# Open Networks programme Advisory Group

Thursday 4th November 2021

# Thank you for joining this Open Networks programme Advisory Group session.

- This webinar will commence at **09:30am**.

- If you are unable to play the audio through your device, you can **dial in by calling +44 20 3855 5885 and using access code 319421959#**

- All microphones have been set to mute to avoid background noise.

- Please ask questions or make comments **via the chat function** throughout the meeting.

- Please be aware this meeting will be recorded for ENA record keeping purposes. You may wish to keep your camera off in light of this.

- If you would like to receive information about the Open Networks programme or have any feedback you would like to submit, please get in touch with us at opennetworks@energynetworks.org.

# Agenda

| Item | Start | Finish | Time | Item | Presenter |
|------|-------|--------|------|------|-----------|
| 1 | 09:30 | 09:35 | 5 | **Welcome / Introductions**<br>Reminder that this is the last Advisory Group meeting | Farina Farrier (Head of ON - ENA) |
| 3 | 09:35 | 09:50 | 15 | **Progress updates** | Farina Farrier (Head of ON - ENA) |
| 4 | 09:50 | 10:00 | 10 | **Communications Update** | Emily Jones<br>(ON Communications Lead - ENA) |
| | | | | Product updates | |
| 6 | 10:00 | 10:15 | 15 | **Flexibility Consultation**<br>Update and key messages | Ben Godfrey (Flexibility Chair - WPD) |
| 7 | 10:15 | 10:30 | 15 | **WS2 P1 - Embedded Capacity Register**<br>Update on the launch of ECR V3.0 and next steps in the expansion to include assets down to 50kW | Steve Halsey (UKPN) & Bahij Youssef (WPD) |
| 8 | 10:30 | 10:40 | 10 | Break | |
| 9 | 10:50 | 11:05 | 15 | **WS1B P7 – Operational Data Sharing**<br>Update on plans to share network data | Richard Wilson (UKPN) & Avi Aithal (ENA) |
| 10 | 11:05 | 11:20 | 15 | **WS3 P1 – DSO Roadmap**<br>Discuss changes made to the format and seek feedback stakeholder usage | Avi Aithal (ENA) |
| 11 | 11:20 | 11:35 | 15 | **WS1A P1 – Common Evaluation Methodology**<br>Discuss update to the tool and seek feedback stakeholder usage | Simon Brooke (ENWL) |
| 11 | 11:35 | 11:45 | 10 | Wrap Up<br>• AOB/Closes | Farina Farrier (Head of ON - ENA) |

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# Advisory Group Terms of Reference

**The Advisory Group is essential to our project to:**

- Ensure stakeholders are aware and taking the Project into account;
- Request input from stakeholders to improve the quality of our products;
- Increase awareness about project risks & issues, ask for views on risks & issues and collaboratively resolve where appropriate.

**We will provide input to:**

- Steering Group on project scope, progress, risks & issues;
- Workstreams with deliverable comments/feedback.

We will seek to send information in advance of meetings to ensure that views can be sought by trade associations in advance. Our objective is to encourage open feedback from you all across all of our work.

Thank you for the continued input.

# **Progress updates**

Farina Farrier
(ENA Head of Open Networks)

# 2022 Scope & Challenge Group

2022 is another important year for the Open Networks programme as we ramp-up our efforts to enable Net Zero. Delivering this change in collaboration with the industry will be more important than ever and therefore, we are revising our governance to enable greater collaboration with the industry. With this in mind, we have launched the following:

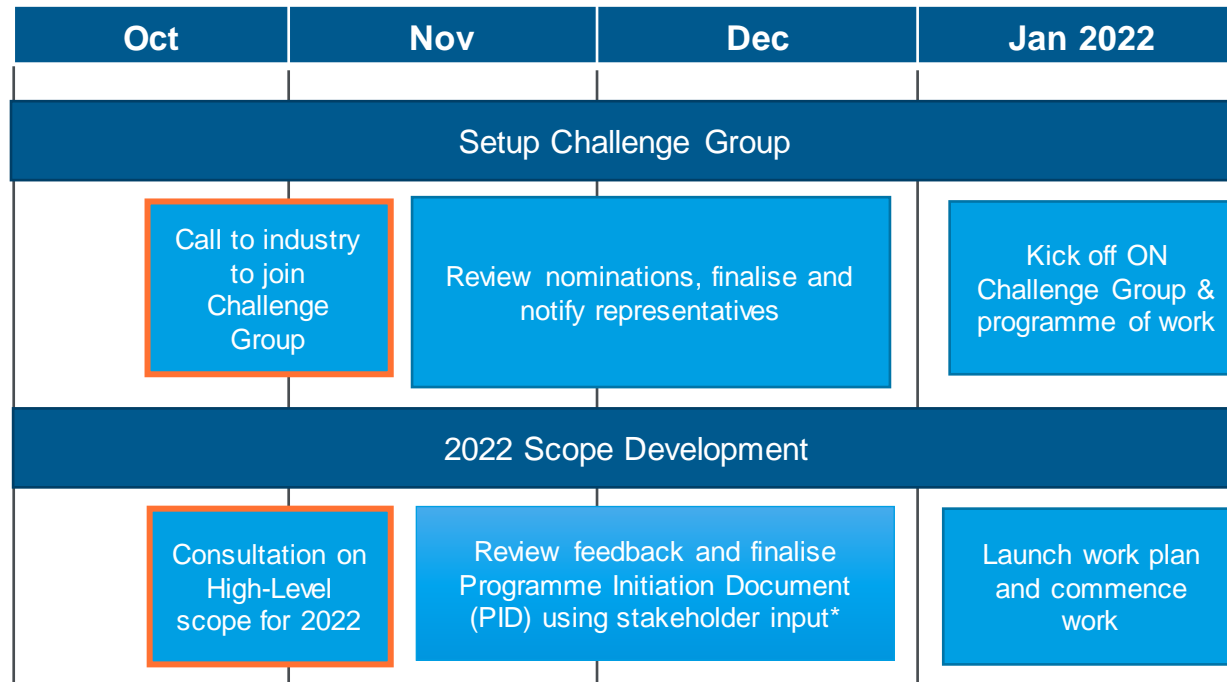| 2022 High-Level Scope Consultation | Call for participation in Challenge Group |
|---|---|
| In response to stakeholder feedback , we have brought forward our scope development process and are consulting on our high-level scope for next year to get early input from the industry on our work.<br><br>The Smart Systems & Flexibility Plan has been a key input and the proposed scope will enable us to deliver against key actions.<br><br>We welcome all feedback from stakeholders on our proposed work for 2022. We will use this to shape the final Programme Initiation Document that we will launch in Jan 2022.<br><br>• **Consultation on high-level scope for 2022** | We are setting up a Challenge Group to give stakeholders a greater voice in the programme with a focus on challenging and shaping the work of the Open Network programme.<br><br>A call for participation is currently open and we are welcoming applications from interested industry stakeholders.<br><br>• **Terms of Reference for Challenge Group**<br>• **Application form to join as Members**<br>• **Invitation to apply for Independent Chair** |

**This consultation and the call for participation will be open until 16th November.**

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# Next steps & timeline

| Oct | Nov | Dec | Jan 2022 |
|---|---|---|---|
| **Setup Challenge Group** | | | |
| Call to industry to join Challenge Group | Review nominations, finalise and notify representatives | | Kick off ON Challenge Group & programme of work |
| **2022 Scope Development** | | | |
| Consultation on High-Level scope for 2022 | Review feedback and finalise Programme Initiation Document (PID) using stakeholder input* | | Launch work plan and commence work |

*\* As part of the application process, Challenge Group applicants have been asked to provide their input on the scope that will be factored into the final work plan.*

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# How to get involved

If you are interested in learning more about any of the below please contact **opennetworks@energynetworks.org**.

| | |
|---|---|
| Join Challenge Group as a Member | Apply for Challenge Group Chair Role |

Join Dissemination Forum

# Recent publications

**Key consultation concluded**

- Flexibility Consultation on the full suite of 2021 ON flexibility products to get stakeholder feedback on direction, scope, and prioritisation.

