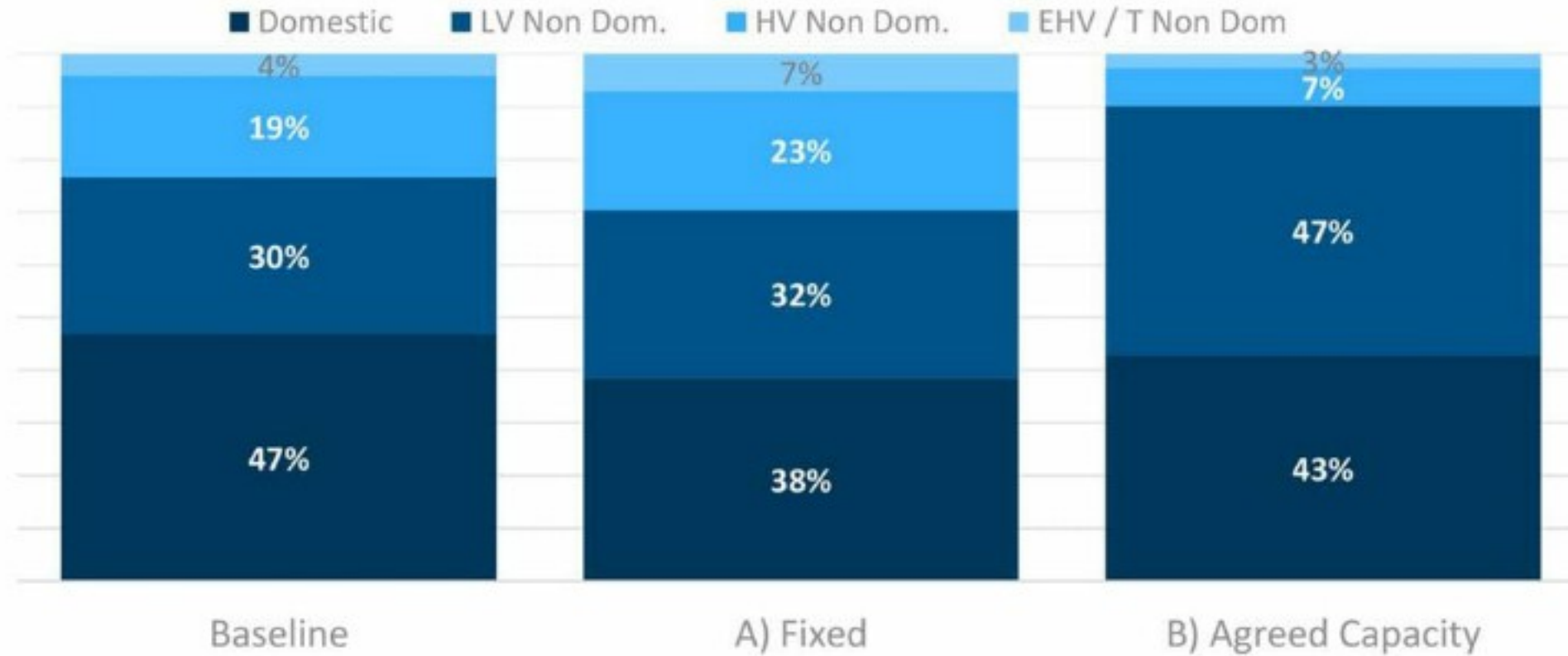
How we conducted the distributional analysis





Impacts of leading options

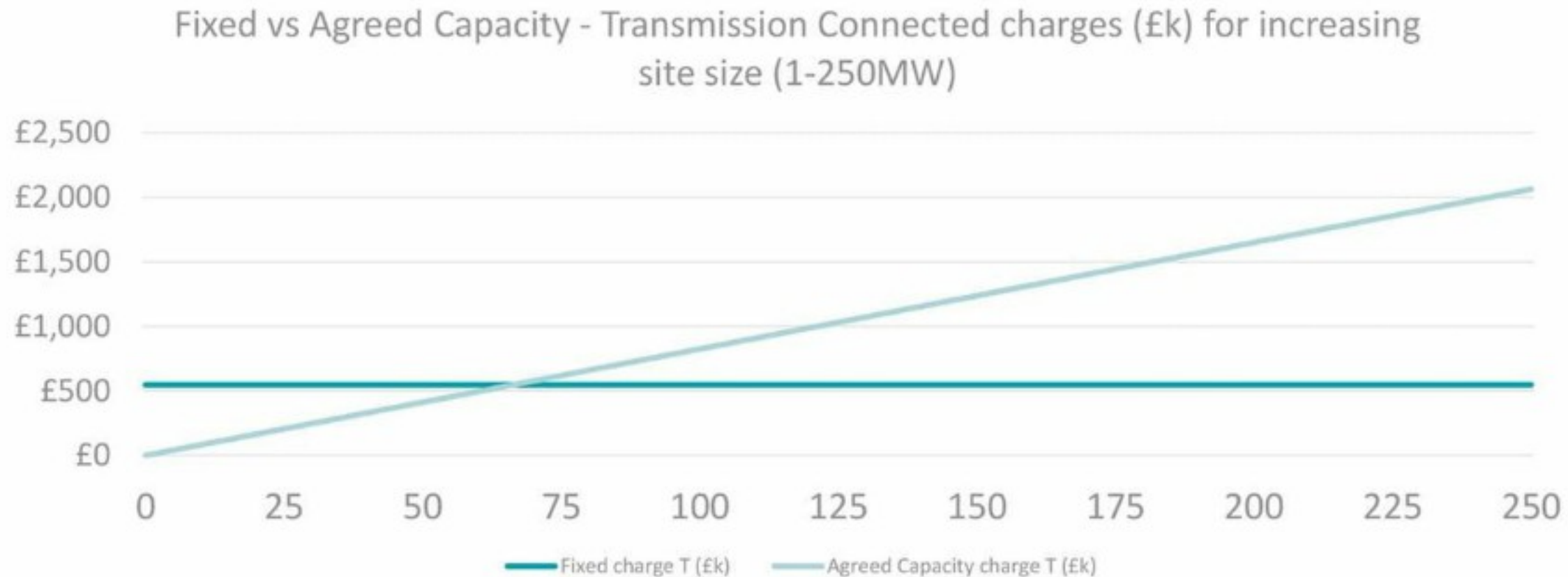
COMBINED DISTRIBUTION AND TRANSMISSION



- **Fixed charges** allocate a slightly larger proportion of residual charges to non-domestic customer segments.
- **Agreed Capacity** charging allocates **less transmission** and slightly **more distribution to domestic users**, driven by assumption of domestic capacity.

