nationalgridESO

ESO Technology Advisory Council

TAC-7

Date:	10/06/2022	**Location:**	Virtual
Start:	09:00	**End:**	12:30

Axis collaboration tool was not used at this meeting. This document summarises the feedback received verbally and via the Microsoft Teams Chat function.

All material from the meeting can be found on the ESO Technology Advisory Council website:
https://www.nationalgrideso.com/who-we-are/stakeholder-groups/technology-advisory-council

Participants

Attendee	Organisation
Vernon Everitt (Chair)	Transport for London
Alvaro Sanchez Mirales	STEMY Energy
Chris Dent	University of Edinburgh
Fred Drewitt	Limejump
Graham Campbell	Scottish Power Energy Networks
Alastair Martin	Flexitricity
Kate Garth	RWE Renewables
Melissa Stark	Accenture
David Sykes	Octopus Energy
Anastasia Vaia	BP
James Houlton	Amazon Web Services
Naomi Baker	Energy UK
Bernie Dolan	ESO

For specific agenda items

Attendee	Organisation
Jim Needle	ESO
Gabriel Diaz	ESO
Chi-Ho Lam	ESO

Ian Dytham	ESO
Adam Tyler	ESO
Steve Parenzee	ESO
Stephanie Walker	ESO
Emily Leadbetter	ESO
Adelle Wainwright	ESO
Amy Brooks	ESO
Phil Fitzmorris	ESO

Apologies

Attendee	Organisation
David Beaumont	Ofgem
Teodora Kaneva	TechUK
Randolph Brazier	Energy Networks Association
Peter Stanley	Elexon
Andy Hadland	Arenko
Simon Pearson	Energy Systems Catapult (now Independent)
David Bowman	ESO
Claudia Centazzo	Independent
Judith Ward	Sustainability First
Jo-Jo Hubbard	Electron
Chris Kimmett	Reactive Technologies

Agenda

#	
1.	Welcome and introductions
2.	Minutes of last meeting and matters arising
3.	Feedback from the last meeting
4.	Balancing Programme
5.	Network Control Programme
6.	RIIO2 – BP2
7.	Subgroups update

| 8. | Next meeting and calendar |
| 9. | AOB |

Discussion and details

#	Topics discussed

1. **Welcome and introductions**
- The chair welcomed everyone to the meeting.
- David Beaumont has now replaced Grendon Thompson from Ofgem. The ESO thanks Grendon for his valuable contributions.

2. **Minutes of last meeting and matters arising**
- The chair noted that the minutes of the last meeting were agreed by circulation had been published on the ESO website.
- It was noted (later in the meeting from Kate Garth) that the action to document actions taken by control room engineers had not been proceeded with so far

3. **Feedback from the last meeting**
- After the meeting Melissa Stark shared several very useful documents on the societal benefits from enabling net zero carbon operation

4. **Balancing Programme (BP)**
- Representatives from the Balancing Programme (Gabriel Diaz, Jim Needle & Bernie Dolan) described approaches being taken by the programme and requested feedback from the attendees at the meeting

Development and maintenance of the BP roadmap
- Extensive engagement with industry led to the co-creation of an industry roadmap
- The roadmap was presented to the meeting (including material that had not been included in the final version)
- NG ESO then requested the following feedback
  - How have you managed roadmaps in the past?
  - Does this look like a good approach?
  - What level of detail do you usually present?
  - How does our roadmap look compare to others you have seen?

Discussion on roadmaps
- The roadmap is very useful and is at the right level. However, it needs a narrative around each "box" so that people know exactly what each release is trying to achieve
- A really important point is "are you really going to do it". Progress must be shown against the roadmap or people will lose faith in it.
- A side benefit from such a roadmap is that we all speak a common vocabulary – very useful when talking to the control room
- The roadmap should also consider "low-tech" solutions, e.g., having more people in the control room or having simple workarounds
- In addition to what the roadmap is delivering it would be useful to highlight what is the objective of each release. There are several releases that probably add up to a higher-level macro-objective. It would be good to show these relationships
- We should consider an OKR approach (objective/key result)

- As you go further out on the roadmap there must be more uncertainty – would it be useful to consider a way to show this on the roadmap itself?

