Virtual Energy System

Common framework

Engaging stakeholders

August 2023

Contents & Foreword

Foreword

Digitalisation is vital to reaching the UK's climate change targets. Continuing to innovate and adapt the energy system requires a range of new tools and a reimagining of how the entire industry can come together.

That is why ESO is today presenting this ambitious call to action for an Industry-wide mission to super charge digital twins across our energy system.

This Virtual Energy System common framework will create the common language, recommend infrastructure and processes to connect and federate individual digital twins from across the energy sector.

This open framework can proactively contribute to help meet today's energy mission to decarbonise the energy system and bridge the gap to net zero.

I am delighted to launch this shared framework and together as an industry, we can turn this vision into a reality.

Anna Carolina Tortora
Head of Digital Transformation & Innovation Strategy
ESO

Executive summary

A blueprint to create the VirtualES

Background

ESO have launched the Virtual Energy System (VirtualES) programme to enable the creation of an ecosystem of connected digital twins of the entire energy system of Great Britain, which will operate in synchronisation to the physical system to support the transition to net zero. It will include representations of electricity and gas assets and link up to other sectors.

Through research, expert interviews, and industry-wide engagement, 14 key socio-technical factors were identified which are considered necessary for the development and delivery of the VirtualES.

This report will explore the ***engaging stakeholders*** socio-technical factor, one of four factors that is part of the process pillar, and one of six factors initially explored to support the VirtualES roadmap.

The other two socio-factors, ***raising awareness and fostering culture***, and ***creating a governance framework***, were chosen along with this key factor to be developed first because they in turn will support the development of other factors, acting as first among equals.

Engaging stakeholders aims to nurture industrial, governmental, and political support for the VirtualES.

Purpose of this document

The purpose of this report is to outline a blueprint to for engaging stakeholders to achieve the vision of the VirtualES. The subsequent slides will deep dive into a stakeholder engagement process that is used to enable the VirtualES, and act as a blueprint for anyone to use in enabling their own VirtualES. The process outlined is organisation and reader agnostic; therefore, caters to all stakeholders that are part of the data sharing ecosystem in the energy sector.

The report sets the scene for the needs case for the different organisations and the various individuals that make up the organisation to encourage engagement with VirtualES – particularly those that might come from non-technical backgrounds.

A critical enabler to facilitate this collaboration will be the creation of an effective stakeholder engagement plan that is continually reviewed and iterated. This document will follow a similar process, whereby it will be updated to incorporate lessons learnt during the programme.

The 6-step methodology that will support the creation of a stakeholder engagement plan that is grounded in industry best practice to ensure it is suitable for the purpose of engaging with the VirtualES.

Key findings

In addition to a methodology, this report provides tangible actions for future stakeholders to engage with the programme.

The key takeaways from this report are:

- A stakeholder management methodology which takes the reader through a step-by-step process of how to design, implement, measure, and iterate on the stakeholder engagement plan.
- Outlining the importance of engaging stakeholders in the right way and at the right time to maximise engagement success.
- While the key stakeholders identified in this document are organisations, the engagement strategies have to cater to the individuals that make up the organisations, including technical and non-technical staff.
- It is crucial to ensure the participating organisations are provided the tools to take advantage of all the immense opportunities that will become available through the VirtualES.

1

What is the Virtual Energy System?

What is the Virtual Energy System?