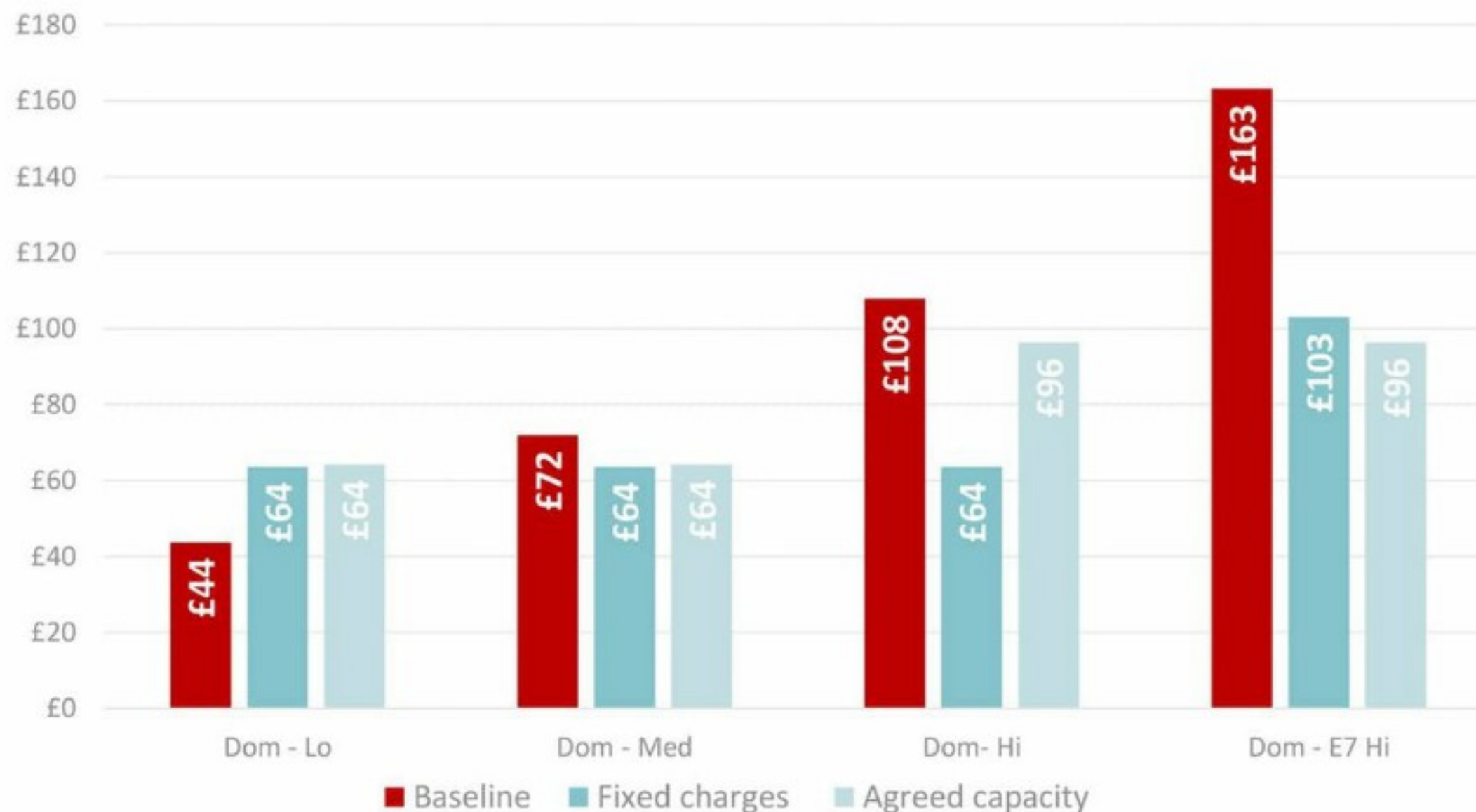
Impacts of leading options

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

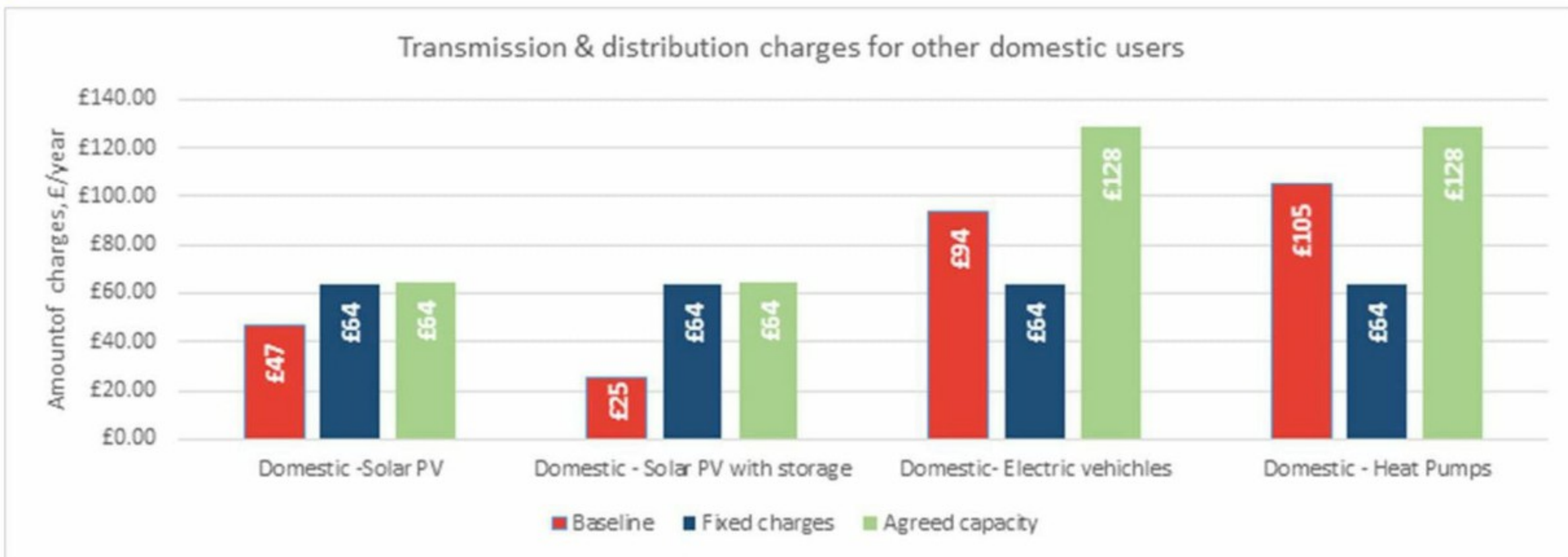
Impacts on Domestic User Groups (North East)



- 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



Impacts on Domestic with onsite installations



- Those households with solar PV or battery installations will see an increase in their contribution to residual charges
- Households with EVs or heat pumps will see a reduction under Fixed charges and increases under agreed capacity



Impact on vulnerable users

Static Impact of moving to Fixed change (£/yr) by Acorn Category

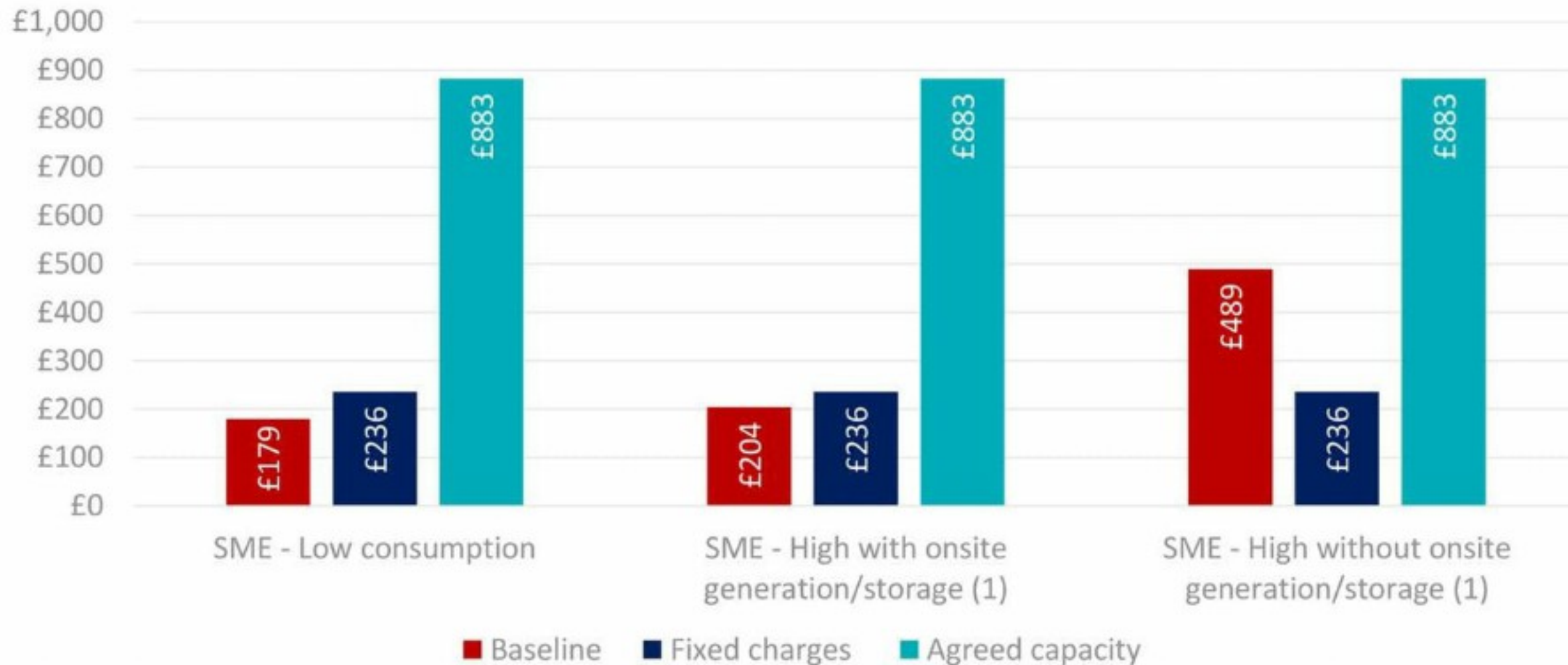


- Vulnerable consumers are present in most domestic consumptions groups. There is a large range of possible consumptions for vulnerable users, and so a range of bill impacts
- Most vulnerable consumers will benefit from our leading option



Impacts on Small and Medium low voltage Commercial

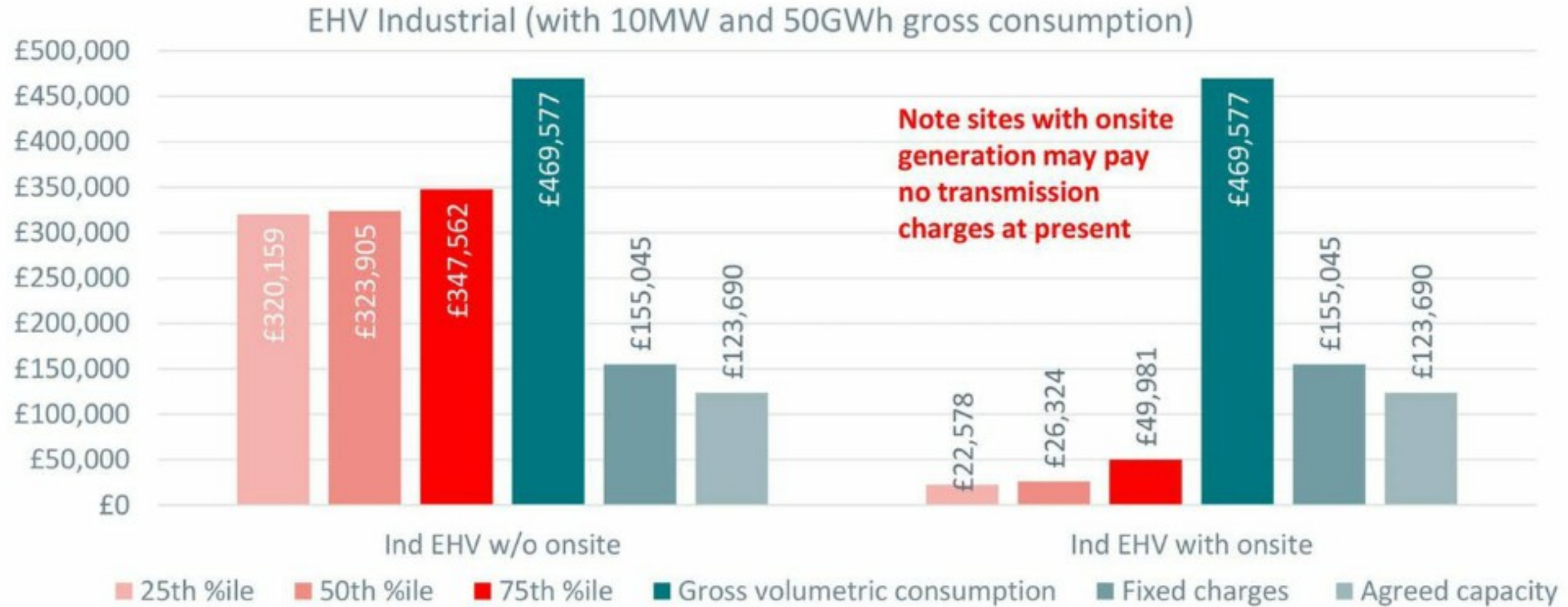
Small and Medium LV Commercial



- 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 higher



Impacts on high-level segment contributions



- 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

EDCM fixed charges

EDCM fixed charge levels

Within the EDCM, all sites have a level of import capacity. As such, in our consultation, for consistency, we applied a fixed charge on all ‘final demand connections’. This is explained in the Frontier report:

- > *‘The EDCM fixed charge is calculated by dividing the total residual to recover by the number of connected customers that are not storage sites. From the data provided by DNOs it is not possible to separately identify sites which are specifically generation sites from those that are load with BTMG. Therefore, the estimate of the fixed charge includes all EDCM customers, which includes generation specific sites. This is unlikely to reflect Ofgem’s intended policy position and hence, the fixed charge estimated is likely to be an underestimate. The charge is likely to be particularly sensitive to this assumption. For example, if the actual number of demand sites is half the number of customers assumed, the fixed charge would double.’*

<https://www.ofgem.gov.uk/publications-and-updates/targeted-charging-review-minded-decision-and-draft-impact-assessment>

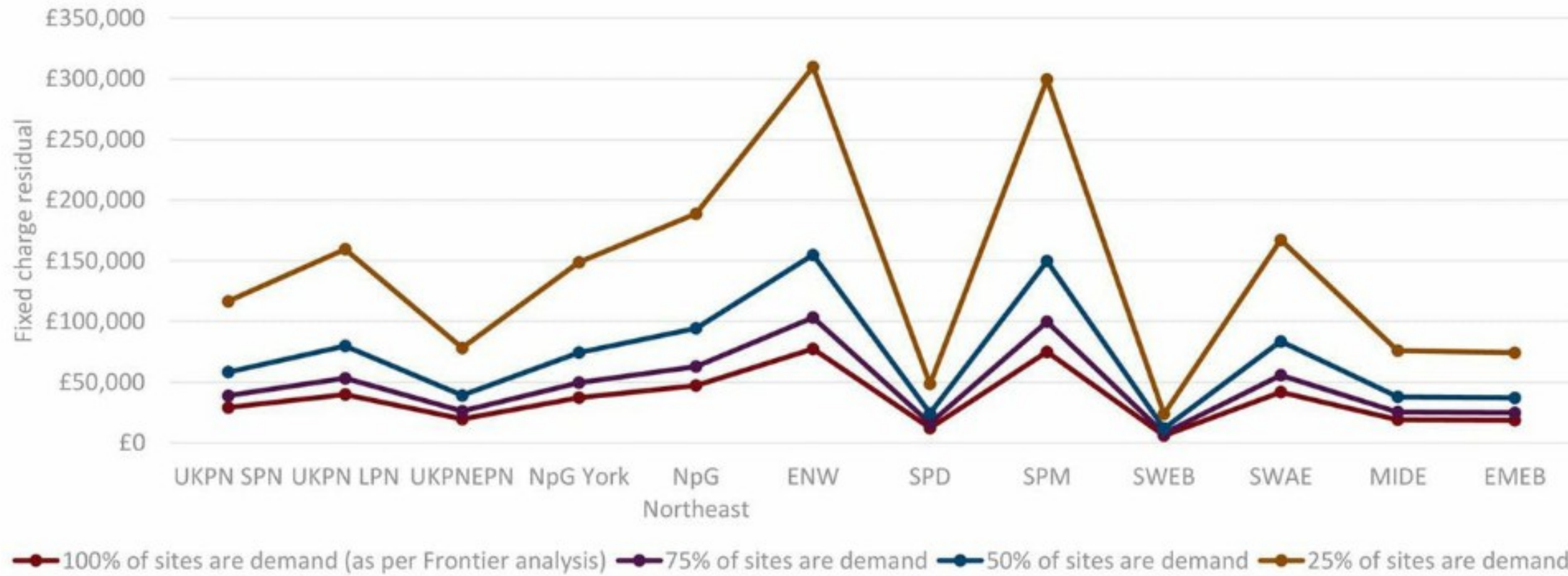
EDCM fixed charges

- We have received some queries regarding this approach, with stakeholders wanting to be understand the impact of these fixed charges in their specific DNO area
- Information in the consultation and on the DNO websites should allow for users to undertake these calculations
- Below is a representation of the North East region and how the residual value would change dependent on the percentage of 'demand sites'. The next slides gives the same calculations across the DNO areas:

Percentage of 'demand sites'	100%	75%	50%	25%
Resulting residual fixed charge	£47,186	£62,915	£94,372	£188,744

EDCM fixed charges

Residual value by percentage of demand sites



	UKPN SPN	UKPN LPN	UKPNEPN	NpG York	NpG Northeast	ENW	SPD	SPM	SWEB	SWAE	MIDE	EMEB
Total number of sites (excluding storage)	91	47	247	146	60	117	115	229	276	183	100	264
Residual value (£m 2019/20)	2,652,823	1,874,532	4,826,684	5,432,247	2,831,163	9,059,848	1,395,296	17,147,745	1,638,234	7,649,670	1,897,315	4,900,169

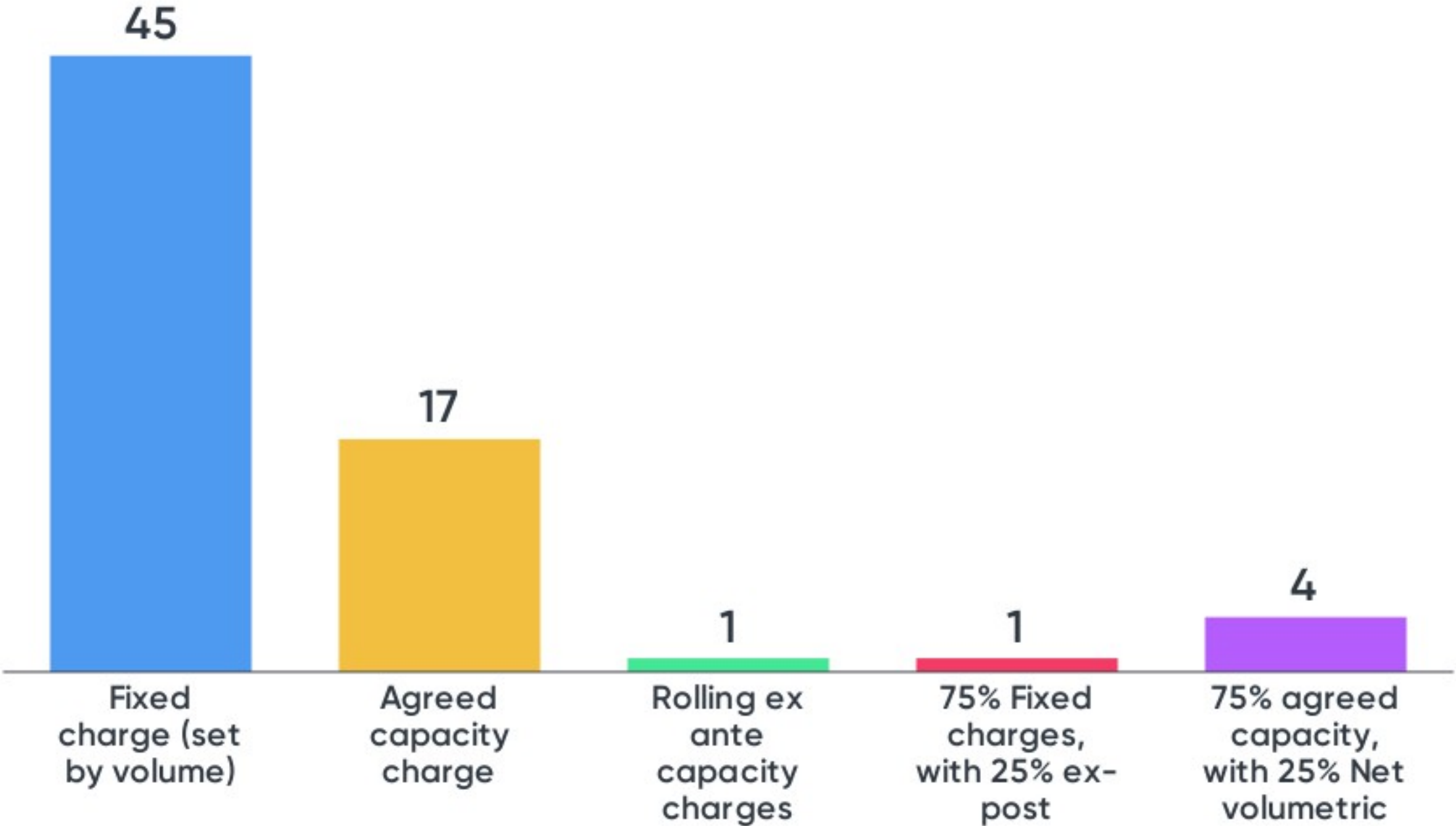


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Which of the TCR residual charging options do you think best meets our stated criteria?



Do you agree that fixed charges best meet our stated criteria for reforming residual charges? If so, why? If not, why not?

Yes

Fixed charges usually give certainty

capacity charges encourage freeing up network capacity. Fixed charges promote hoarding of unneeded network capacity

Fixed domestic

Agree for domestics, but concerns how residual pot is allocated to customer groups

I don't think deeming a capacity for the agreed capacity approach is so very insuperable; it seems more fair and non-distortive than the fixed approach

Hybrid of fixed for smaller and agreed capacity for larger - is this option available?

EDCM on agreed capacity, all HH capacity should be fixed

Costs increase for energy intensive industries - we already pay a lot more in UK compared to Europe and this adds to the problem.



Do you agree that fixed charges best meet our stated criteria for reforming residual charges? If so, why? If not, why not?

Residual charges are too high. This should be noise on bills but isn't. This should be fixed and the whole issue goes away.

Want to see volumetric charges

No, it adds costs to energy intensive industry

Why not have capacity for those who have agreed capacity and then fixed for everyone else?

Does this replace current fixed costs in bills?

Fixed assumes a level of consumption. Homogenous within segment but segments based on assumed consumption. Is capacity more appropriate?

Fixed is simpler, using data that we can use

Yes, but under certain considerations. Fixed charging would need to break down the EHV and HV segments, as they are too large to categorise into a single charge. And the definition of 'final demand' needs to consider import for generation sites.

EDCM, if based on fixed is not fair, equality over equity. too broad.



Do you agree that fixed charges best meet our stated criteria for reforming residual charges? If so, why? If not, why not?