- Version 2 of the Standard Agreement for procurement of flexibility
Consultation on major changes including significant reducing in length, and the alignment with the ESO for use in their flexibility procurement.

**Flexibility & Distribution System Operator developments**

- WS1A P8 ANM Apportionment - Stakeholder feedback summary
Feedback was sought on work to date including the proposed caps-and-collars approach

- WS3 P1 DSO Implementation Plan Q3 2021 update*
Updated with networks' progress against DSO transition activities. Including full data set with visibility of individual network actions.

- WS3 P2 Conflicts of Interest & Unintended Consequences register (heatmap update)
Q3 2021 update of heatmap plotting the risks and issues identified against impact and likelihood.

**Whole developments**

- WS4 P3 Coordinated Regional Data Gathering recommendation paper**
Recommendations to improve sharing of regional data.

- WS4 P5 Local Area Energy Planning 2021 Review paper
Overview of 2021 activity and next steps in collaboration with industry.

# Upcoming publications

Nov

Dec
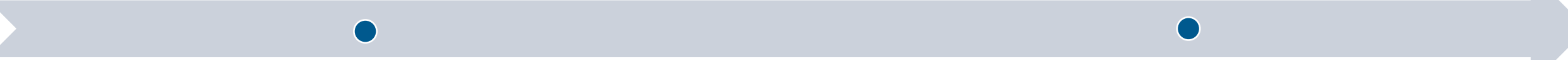
**Primacy principles** for multiple networks requesting action from a single flex provider (WS1A P5)

Review of 2021 activity on the **trading and sharing of capacity**, and next steps (WS1A P6)

Revised **Common Evaluation Methodology and Tool** to incorporate carbon value (WS1A P1)

V2 **Standard Agreement** for procurement of flexibility reflecting consultation feedback (WS1A P4)

**Flexibility consultation** summary and responses (WS1A)

Proposed format for a **register** to report how networks coordinate their activity (WS1B P9)

Implementation Plan for inclusion of assets down to 50kW in the **Embedded Capacity Register** (WS2 P1)

Scope proposal for a review of network **Connection Agreement** (WS2 P4)

Review of 2021 activity on the **Whole Energy System Cost-Benefit analysis tool** and areas for development & next steps (WS4 P1)

Baseline functional specification for **operational Distributed Energy Resource visibility & monitoring** (WS1B P6)

Cost-benefit analysis for all **Operational DER Visibility** & Monitoring use cases (WS1B P6)

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* On the agenda today

# Communications Activity

Emily Jones
(ENA Open Networks Communications programme Lead)

# Communications activity

## November Update

- 2022 high level scoping document and Challenge group call for participation

- 2022 scoping webinar

- DSO roadmap updates launch

- COP26

- Fifth year anniversary

# **Product Updates**

# Flexibility Consultation

Ben Godfrey (Flexibility WS Chair - WPD)

# Responses received

- Flexibility Consultation ended on 24th Sep (additional 1 week extension of deadline offered).

- 18 responses received in Total
    - Academic
    - Cross Industry Representative
    - Demand Side Response/Aggregator
    - Large Energy Companies
    - Supply Chain companies
    - Trade associations

- WS1A P4 - Standard agreement had a separate stand-alone consultation- which received additional 4 responses

# Spread of Responses received

| Organisation Name | Organisation Type |
|---|---|
| University of Southampton | Academics/Research company |
| Citizens Advice | Consumer Protection Party |
| Energy UK | Cross Industry Representative |
| The ADE | Distributed Energy Resource |
| E-Redes | DSO |
| Voltalis | DSR/Aggregator |
| Drax | Generator |
| E.ON | Large Energy Company |
| Centrica | |
| Octopus Energy | |
| Piclo | Platform provider |
| Heimdall Power | Supply Chain |
| M and W group | |
| SMS plc | |
| Servelectric | |
| Kaluza | |
| Supply Chain organisation | |
| REA | Trade association |
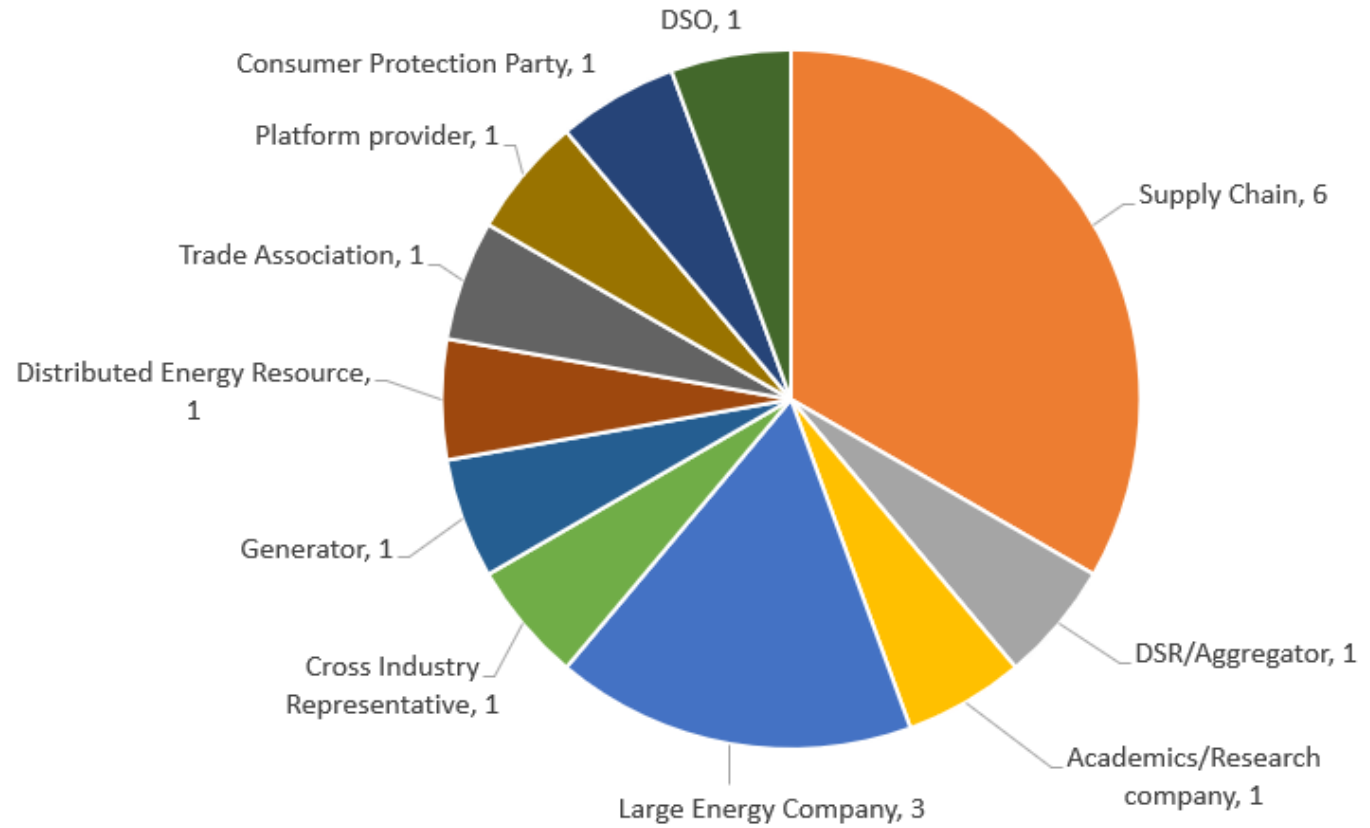
# Headlines and Summary