A data sharing mechanism for the entire energy sector

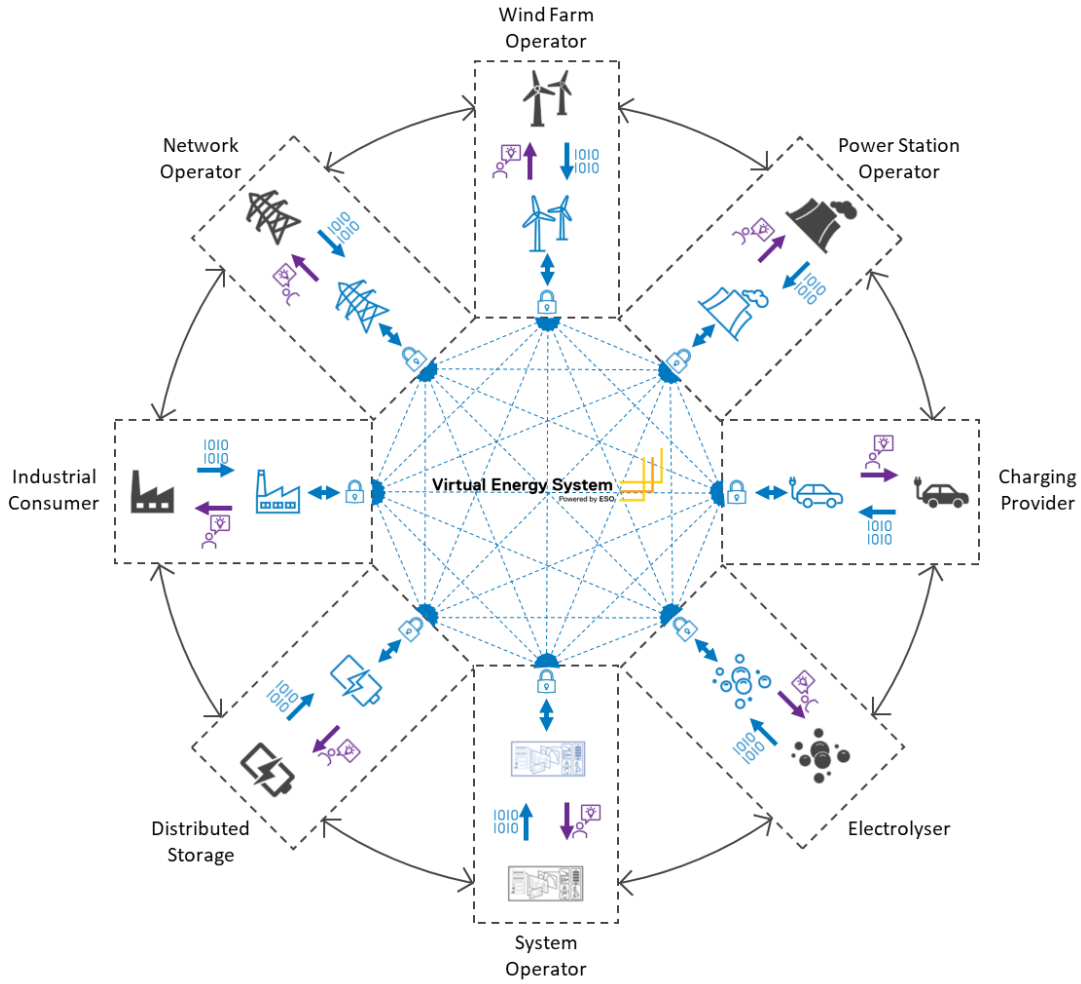
Overview

The ambition of the Virtual Energy System (VirtualES) programme is to enable the creation of an ecosystem of connected digital twins of the entire energy system of Great Britain, that will operate in synchronisation to the physical system. It will include representations of electricity and gas assets and link up to other sectors.

This ecosystem of connected digital twins will enable the secure and resilient sharing of energy data across organisational and sector boundaries, facilitating more complex scenario modelling to deliver optimal whole-system decision making.

These whole-system decisions will result in better outcomes for society, the economy, and environment by balancing the needs of users, electricity and gas systems and other sectors.

Creating the VirtualES is a socio-technical challenge that requires a collaborative and principled approach, aligned with the National Digital Twin Programme, and other energy sector digitalisation programmes.



How to enable a VirtualES?

A socio-technical challenge that requires a socio-technical solution

Overview

Enabling the VirtualES requires a common social-technical framework that outlines the agreed access, operation, and security protocols.

Through research, expert interviews, and industry-wide engagement, 14 key socio-technical factors were identified which are considered necessary for the development and delivery of the VirtualES today.

