



# ESO Technology Advisory Council

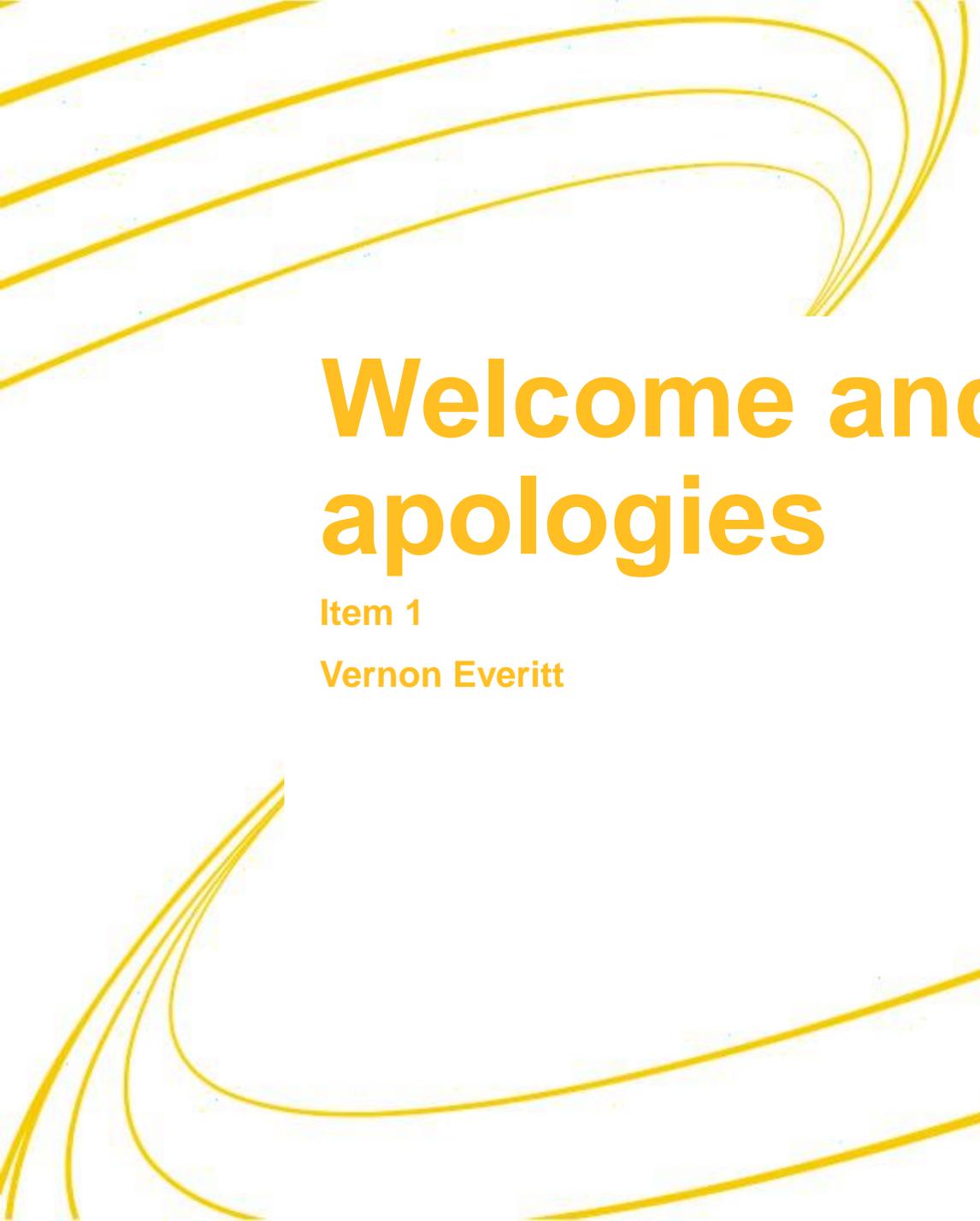
TAC-6

4 March 2022

Meeting slides

# TAC-6 agenda – 4 March 2022

Item	Start	Finish	Time	Item	Presenter	Notes
1	09:00	09:10	10	<b>Welcome &amp; Apologies</b>	Vernon Everitt	
2	09:10	09:15	5	<b>Minutes of last meeting and matters arising</b>	Vernon Everitt	
3	09:15	09:30	15	<b>End-of-year message</b>	Fintan Slye	Overview of how the ESO has acted on feedback
4	09:30	09:40	10	<b>Feedback from the last meeting</b>	David Bowman	How ESO has used feedback from zero-carbon operability
5	09:40	10:10	30	<b>Balancing and Network Control roadmaps</b>	Rob Rome Matt Hopkins Jim Needle Ian Dytham Keith Eller Simon Watson	Updated roadmaps and benefits Key deliverables Feedback from subgroups
6	10:10	10:25	15	<b>Product Model update</b>	Norma Dove-Edwin	Update on the Product Model (previously presented in September 2021)
	10:25	10:40	15	<b>BREAK</b>		
7	10:40	12:10	90	<b>Discussion: delivery of the Balancing and Network Control roadmaps</b>	Rob Rome Matt Hopkins Jim Needle Ian Dytham Keith Eller Simon Watson	Process and ways of working External factors Benefits Feedback on our progress
8	12:10	12:20	10	<b>Subgroups update</b>	Vernon Everitt	
9	12:20	12:25	5	<b>Next meeting and calendar</b>	Vernon Everitt	
10	12:25	12:30	5	<b>AOB</b>	Vernon Everitt	



