

Delivery Group – 27 June 19



Agenda topic	Time
Welcome and introductions	10:00 – 10:05
Actions update	10:05 – 10:20
Project update and forward work plan <ul style="list-style-type: none"> • Working paper update • FCA open letter • Analytical framework • Charge design • Subgroup updates – connection boundary and small users set up 	10:20 – 11:50
DNO access to disaggregated consumption data	11:50 – 12:20
Lunch	12:20 – 13:00
Pros/cons of different flexibility options	13:00 – 13:30
Cost Models update	13:30 – 15:00
Access subgroup update	15:00 – 15:45
Close and AOB	15:45 – 16:00

Actions update

Project update and Forward Work Plan

1st working paper – Summer 2019

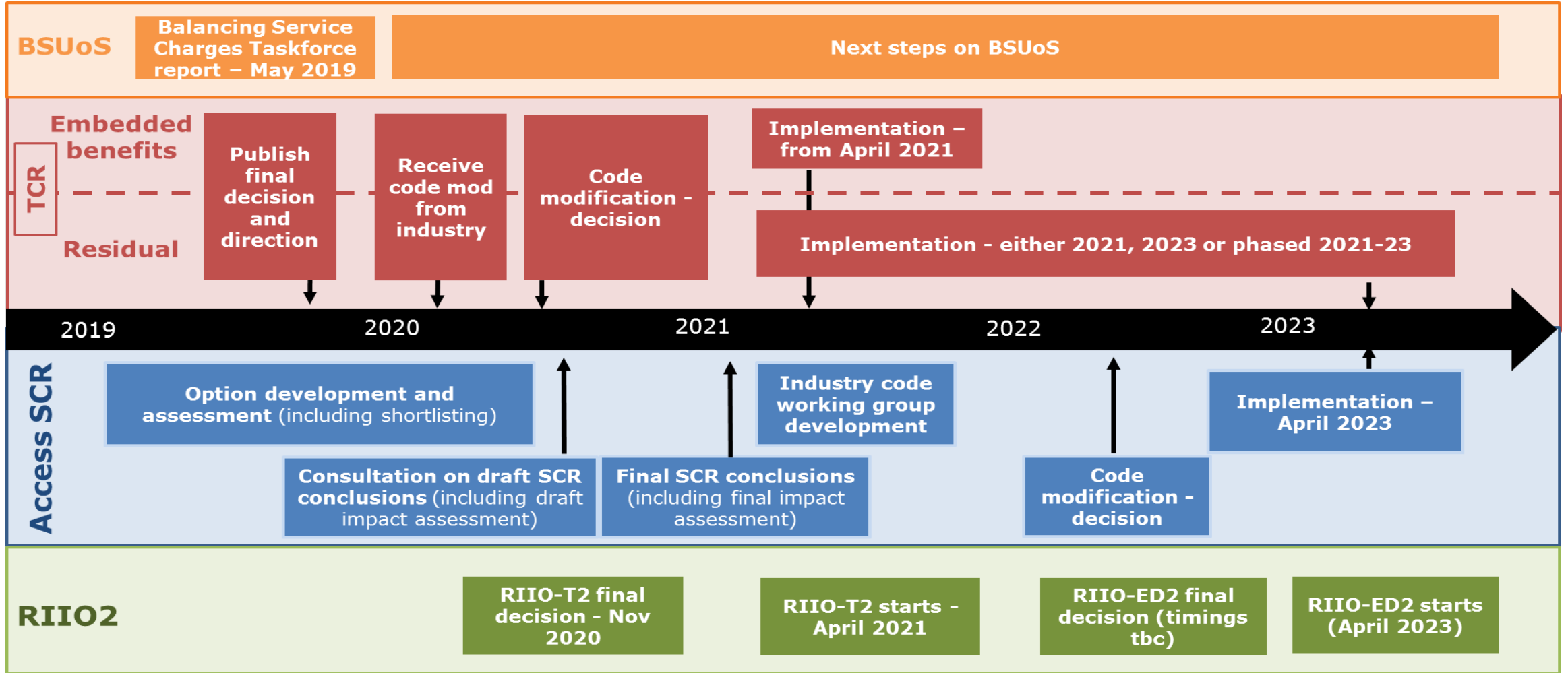
- The work of DG and CG
- The links between access, charging and flexibility.
- Cost models framework options
- Network charging options
- Access rights options
- Combined charging, access rights and cost model options

In May we published an [open letter](#) where we announced:

- The creation of our **“Future Charging and Access (FCA)” programme** – which is our new umbrella term to cover the Access, TCR and BSUoS projects
- Two implementation date changes:
 - Other embedded benefits reform to now occur in April 2021, and
 - Transmission charging reform in the Access project to now occur in 2023
- We are also considering 2023 implementation for TCR residuals reform (to align with Access reform)

In the **Access project**:

- We intend to target implementation of all changes, across transmission and distribution, and across access and forward-looking charges, on 1 April 2023. This is the start of the RIIO-ED2 price control period
- We plan to publish the first working paper this Summer and the second paper later this year
- We intend to consult on our draft Access SCR conclusions in mid-2020, with a decision on final SCR conclusions (including a final impact assessment) in early 2021.