Not the right question - more about competitiveness

Wider system, commercial and market structure impacts don't seem to be covered in sufficient detail - missing criterion

Some still think that the share should be according to volumes at system peak

Per MPAN charging is inherently unfair for consumers with associated MPANs.

Fixed looks as though domestics paying too much relative to larger users.

Want to understand more about what it means for end users

Broadly agree that fixed charges best meet the stated criteria as per the rationale provided in the consultation. However, some considerations around potential locational/regional differences and impact on larger businesses.

Fairness doesn't capture impact on international competitiveness of electricity prices, needs more analysis along lines of domestic analysis

To recover historic sunk costs, yes



Do you agree that fixed charges best meet our stated criteria for reforming residual charges? If so, why? If not, why not?

I do not agree with the defined criteria - it does not account for whether the reform would facilitate wider decarbonisation objectives and guiding principles in the Smart System Flexibility Plan.

Alot to expect put in place before Access reform

Fixed reduces incentives for sharing capacity where it's needed most.

Yes. But how are we going to maintain incentives for customers to manage energy usage going forward?

EHV customer impacts, broad brush approach may treat customers with a low load the same as those with a high load, creating potential fairness issues

Agree though concerned that domestic users will pay less and business & industry more.

Need to understand the size of the residual - dependent on the Access & forward looking charges / and other changes

I think we should call residual what it is which is recovery of historic infrastructure costs. When RIIO2 is set are they done by splitting into historic/residual and forward looking. The TCR and SCR should be done together

It all depends on what happens with access and forward looking charges - they must be linked.



Do you agree that fixed charges best meet our stated criteria for reforming residual charges? If so, why? If not, why not?

Are network losses included in the impact assessment? Would these be expected to increase if there's some shift towards larger plant, e.g. CGT?

The tcr element (leaving aside forward charges) is penalising those who have acted responsibly previously - reducing consumption and installing small scale renewables on site- this is a step backwards for the economy and carbon emissions. REA

Is ccgt more efficient than local chp?

Can we be clear what is in this assessment? TDR only, or also including TGR and BSUoS reform? (If latter, will disagree, if former, ok)

Yes but I would like to understand what historic barges they represent as that may inform more as to how the charges should be allocated



What are your conclusions from the distributional analysis?

Surprised that the poorest pay more!

No account has been taken of multiple MPAN sites in the distributional analysis.

We were confused about what the distributional analysis was saying

Prefer agreed capacity approach as gives targeted incentives to domestics as to capacity required. RAFLC though could achieve something here.

Impacts on DSR and btm generation/storage?

Analysis very confusing and seemingly random

Confused on relationship between TNUOS and DUOS residuals.

Suspect Ofgem are attempting to lower/protect domestic customer costs at expense of industrial customers.

Too much of a big impact on EHV connected



What are your conclusions from the distributional analysis?

There is a lot of info available which hasn't been used e.g must have onsite generation info via the DNOs

Good that customers with heat pumps and EVs pay less than currently

Mismatch between decarbonisation and flexibility

Implications for three phase connected domestics unclear. Their standing charges and unit rates are identical to single phase domestics, they pay nothing extra going forward for 3 phase yet have triple the capacity. Bad incentive.

The changes again adds costs to energy intensive industries without considering that they currently pay significantly more than their European competitors.

Seems unjustified to penalise customers who have invested in on site generation

V large impact on ehv

The categorization for vulnerability customers is not correct. Perhaps should be based on tax credits

No focus on impacts of consumers within each group, as they vary widely.



What are your conclusions from the distributional analysis?

User Group 11 (5,000 MWh/year AQ) does not map onto the LLFC "HV HH metered". This leads to severe distributional impacts on light industrial customers which has not been considered.

Unclear how Ofgem/Frontier have quantified the value of the residual when we have not been able to define what "residual" costs (i.e. future charging & access work hasn't happened yet). How have we reached an actual number??

How does this all come together - TCR & Access and forward looking Charges to impact final bill

The analysis doesn't account for how large the residual is as a proportion of transmission charges. By moving such a big proportion to a fixed charge it removes incentives to give up spare capacity and doesn't reflect peak costs.

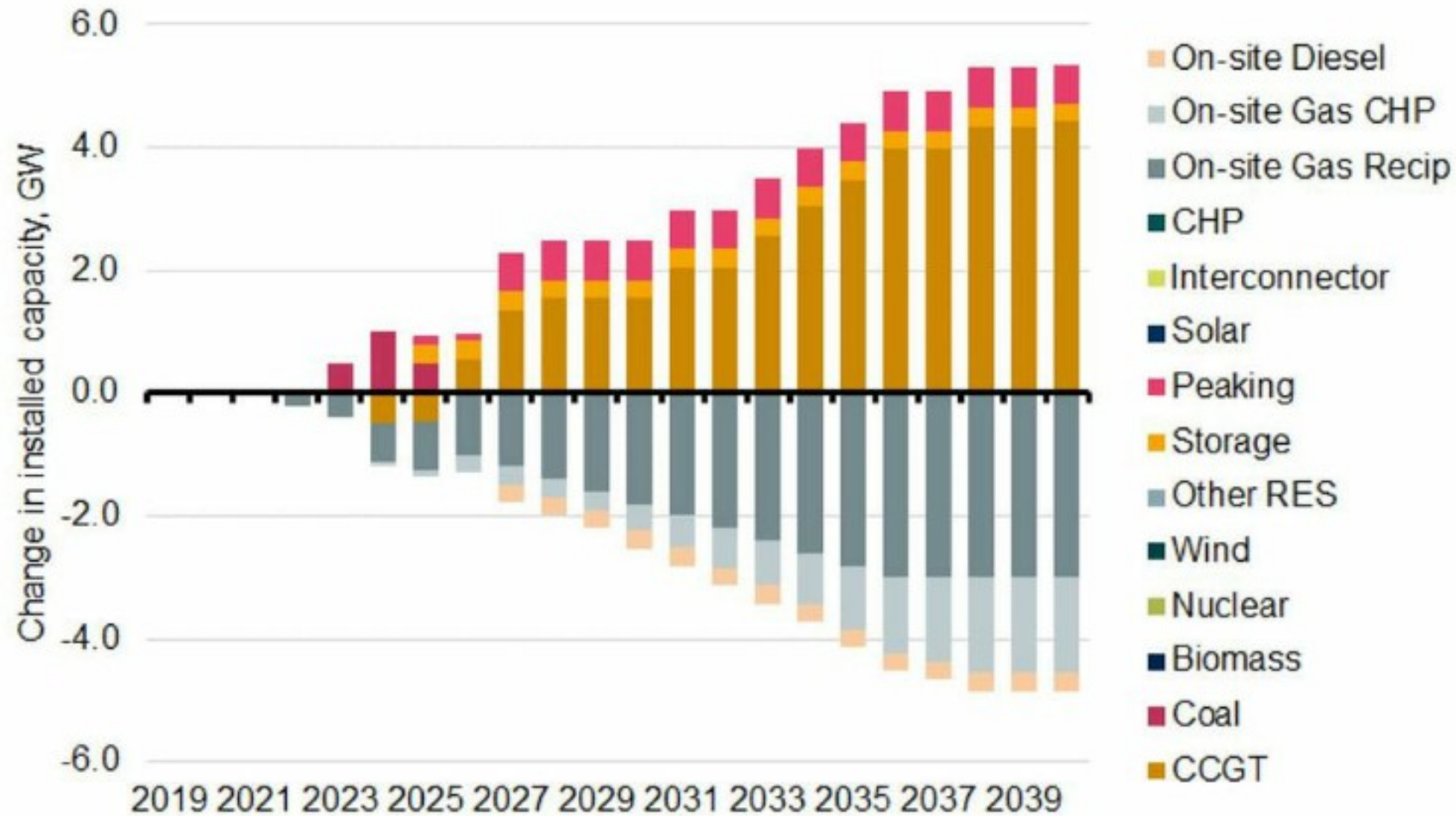
It seems it is not align with government policy and objectives

the only way to get more ccgts is if you stop the growth of renewables (intermittancy, declining average prices) and put a floor under the cm price. Not sure this a) supports renewables (Beis policy) and b) lowers consumer bills with higher CM prices