- Majority of responders generally supportive of the topics being covered and the high-level objectives set out in each product

- Majority of responders were aware of the Flex figure published on the ENA website and found it useful

  - suggested improvements through inclusion of additional details. (such as cost savings, technology type, time of contracting etc)

- Majority of responders generally welcome open governance; Lack of uptake for user forum mostly attributed to

  - Low availability of resources/ limited capacity
  - Lack of clear value to operational or commercial business processes from engaging
  - High entry requirements

- Some of the respondents noted a need for a joined-up overview of flexibility market framework

- Response to product specific questions are being addressed and will be published in the following weeks

# **WS2 P1 - Embedded Capacity Register**

Steve Halsey (UKPN)
Bahij Youssef (WPD)

# Agenda

1. **Enhancements to the ECR**
    Timeline
    Some of the key changes

2. **Current status and proposed changes**

# 1. ECR template enhancements - timeline



September · October · November · December · Q1-Q2 2022

**V3.0 of ECR Published by DNOs to align with G99**

**Future enhancements – 50kW**

# ECR updates

**Ofgem have very recently approved the Minor Technical Modifications proposal DCRP/MP/21/01, which includes the energy source and resource type tables used in the ECR**
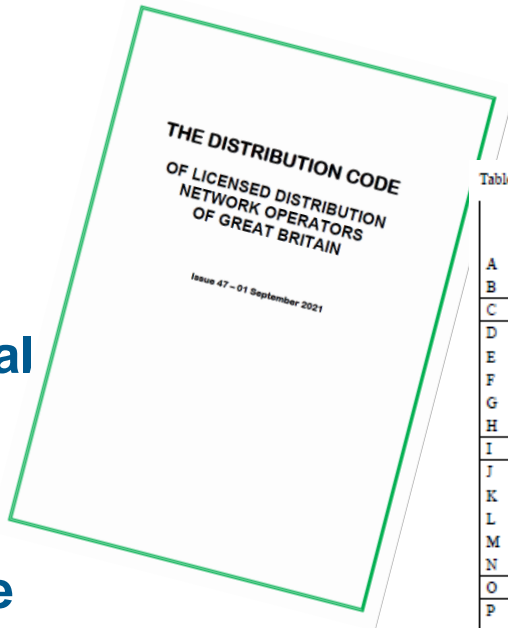
THE DISTRIBUTION CODE
OF LICENSED DISTRIBUTION NETWORK OPERATORS OF GREAT BRITAIN

Issue 47 – 01 September 2021

Table 1

| | Energy Source |
|---|---|
| A | Advanced Fuel (produced via gasification or pyrolysis of biofuel or waste) |
| B | Biofuel - Biogas from anaerobic digestion (excluding landfill & sewage) |
| C | Biofuel - Landfill gas |
| D | Biofuel - Sewage gas |
| E | Biofuel - Other |
| F | Biomass |
| G | Fossil - Brown coal/lignite |
| H | Fossil - Coal gas |
| I | Fossil - Gas |
| J | Fossil - Hard coal |
| K | Fossil - Oil |
| L | Fossil - Oil shale |
| M | Fossil - Peat |
| N | Fossil - Other |
| O | Geothermal |
| P | Hydrogen |
| Q | Nuclear |
| R | Solar |
| S | Stored Energy (all stored energy irrespectve of the original energy source) |
| T | Waste |
| U | Water (flowing water or head of water) |
| V | Wind |
| W | Other |

ENA Engineering Recommendation G98
Issue 1 Amendment 6 2021
Page 44

| | Energy Source |
|---|---|
| K | Fossil - Oil |
| L | Fossil - Oil shale |
| M | Fossil - Peat |
| N | Fossil - Other |
| O | Geothermal |

Table 2

| | Energy Conversion Technology |
|---|---|
| 1 | Engine (combustion / reciprocating) |
| 2 | Fuel Cell |
| 3 | Gas turbine (OCGT) |
| 4 | Geothermal power plant |
| 5 | Hydro - Reservoir (not pumped) |
| 6 | Hydro - Run of river |
| 7 | Hydro - Other |
| 8 | Interconnector |
| 9 | Offshore wind turbines |
| 10 | Onshore wind turbines |
| 11 | Photovoltaic |
| 12 | Steam turbine (thermal power plant) |
| 13 | Steam-gas turbine (CCGT) |
| 14 | Tidal lagoons |
| 15 | Tidal stream devices |
| 16 | Wave devices |
| 17 | Storage - Chemical - Ammonia |
| 18 | Storage - Chemical - Hydrogen |
| 19 | Storage - Chemical - Synthetic Fuels |
| 20 | Storage - Chemical - Drop-in Fuels |
| 21 | Storage - Chemical - Methanol |
| 22 | Storage - Chemical - Synthetic Natural Gas |
| 23 | Storage - Electrical - Supercapacitors |
| 24 | Storage - Electrical - Superconducting Magnetic ES (SMES) |
| 25 | Storage - Mechanical - Adiabatic Compressed Air |
| 26 | Storage - Mechanical - Diabatic Compressed Air |
| 27 | Storage - Mechanical - Liquid Air Energy Storage |
| 28 | Storage - Mechanical - Pumped Hydro |
| 29 | Storage - Mechanical - Flywheels |
| 30 | Storage - Thermal - Latent Heat Storage |
| 31 | Storage - Thermal - Thermochemical Storage |
| 32 | Storage - Thermal - Sensible Heat Storage |
| 33 | Storage - Electrochemical Classic Batteries -Lead Acid |
| 34 | Storage - Electrochemical Classic Batteries -Lithium Polymer (Li-Polymer) |
| 35 | Storage - Electrochemical Classic Batteries -Metal Air |
| 36 | Storage - Electrochemical Classic Batteries -Nickle Cadmium (Ni-Cd) |
| 37 | Storage - Electrochemical Classic Batteries -Sodium Nickle Chloride (Na-NiCl2) |
| 38 | Storage - Electrochemical Classic Batteries -Lithium Ion (Li-ion) |
| 39 | Storage - Electrochemical Classic Batteries -Sodium Ion (Na–ion) |
| 40 | Storage - Electrochemical Classic Batteries -Lithium Sulphur (Li-S) |
| 41 | Storage - Electrochemical Classic Batteries -Sodium Sulphur(Na-S |
| 42 | Storage - Electrochemical Classic Batteries -Nickle –Metal Hydride (Ni-MH) |
| 43 | Storage - Electrochemical Flow Batteries - Vanadium Red-Oxide |
| 44 | Storage - Electrochemical Flow Batteries - Zinc – Iron (Zn –Fe) |
| 45 | Storage - Electrochemical Flow Batteries - Zinc – Bromine (Zn – Br) |
| 46 | Storage - Other |
| 47 | Other |

# 2. Current Status & proposed changes

- The ECR (embedded capacity registers) has been developed by Open Networks under the Customer Connections & Information provision workstream over the years.

- The current ECR is published individually by DNOs in a common spreadsheet format and is updated monthly.

- This ECR data includes a list of generation projects accepted to connected or already connected to networks with a capacity of **>1MW.**

- Following DCP350 approval, in Oct 21 V3.0 of the ECR was launched with improved layout, usability, and applicability of the information presented and is due to be in place by Oct 21.