We have continued to progress our analytical framework:

- As noted on an earlier slide, we have been developing our first working paper to be published over the summer. This includes a qualitative assessment of our longlist of options against the guiding principles (for those areas in scope of the paper).
- We've further developed our modelling requirements, including:
 - Defining the segmentation of our requirements into three segments (i) Reference Network Model development; (ii) Modelling the impact of options on the tariff methodologies; and (iii) impact assessment including distributional, behavioural and system analysis
 - We've commenced discussions with DNOs on work that has been done on distribution reference network models previously, and data available. We are taking this forward through a planned discussion with the ENA on the work done to date by WSP.
 - The DCUSA panel have signed off a first phase of work to scope out the tariff methodology scoping requirements and to identify the options to be included for modelling purposes.
 - We will be taking forward transmission level tariff modelling with the ESO, as discussed at the previous DG.
 - We've continued development of our modelling specification for (iii) and we intend commence a tender process for this in July
- As we cover in further detail in the following discussion, we have carried out eleven interviews with supplier members of the Challenge Group, focused on the impact of changes to network charges on their systems and tariffs. A number of themes have emerged from this process. We're also currently developing our plans for further engagement through a survey of all suppliers and subsequent interviews, commencing over the summer. This will consider tariff design for small consumers.

Testing our developing approach:

- We took our analytical framework approach to the Challenge Group on 14th May. We received a range of feedback which we are taking into account in the further development of the framework and in the shaping and delivery of modelling requirements.
- We held another analytical panel session with senior policy and analytical leads within Ofgem to test and further refine our modelling requirements

DNO surveys

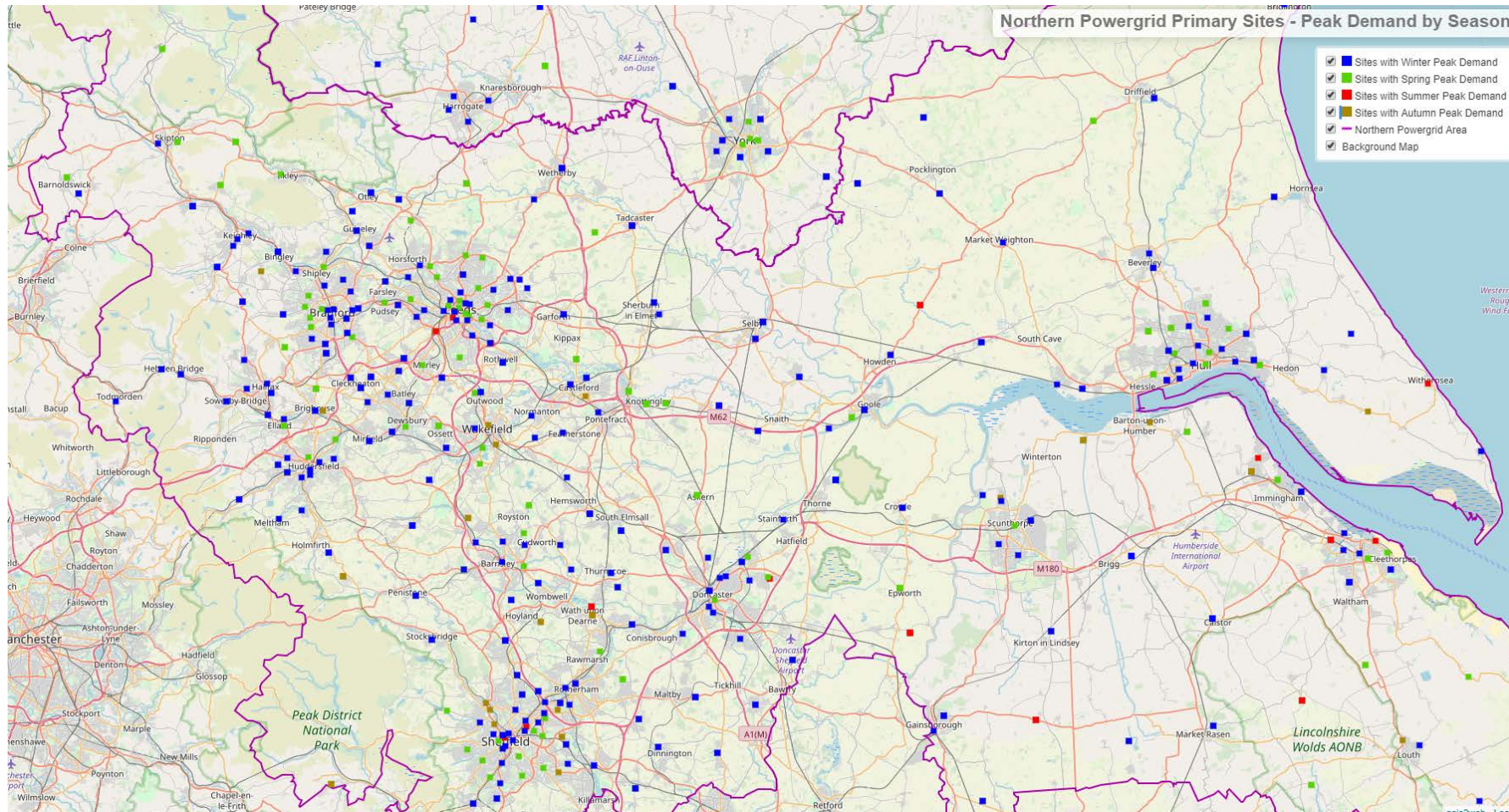
Key findings from the surveys are:

- Most DNOs indicated more clarity is needed before they can provide estimates for costs and implementation timeframes for dynamic charging options. Those DNOs who provided estimates indicated they were very uncertain.
- Indicative timeframe for implementing static charging options was proposed as 2-5 years.
- Several technical solutions for curtailment were suggested, including use of fuses and circuit breakers and use of load shedding schemes. Concerns raised about this being an option for demand customers and domestic customers in particular.
- All DNOs do some short term forecasting, although generally for network management purposes, and the majority of DNOs are doing trials looking at improving forecasting in the future. Although DNOs recognise links between this and DSO transition, limited views on future accuracy of forecasting.

Supplier interviews

- We carried out eleven supplier interviews, focused on the impact of changes to network charges on their systems and tariffs. Initial emerging themes include:
 - All agreed that technology and automation solutions are needed, but significant differences in views on timeframes and customer take up
 - Responses differed significantly between small users (several suppliers noted SME also fall into this group behaviour wise) and I&C customers
 - Most suppliers have seen no (or very little) interest in complex tariffs in the domestic group and would continue to socialise costs for a large part of the market
 - Suppliers noted challenges with agreeing initial capacities for all customers and monitoring changes over time
 - No support for curtailment of small users, although several noted ability of suppliers to manage loads remotely.
- We will assess the findings in further detail and consider the implications for our charge design workstream.
- We are going to be undertaking further engagement with suppliers through surveys and workshops in the second half of the year, with a focus on small user impacts.