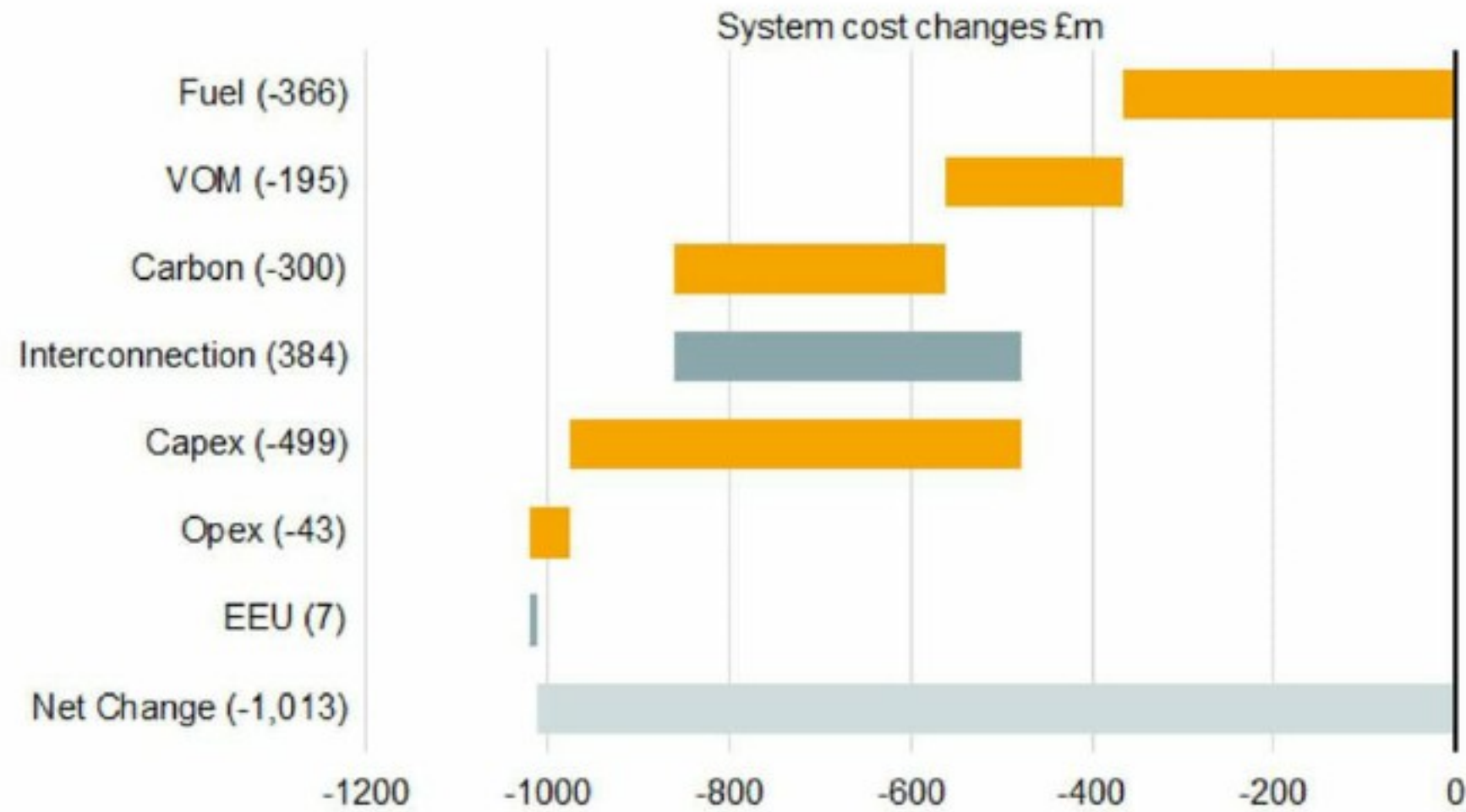
Generation mix



- > Our modelling indicates a reduction in onsite generation (vs the steady progression base case), which is made up by greater amounts of CCGT, peaking and grid-connected storage
- > Similar changes are observed on using the Community Renewables background



System benefits

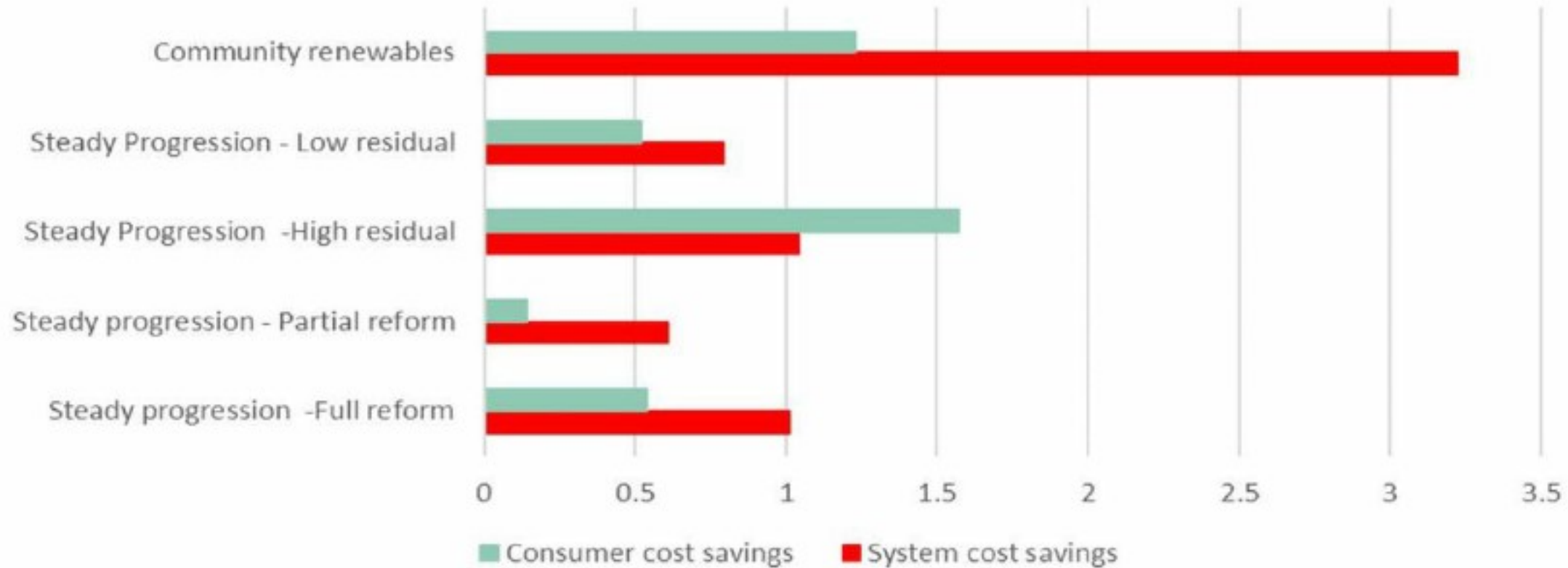


Source: Frontier/LCP

- > Overall our modelling shows that there is a system cost saving due to reduced fuel usage, CO2 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 £bns of potential benefits to 2040

Projected net benefits 2019-2040 (£bn, 3.5%)



- > 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.

Were there unexpected results from our whole system modelling? If so, what were they?

Renewables are essentially ousted - and this is seen to be a good thing?!

loss of small scaled renewables

No. Plant currently receiving unjustified payments is replaced by more efficient plant.

The notion that the stock of the model is exogenous within the 20 year timescale.

Surprised to see no reduction in solar capacity

can ccgt provide the peaking service

A massive increase in CCGT - how is this compatible with carbon budgets?

Have not been able to do our own analysis. Complex graphs and presentation.

Reduction in CHP capacity - may result in more efficient power production but doesn't take account of heat (carbon) saving



Were there unexpected results from our whole system modelling? If so, what were they?

Community system savings could be clearer

Given analysis the outcome makes sense, opportunity cost of localised grid balancing when there is a high penetration of domestic storage / evs etc. This analysis may have had a different outcome

Are increased losses included?

Carbon costs of manufacturing the CCGT in the first place not just emissions

What is the difference between consumers-systems cost? Aren't consumers paying for everything?

maybe cleaner BTMG tech which now rather than assumption its bad tech

Fewer renewables, less Distributed generation and that seems to be a good thing. This is opposite with BEIS. Conflicts with governmental policy.

Surprised how low overall change is. 4GW = 2 large stations.

Ofgem need to realise that removing embedded benefits = loss of income stream that is not being replaced by ability to participate in markets due to increased firmness (for example). TCR rips the carpet out from under the feet of DG. Not BTM, grid DG



Were there unexpected results from our whole system modelling? If so, what were they?

Are we more reliant on interconnection? Please explain.

more reliant on interconnectors

Unclear from these slides what 'system impacts' includes - wholesale prices? Balancing services costs? CM prices?

Lack of sensitivity analysis given the number of inputs. Can't project generation mix on single change to residual charges.

Would have expected more scenarios to be considered - at least one with higher flexibility in

Surprised that the swing was so small at 4mw

CM hasn't led to new CCGT so let's have another go through this process.

Good results.

Why promote reliance on interconnectors and non renewable generation given decarbonisation targets and desire for a resilient uk energy system



Were there unexpected results from our whole system modelling? If so, what were they?

Fundamentally this messes with BEIS' carbon targets. Have they been informed? What is their view?

Is heat offset from onsite generation included in the modelling

Caution in basing so much on modelling with multiple quite difficult assumptions

conflict with de-carbonation policy from BEIS

Surprised that peaking plant would be built if take away revenues

quote: Solar is one of the greatest areas of potential negative impact according to Ofgem, but PV users' detriment caused is justified by Ofgem because of 'it is highly relevant to our fairness considerations, due to the redistribution these actions

Fewer small scale (on-site) renewables will drive up transmission costs and increase costs across constraints?

The whole system model is quite biased by traditional/ centralised principles. It does not explore the potential of optimising locally to rationalise overall investments and enhance resilience. Moreover empowering people and businesses

Not convinced that impact of CM behaviour will have such a predictable impact given unpredictable bids to date.



Were there unexpected results from our whole system modelling? If so, what were they?

Agree with not fixing vulnerability through this

also, talk with BEIS about messing up with industries in particular with B ++

Don't agree with separation between this and forward looking charges - as don't have the full picture

Timescales of implementation and consultation between TCR and Access ne to be at the same time

Industry users only see one piece of work here - what's the overall impact on my bill

More clarity required on the classification of HV and EHV consumers and the definition of 'final demand'.

Are LLFCs the right mechanism for fixed charges?

Phased approach vs fixed date - either can work if we have the full picture of both SCRs

Can TCR outcomes be re-visited depending on outcomes of access SCR?



Do you agree with our overall assessment? If not, why not?

No.

Yes, TCR is very much on the right page

You need to talk to BEIS about messing with carbon targets!!

No, it doesn't consider other NG scenarios.

No - ignores T And D charges

Yes

Cannot see real overall picture until forward looking charges progressed in parallel

Like fixed charge approach. Simple. Uses current data.

Don't agree with basis of the assessment



Do you agree with our overall assessment? If not, why not?

Yes really good

Yes but avoid controversy by keeping split between domestic and industrial same at first then phase in.

Expected to see some sensitivity regarding the CM price: If the CM price goes up does that wipe out all the consumer benefits?

Does not reflect Govt (BEIS) policy to reduce carbon emissions.

disconnect with the carbon reduction policy

No. The overall assessment is biased by the traditional thinking. It does not take in consideration the carbon targets and the opportunity of evolving towards a sustainable energy system

Too much uncertainty in estimates

Not important, an economically fair solution will lead to the right generation mix. we shouldn't change it to incentivise other outcomes like reducing carbon. cargo pricing should do that

Yes, broadly agree with the overall assessment. Choice is between fixed and capacity based. Capacity based is problematic for users where there is a need to assume capacity.



Do you agree with our overall assessment? If not, why not?

Analysis was too poorly structured to be able to respond effectively. Use a different consultancy.

Not understanding why CCGT is considered most efficient, need to look more broadly

Is it fair that differences in fixed costs between different DNOs? Customers cannot influence this.

segmentation (user groups) must be accurate

Yes residual charges should be focussed in this way

Policy fails to align with the frontier analysis.