# Welcome and apologies

Item 1

Vernon Everitt





# Minutes of last meeting and matters arising

Item 2

Vernon Everitt

# Minutes of last meeting and matters arising

- Minutes of TAC-5 were agreed via circulation and published online
- The feedback from the meeting has also been published
- This section will be used to discuss any matters arising

The background features several thick, vibrant yellow lines that curve and sweep across the white space, creating a dynamic and modern aesthetic.

# Feedback from the last meeting

Item 3

David Bowman

# Feedback from the last meeting – Enhanced Frequency Control

- TAC provided feedback on latency and communication requirements
  - We carried out checks on latency of the current PMU measurement data that received by NGENSO and identified the way to improve the latency by forward streaming data against aggregated streaming data
  - We engaged with a TO for changing PDC streaming to forward and establish the latency in the actual system as early as possible which was not in the original plan
  - We also engaged with different technology provider(s) and looking at different options available
- TAC queried about C37.118 Security
  - Following the TAC group feedback, project team engaged with experts to develop the cyber security requirements (including C37.118) for future system
- TAC feedback on Market Reform/ Rules
  - We are currently engaging with NGENSO market team to define the future market requirements
- Learnings from other countries
  - Currently similar system used in Iceland and South Australia is explored
  - We engaged with CIGRE working group and EPRI in similar research work
  - We will continue our research works on other countries approach and findings



# End of year review

Item 4

Fintan Slye



The background features several thick, vibrant yellow lines that curve and sweep across the white space, creating a sense of motion and energy. The lines vary in thickness and direction, some entering from the top left and curving towards the center, while others enter from the bottom right and sweep upwards.

# Balancing and Network Control roadmaps

Item 5

# Aim of this session

- In this section we will present the updated Balancing Transformation and Network Control roadmaps
- We will focus on:
  - The progress we have made over the past year
  - How our thinking has evolved, and the roadmaps changed as a result
  - Our priorities over the next year

# Discussion questions

## Process

- How do we bring the two programmes together and avoid siloed working?
- How do we embed the Product Model when we currently work on in platform-based way (BM, EBS, Balancing Transformation)

## External factors

- What market reform (eg locational market pricing) is on the horizon?
- Will our roles as residual balancer remain?
- Does it mean we need to change our strategy, tools or capabilities?
- Do our core plan to replace our scheduling and dispatch capabilities still stand?
- How quickly does the BM need to adapt to support smaller units (eg with GC0117)?