Season of peak demand occurs for primary substations in NPg's Yorkshire region



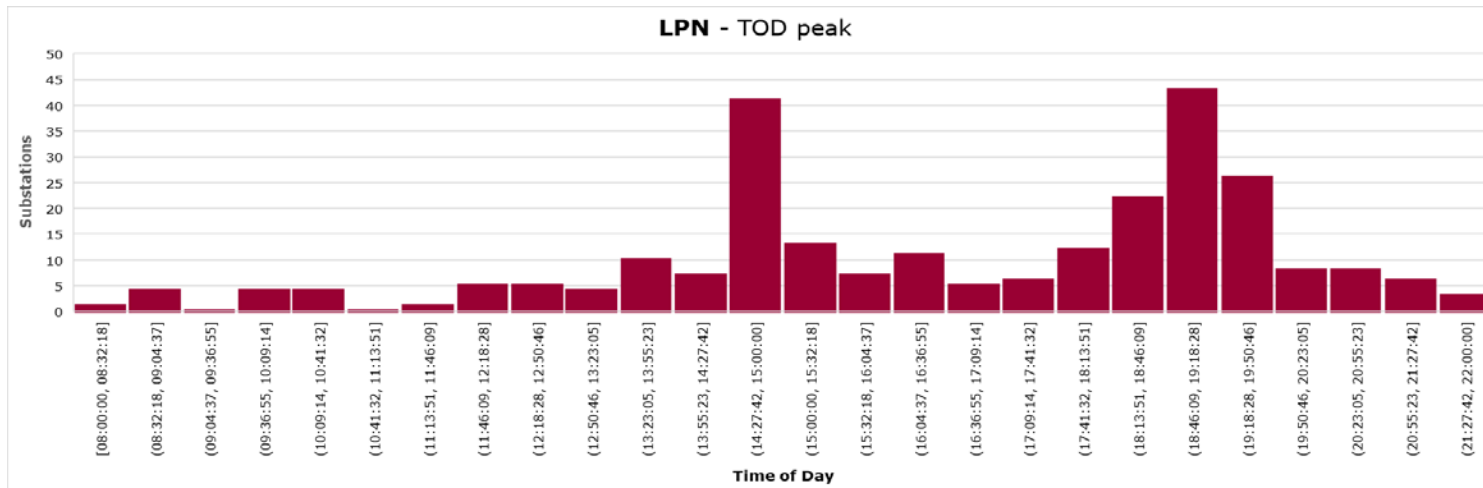
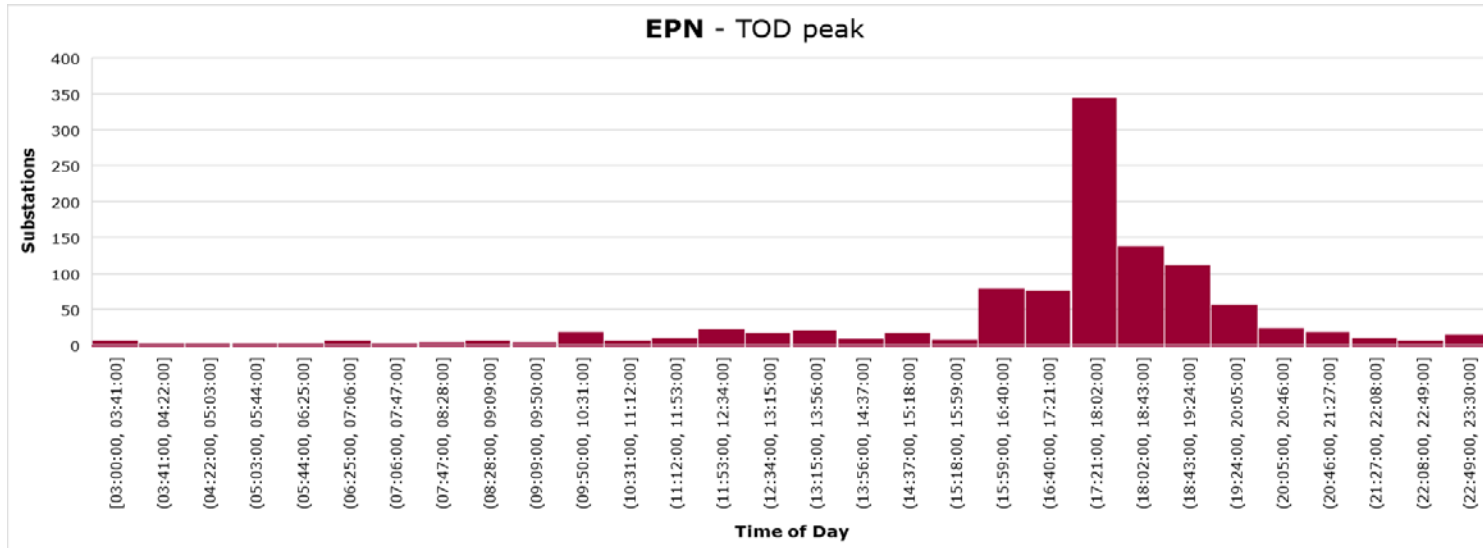
The map suggest that:

- A significant number of primaries in towns peak in other seasons
- It may not be cost reflective to only have winter peaks
- Not all regions have a clearly dominate season

Further work will need to be carried out to determine whether there are similar findings in other DNO regions

1. Is this consistent with the evidence across other DNOs?
2. Do all DNOs have data to carry out similar analysis?

Count of UKPN substations peaking at different times (HHly) *



Some key points illustrated in the graphs include:

- The majority of substations peak during the 'tea time' peak (4-7pm)
- However, in London there is a significant second peak period between 2-3pm, suggesting it may not be cost reflective to have a single peak period in a region
- We have seen analysis from other DNO regions that indicates they also have secondary peak periods
- The analysis does not identify different locations to determine if there are specific characteristics driving the second peak

1. Is this consistent with the evidence across other DNOs?
2. Do all DNOs have data to carry out similar analysis?

*Note, the graphs used actual time-of-day data and so the time periods are not exactly the same.