- As part of the scope for this year, Open Networks has identified the need to extend the current ECR to include assets up to **50KW,** which significantly increases the amount of data.

- The product team has established that given the scale of data, a spreadsheet solution will no longer be appropriate and a database solution would be necessary.

# Key ambition for digitalisation of ECR

To make the data contained in the ECR easily accessible to any users with a vested interest in embedded resources.

- There are multiple solutions being considered at this moment in time. The aim is to find the optimal solution that strikes the right balance between achieving the above ambition and establishing a sustainable data integration process.

- The optioneering process is taking place in collaboration with the members of the WS2 P1 and the ENA's Data and digitalisation Steering group to ensure the final solution is deliverable and feasible for all DNOs.

- Whilst the final solution is being worked out, the product team shall continue with the ongoing work on the ECR to include resources down to 50kW.

# Key Considerations

Need for a **phased approach** as we can't deliver an end-to-end solution on day 1 but want to make available what we can.
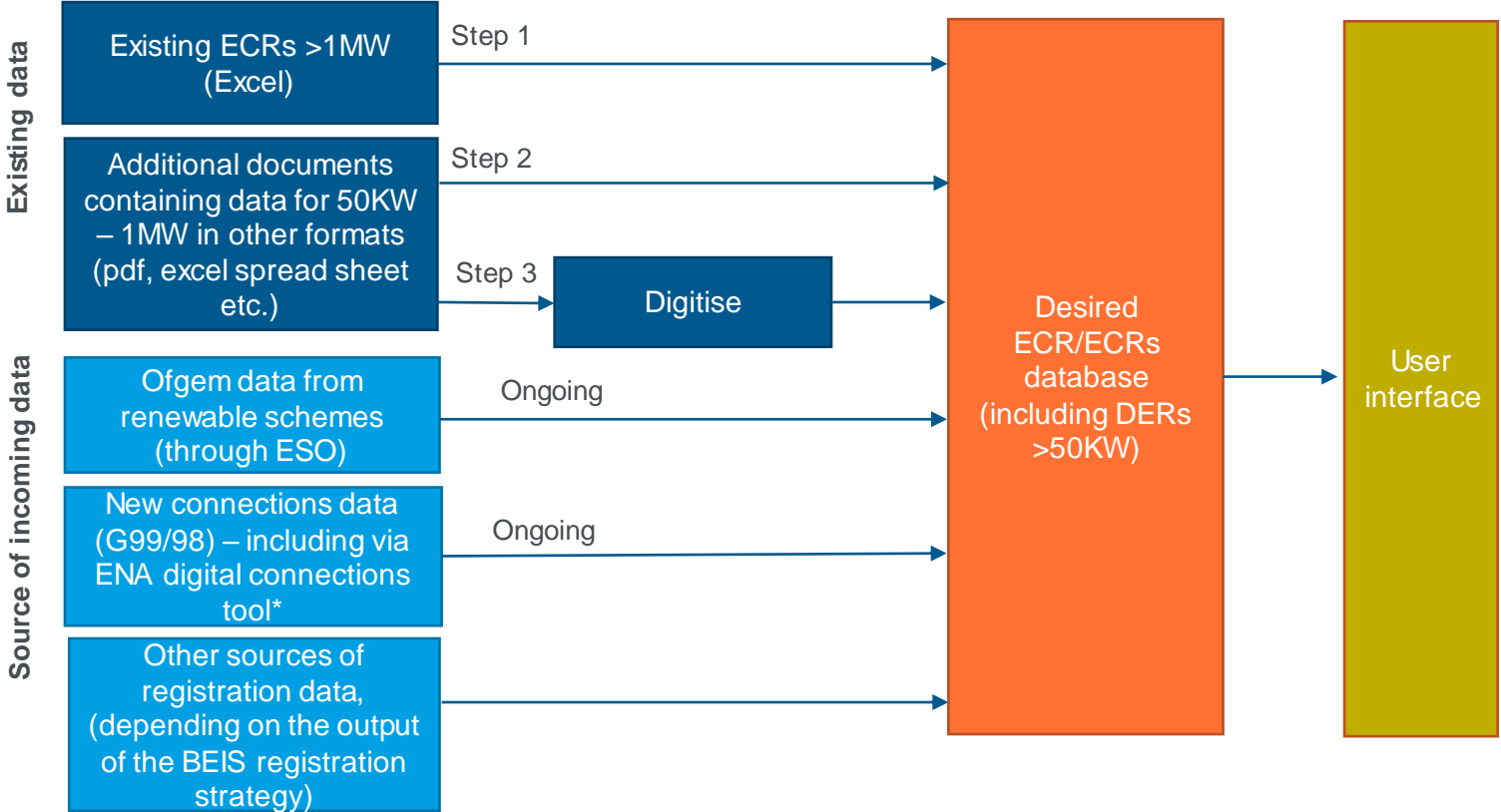
## Database design
Centralised vs decentralised database?

## Other considerations
- Open data principles to be included
- Alignment with BEIS strategy for knowledge & innovation assets in the public sector
- Alignment with ENA's digitalisation of the connections process

**Building blocks of a digitalised ECR .**



*building on SPEN iDentify Project

# 10 Minute Break

Returning at 10:40

# WS1B P7 – Operational Data Sharing

Identification of Information & Implementation

Richard Wilson (UKPN)

# Background & Scope

This product is aiming to improve the decision making of market participants and contribute to national data sharing targets

**Areas to be investigated:**
- Capacity rating and configuration
- Outage data
- Constraint data
- Historical utilisation rates
- Operational forecasting

# Work in Progress

**Provide customers with:**

- View of power flows on network
- Common data from DNOs for customers to utilise for own assessments
- Data on historic constraints
- Data on historic planned shutdowns and faults
- Future planned outage data

**How:**

- DNOs sharing data they have available now
- Further data to be added when available.
- Data set available from DNO websites
- Ability to download (standard csv or json format)

# Dataset: Capacity Rating & Configuration

**Benefits**

- Allows market to view historic & near real time view of network capacity & utilisation
- Allows customers to take own decisions on potential curtailments for new connections
- Actual supply location for DERs to understand which constraints they can provide services for [1]
- Provides the market with a view of where services will be required or where constraints will be apparent limiting DER utilisation
- Allows coordination of significant maintenance activities to limit impact to DERs [2] and to Network Operators [3]

(1) DERs supply location is changed due to fluidity of network topology during normal operation.

(2) DERs will be impacted where Network Operators have to limit the capacity available to them on the system.