Not enough equity in one EHV segment

The reforms to ensure a level playing field between embedded <100 MW and other generators will lead to minimisation of whole system costs and of CO2. Fairness is also enhanced. Don't forget a level playing field is needed also with generators in the EU

No. There is no quantitative analysis presented of the observed system and actual costs which supposedly have occurred over the last few years. It is very difficult to respond to a change proposal without understanding the scene of the current issue



Do you agree with our overall assessment? If not, why not?

Still don't see logic in uncoupling this review from wider access work. A holistic review is required to achieve decarbonised, right cost of energy and a reliable energy mix for the consumer

Value of local flexibility should not be overlooked

Can we be clear what is in this assessment? TDR only (more or less agree) or including TGR and BSUoS reforms? (In which case disagree - delayed renewables roll out will have increased consumer cost in long term)

Not enough modelling on impact on DSR as a result of the hiatus between TCR implementation and that of Access - how can Ofgem be sure that there is no significant impact?

No, it does not represent a robust picture of the impact of the reforms in the long term (also missing a link to Access Reform SCR)

Lack of discussion as to how much residual there should be.

Wrong assumption: No investment change Not able to model the impact because of the uncertainty. Why have two SCRs? Access and TCR and not one at the same time?

Still think that there are some costs that are specific to generators and therefore there is still argument that some residual costs should be charged to them

Would need to review the data in more detail or ideally have an independent industry consultant review and summarise to wider industry who neither have the time or expertise to develop their own views from the very detailed analysis.



Do you agree with our overall assessment? If not, why not?

It seems reasonable.

Ignores output of forward looking charge review

Give the right incentives (as TCR will do) and you are likely to minimise CO2 anyway, though that should be done via carbon pricing, not warping Tx or Dx charging policy. TCR is a step in right direction

Small consumers paying more seems odd, and might not boost public confidence in the energy industry...

No - seems designed to eliminate small D connected generation. Particularly when removing embedded benefits

LLFC as inappropriate for residual. Need something more appropriate for what you are measuring.

Ofgem are letting down future consumers with these proposals. The cost of electricity plus network charges will rise if these proposals are implemented. Network charges a small piece of a very big puzzle. Proposals are short-sighted

Yes, generally supportive of TCR

Still looking for clarity on application to EHV



Do you agree with our overall assessment? If not, why not?

No - the capacity market is bringing forward small D connected generation. Should Ofgem be trying to reverse this market signal.

The TCR should have been scheduled alongside the Access & Forward looking charges reforms. Too difficult to get a overview of the overall impact

There is no consideration on how to leverage on the new technologies to minimise the residual charges.

There is a clear conflict with the BEIS/Ofgem paper on smart and flexible systems. This is OK if impact on DSR is modelled and found to be not damaging but not enough work on DSR has been done for Ofgem to be sure at this stage.

To avoid distortion the charge should be same across all DNOs (for same customer group)

Overall in agreement

Taken with RAFLC, TCR is quite holistic, broad and they collectively represent an improvement

It is progress. Current EHV DNO costs give no signals to decide where to build sites.

Does it examine scope for trading capacity in the future?



Do you agree with our overall assessment? If not, why not?

Behind the meter storage and generation are disadvantaged with the changes proposed, how does the TCR work alongside the flexible energy system policies that encourage BTM resources?

same fixed charge for EDCM users is flawed.

It's great if you want to put more CCGT on the network and not much else. It's terrible if you want to hit carbon targets and get cheap generation for consumers in the future (eg wind)

Missing the historical data? We have not anything to compare against? How does Ofgem knows that people have been avoiding triad? How have we made that assessment? In order to implement these changes to companies/systems this will cost millions.

Feels like a direction of travel from ten years ago and doesn't take any notice of overall policy in the areas of flexibility, DSR, storage etc

What you don't want is a situation where people can take actions that reduce their residual charges, yet which don't really reduce total system costs. TCR = a good step towards addressing this, increasing fairness/equity

LLFC is not granular enough. There needs to be something found that allows better industry segmentation to avoid cliff-edge effects.

Storage shouldn't be exempted from residual charges on its import. Power is it's "fuel" and it shouldn't be exempted from part is the cost of that "fuel".

Too many unknown costs still - particularly around what would be deemed and relative sizes of the different pots



Do you agree with our overall assessment? If not, why not?

We want to remove any non-cost-reflective incentives for on-site generation to avoid having more and more costs shifted onto inactive consumers

Needs a much more holistic policy view

Depends on allocation of the forward looking charges

Residual costs are so high that need to ensure that the signal comes through elsewhere so that people respond efficiently and reduce usage

Is TCR really neutral in terms of long term investments in renewables, as the generation mix chart suggests?

Embedded benefits distort CFDs & CM auctions, incentivising investment in inefficient capacity, leading to an ultimately more expensive system, with a direct increase in consumer costs & distortion also of the balancing services market. TCR addresses

On site generation in areas where generation dominates the local transmission network, does no good at all. It is a bad thing. And yet it can be added there, to reduce your exposure to network charges. That makes no sense, TCR helps address

Assessment of TCR and SCR scope of change may not taken into consideration the consequences external to the scope

Aim of TCR is to ensure that harmful distortions are got rid of, bearing in mind fairness and practical considerations. Tick, TCR does exactly this, it meets the aim.



Do you agree with our overall assessment? If not, why not?

Lots of discussion around large industrial consumers, is it over simplified?

Coffee break

14:25 – 14:50

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

Other Embedded Benefits

Two reform options for Embedded Benefits

We have considered two reform options for these Embedded Benefits:

- a) **Transmission Generation Residual (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.

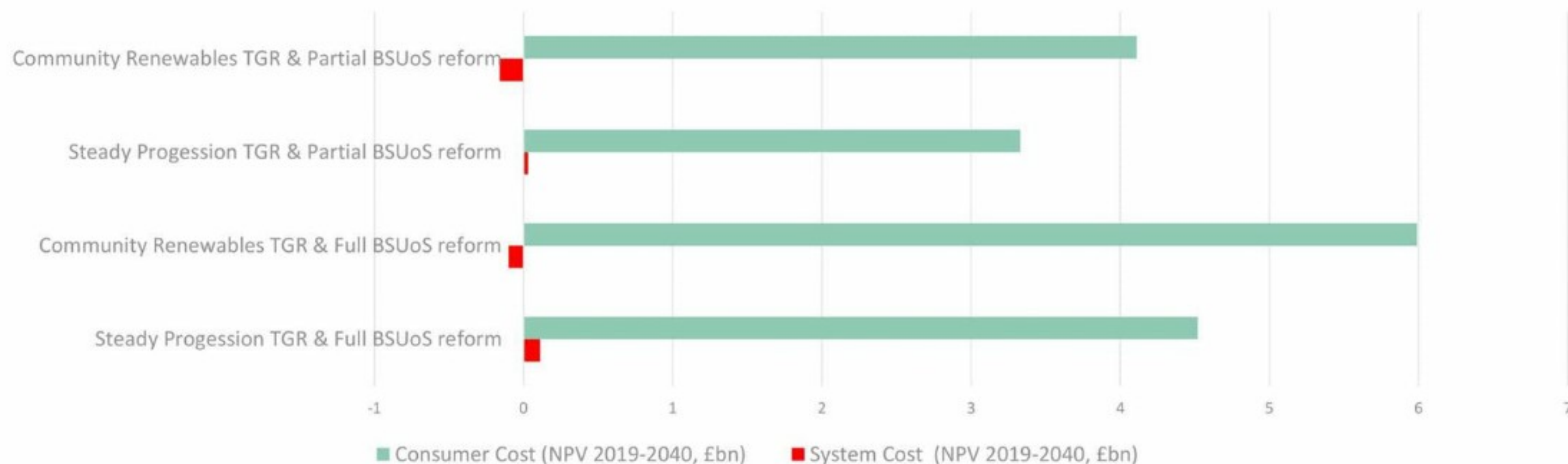
Depending upon the outcome of our consultation, we propose to make the following reforms:

- > Charge suppliers BSUoS using gross demand at GSP (April 2020 or April 2021)
- > Charge BSUoS Charges to Small Embedded Generation (April 2020 or April 2021)
- > Set the Transmission Generation Residual to zero
 - > Subject to maintaining compliance with 838/2010
- > Launched 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



Projected net benefits 2019-2040

Projected net benefits 2019-2040 (£bn, 3.5%)



- > 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

Factoring in a taskforce

- > Our analysis indicates that whatever the conclusions of the taskforce, reform to key areas of the remaining embedded benefits is required to ensure a level playing field for different types of generator
- > We have requested that the BSUoS taskforce report to us in April, before we take a final decision on the TCR, to ensure we can factor in the findings of the taskforce in our final decision on the TCR.



How well do proposed reforms to embedded benefits achieve equivalence in charging arrangements between smaller distributed generators and others?

Assumptions are false

why do we want this? we want more renewables

Big step in the right direction

Funders running a mile

Yes this is the right approach

Should include RCRC and AAHEDC, same justification as changes to BSUoS

Equivalence could also be achieved by removing charges from all generators as per CMP308

The proposed reforms go against the future of energy.

Even if BSUoS is partially residual, makes no sense to apply it to more generators. Two wrongs not making a right!



How well do proposed reforms to embedded benefits achieve equivalence in charging arrangements between smaller distributed generators and others?

Pull carpet under the feet of DG before anything in place to recover income streams later on. Esp. with firmness not being a priority. Feel that T-connected ends up at an advantage relatively.

Put all this anti small G interventions alongside suspension of capacity market and good luck getting new power stations built

Transmission generation have access to a lot of additional revenue streams which distributed do not. Are we now putting distributed generation at a competitive disadvantage?

distributed generators should have transmission costs capped at 2.50 EUR/MWh

Yes this is the right approach

Equivalence of charges must also be accompanied by equivalence of benefits. Distribution generators must be fairly dispatched in the BM and must be able to participate in Black Start. If not, there is not a level playing field

Not sure what the distortions are between large and smaller generators. This is a perceived distortion rather than something the market.

care needs to be taken in the definition of final demand.