Membership and initial meetings

- We have had a good response to the request with all DNOs, an IDNO, NGENSO and NGET represented
- The group has met twice to agree the Product Descriptions and start considering options for change
- NGENSO also hosted a session on transmission user commitment

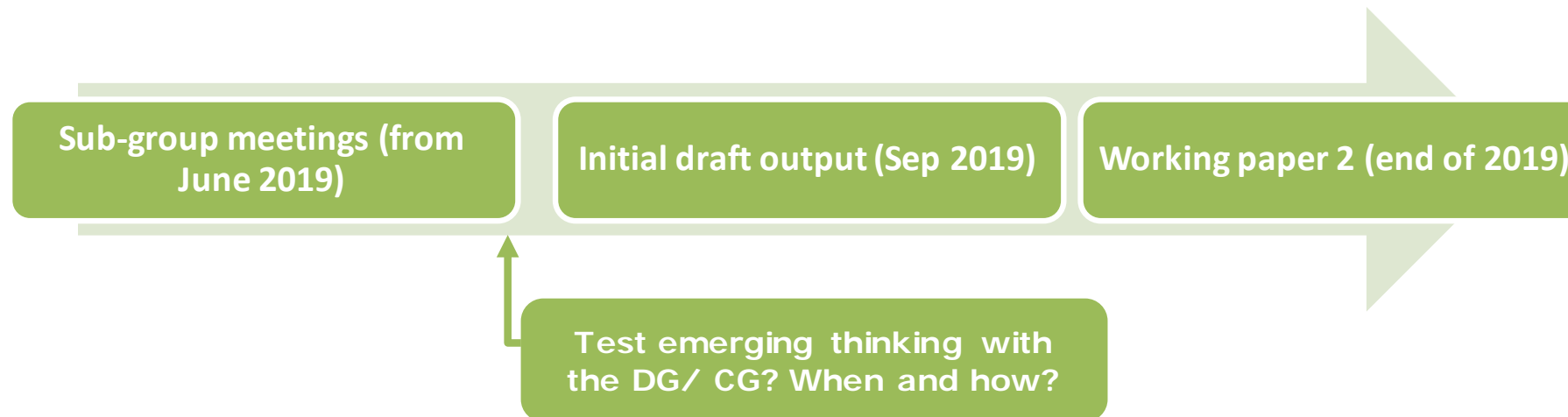
Initial options under consideration

- Grouped into three categories
 - Variations on the existing distribution arrangements (*High Cost Cap, Voltage Rule, Cost Apportionment Factor*)
 - Variations on the existing transmission arrangements (*shallow boundary, User Commitment*)
 - Other (*standard connection charges, delayed payment*)
- Compatibility of different combinations also being considered
- We are developing the options for change first before assessing the potential value

Evaluation criteria

- Options will be evaluated against criteria informed by the SCR principles
 - Efficient use and development of the energy system (*impact on flexible connections, customers over/under requesting capacity, clustering, competition in connections*)
 - An essential service (*impact on connection and DUoS charges*)
 - Practical and proportionate (*ease of implementation*)

Key milestones*



* Detailed plan being developed with ENA

Membership

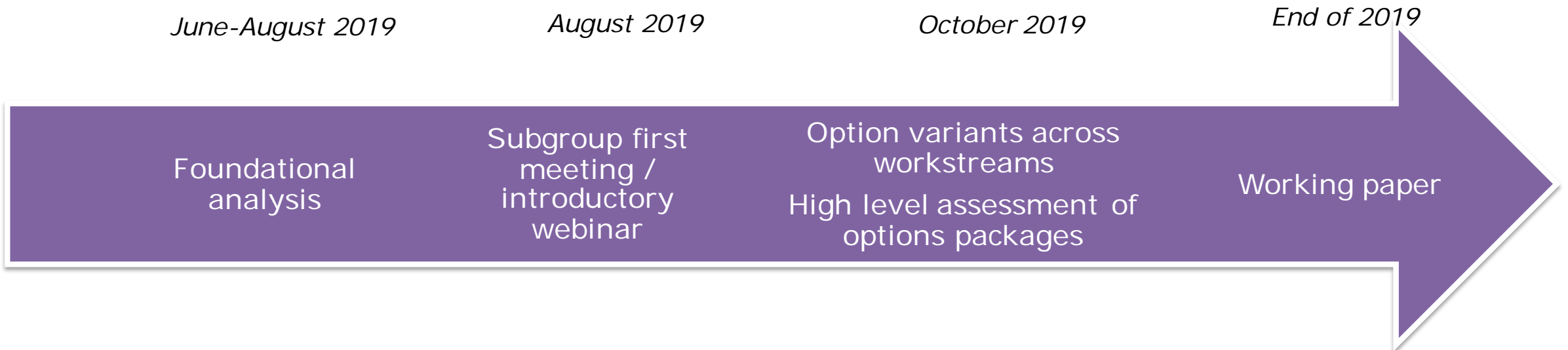
- We have received a good response to the EOI, including representatives from suppliers, network operators and Citizens Advice
- We are considering the EOIs we have received and will confirm the process to finalise membership, and arrangements for launching the subgroup in the coming weeks