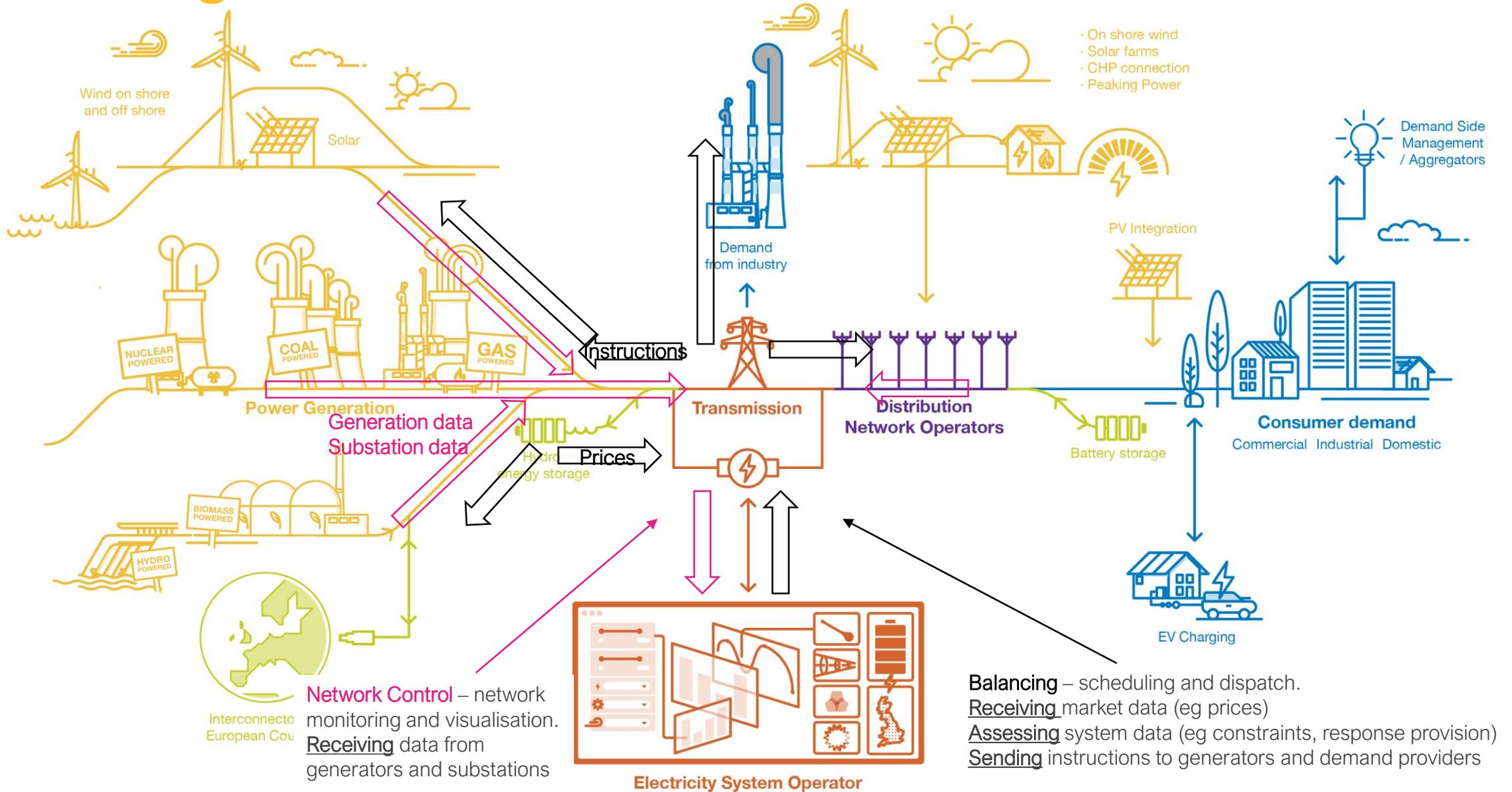
## Benefits

- How do we agree what is mutually valuable?
- Do you see the Balancing and Network Control programmes as underpinning the rest of our RIIO-2 plan?
- How do we control costs while also investing in systems of the future and deliver significant benefit?

## Progress

- What we are doing well?
- Where do we need to improve?
- Are we being transparent enough?

# Balancing and Network Control

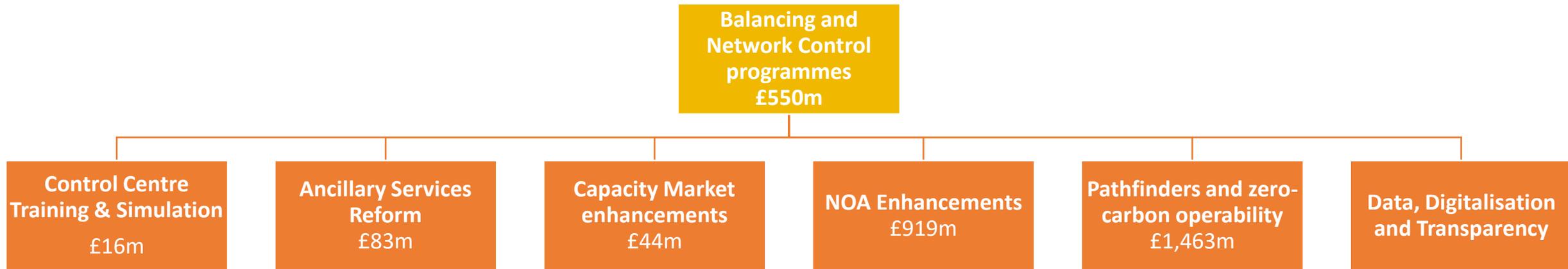


**Network Control** – network monitoring and visualisation.  
**Receiving** data from generators and substations

**Balancing** – scheduling and dispatch.  
**Receiving** market data (eg prices)  
**Assessing** system data (eg constraints, response provision)  
**Sending** instructions to generators and demand providers

# Benefits

- Benefits case for all ESO RIIO-2 activities have been reviewed
- The Balancing and Network Control transformational plans programmes deliver £550m consumer benefits over RIIO-2 (up 81% from December 2019, due to carbon price and increased constraint costs)
- This highlights how important the programmes are to our zero-carbon operation ambition and net-zero
- The programmes are also an enabler for a large proportion of the ~£3.5bn benefits our Business Plan delivers



**Note:** all figures are provisional until confirmed in the ESO BP-2 submission

# Balancing Progress update

- We have stepped back over the past year to review our existing plan. We are seeking a new strategy that:
  - Delivers the capabilities to meet our RIIO-2 strategic objectives
  - Meets the needs of our customers, drives down costs
  - Delivers consumer benefits
  - Enable market reform.
- In our existing strategy, there was a well thought-through approach to the delivery of new systems themselves, but less clarity on how all strategic initiatives map to our systems.
- We have heard feedback from the TAC that our current systems can be a barrier to entry and about treating units like “super units” to ensure we do not discriminate against any participant.
- We also note concern about delivery and cost increases. For April 2021 to March 2023, Role 1 expenditure is up 21% and Balancing Programme expenditure has increased from £28.1m to £72.7m. However, our proposals do deliver significant benefit.
- Our new strategy is currently in the process of being approved and will be reflected in the BP-2 submission in August.