Description of benefits

- The Balancing Programme has several direct and indirect financial benefits. The formulas behind these have been agreed with Ofgem and the latest numbers were presented to the meeting
- As part of industry engagement, several non-financial benefits were documented during workshops
- NG ESO then requested the following feedback
  - Have you experience of benefit tracking you can share?
  - Do you always express in financial terms?
  - How do you relate to releases or milestones?
  - Are there any additional benefits you believe need including?
  - Any clarifications around the scale of the benefits described?

Discussion on benefits

- Should not only consider financial benefits, given the remit of the ESO other examples might be reduction in MW congestion, % of market participants involved in new markets and reduction in time to create new markets
- There are several possible outcomes so we should consider a range of benefits not just a single value and carry out a sensitivity analysis
- The World Economic Forum is looking at the system value of the energy transition – the outcome areas were reliability, resilience (time to bounce back), flexibility (cost of balancing), system efficiency and energy productivity (unit into system vs how much used), system upgrade (cost of capability and asset investment)
- We need more than financial numbers; environmental numbers are important. Impact on emissions, impact on the planet resources (sustainability – circular economy)
- Another aspect is that we simply cannot meet societal objectives without certain capabilities in system operation
- Are there internal benefits and metrics that should also be recorded? For example, automating the control room to allow it to scale across the dis-aggregated balancing landscape. Internal metrics show success through a different lens
- In previous meetings we've learned that the ESO uses a lot of daily KPIs – we should be using these to measure success on a regular basis

Description of costs, risks and assumptions

- A description of the estimated costs of the BP was given with background on how these costs were derived
- The top risks and assumptions were described
- NG ESO then requested the following feedback
  - Given your experience do our costs look the "right order of magnitude"
  - Can you share your experience of forecasting?
  - How do you deal with forecast errors and tolerances?
  - How do we deliver in an agile way within a framework that asks for forecasts several years in advance?
  - What additional information do you need to understand our cost forecasts?
  - Are there any further risks and issues?
  - Given the unique nature of this project how do we get external assurance

Discussion on costs, risks and assumptions

- Would recommend that we look for similar markets around the world and benchmark against those (it was mentioned that NG ESO have spoken to the Belgium SO, Elia)
- Need to be sure who owns the IP and codebase
- Seems like a large number of contractors on the project and dependant on IBM – the ESO needs to have its own in-house capability
- Also need to be careful that you don't become over dependant on single in-house resources
- The key here is to be brutally honest with stakeholders that these are forecasts. The key is to establish what are the key metrics we are looking to move. At the most basic level what are the core KPI's – ROI?, Capability?, total budget?
- Do not promise we will deliver "feature x in 3 years' time" but rather "we have a high-level roadmap and resource plan that should deliver ROI between x and y. Agile can only work if you fully retain the ability to change priority, scope and size of each package of work
- We should consider making future market change easier to deliver, e.g., BOAs are GB bespoke and make it difficult to use lessons from other system operators
- LMP seems like a major threat to what the Balancing Programme is trying to achieve – this should be taken into account when developing the new platform
- Is there anyone in industry who is saying go slower on this? It feels like we are being too apologetic on the costs
- With a multiyear programme like this there is a risk that you will up technical debt – some of your releases should be used to address this

Description of planned engagement

- It was explained that our plan going forward was to give monthly updates on our external website with quarterly face-2-face events
- NG ESO then requested the following feedback
  - How have you kept engagement going through the length of a project?
  - What is the best way to communicate change to the roadmap, costs, risks etc.
  - How frequent?
  - What formats?

Discussion on planned engagement

- The best way to show progress is to show it. That might be regular demos of the actual systems and how they are improving or the interfaces to those systems
- Other companies use announcements via a channel where new features are shared, demonstrated with videos and screenshots are celebrated

5. **Network Control Programme**

Update from the Network Control Programme

- An update on the programme was given by Ian Dytham, Adam Tyler and Steve Parenzee
- They took the meeting through our approach for choosing a vendor using a competitive dialogue approach. The chosen vendor is GE Digital
- A demonstration of the mapping between user stories and features and what is already available in the GE product was given (only 5 out of 108 items are not already in the product)
- They discussed the revised implementation roadmap (with go-live end of 2025) and pointed out that it will require GE to work with more third party products

