ESO

Use Cases Advisory Group

Meeting 2 minutes

Date:	19/05/2023	**Location:**	Virtual
Start:	10:00	**End:**	12:00

Participants

Attendee	Organisation
Professor Jim Hall (Chair)	University of Oxford
Dr. Hilary Williams	Energy Systems Catapult
Peter Philip	Scotia Gas Networks
Sarah Rigby	Scottish and Southern Electricity Networks
Simon Baxter	National Grid Ventures
Joanna Webb (Technical Secretary)	ESO
James Edwards-Tombs (Observer)	ESO
Dozie Nnabuife (Observer)	ESO
Vikaran Khanna (Observer)	ESO
Simon Evans (Observer)	Arup

Apologies

Attendee	Organisation
Nicholas Watson	National Grid Ventures
Corinna Jones	National Gas Transmission
Dan Monzani	Aurora Energy Research

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Agenda

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1.	**Welcome, introductions and apologies for absence**
2.	**Minutes of last meeting**
3.	**Conflicts of interest review**
4.	**Update on ESO Virtual Energy System progress and future work programme**
5.	**Categorising use cases**
6.	**User mapping**
7.	**Briefing on current use cases**
8.	**Final reflections**
9.	**AOB and next meeting**

Discussion and details

#	Topics discussed

1.   Welcome, introductions and apologies for absence

- The Chair welcomed everyone to the meeting and introduced the new attendees.
- The Technical Secretary gave the apologies for absence:
    - Nicholas Watson – National Grid Ventures
    - Corinna Jones – National Gas Transmission
    - Dan Monzani – Aurora Energy Research

2.   Minutes of the last meeting

- The minutes of the previous advisory group meeting on 17/03/23 were approved as an accurate record.

3.   Conflicts of interest review

- No conflicts of interests were declared.

4.   Update on ESO Virtual Energy System progress and future work programme

- ESO gave an update on the Virtual Energy System programme, including:
    - Funding that has been awarded to ESO and industry partners for use case projects.
    - Ofgem consultation involvement.
    - The progress on the Energy Bill and transition to the Future System Operator.
    - The Common Framework workstream research and reports written about data needs and gaps, a technology review, and data sharing framework and licencing.
    - The Virtual Energy System demonstrator project.
    - The three advisory groups' minutes published on the ESO website.
- The Data and Technology Advisory Group:
    - Is working on the six principles, which will be published in the summer.
    - A Show and Tell webinar with industry is arranged for 25/05/23
    - Discussions recently included developing best practice guidance for the three priority technical factors (increasing visibility and enabling sharing, creating an interoperable tech-stack and aligning models and taxonomies) and shaping the direction of the 'best

practice' document (distributed data sharing principles, future technology vision and the Virtual Energy System future vision with use cases).

- The People and Process Advisory Group:
  - o There is a new member of the advisory group from DRAX.
  - o Discussions recently focused on developing the best practice guidance for the three priority social factors (raising awareness and fostering culture, engaging stakeholders and governance) and the key factors of the 'best practice' document (governance models, roles needed to facilitate governance models and governance model roles and responsibilities).

5.   **Categorising use cases**

Reflection Point

1. How can we incentivise stakeholder engagement to develop and identify use cases?

Discussion

- The aim 'create a single version of truth' was discussed and clarified that it was referring to consistency in the data, from the different sources that are contributing data to a digital twin.
- It was agreed that the innovation funding incentive is well established. ESO confirmed that it is looking for non-financial incentivising of stakeholders for Virtual Energy System use cases.
- The wider energy industry does need to be engaged to meet the future roles of the FSO and develop the Virtual Energy System. The stakeholder engagement team are raising awareness of the programme, for example with communications campaigns, webinars and presenting at conferences.
- ESO confirmed that they are also working closely with and sharing learnings with several of the 'Catapults', helping engage wider industries and including smaller contributors to the future virtual energy system.
- Further work on the user mapping will help to identify gaps, avoid duplication, and prioritise and encourage the right use cases.

Recommendation

- Consider rephasing the 'create a single version of truth' aim for clarity.

Reflection Point

2. Can you suggest 1-2 use case themes (not restricted to the ones mentioned above) that are important to your organisation?