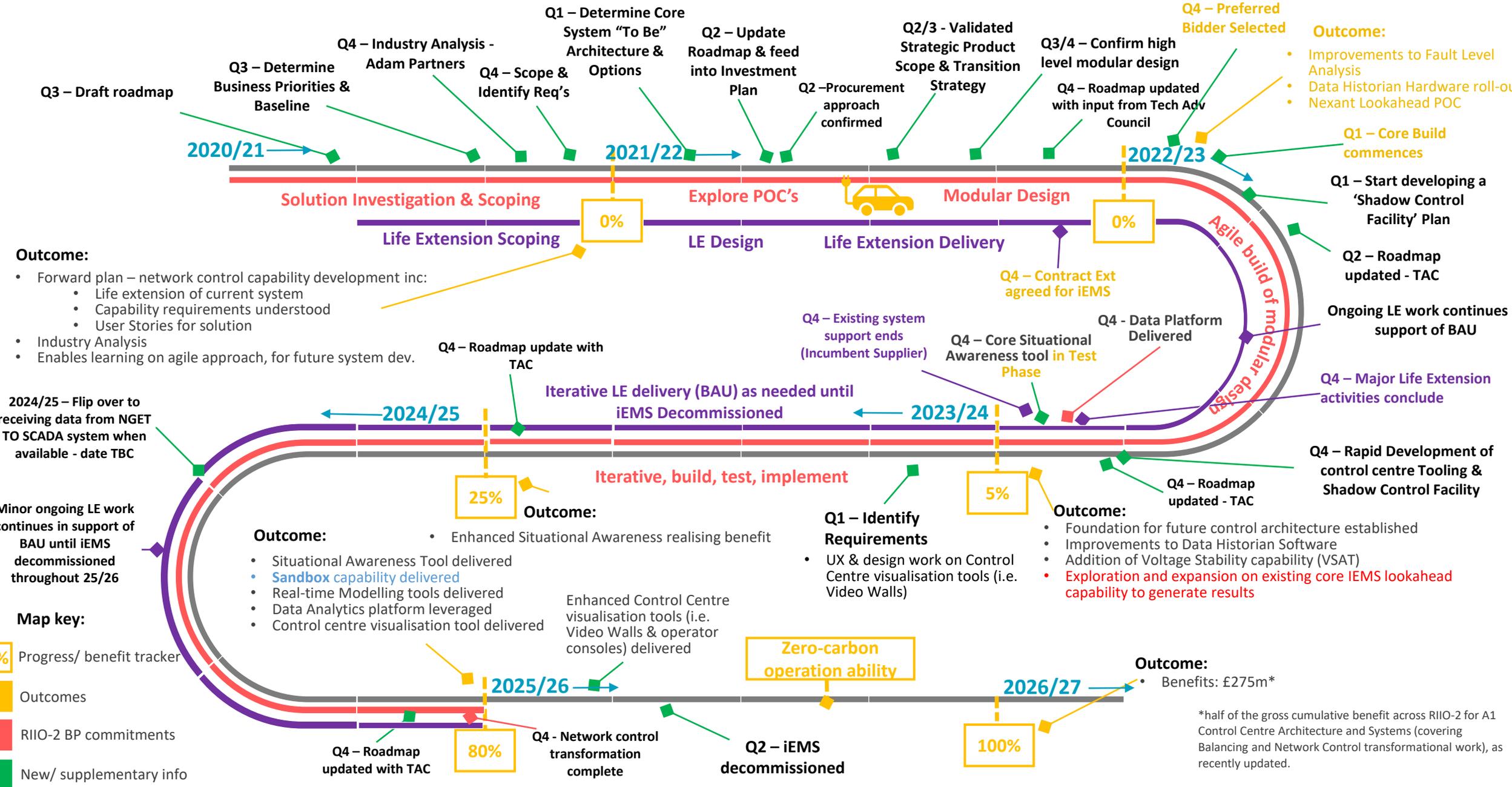


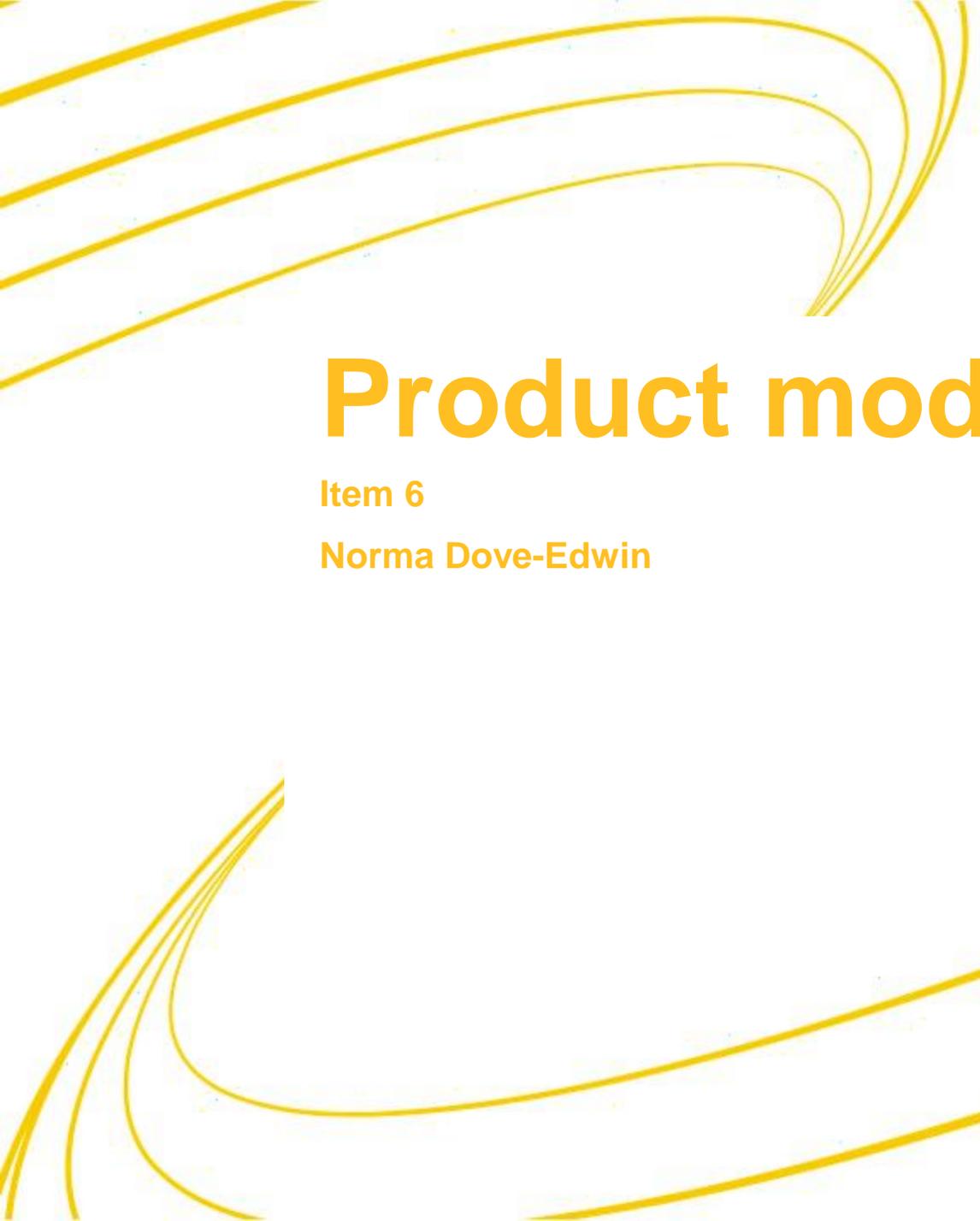
# Network Control progress update

- We have held internal workshops that have developed a vision and strategy for our new Network Control Management System (NCMS). This suite of tools will replace our existing IEMS and provide additional network modelling capability to our Control Centre engineers.
- We have been undertaking a full tender process for the core services of the NCMS. Product demonstrations and competitive dialogue workshops have been completed and we received final bids from suppliers in January 2022. Our preferred supplier will be selected in April 2022 with a target to deliver a foundation system (non-operational) by April 2023.
- As part of the system design activity we have worked closely with our IT infrastructure teams to develop plans for setting up environments in our new CNI Data Centres, and we will procure and install hardware & establish required infrastructure throughout 2022 and 2023.
- Supplier support for the existing IEMS is due to end in November 2022 and will be extended to ensure continued, safe operation until our replacement NCMS is operationally ready. We have actively pursued negotiations with our supplier to provide managed service support until 2026, and these negotiations are on track to complete by March 2022.
- We have also completed a full options analysis of how to maintain the IEMS until 2026, developing a Product Backlog of tactical and security improvements. Hardware enhancements and a number of security remediations have already been delivered and items, such as improved Fault Level Analysis and Voltage Stability Analysis tools, are underway and will be delivered by April 2023.
- NGET are also procuring a new product to replace the IEMS and we have put in place shared governance to ensure the transition strategy remains a key focus for both parties.