These 14 identified key factors are grouped by the categories of People, Process, Data, and Technology.

Six of these factors, the first among equals, were prioritised for immediate consideration

Priority socio factors:
- Raising awareness & fostering culture
- Engaging stakeholders
- Creating a governance framework

Priority technical factors :
- Aligning models & taxonomies
- Increasing visibility & enabling sharing
- Creating an interoperable tech-stack

Descriptions of the six priority key factors

A socio-technical challenge that requires a socio-technical solution

Raising awareness & fostering culture

Raising awareness and fostering culture has been prioritised as it is critical the industry accepts and begins to advocate for the creation of data sharing infrastructure for the energy sector. Organisations must broaden their thinking beyond traditional business models and individualistic organisational objectives to understand the opportunities available through greater data-sharing across the energy sector.

This factor outlines the baseline requirements and recommended change management principles that will support an organisation to participate in the VirtualES.

Engaging stakeholders

This was prioritised as participating in the VirtualES will require input, collaboration and trust from numerous stakeholders across an organisation, including those that may not come from a technical background. guidance on how to approach this would therefore be valuable.

The engaging stakeholder's guidance note provides organisations with a methodology for identifying, engaging and evaluating the success of their stakeholder engagement plan.

Creating a governance framework

The design of the governance model was prioritised as it will define the core players that will establish the foundations of the VirtualES. An effective governance model is a key requirement to make informed decisions regarding national critical digital infrastructure and will also act as an enabler of the culture we want to foster within the VirtualES.

The proposed model seeks to legitimise a responsible orchestrator for coordination and conflict resolution with clear government backing.

Aligning models and taxonomies

There is broad range of terminologies for the energy sector, covering different aspects of both gas and electricity. Therefore, to achieve a successful, interoperable, standardised VirtualES, common ontologies need to be defined and specified that can enable alignment of models within the VirtualES.

This can be done through facilitating common vocabularies, outlining well-formed structures of definitions and relationships, and building on and using already existing vocabularies, ontologies, and domain knowledge.

Increasing data visibility & enabling sharing

Increasing data visibility starts with a distributed approach, allowing for data owners to retain control of their datasets, decide with whom to share their data, and have trust their data is secure from manipulation, or misuse.

For organisations to share their data or consume datasets from the VirtualES they will be required to meet a set of minimum characteristics. This standardised approach ensures an increase in visibility, searchability and accessibility of data for use.

Creating an interoperable technology stack

The goal of creating an interoperable technology stack is to enable smooth communication between organisations and systems, regardless of their underlying technologies or protocols. To enable interoperability in the sector, there needs to be a distributed network of digital spine nodes which can prepare and standardise data into a minimal operable standard. Through trusted protocols, the data can then be shared via the VirtualES by linking the digital spine nodes to enable the exchange of standardised data across the sector in a reliable, secure and governed way.

Six priority key factors

The relationship between the six priority key factors

These ‘first among equal’ socio-technical factors should be considered simultaneously together, along with the remaining eight key factors that will be explored next.

Raising awareness and fostering culture, creating a ***governance framework***, and ***engaging stakeholders*** were prioritised out of the socio factors as they act as the foundation of the common framework from a social perspective and will set the tone of the programme.

Culture is defined as a combination of the artefacts (e.g., organisational vision, assumptions, beliefs and values) that characterise the programme. Fostering an appropriate culture is crucial for success, particularly considering VirtualES is a first-of-a-kind programme that will involve sector-wide collaboration and involvement.