- Also mentioned that we will be working in a more agile way
- Covered new architectural design (moving from a three-tier architecture to a more modular approach). Will be moving to using Rancher Cluster technology which is new for NG ESO
- NG ESO then requested the following feedback
  - What are your experiences of managing a change in ways of working with a long-term existing supplier? i.e., moving from traditional waterfall to an agile delivery method

Discussion on the Network Control Programme

- With such a fundamental change in the technology being used it's important to take everyone along on the journey especially support teams in CNI. As the product is developed the support teams will need to be grown alongside it
- When building a modular system, it can be more difficult to achieve the resilience needed. This will need to be built in right from the start
- We've had some good conversation/insight about the adoption of scaled agile at ESO. Looking at the tech stack being adopted here are their plans to fully use GitOps as a way of way of working (pretty much a requirement for a modern containerised stack)
- Given the wider use of open source (positive), one item not on the tech stack are internal tools that might be needed, e.g., Whitesource to ensure security and compliance alerting
- To move an existing long-term supplier to a more agile way of working you need to change the culture, you should never be looking at the contract. Regular meetings at all levels (senior leaders down to working teams) are the only way to enforce this. Working as an extended team, where the boundaries are not seen, is a good way to make this happen in practice
- It's also important to change the commercials. Traditionally it's all about delivery of things at certain key points. When you move to an agile delivery method, you have to change the base of the commercials away from delivery of things at points in time to the delivery of outcomes and get that buy in on both sides of the fence. That's the outcome you're trying to deliver. And that generally comes down to having a very good idea of what's the key objective, what's the key KPI you're trying to shift.
- It's also necessary to change the roles that you have on projects – the move to a product manager means you can change the definition of "done" working with your supplier so that you work in a truly agile way.
- Empty sprints are vital so that you can catch-up and re-factor solutions
- The ESO should remember that you are a global company with a lot of clout and so this should make it possible to leverage this when it comes to new ways of working

6. **RIIO-2 BP2**

Update on RIIO-2 BP2

- An update on the programme was given by Adelle Wainwright, Amy Brooks and Emily Leadbetter
- The presentation highlighted that although we still have three roles there are now five new activities and twelve new sub-activities
- There has also been an increase in existing activities – for example we are experiencing 50% more connections and so we need to increase the size of our connections team
- The meeting was given feedback on how input from the TAC has affected our BP2 submission
- Adelle put a link to Annex 3 in the chat for those wanting more detail download (nationalgrideso.com)
- A large part of this section was covering people, culture and capability
- NG ESO then requested the following feedback
  - During BP2 we will need to upskill, attract and retain talent in the technology space in much greater numbers than we have previously.

- We would be keen to understand any learnings you could share with us around growing technology expertise within your own organisations.

Discussion on RIIO-2 BP2

- It's important to make sure the roles are actually attractive. Are they working on good projects? Do they give freedom and autonomy to solve problems? Will they actually be contributing to core systems or just managing outsourced tech? If you get this right and have happy employees, they will also be great advocates
- We should consider outreaching to universities beyond traditional engineering disciplines (Chris Dent offered to help and gave his email)
- Many engineers see their degree as a vocation to help society - a lot of maths students do not realise that using their degree to save to world is a career option!
- It will be difficult to compete for talent on pay so you've really got to compete by talking about your mission. There are interesting problems the ESO is dealing with
- Can use channels like Hacker News or like. People want to work on modern stacks, modern technologies so keep up to date.
- Should consider getting companies to lend you people – good for them and good for you
- In addition to modern technologies should advertise that we work with companies like Microsoft and Amazon which people like to have on their CV
- Flexible working these days is very important – providing this as part of a package will help to attract people
- Don't get hung up on one technology set – good engineers can adapt from one to the other so recruit with this in mind

7.	**Subgroups**

- No update

8.	**Next meeting**

- 2 September, 09:00 – 12:30.

9.	**AOB**

- Phil Fitzmorris introduced himself to the group and gave us a potted history of his experience and drivers
- Alistair mentioned that he has suggested a low-tech solution for the control room to the OTF – a low priority phone number (similar to 101 rather than 999)
- Chris asked if we might move to in-person meetings in the future
- Kate mentioned a point from last meeting on documenting rules used by the control room