Note: as of February 2022. Subject to change

# Network Control Strategy Roadmap





# Product model update

Item 6

Norma Dove-Edwin



# Ways of Working

## What is the project?

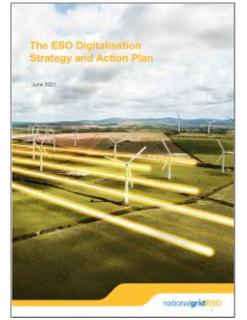
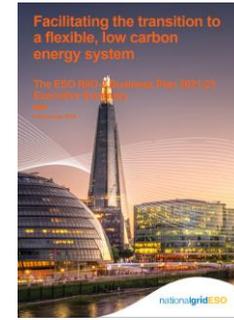
- The purpose of the Ways of Working (WoW) initiative is to build upon our current practices to further improve how we deliver to our customers to enable them to achieve their outcomes.
- This will be done by:
  - shifting the way that we work
  - transitioning from a project focus to a digital and product model
  - bringing our business operations and technology teams closer together to create a TechOps community with a one-team mindset.
- WoW consist of four key elements:

Digital Mindset	Product Model	Agile Delivery	Culture and Behaviours
<p><b>Who is the Customer?</b></p> <ul style="list-style-type: none"><li>• We are creating a customer first mindset to better understand our customers needs and wants.</li><li>• We are defining personas and end-to-end customer experience journeys, which are digitised and will be accessible to all for review and reuse.</li></ul>	<p><b>Customer-Centric Products</b></p> <ul style="list-style-type: none"><li>• We will leverage design thinking principles and co-design the products with our customers, with a clear focus on the outcome.</li><li>• We will use data and qualitative feedback to track the value and usability of our products to drive continuous improvement.</li></ul>	<p><b>Speed of Change</b></p> <ul style="list-style-type: none"><li>• We will deliver discrete customer driven features in regular sprints to deliver value frequently and also enable responsive course correction.</li><li>• We will integrate our customers into the engineering process through frequent show-listen-feedback loops.</li></ul>	<p><b>Climate of Openness</b></p> <ul style="list-style-type: none"><li>• We conducted a cultural baseline survey to understand our strengths and challenges as a TechOps community.</li><li>• We have run, and will continue to run, several behavioural nudge sprints to address our challenges as a community.</li></ul>

## How is it going to help us to deliver BP1 / BP2?

WoW provides us with a foundation of consistency and a standardised way of:

- engaging with our customers to deliver the products and services that they need/want by actively including them in the product lifecycle process.
- how the TechOps community operates to get things done, manages resources and the flow of work at the product level to better manage dependencies, change impacts and priorities to speed up delivery.



## What does success look like?

Success is

- Continuously improving customer satisfaction scores.
- Being better able to anticipate our customers needs and wants.



## Are we engaging with stakeholders?

We are engaging with the Technology Advisory Council, our third party suppliers and our end-user customers, both internal and external. As we progress and embed WoW across our portfolio, we will broaden our customer and stakeholder engagement.

# The Challenges

## Challenges

- **Maintaining momentum** in multi-year transformation journey whilst continuing to deliver and meet our business plan commitments.
- Adjusting our **way of thinking** to a product model to define our customer centric product hierarchy.
- Shifting our **culture** to embrace and lead the change in behaviours, the way we work and how we get things done.

## Mitigations

- **Leadership:** continued visible ESOET and senior leadership support and encouragement.
- **Expert Support:** we are actively recruiting individuals with product model and agile delivery experience to champion the change and lead the way by doing.
- **Communication:** we're establishing a regular drumbeat of communications with a consistent simple narrative and two-way engagement through line management.
- **Early Adopters:** we have several early adopter teams that are paving the way and encouraging others to follow quickly.
- **Fail Fast and Forward:** encourage a culture that embraces mistakes as an opportunity to learn from and move forward with pride as a team.

## Mindset

- **Openness:** being open to calculated risks and improvements by having a can-do, positive attitude.
- **Support:** sharing experiences and knowledge freely to support and develop your colleagues.
- **Curious:** being engaged and challenging of the *status quo* to foster innovation and improve on our previous best.
- **Continuous Learning:** collaborate across the TechOps community to share best practice, expertise, achievements and successes.

# The Transition

Digital Mindset  
Customer Centric

- We are creating a customer first mindset to better understand our customers needs and wants.
- We are defining personas and end-to-end customer experience journeys, which are digitised and will be accessible to all for review and reuse.