(3) Network Operators will be limited in the services they can procure from market participants due to unavailability from planned maintenance, allowing the market to see in advance where there will be network outages leading to a requirement for services will allow the DERs to plan around these opportunities to provide services

# Clear Implementation Plan

- RAG status for each data item to clearly show timescales and areas of difficulty for each Network Operator

| Data Set | Market Data Requirement | DNO | Current Status | GAP | RAG to implement | Timeframe to Implement | Notes |
|---|---|---|---|---|---|---|---|
| Boundary Flow | GSP Boundary Flow MW | UKPN | Available for selection of GSPs | Requirement to expand to all GSPs | Easy | End of 2021 | |
| Boundary Flow | GSP Boundary Flow MVAr | UKPN | Available for selection of GSPs | Requirement to expand to all GSPs | Easy | End of 2021 | |
| Boundary Flow | GSP Boundary Flow Current | UKPN | Available for selection of GSPs | Requirement to expand to all GSPs | Easy | End of 2021 | |
| Boundary Flow | GSP Boundary Voltage | UKPN | Available for selection of GSPs | Requirement to expand to all GSPs | Easy | End of 2021 | |
| Boundary Flow | Granularity of data | UKPN | 10 minute averaged values | | Easy | | |
| Boundary Flow Data | Dataset Update Frequency | UKPN | Real time data pushed from archiving data system | | Easy | | |
| Boundary Flow Data | Expansion of dataset to include Grid and Primary | UKPN | | Process for GSPs makes this data viable, just needs expansion. Sites with single significant customers to be excluded so individual customer data will not be shared | Medium | 2022 | |
| Boundary Flow Data | Embedded Generation cumulative MW flow | UKPN | Currently provided for published GSPs | Only includes embedded generation with telemetered data | Easy | End of 2021 | |
| Boundary Flow Data | Embedded generation split by ECR type data | UKPN | | Currently split by generation type but not alligned with ECR | Medium | 2022 | |
| Boundary Flow Data | GSP Boundary Flow MW | WPD | Available historic 30min and real-time 5min | COMPLETE | Easy | COMPLETE | Dataset – Western Power Distribution's Connected Data Portal |
| Boundary Flow Data | GSP Boundary Flow MVAr | WPD | | COMPLETE | Easy | COMPLETE | Dataset – Western Power Distribution's Connected Data Portal |
| Boundary Flow Data | GSP Boundary Flow Current | WPD | | COMPLETE | Easy | COMPLETE | Dataset – Western Power Distribution's Connected Data Portal |
| Boundary Flow Data | GSP Boundary Voltage | WPD | To be added | Historic to be completed by end-2021 / real-time Q1 2022 | Easy | Historic end-2021 / real-time Q1 | |
| Boundary Flow Data | Granularity of data | WPD | 30min Avg for historic / 5min Avg for real-time | COMPLETE | Easy | COMPLETE | Dataset – Western Power Distribution's Connected Data Portal |
| Boundary Flow Data | Dataset Update Frequency | WPD | TBC for historic / 5min for real-time | real-time' data to be made available in October 2021 | Easy | COMPLETE | Dataset – Western Power Distribution's Connected Data Portal |
| Boundary Flow Data | Expansion of dataset to include Grid and Primary | WPD | | Identified as part of current workplan to be completed in 2022 | Medium | Q2 2022 | |
| Boundary Flow Data | Embedded Generation cumulative MW flow | WPD | Currently available at licence area and GSP level | COMPLETE | Easy | COMPLETE | Dataset – Western Power Distribution's Connected Data Portal |
| Boundary Flow Data | Embedded generation split by ECR type data | WPD | Provided at Solar, Wind, STOR and Other currently | Coordination of DG assets in ADMS system is required to assign ECR definition detail | Medium | Q2 2022 | |
| Boundary Flow Data | GSP Boundary Flow MW | NPG | Internally available in PI data store | Requires code to extracting data from PI API and placement into a suitable formate (eg csv) ready for collection from dedicated are of corporate website. Probably achievable in short term using desktop (office) type tools. | Medium | Q4 2022 | Conservative date and medium classification due to requirement for programmig expertise |
| Boundary Flow Data | GSP Boundary Flow MVAr | NPG | Internally available in PI data store | Requires code to extracting data from PI API and placement into a suitable formate (eg csv) ready for collection from dedicated are of corporate website. Probably achievable in short term using desktop (office) type tools. | Medium | Q4 2022 | Conservative date and medium classification due to requirement for programmig expertise |

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## Legal Concerns

- Power Flow data when combined with other datasets (ECR) can identify individual customers. Network Operator's legal views differ on ability to share this.
- Concern that publishing one customers operating regime can provide a market advantage to others within the industry (showing the markets they are active in).

- Without a definitive view certain locations will not have data published.
- Publishing data to lower voltage levels will potentially expose large number of customers

- Working through Data Triage Playbook does not provide definitive answer

- What is OFGEM's view?
- Once agreed this can be codified (DCUSA modification to add to customer agreements)

# Next Steps – 2022 plan

- Review and standardise mechanisms in place for data sharing between ESO and DNO/DSO

- Explore synergies with other products via the Data and Digitalisation Group and Regulation Group DSG), to develop a framework to optimise data sharing to improve market optimisation

- Long term method for data sharing - understand wider data sharing within industry (Open Data portals for DNOs) to combine data publishing. Data production should align with method for future publication of other long term datasets (LTDS / DFES)

- Grid Code Modification GC0117 (Generator Size) – this will change the party (ESO - DNO) as to who has the data to publish. Monitor this work and other whole system code changes that may impact data sharing.
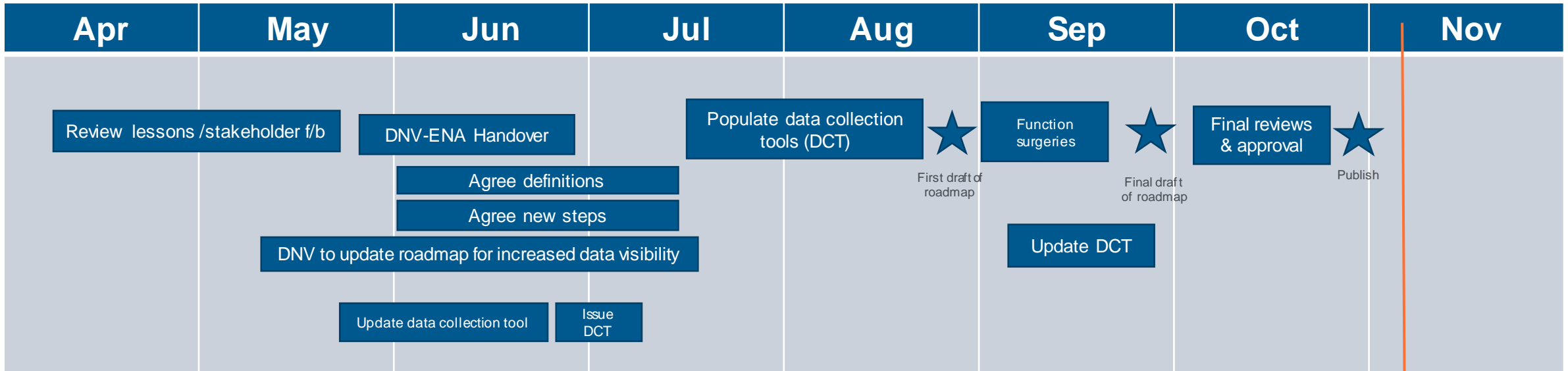
# WS3 P1 – DSO Roadmap
Avi Aithal (ENA)

# DSO Roadmap Update 2021

## Timelines

| Apr | May | Jun | Jul | Aug | Sep | Oct | Nov |
|-----|-----|-----|-----|-----|-----|-----|-----|

Review lessons /stakeholder f/b

DNV-ENA Handover

Populate data collection tools (DCT)

★ First draft of roadmap

Function surgeries

★ Final draft of roadmap

Final reviews & approval

★ Publish

Agree definitions

Agree new steps

DNV to update roadmap for increased data visibility

Update DCT

Update data collection tool

Issue DCT

**2021**

- DSO Roadmap
  - Q1 update focused on accessibility and useability (readability, search, extraction)
  - Latest iteration focuses on transparency and granularity (individual company data)