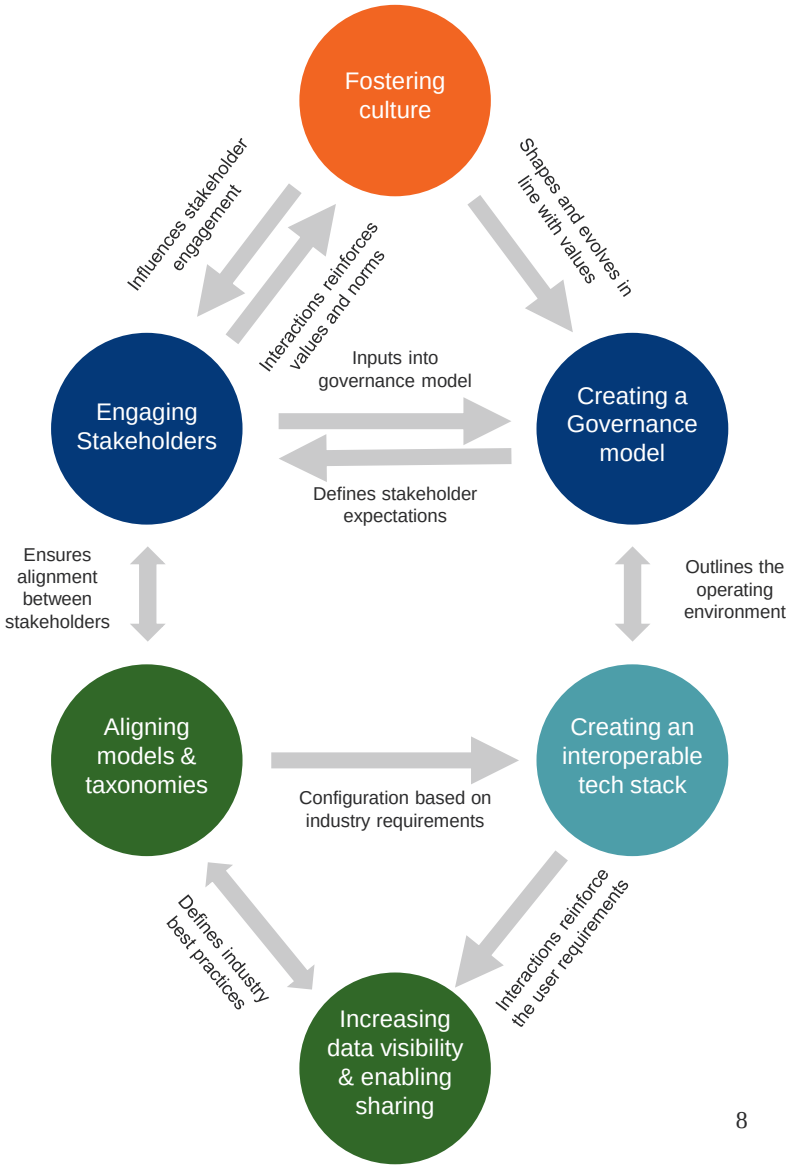
The governance model plays a significant role in reinforcing the cultural values, principles and norms that guide the behaviours and actions of individuals. When designing the governance model, it must be considered how it can reinforce and embed the cultural values, while meeting the needs of the sector.

The inherent purpose for the VirtualES is to enable sharing and visibility of data through an interoperable technology stack that ensures models and taxonomies are aligned, whilst providing trust and interoperability between actors.

Interoperability plays a critical role in enabling data sharing, ensuring standardised data formats, and an overarching governance framework. Aligning models and taxonomies ensures consistency in data interpretation.

Underpinning the other factors is engaging stakeholders. As interactions between stakeholders increase during the programme, they will influence the culture of the VirtualES. Therefore, ensuring that stakeholders who interact with the VirtualES are aware of the values of the programme and act in line with those, is important to ensure a positive culture persists over time

These six factors support the development of an energy sector data sharing infrastructure. By addressing these factors together, actors can create a harmonised data architecture that will support the VirtualES.



Delivering the VirtualES

An overview of the development timeline of the VIrtualES

Project timelines

Throughout the development of the common framework, the approach has been industry-led, consultative, and collaborative.

This approach, coupled with explicit and proactive engagement within the energy sector and with cross-sector stakeholders, is necessary for the successful development of the common framework, delivery of the VirtualES, and ultimately in achieving sector-wide adoption.

All work has been conducted openly, with all the outputs to date published online.