Product Model  
Outcome Based

- We have started the transition from 'Project to Product', through our digital and product model blueprint, with early adopter teams that are paving the way and encouraging others to follow quickly
- We are actively recruiting individuals with product model and agile delivery experience to champion the change and lead the way by doing

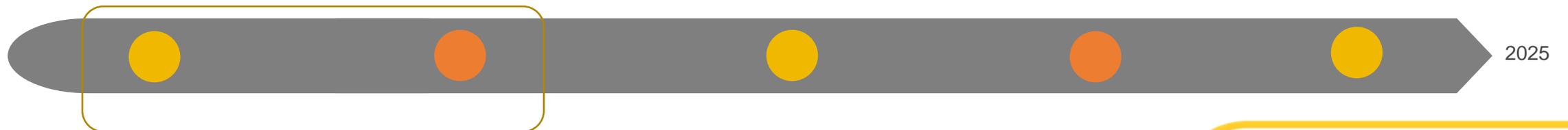
Multidisciplinary Teams  
Collaboration and Communication

- We are creating long standing, cross-functional multidisciplinary teams that work together to delivery customer outcomes
- We have defined high level processes, clarifying how the work will flow, supported by clear roles and responsibilities

Culture  
Accountability and Inclusion

- Shifting our culture to embrace and lead the change in behaviours, the way we work and how we get things done
- Encourage a culture that embraces mistakes as an opportunity to learn from and move forward with pride as a team.
- Collaborate across the TechOps community to share best practice, expertise, achievements and successes.

Team will transition at different speeds as our maturity in the new ways of working increases, today we are moving from Ad-Hoc to Establishing





# Discussion: delivery of the Balancing and Network Control roadmaps

Item 7

# Discussion: delivery of the Balancing and Network Control roadmaps

- In this section, we would like to have an in-depth discussion about how we deliver the Balancing and Network Control roadmaps
- The next slides has some questions we would like to pose. Other feedback and thoughts you have are, as always, appreciated
- Please do some thinking along these lines in advance of the meeting

# Discussion questions

## Process

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## External factors

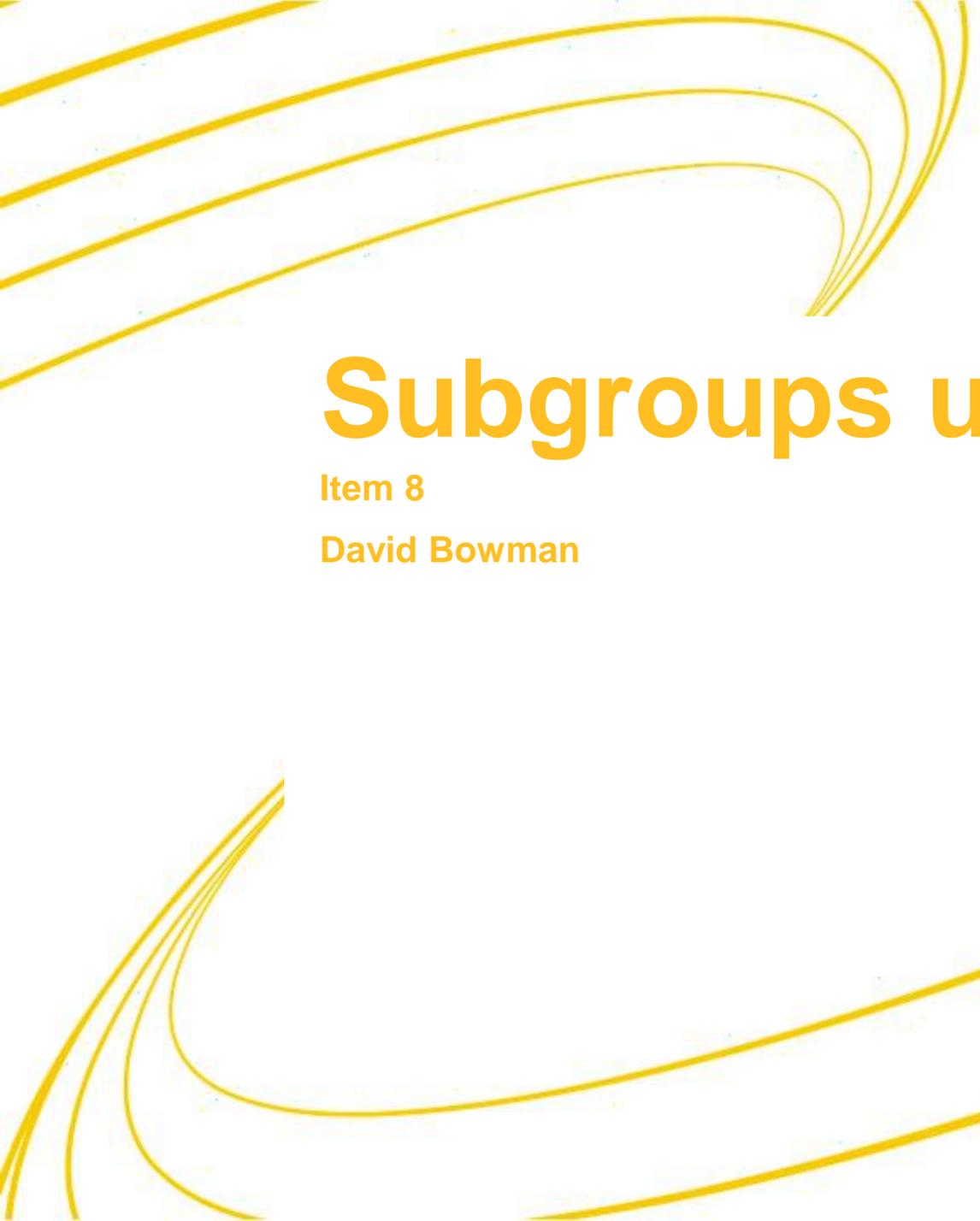
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## Progress

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- Are we being transparent enough?