# Key changes for the latest 2021 update

- **DSO Roadmap to be updated show progress of <u>INDIVIDUAL</u> DNO/TOs**
  - Data collection tools updated by DNV for DNO level granularity
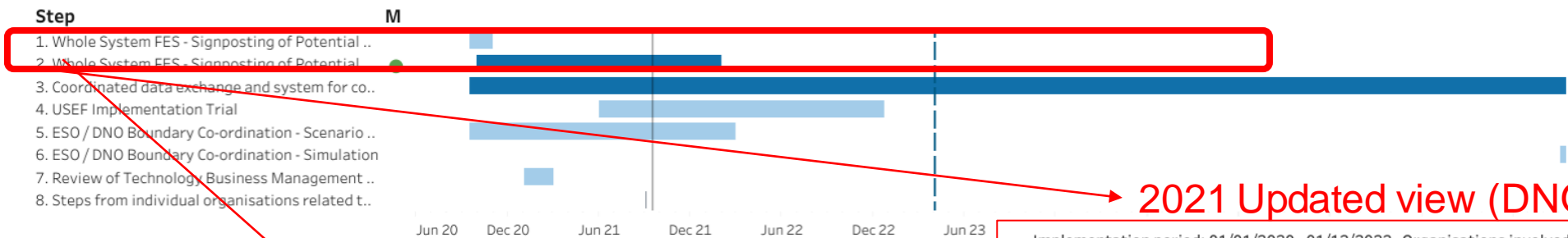
(Visualisation Retained form 2020)



2021 Updated view (DNO Level Granularity)

2020 view

# Key changes for the 2021 update

- **External stakeholder can now download an aggregated DSO Roadmap in EXCEL**
  Data include
  - ✓ Function, Activity and step description, ENA Product corelation
  - ✓ Status/Progress
  - ✓ Start/ estimated end
  - ✓ DNO specific comments and relevant links

| Step Nr | Step Name | ENA ONP Product | Organisation | Progress | Start date | End date | Comment | Progress link |
|---|---|---|---|---|---|---|---|---|
| 1 | Enhanced transmissic | 2019 WS1B P3 | ENA ONP | Completed | 01/01/2019 | 01/01/2020 | | |
| 2 | Co-ordinated Use of | 2019 WS1B P3 | ENWL | Initiated | 01/02/2020 | 01/07/2021 | | |
| 2 | Co-ordinated Use of | 2019 WS1B P3 | UKPN | Implementing | 01/02/2020 | 01/10/2020 | Commissioned | https://www.ukpowe |
| 2 | Co-ordinated Use of | 2019 WS1B P3 | NGESO | Completed | 01/01/2019 | 31/03/2021 | | |
| 2 | Co-ordinated Use of | 2019 WS1B P3 | SPEN | Implementing | 01/01/2020 | 01/06/2021 | Co-ordinated DER Intertripping is a B | |
| 2 | Co-ordinated Use of | 2019 WS1B P3 | SSEN-D | Implementing | 01/01/2020 | 01/10/2021 | | |
| 2 | Co-ordinated Use of | 2019 WS1B P3 | NPg | Initiated | | | | |
| 2 | Co-ordinated Use of | 2019 WS1B P3 | WPD | Initiated | 01/01/2020 | 01/06/2021 | | |
| 3 | Develop common con | 2020 WS1A P4 | ENA ONP | Completed | 01/01/2019 | 01/03/2020 | | |
| 4 | Adopt common contr | 2020 WS1A P4 | UKPN | Completed | 01/01/2020 | 01/12/2020 | Adopted comm | https://smartgrid.ukp |
| 4 | Adopt common contr | 2020 WS1A P4 | ENWL | Completed | 01/01/2020 | 01/03/2020 | | |
| 4 | Adopt common contr | 2020 WS1A P4 | WPD | Implementing | 01/12/2020 | 01/12/2020 | | |

# Status and Next Steps

## Status

- Data collection, Functional surgeries complete-No New steps identified in 2021
- Total of 544 steps progress/ status reviewed for all DNOs/ TOs
- Excel workbook published

## Next update

- Kick off Q2 2022
- To be Publish on Q3 2022

**The voice of the networks**
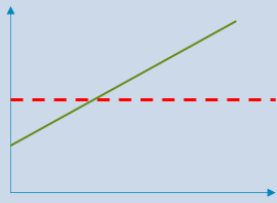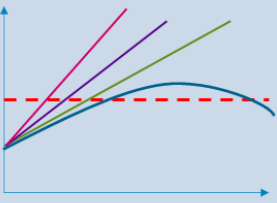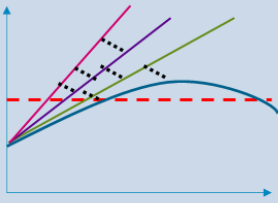
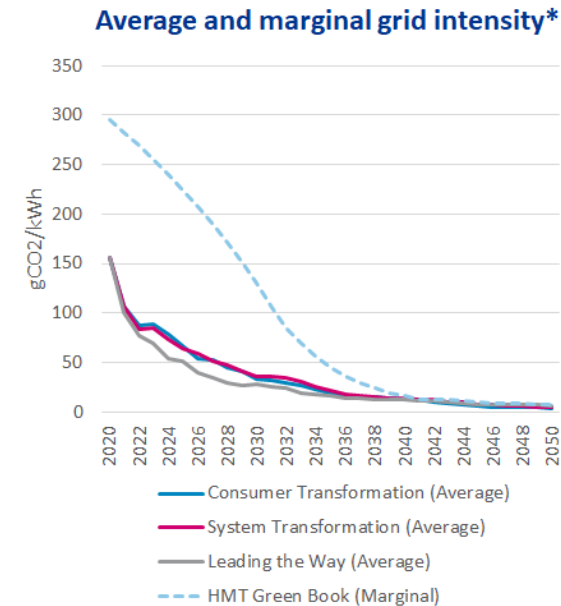# WS1A P1 - Common Evaluation Methodology
Simon Brooke (ENWL)

# Scope of CEM update



The working group agreed that the Common Evaluation Methodology (CEM) tool should have two updates in 2021:

▶ **Option Value:** Improving the way in which flexibility's optionality is modelled, acted upon, and communicated

▶ **Carbon impacts:** Provide additional functionality to model the volumes of $CO_2$ emissions driven by a given strategy

| 'Old world' | CEM1 | CEM2? |
|---|---|---|
| • Single 'best view' load growth scenario<br>• Flex can defer reinforcement, but unlikely to avoid it under most central views | • Multiple load growth scenarios, including typically a 'best view'<br>• Visibility of range of flex values<br>• Ability to consider uncertainty through probability weighting and/or Least Worst Regret | • Retain scenario approach<br>• Create additional pseudo-scenarios by allowing stepping between scenarios<br>• Will require probabilities and/or weightings<br>• Need to test the impact, and understand how to interpret |