Discussion

- Linking electricity and gas networks - having greater synergies between the two, how each network might impact the other and modelling threats for resilience on the network. For example, the electricity supply goes off and a large number of consumers' boilers switch off, when they are switched on again there will be a surge on the gas network.
- Flexibility modelling and smart demand response – key to operating the networks and getting the best value from them and energy assets of all scale and location.
- Optimise connectivity capacity – there are issues with network capacity and connecting to the networks and optimising this is key to meet Net Zero quickly and effectively. Also, multipurpose interconnectors were highlighted as important, for example with North Sea wind resources.
- Planning the future transmission network and planning future distribution network – to anticipate capacity needs and provide ahead of demand.
- Modelling interconnector flows for network stability – investments are being made but uncertainty about how the assets will be used in the future.
- Use case themes that align with UK energy strategy policy objectives – local area energy planning, flexibility markets, electricity market reforms and vulnerable customers/household identification.

- Better services to customers and regulatory compliance - which enables a focus on inclusive access to low carbon energy and service provisions.
- Some insightful and valuable feedback was given on the categorising of digital twin use cases and themes. Categorising use cases to be a standing item on future advisory group agendas.

Recommendation

- ESO to review the advisory group's feedback on the categorising of digital twin use cases and themes.

Reflection Point

3. How do we strategise implementation of use cases in the long term?

Discussion

- Several phases were identified – rationalising current use cases, prioritisation of new use cases, innovation partnerships, and identifying and filling gaps. It is important to establish and communicate the programme's strong sense of direction.

- Some use cases are higher priority and offer more benefits, therefore are a good foundation to start with, such as facilitating Net Zero, reducing costs for the consumer and operations to ensure system security.

- By initially focusing on use cases that are more visible, higher profile, and that will prove and demonstrate the system's value by addressing current challenges, it will garner support for the programme moving forward.

- A balance needs to be achieved between focusing on the pressing and higher profile issues and further reaching use cases that require enhanced insight and data, or are use cases that currently do not benefit from any significant initiatives.

- It is important to record and communicate lessons learned in the early use cases, to ensure later projects benefit from these foundations.

Reflection Point

4. What strategies can we adopt to develop mutually exclusive collectively exhaustive set of use cases in an evolving energy ecosystem?

Discussion

- The categorisation of use cases framework is a good step towards meeting this goal. It is anticipated that this will evolve and need revising over time.

Reflection Points

5. Can you share your experience of moving innovation use cases into BAU and lessons learned?

6. How do we diversify the funding mechanism to deliver use cases?

Discussion

- Organisations often adopt new ways of operating either because there is a financial incentive or because it becomes mandatory via regulation.
- Sometimes it is challenging to move a successful innovation project into BAU because of price controls and the restrictions of the RIIO framework. Designing longer innovation projects means that they can be planned into future price controls.
- Some innovation projects are not ready for BAU, for example if they are not robust or cyber secure enough for wider use.
- Some projects are more suitable for smaller pilots or demonstrators. For some innovation projects, working with enterprise level partners means that it will be production ready when completed.
- There can be a mismatch between innovation projects and current BAU challenges. The user needs in those challenges need to be clear and validated by stakeholders before progressing an innovation project.

6. **User mapping**

- ESO presented the illustrative energy system level user mapping, and the more detailed user mapping of the elements of the electricity and gas systems.

7. **Briefing on current use cases**

- ESO provided a briefing on the current Virtual Energy System use cases.

Discussion

- There were discussions about how to move some of the use cases into BAU. It was confirmed that road maps to incorporate into BAU have been agreed; the innovation projects test the new models and are agile as they move through the innovation phases.

- A balance needs to be achieved between the number of project partners (to make sure all stakeholders are involved and the project benefits from a wide range of expertise) and avoiding the project becoming fragmented or spread too thinly across the technical teams involved.

Reflection Points

7. Apart from financial incentives, how can we facilitate/encourage domestic demand side response?

8. How would you rank the incentives?

Discussion

- CrowdFlex is looking at incentives and pricing that will encourage consumers to engage in day-to-day domestic flexibility, not just in the winter or for system stress events.

- ESO will be building a flexibility model and the suppliers taking part in CrowdFlex will be building demand models, from the data produced by the trials.

- CrowdFlex is looking at both consumer behaviour and technology, including automated flexibility.

- Some recent research by several universities was highlighted as a source for some further information in this area.

8. **Final reflections**

- The Chair thanked the group for their attendance and valuable contributions.

Recommendation

- It was recommended that ESO continue to refine the categorisation of use cases, user mapping, prioritisation and the justification for the prioritisation. Also, to review where the current use case projects sit in these categories.

9. **AOB and next meeting**

- The date and time of the next advisory group meeting was confirmed.