Work to be covered

- Contribute to ad-hoc pieces of foundational analysis, likely to include:
 - Understanding user characteristics
 - Enablers of benefits
 - Potential adaptations and protection options
- Contribute to develop a view on option packages and undertake a high level assessment

- We aim to:
 - share materials from foundational phase with members to test with the group in mid-August
 - start subgroups meetings in late August/September
 - There may be aspects of foundational analysis where we seek earlier input from group members

Key milestones*



* Detailed plan being developed

DNO access to disaggregated consumption data

- Under the DAPF, DNOs are only able to access domestic customer consumption data on an aggregated (or otherwise non-identifying) basis. This decision is set out in standard licence condition 10A, which specifies that:
 - DNOs need to submit a data privacy plan that satisfies Ofgem that it can implement arrangements to ensure customers cannot be identified through the data they access (SLC 10A.4(a)).
 - Data relating to periods less than one month cannot be associated with a domestic customer at a relevant premises. This can be achieved through aggregation with other consumption data or by means of 'any other process' (SLC 10A.5).
- We have identified two areas where the restrictions under SLC 10A may create challenges, which are discussed in detail in the following slides:
 - Calculation of DUoS charges and billing suppliers on an individual customer basis
 - Access monitoring and enforcement
- One option is to amend the DAPF to enable DNOs to access disaggregated consumption data for the purpose of calculating and billing network charges. However, we consider it may not be possible to complete this process (i.e. impact assessment, consultation, licence change) in sufficient time to be reflected in development of solutions.

1. Are there limits to what a DNO can do with data that is anonymised to prevent them being able to identify a customer at a premises?

2. Are there any other areas where DNOs will require access to disaggregated consumption data?

- Under the current CDCM, suppliers are billed for their domestic and small non-domestic customers on an aggregated basis. In our charging design note, we set out that charges could be applied on an individual customer basis or aggregated by customer group (as per the current arrangements).
- If we implemented individual billing, DNOs would need to have access to customers' individual consumption data in order to calculate DUoS charges. As noted previously, this is not possible under the current DAPF.
- One alternative is to centralise the DUoS calculation and billing process with a third party that is able to access disaggregated consumption data. We discussed this with WPD and they identified a number of challenges and potential issues for us to consider:
 - The DNOs' revenue collection is subject to significant internal and external audit scrutiny
 - There would be treasury and budget implications if the DNOs were no longer able to set up individual billing timeframes and cycles. Suggest SLAs would need to be put in place
 - DNOs also carry out a number of associated functions, such debt collection and handling customer queries.
- **We are also considering whether to continue with aggregated billing for small users.**

1. Can you identify any other issues with centralising DUoS charge calculation and billing?
2. What implementation timeframe would be required to enable DNOs to make any changes to address these issues?