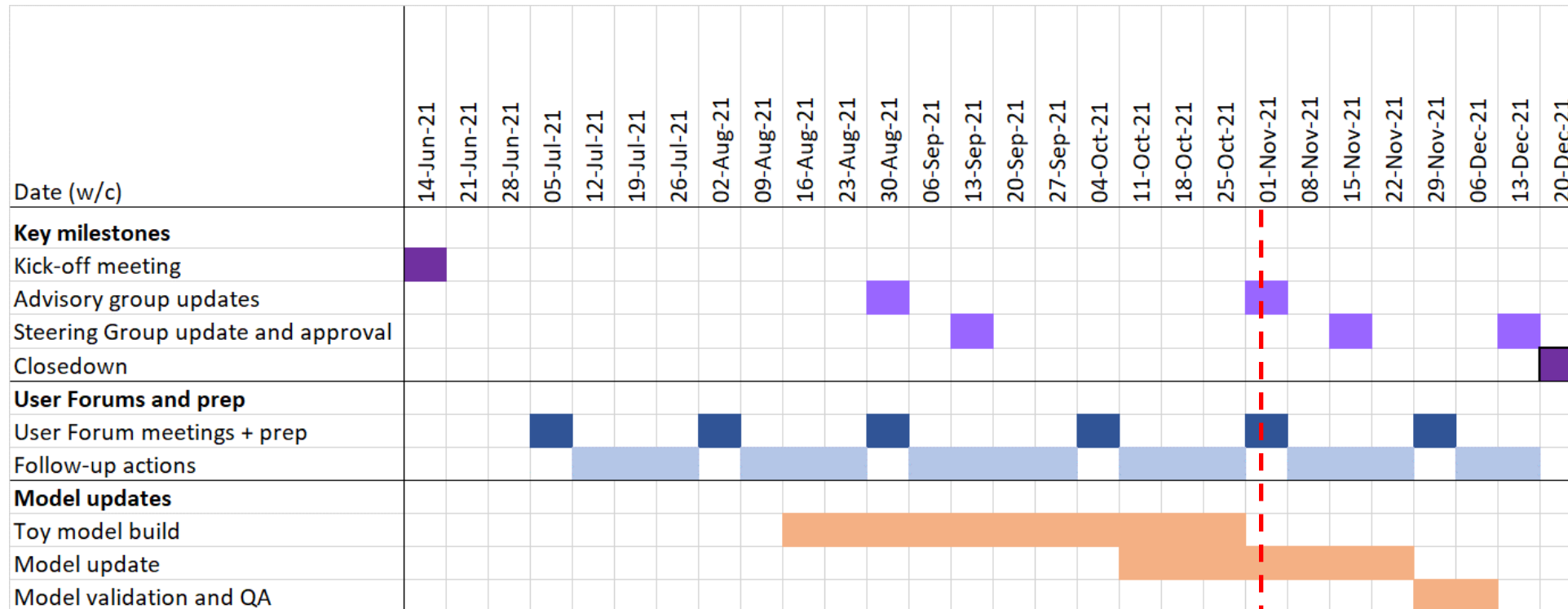**Average and marginal grid intensity***

- Consumer Transformation (Average)
- System Transformation (Average)
- Leading the Way (Average)
- HMT Green Book (Marginal)

\* FES scenarios exclude –ve emissions from BECCS. Only net-zero consistent scenarios shown.

**Baringa**

Original plan assumed User Forums instead of weekly Working Group sessions

▸ Majority of decisions have now been made around modelling **carbon** in the CEM, and are now being reflected in the CEM tool

▸ Some aspects of **Option Value** are being implemented, but the more complex changes are being paused pending wider consultation

| Date (w/c) | 14-Jun-21 | 21-Jun-21 | 28-Jun-21 | 05-Jul-21 | 12-Jul-21 | 19-Jul-21 | 26-Jul-21 | 02-Aug-21 | 09-Aug-21 | 16-Aug-21 | 23-Aug-21 | 30-Aug-21 | 06-Sep-21 | 13-Sep-21 | 20-Sep-21 | 27-Sep-21 | 04-Oct-21 | 11-Oct-21 | 18-Oct-21 | 25-Oct-21 | 01-Nov-21 | 08-Nov-21 | 15-Nov-21 | 22-Nov-21 | 29-Nov-21 | 06-Dec-21 | 13-Dec-21 | 20-Dec-21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Key milestones** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Kick-off meeting | ■ | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Advisory group updates | | | | | | | | | | | | ■ | | | | | | | | | ■ | | | | | | | |
| Steering Group update and approval | | | | | | | | | | | | | | ■ | | | | | | | | | ■ | | | | ■ | |
| Closedown | | | | | | | | | | | | | | | | | | | | | | | | | | | | ■ |
| **User Forums and prep** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| User Forum meetings + prep | | | | ■ | | | | ■ | | | | ■ | | | | | ■ | | | | ■ | | | | ■ | | | |
| Follow-up actions | | | | | ▬ | ▬ | ▬ | | ▬ | ▬ | ▬ | | ▬ | ▬ | ▬ | ▬ | | ▬ | ▬ | ▬ | | ▬ | ▬ | ▬ | | ▬ | ▬ | |
| **Model updates** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Toy model build | | | | | | | | | | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | | | | | | | | | |
| Model update | | | | | | | | | | | | | | | | | | | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | ▬ | | | |
| Model validation and QA | | | | | | | | | | | | | | | | | | | | | | | | | ▬ | ▬ | | |

# Carbon impacts

**Issue:**

▲ The CEM tool currently allows the user to input the relative carbon impact of each strategy and scenario, but does not enable the user to estimate the carbon impact within the tool itself.

**Changes made to the tool:**

▲ The tool has been updated and now provides the functionality and initial data to allow the user to estimate:

— the **embedded carbon** in the reinforcement option.

— the **emissions impacts associated with the flex solution** (i.e. from DSR, energy efficiency, diesel genset, battery storage).

— The **emissions associated with losses**.

— **Other emissions impacts** not accounted for above.

▲ The following updates were also considered but were rejected by the WG:

— Integrating the Losses Tool into the CEM tool.

— Including emissions intensities for each DFES to reflect the different decarbonisation pathways of each scenario (rejected as marginal grid intensity data was not available for each FES).

## User inputs

- No. assets used in reinforcement option
- Flex solution type (e.g. DSR, energy efficiency, diesel genset)
- Volume of flex (i.e. utilisation)
- Losses impact of reinforcement and flex option
- Other emissions impacts

## Model assumptions

- Carbon values
- Grid emissions intensities
- Carbon intensity of assets

## Output

- Value (in £) of change in carbon emissions for each strategy and scenario

# Option value: progress and next steps

- ▲ WS1A has explored different ways of modelling Option Value within the CEM

- ▲ Questions addressed to date
  - – To what extent **is option value already modelled** in the CEM (via the use of multiple scenarios)?
  - – Can flexibility option value be modelled as a **decision tree**, and what form should this take?
  - – Does modelling additional scenario branches (i.e. decision tree) **increase the value of flexibility**?

- ▲ We are confident that a branching structure can be incorporated into the CEM tool, but are less sure whether doing so will be of use to DNOs and to market participants

- ▲ The existing analysis, toy models and written materials will be collated with the intention of undertaking some form of wider engagement before committing to substantial model updates