Poorly communicated earlier in TCR process



How well do proposed reforms to embedded benefits achieve equivalence in charging arrangements between smaller distributed generators and others?

small generators on generation networks - if they disappear - what about what is needed to replace them?

We will still hit the TG cap in a few years. How is this a level playing field?

Does that impact currently existing sites more than future generation?

Some support of BSUoS reform alongside things like TERRE that support market access.

Insufficient time for the task force to deliver

Embedded benefits have never being considered bankable and likely to disappear. This should have been factored into people's investment cases the change is not unexpected

Brilliantly, option 2 is the one that does it correctly, along with making them pay TNUoS under RAFLC. Embedded gennies & the demand they currently net off from, all benefit from stable frequency voltage and phase energised network, so should pay

Proposed reforms will kill investments in smaller distributed generation.

Why is the aim to achieve equivalent?



How well do proposed reforms to embedded benefits achieve equivalence in charging arrangements between smaller distributed generators and others?

Some larger generators are not on the same playing field as smaller distributed generators

Needs case for equivalence has not been set out at any point

Prefer partial Reform rather than full reform

BSUoS - should be about balancing Transmission - if distribution network is self balancing why do they need to pay balancing services?

To the commentator who via menti references €2.50/MWh - that cap (actually a range €0 to €2.50/MWh, we should be at the other end like the EU) EXCLUDES BSUOS costs

If you're a small generator are you just as likely to access a market as larger? Inevitably will be constrained by relative size, asset base, expertise, etc. Should you aim to give relative advantage to smaller generation esp. if not in markets.

Everyone provides services to balance the system so everyone should pay

Agree that BSUoS change levels the playing field between transmission and distributed plant.

Full preferable to partial BSUoS reform.



How well do proposed reforms to embedded benefits achieve equivalence in charging arrangements between smaller distributed generators and others?

If create balancing problem you should pay but if you solve it you should receive money

Removal of negative generation is premature before considering compliance with 2.50 cap in more detail.

Balance now in favour of T-connected. Especially with connect and manage policy remaining.

What level of distribution network does this go down to?

Option 2 is fairer. It removes more harmful distortions, and leads to more consumer benefits.

Equivalence needs to drive benefit, and a level playing field needs to consider whether a truly level playing field actually benefits the long term desired position of the network.

EG drives balancing actions and benefits from a balanced system, net BSUoS never made sense

Embedded generation should be supported

Moving connection assets out of the €2.50 cap means GB gen is even less competitive with respect to EU generation



How well do proposed reforms to embedded benefits achieve equivalence in charging arrangements between smaller distributed generators and others?

Equivalence is fine if the outcomes create desired system effects and generation mix

All generation should pay BSUOS including embedded no logical reason that they should not

There are LLFC for EHV customers

BSUoS needs to address cross border issue too. Therefore, should charge all generation zero BSUoS, not charge embedded gens.

The charges levied upon DG should be reflected in the markets they are therefore allowed to participate in. TCR and ENAP must be considered together when answering this question - the two together make T connected better off than DG

Closer to removing BSUoS charges from all generators and parity with Europe

BSUOS should be removed from all generation which is what happens in Europe (apparently!) If embedded generators pay the same costs, they should be able to access the same revenues (BM, Black Start, reactive power)



Are there reasons why partial reform would better meet the stated objectives of our review?

Defer until task force concludes

Defer until DSO scope concluded

Defer until TF

No

Defer to examine in the round

Partial reform leaves in place a harmful distortion, and leads to less consumer benefits. Also embedded gennies do benefit from stable frequency and phase energised network, via Balancing services , so why not pay for Balancing services

No. EG has access to balancing market through TERRE and should contribute towards whole system costs as their actions impact these costs.

No – infers more reform to come which adds uncertainty

Leading - suggests its just a staring point. If implemented it should be 'the reform' not leaving uncertainty as to when the rest is introduced



Are there reasons why partial reform would better meet the stated objectives of our review?

It is key to work on the whole system model and then rethink the changing

Partial reform in the time being would allow the future 'benefits' to become clearer through signals such as the forward looking signals

Partial reform would leave a harmful distortion

Demand reduction requires balancing but doesn't have charge levied. DG has same effect unless GSP is net exporting. Discrimination by technology type of DG is charged

If DG pay for balancing services, they should be able to access the BM as well

Argument for partial net-off within a locational charge at the GSP level. Though difficulty in being exactly matched will affect flows on transmission system.

Just seems like an odd place to deal with something that is already being addressed via a CUSC mod and a task force - doesn't fit with the rest of the SCR.

2020 implementation seems unfeasible given the current timescales.

Don't do something CMP308 will then reverse. DG can access European market through MARI, need to be level playing field there



Are there reasons why partial reform would better meet the stated objectives of our review?

Too narrow - and Access reform and TCR are too linked to be treated individually

Need to stop doing reforms, even if sub-optimal. Sends scary signals to investor communities by constant changes.

EG have been aware of partial reform for years now, but a full reform of BSUoS is something that has not been factored in as as possibility.

The distortion is something that can lead to inefficient investments and so increased consumer costs. Partial reform only gets rid of half the distortion

Fittest projects will survive anyway

BSUoS should be removed from all generation and partial reform is closer to this end result

Why not skip the middle part out of DG paying BSUoS if you think they will eventually not pay it?

Too narrow a remit - its the wrong way round Access should be first

CUSC mod CMP308 does mean that solution 2 (full reform) could be null and solution 1 adequate. EU generators don't pay BSUoS, Ofgem as well as levelling the playing field between embedded and Tx gennies please also do so between EU and GB gennies



Are there reasons why partial reform would better meet the stated objectives of our review?

Wait to conclude access reform

No. Partial reform still gives distributed generation an unfair advantage based on the charging regime.

Creates a more level playing field given connect and manage policy remaining for transmission connected generation

More evidence needed around actual benefits of full reform for EG loss

Has to be partial reform until the residual and forward looking aspects of BSUoS are decided

Very difficult to put compelling arguments, and so much change its very difficult

Scope of the Taskforce needs to take into account as much of BSUoS as possible to actually benefit the consideration of the TCR and Access Reform.

Probably need to segment EHV to demonstrate fairness.

What about using demand over three peak half hours separated by ten days to group users together?



Are there reasons why partial reform would better meet the stated objectives of our review?

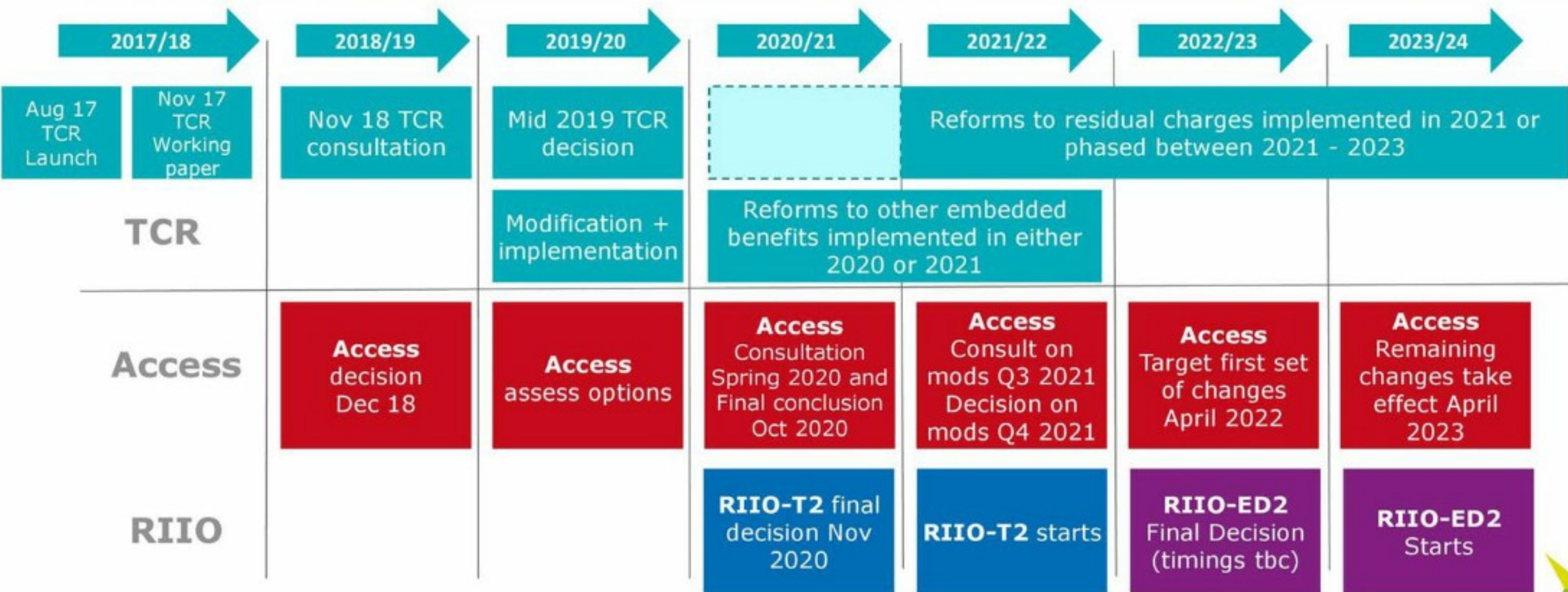
LLFCs may not work. Used differently in different regions or might indicate different things



Next steps and implementation

TCR and interaction with other Ofgem projects

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



Do you see any issues with how we use Line Loss Factor Class (LLFC) to allocate our user groups? If so, what do you recommend?

Lots

Horribly unclear for EHV customers

Sure you can fudge good enough tho

HV and EHV classes need to be segregated further, as they cover customer segments which differ from one another wildly.

Beautifully clear for EHV

Good in principle

EHV do have LLFC

ASK a DNO

LLFC is not a good proxy for light industrial consumers. Many small users using less than 5,000 MWh/yr will see massive cost increases because they are "HV HH metered". This impact has not been included in distributional analysis



Do you see any issues with how we use Line Loss Factor Class (LLFC) to allocate our user groups? If so, what do you recommend?

Can you use a DUOS tariff

No, it's fine

No - good idea.

Not what LLFC is for.

Unintended consequences if you want to reform LLFC in the future. Essentially an arbitrary number.