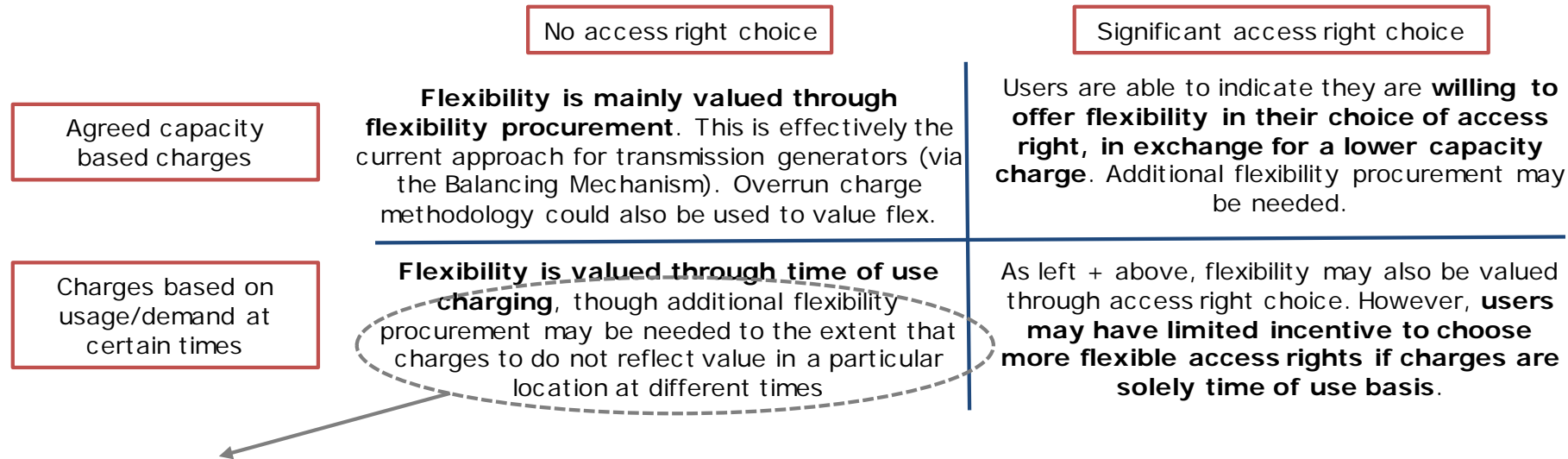
- To realise the benefits of better defined access rights, parties need to comply with their access rights
- DNOs currently only access domestic customer consumption data on an aggregated basis. For small users they do not have access to individual meter data to monitor compliance with access rights.
- For customers with an agreed capacity, DNOs can monitor customer capacities (sourced from use of system billing data) and apply to an excess capacity charge.
- If we improve the definition of access rights, DNOs may need access to more granular data to monitor compliance with access rights (eg time-profiled access rights). This data may also be required to calculate network charges.
- Alternatively the monitoring of access could be outsourced to other parties that do have access to disaggregated data (eg suppliers).

The access sub-group is developing a note on the current approach to monitoring and enforcing access rights, and the potential changes that may be required to implement new access choices. This will include drafting on the data required.

Do you have any views on the data that may be required to monitor and enforce new access choices?

Flexibility options

The matrix below illustrates how different potential SCR outcomes could mean the value of flexibility in relieving network constraints is recognised in different ways. These are simplified potential outcomes; in practice, there might be some other variants or hybrid options.



As alluded to here, additional decisions impact the extent that access/charging will provide full value to flexibility:

- Even with time of use charges, the different options will more or less accurately reflect the real short-run costs that the ESO/DNOs would face (under the counterfactual of no charges) to manage network constraints. Eg fixed time of use vs real time pricing
- To the extent that charges do not fully reflect locational differences in costs, there may still be a need for flexibility procurement in high cost areas, where the averaged charge (or discount to charges for flexible access choices) does not engender sufficient flexibility

We previously discussed the above matrix with the DG. We have now done more thinking on the relative pros and cons of different routes for valuing flexibility and want to get your input on this.

Advantages

- Giving users choice of access rights can give users a more direct choice (than through charging) of the extent to which they offer flexibility. For example a user may select a level of firmness or time profiling which they can tolerate for an appropriate and agreed level of benefit. Giving users choice over the access right may be perceived by users as having its own value. Giving users choice over access, rather than exposing them to dynamic pricing, can be seen a form of hedging against volatile charges.
- The development of access rights also builds on work already under way through the implementation of flexible connections. The number of flexible connections on the distribution networks across GB is expected to grow in the near future. Clarifying rights for these users may be necessary, and extending defined rights to other (existing) users may be pragmatic.
- The use of flexible connections has also introduced another potential market mechanism to resolve network constraints. Curtailment liability trading offers flexible connected users to trade their positions in the curtailment order to allow user who most value network access to pay for it, even if they were supposed to be curtailed.
- Non-firm access rights should give network companies a degree of certainty in the response which is more reliable than response from price driven flexibility.

Disadvantages

- Access rights for the network are not something that the average electricity consumer is used to engaging with, and they are not clearly defined for users of the distribution network. Therefore, it might be difficult for small users to understand and engage with access rights in a way in which they can offer flexibility to the system.
- Curtailment of small users, especially for essential services such as heating or lighting, may not be appropriate or acceptable, whereas with charging, users always have a choice to consume electricity if they are willing to pay.
- Access rights must be agreed between the user and the DNO. This may present some practical difficulties, particularly if those agreements are bespoke.
- Monitoring and enforcing the access right would require significant technology and systems cost to introduce.