# Subgroups update

Item 8

David Bowman



# Subgroups update

- The *Control Room of the Future* subgroup has now met twice:
  - Meeting 1 discussed 2025 vision, non-functional requirements, key technology and architecture
  - Meeting 2 discussed data capability
- Material is available on the Technology Advisory Council [website](#)



# Next meeting and calendar

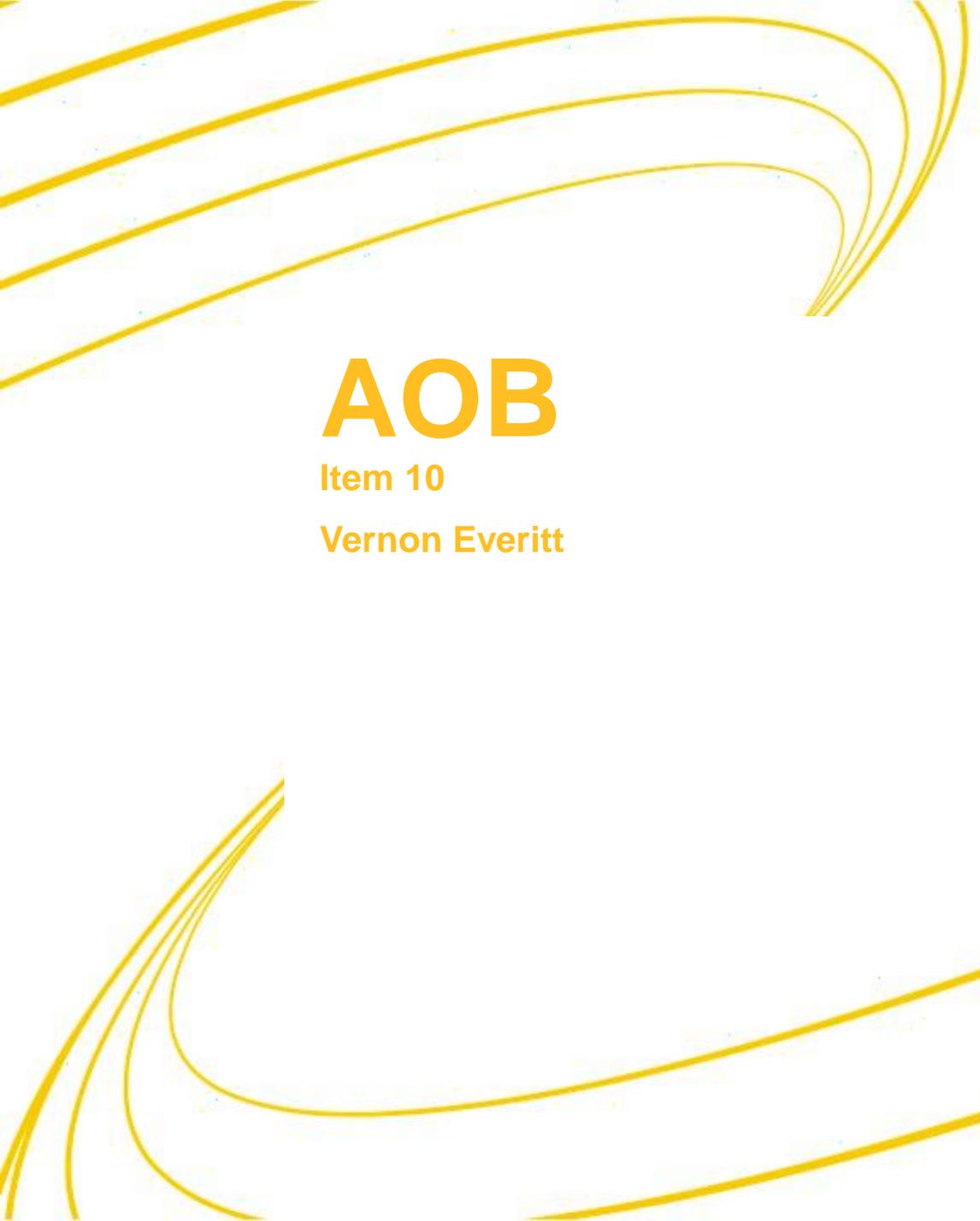
Item 9

Vernon Everitt

# Next meeting and calendar

**Meetings are every quarter for a half-day on the first Friday morning of the month, 9am-12.30pm**

- 10 June 2022 (Note: meeting a week later due to Platinum Jubilee bank holiday)
- 2 September 2022
- 2 December 2022
- 3 March 2023



# AOB

Item 10

Vernon Everitt