Yes. You should just abandon this whole mess of an ill thought through reform proposal which simply does not have a strong case for change

Capacity charging is much smarter and creates incentives for capacity to be used optimally. A fixed charge regardless of how the groupings are set, is a very blunt tool

Depending on the location of the system, how old the system is some people are going to pay more? This will drive locational pricing within the residual

It is confusing how this maps across to tariffs. Impact analysis appears to assume a 1 for 1 mapping.



Do you see any issues with how we use Line Loss Factor Class (LLFC) to allocate our user groups? If so, what do you recommend?

more granularity ixed charges .. is just ridiculous:example : Same charge of £574 000 will apply to a 2 MW site than to a 200 MW site. As opposed to an agreed capacity methodology where the charges will be respectively c£16 000 and £1 650 000 respe

question why Economy 7 should pay a different charge

If you change the current assumptions then you need to reconsult

Blind to capacity/volume actually taken.

Probably need to segment EHV (or use agreed capacity) for fairness.

It is not clear what this would mean for LDNO tariffs if they have a different LLFC.

Better consumer profiles

highly unfair on users with low consumption. very different usage and ability to pay for light industrial unit and large heavy manufacturing unit.

Assumes that energy is transferred top down/one-way.



Do you see any issues with how we use Line Loss Factor Class (LLFC) to allocate our user groups? If so, what do you recommend?

Use agreed capacity where it exists, use a fixed charge methodology where it doesn't - a good compromise.

No - fair as if less efficient should pay more

have smaller user groups,

What about using three peak half hours separated by ten days to group users together?

No. It's simple, easily understood and seems fair.

If there are wide discrepancies between different DNO areas that would seem a massive contradiction of supposed commitment to "fairness"

Difference between larger and smaller customers may not be equitable in some cases.

This could create incentives to switch between meter and tariff types - for some cases it may be possible to avoid the charges.

Something based around that seems reasonable. Maybe grouping some classes together.



Do you see any issues with how we use Line Loss Factor Class (LLFC) to allocate our user groups? If so, what do you recommend?

What proportion of the room understands what LLFCs are and how have they been used

Assumptions are so sensitive that changes would require major changes

Doesn't work for EHV

Potential for unintended consequences as customers seek to change their class e.g. by buying the transformer that is solely for your voice.

Different use than LLFCs intended for. Must be easier route

fixed charge methodology to allocate revenue and where agreed capacity exists apply that to get the rate

Too complex, not transparent, LLFCs may be reformed, why not use the existing user groups such as duos?

Consulting on ideology but its actually the numbers which matter to users

Distributional impact is affected by the number of tariffs available. DCPs could easily increase or decrease the number of tariffs, affecting the impact.



Do you see any issues with how we use Line Loss Factor Class (LLFC) to allocate our user groups? If so, what do you recommend?

More work needs to be done to find best segmentation class against principles. LLFC is seemingly arbitrary

Agree using existing data set

Yes, llf is for line losses, if that gets reformed then it would have implications for residual charging. Could use tariff name instead

Could be distorted when applied to private networks.

LLFCs are a known quantity - pro; but the LLFCs (as currently defined) may not map to the types customer categories or voltages envisaged - con

Where you havent got agreed supplied capacity use a fixed charge

Where are LLFCs published and explained? Since transparency was such an important criterion...

HV demand LLFCs not granular enough

Tariffs can be different to LLFC for an individual customer.



Do you see any issues with how we use Line Loss Factor Class (LLFC) to allocate our user groups? If so, what do you recommend?

One class for EHV is not equitable enough. Agreed capacity for these users with Capacity agreement and fixed charge for everyone else?

A considerable issue is whether enough analysis has been done to establish if LLFC is the right marker to use to segment users.

Is it right that a private wire site is treated as a single, large demand site, rather than, e.g., many smaller domestic sites

In an area where the system is older, The higher the loss the greater the charge?

Inadvertently introduces locational price signal?

Need more information about the LR

Very difficult to find out information about what LLFCs are.

Why not something new and specific for purpose? There is a risk of unforeseen consequences of applying something not designed for this task

Smart meters may change LLFC.



Do you see any issues with how we use Line Loss Factor Class (LLFC) to allocate our user groups? If so, what do you recommend?

Agreed capacity for larger demand

We need further clarity of how this will work. How are Costa allocated to the LLF bands?

If locationality is used as a factor then you end up with a signal as those that can afford to avoid a larger charge in one DNO region can do so.

Could affect decisions for people to move towards HH tariffs.

Need more granularity within segments, disparity between high and low users too large, especially at hv

EHV customers are not all the same in terms of consumption, but if all EHV customers classed as one group then would be treated the same despite considerable difference in consumption

Agreed capacity for higher voltages as poss solution for some.

Not proportional depending on connection

there are other registration items Consumption Component Class and Measurement Class



Do you see any issues with how we use Line Loss Factor Class (LLFC) to allocate our user groups? If so, what do you recommend?

Can DNOs change your LLF?

Yes - need backstop..

Implement asap

Do you have any concerns with the timescales we have set out?

BSUOS task force is too short

Yes, decision after access

If taking benefits away now then need more certainty about how they might be introduced at a later date

Way too fast for BSUOS EB - very definition of BSUOS is up for debate!

Combine implementation of tvr and access reforms

The TCR and SCR need to deliver at the same time so as not to distort net impact

Yes - should have widely consulted on BSUoS separately, and concluded a task force, before looking at implementation

2020 implementation of BSUoS is unfeasible.

Many concerns with the policy never mind the timescales!



Do you have any concerns with the timescales we have set out?

Implementation of TCR, SCR and embedded benefits should be aligned.

Small Gen Discount' - reserve position until Access Review concludes!

No. Do as soon as possible no need for 21-23 gradual implementation

No, timescales are OK. This has been flagged so far ahead and there is so much value from doing these changes, don't cheat the consumer with too much delay

The quicker this process is completed and changes are implemented, the quicker investor confidence can start to return from its current disaster zone. This should all be done by April 2020.

BSUOS makes sense with TCR timescales and Access SCR needs to align

timescales - wrong way round for Access and TCR - need to understand forward looking charges first

It will be very difficult to get the detail of the mods completed by Oct this year. There will be lots of details to be resolved e.g. negative fixed charges.

TCR and SCR timescales should match



Do you have any concerns with the timescales we have set out?

April 2020 implementation needs to be ruled out completely as no mod is ready to go that meets TCR objectives.

Implement as late as possible to enable wider access to the BM to bed in and avoid the playing field becoming unlevel in favour of transmission-connected plant

Too short because not enough clarity on the charges first

Implementation should be at the same time for both SCRs

assumptions are 100 per cent wrong it doesn't certainly come from industry as any solar, wind or storage developer will be able to tell you investments are already delayed and changes will have a negative impact

Timing of BSUoS TF and relationship to EB reform.

small generator discount extension needs to be calculated at correct new value taking account of phasing in of CMP264/5, 25% of sum of (TGR and TDR) is NO LONGER CORRECT !!!!

Phased change to give public time to push suppliers for passed through costs

Combine launches of different changes to same time. Especially TCR and access as impacts of one will potentially offset the other



Do you have any concerns with the timescales we have set out?

Synchronize the BSUoS task force, TCR and Access implementation

Apportioning forward looking first needs to happen - then impacts of residuals can be determined

BSUoS issues need to be addressed ASAP for cross border issues (CMP308). At that point you may as well address embedded benefit. ie no generation gets charged and gross demand charge.

Transitional periods can be useful but you still have to continually adjust. Sometimes a single change is better

Delay will inevitable benefit some but not others.

Fearful of a rush job seeking a good news story for the consumer that doesn't turn out to be true because of negative impact on roll out of renewables

Align implementation with all the projects. Cross over between Access, TCR, BSUoS task force.

Mandatory half hour and smart meter roll out and EV / storage take up needs to be considered as happening in similar timescales

Phasing required for removal of the negative TGR, consistent with approach taken to removal of residual benefit for distributed generators.



Do you have any concerns with the timescales we have set out?

Alot to consider in a short timescale - asking too much in a too short a time period

longer the better to allow customers to build this into their plan and budget

3 months for BSUOS TF is too short, given time taken with CMP250 which still wasn't enough

All this has been flagged and lot of work done already by industry

Need to implement them both at the same time given their complementarity

Separate forum for smaller generators - too much already and too much to consider in the timescale

If it destroys case for mandatory half hourly settlement and isn't implemented until after it - then the case for change is broken down

Embedded benefit reform should be implemented ASAP as it delivers greatest consumer benefits.

Deal with the projects separately but implement them together. People can plan better.



Do you have any concerns with the timescales we have set out?

Forward looking residual is the... um... residual.. So forward looking first

Need to factor in sufficient time for communication with customers and other stakeholders.

access and TCR alignment

Addressing how BSUoS recovered is more urgent than trying to find cost reflective elements and pull them out.

Some of the investments will damage investment

FIT - goes in April, will be a hiatus before new policy - more investment uncertainty

Difficult to judge the change when all being done separately. Do we need a wrap up piece which incorporates all the changes together

If paying too much, things need to happen now, if you have made an investment on the current arrangements, user want to delay as much as possible

disagreements - either timescales have winners and losers.



Do you have any concerns with the timescales we have set out?

TCR is being done too quickly and SCR is going too slowly ! Industry needs change but at the right pace: slow down on residuals and speed up on locationals.

We have been talking about reform of embedded benefits since at least 2002. This has been a long time in coming

April 2023 implementation to coincide with ED2 and FLC

Timelines dont make sense. Why is BSUOS so much shorter

Why not deal with distortions as quickly as possible if it stops more efficient plant

As far as to the future is possible.

EB position comes across as knee jerk, ahead of the work being done to review

It is far too quick. This is massively detailed and needs to be considered fully and alongside other charging reforms to ensure consistency

Two reviews must be aligned



Do you have any concerns with the timescales we have set out?

Without alignment TCR takes away before A&FL creates Opportunities for a level playing field

Aligning the work streams to inform each other and ensure when decisions made are readily communicated

Ready to motor ahead now

Combine tcr and access and balancing





Consultation

- 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.

Targeted Charging Review

No understanding

How well do you currently understand the proposals in our TCR consultation?

6.8

Detailed understanding