Advantages

- One of the principle advantages of charging is that an efficient signal can be sent to all users of the network, all of whom must pay network charges. This means that network charges are able to drive a shift in the baseline demand or generation of network users away from those regions and times where they are driving network costs.
- The signal is very transparent and reasonably predictable (depending on charging cost models), which can help give flexibility providers a clear investment signal
- Some charges (such as a seasonal time-of-use charge) are likely to be relatively simple to implement within the current regulatory framework and institutional arrangements for network charging.

Disadvantages

- One challenge with network charging is being able to signal very localised network constraints through an administratively calculated charge. Network charges at lower voltage levels are currently averaged over wide geographical area, in part, due to challenges associated with modelling the network and accurately calculated a charge to such a granular level. For highly localised constraints, it may not be feasible to calculate an accurate network charge that can accurately signal the constraint.
- Similarly, time-of-use charges risk incentivising flexibility at times where it is not actually needed (because that period does not turn out to be a peak network event), ie unnecessarily distorting the efficient dispatch.
- Dynamic pricing of network capacity availability could address this but is likely to be inherently more volatile which could increase the risk exposure of network users to suddenly sharp charges which could have an undesirable adverse impact on those who are less engaged or less able to respond.
- More advanced network charging options (such as a highly dynamic, highly locational charges signalled close to real-time) could be very economically efficient, but may introduce increased complexity and could be more challenging to implement given significant differences to current arrangements. The practical challenges of implementing dynamic charging increase as you go down the voltage levels, because the high voltages already have more monitoring technology and systems embedded.

Advantages

- Where there is adequate competition between flexibility providers, this should reveal the efficient price for delivery of network services.
- Flexibility procurement can be highly locational and dynamic, whereas access rights and charging will inherently have an element of averaging.
- Network monitoring equipment for ESO/DNO procurement can be rolled out on a targeted, strategic basis, i.e. where there is a specific need. Meanwhile, administered access rights and charging rely on a ubiquitous approach, and so would require a wide-spread roll out of network monitoring equipment. It is likely more efficient to roll out monitoring infrastructure at the lowest voltages on a needs case rather than to all parts of the network due to the costs and practicalities of doing so.
- Flexibility procurement can send very short term signals based on the actual operating conditions of the network.
- Flexibility procurement should give network companies a degree of certainty in the response which is more reliable than response from price driven flexibility

Disadvantages

- Markets are not mature, and there are significant institutional developments and technological solutions that need to be implemented to deliver the benefits. There is also a risk that there may be some areas where liquidity is very low.
- Unless accompanied by appropriate cost reflective charges, there is a risk that those causing constraints end up being paid to fix them, with the cost of this being socialised across wider consumers.
- Flexibility procurement relies on network users being more proactive in their engagement with emergent flexibility markets (as opposed to charge which is passively and automatically applied in a cost reflective manner). This could make the route to market could be more challenging for small users who may be less aware and less able to access these markets compared to larger users. This may be particularly in locations where there are few flexibility providers to engage with (whereas access rights and charging reforms by their nature will send signals to all flexibility providers).
- There has been a perception that DNOs, and to a lesser extent the ESO, are biased towards network build solutions or that their decision-making processes are otherwise insufficiently transparent. Any actual or perceived non-neutrality in procurement could harm engagement and investment signals.
- Prices and revenues could be less predictable than administered access rights and charging reforms, which may mean less investor confidence.

Cost models

Access subgroup update

<p>Feasibility of new access choices</p>	<p>Access sub-group has produced a spreadsheet assessing the feasibility of offering new access choices across several key themes.</p> <p>A draft of this document has been circulated to the DG for comment – any comments welcome.</p>
<p>• Monitoring and access rights</p>	<p>Monitoring and enforcement regime important for realising benefits of improved definition of access rights. We are preparing a note on:</p> <ul style="list-style-type: none"> • Current approach to monitoring and enforcing access rights. • Potential changes to monitoring and enforcing access rights if we implement new access choices. <p>We intend to circulate the note to the DG for comment by email.</p>
<p>New access rights – market participation</p>	<p>Access sub-group has produced a spreadsheet assessing the compatibility between new access choices and wider markets that users may want to participate in.</p> <p>A draft of this document has been circulated to the DG for comment – any comments welcome.</p>
<p>Value to network users of new access choices – survey</p>	<p>We have issued a survey to CG about the value of different to access rights. We have had ~23 responses.</p>
<p>Value to network and system operators of new access choices.</p>	<p>We have issued a survey to all network and system operators to determine the benefits to them of improving the choice and definition of access rights.</p>

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.