- ▲ Nevertheless, we are updating the CEM to ensure that 'option value' already calculated in the tool is made more explicit (see next slide)
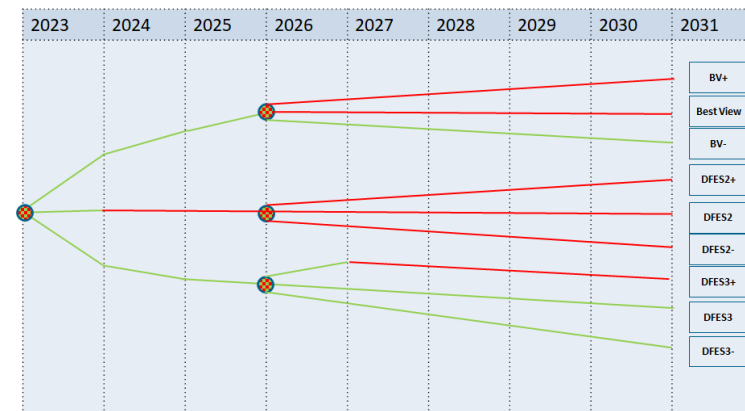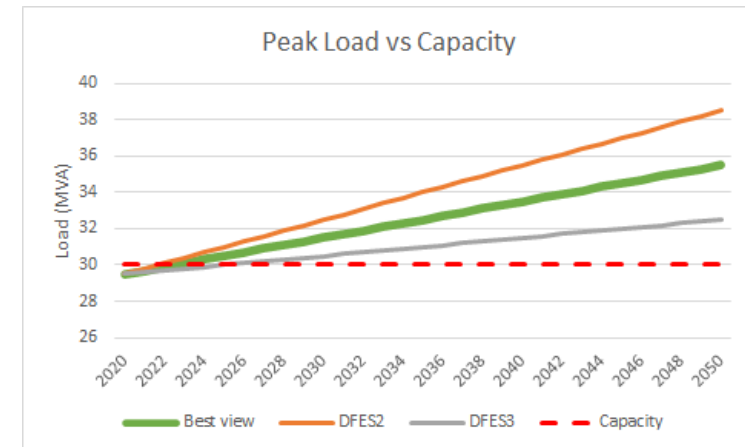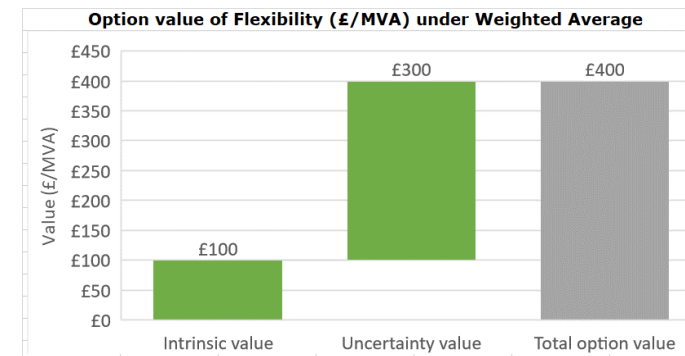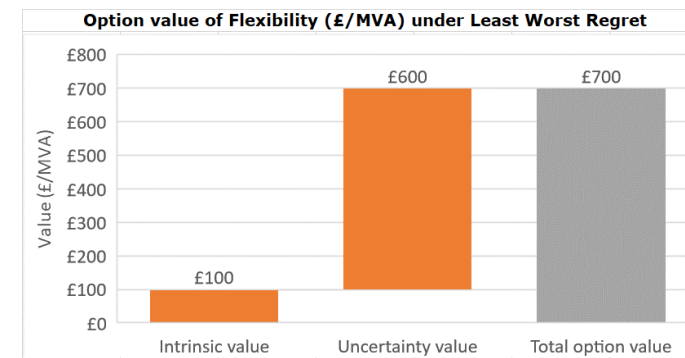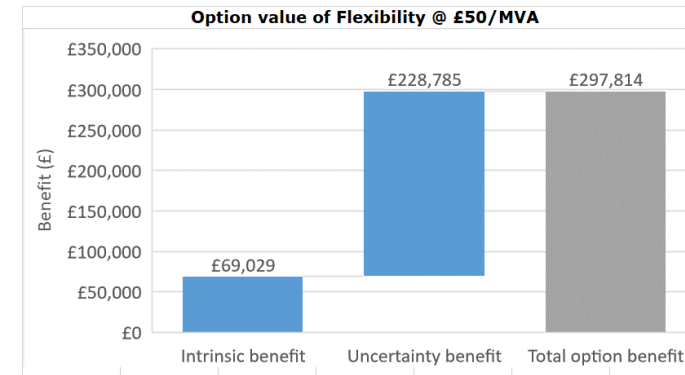




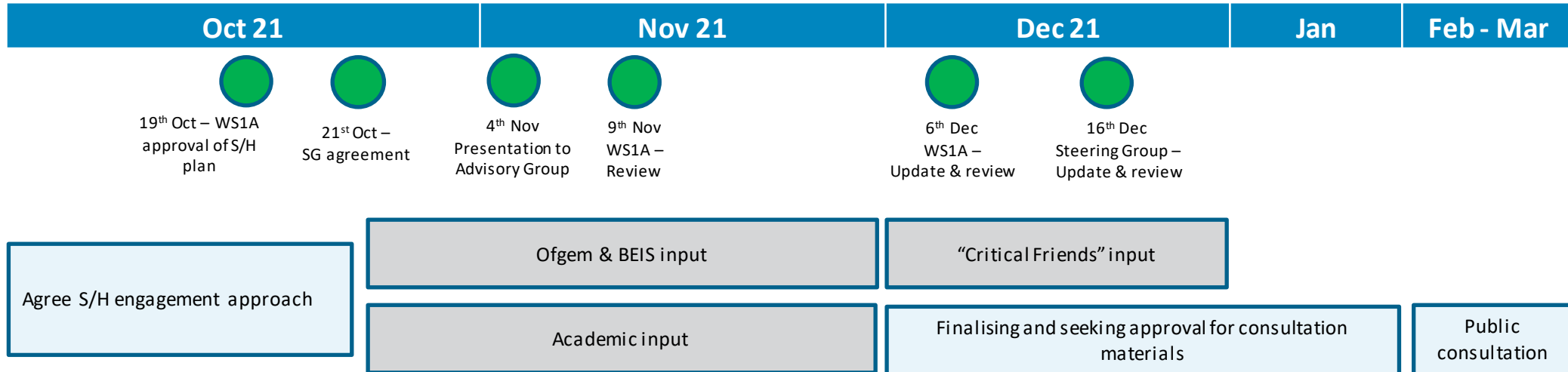| Modelling approach | NPV |
|---|---|
| Single scenario (no forward look) | £25k |
| Single scenario (with forward look) | £44k |
| Three scenarios | £68k |
| Three scenarios with additional branch | £91k |

# CEM updates to show option value more clearly

Option value is already calculated to some extent in the CEM, so the tool is being modified to make this more explicit

- ▲ The project team has agreed a number of changes that will make the calculation of option value more clear in the CEM
  - Includes new visual, additional functionality, and some improved wording (which is subject to final agreement)
- ▲ Modifications include:
  - Making NPV under 'best view' more explicitly linked to the concept of *'intrinsic value'*
  - Showing the additional value revealed by having multiple scenarios as *'uncertainty value'* (alternatively *'extrinsic value'*)
  - Combining these two to show the *'total option benefit'* of flexibility
- ▲ Other changes include adding a *'minimum contract length'*, in particular to make the ceiling price functionality more useful and realistic



Option value of Flexibility @ £50/MVA



Option value of Flexibility (£/MVA) under Least Worst Regret



Option value of Flexibility (£/MVA) under Weighted Average

# Timeline for stakeholder engagement on CEM Option Value

| Oct 21 | Nov 21 | Dec 21 | Jan | Feb - Mar |
|--------|--------|--------|-----|-----------|

19th Oct – WS1A approval of S/H plan

21st Oct – SG agreement

4th Nov Presentation to Advisory Group

9th Nov WS1A – Review

6th Dec WS1A – Update & review

16th Dec Steering Group – Update & review

Agree S/H engagement approach

Ofgem & BEIS input

"Critical Friends" input

Academic input

Finalising and seeking approval for consultation materials

Public consultation

# "Critical Friends" review - Desired outcomes

- **Confirm we have the right range of options**

- **Position options so they are accessible to encourage feedback to aid DNO decision making**
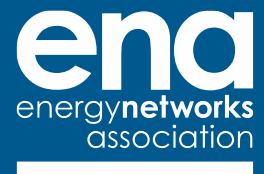
**Potential "Critical Friends"**
Technical & non-technical

- **Academic (Technical/Economics)**
  - **2-3 academics**

- **Flexibility Market participants (Technical & non-technical)**
  - **4 -5 individuals**

\* Applied for CEM User Forum in H1 2021

# Wrap up

Farina Farrier (Head of ON - ENA)

**The voice of the networks**