Defined the vision *(Dec 21 – Feb 22)*

Benchmark & key factors

- Defined the cross-sector and global best practice for connecting assets, systems, and digital twins.

  Read the report
- Outlined the key socio-technical factors that need to be considered for the VirtualES to succeed.

  Read the report

Sketched the concept *(Mar 22 – Apr 22)*

Discovery phase (SIF)

- Collaboratively proved and demonstrates, with industry, how the socio-technical principles work to enable the VirtualES.
- Recommended a tangible demonstrator use case to put the framework in practice.

  Read the report

Developed enablers *(Jul 22 – Sep 22)*

Data standards, use cases & advisory groups

- Identified data standards and outlined data licensing considerations applicable to the use case.

  Read the report
- Defined a delivery plan, governance structure, and collaborative approach, for the successful delivery of the demonstrator.

  Read the report

Set design principles *(Nov 22 – Jul 23)*

Common framework demonstrator (Alpha)

- Developed industry-validated governance model and technical architecture.
- Created wireframes of VirtualES based on the demonstrator use case.
- Defined a cost-benefit analysis methodology to assess potential use cases.

Showcase benefit *(Expected Oct 23 – Sep 24)*

Development (Beta)

- Initiate the development and testing of the demonstrator.
- Further explore the security, operating model, and technical aspects.
- Continue on-going engagement with stakeholders across the sector.

Project team

Supporting the development of the social-technical common framework

The development of the common framework has been delivered by Arup and supported by the Energy Systems Catapult and Icebreaker One. It has been sponsored by the Electricity System Operator (ESO) and National Gas Transmission (NGT) through the Network Innovation Allowance (NIA).

The purpose of the RIIO-2 NIA is to provide funding to Gas Transporter and Electricity Transmission Licensees to allow them to carry out innovative projects, that focus on the energy system transition or addressing consumer vulnerability, which are outside of business-as-usual activities.

- **Electricity System Operator (ESO):** ESO is responsible to ensure a reliable, secure system operation to deliver electricity when customers need it. ESO balances the supply and demand on the system day to day, second by second, and coordinates with networks to transfer electricity from where it is generated to where it is needed.
- **National Gas (NGT):** National Gas own and operate the national gas network in addition to maintaining and managing the 7,000,000 domestic industrial and commercial combined gas assets around the UK.
- **Arup:** An employee owned, multinational organisation with more than 15,000 specialists, working across 90+ disciplines, with projects in over 140 countries and the mission to ‘shape a better world’. Arup have extensive energy and cross-sector digital twin expertise, actively contributed to the National Digital Twin programme, and are members of the Digital Twin Hub.
- **Energy Systems Catapult (ESC):** An independent, not-for-profit centre of excellence that bridges the gap between industry, government, academia, and research. Set up to accelerate the transformation of the UK’s energy system and ensure businesses and consumers capture the opportunities of clean growth. ESC are responsible for the Energy Data Task Force (EDTF) & Energy Digitalisation Task Force (EDiT).
- **Icebreaker One (IB1):** An independent, non-partisan, non-profit organisation with a mission to ‘make data work harder to deliver Net Zero’ by creating open standards for data sharing across agriculture, energy, transport, water, and the built world.

Together the five organisations assembled a delivery team to effectively collaborate and deliver the objectives of this workstream.

2

Engaging stakeholders

Engaging stakeholders

Approach to engaging stakeholders in any organisation to collaborate with the VirtualES

Overview

Stakeholder engagement and collaboration is crucial in enabling the VirtualES and in creating an ecosystem of connected digital twins for the GB energy system.

The purpose of this priority key factor guidance note is to provide an organisation who is looking to engage and participate in the VirtualES with the methodology and blueprint to enable them to successfully engage their relevant internal and external stakeholders.

This methodology is summarised in the adjacent diagram and is detailed over the following pages of this document.

Aims of stakeholder engagement

In the context of the VirtualES, the aim of stakeholder engagement is to:

- **Encourage stakeholder involvement in the VirtualES through active participation:** By actively seeking input and feedback, the VirtualES benefits from the diverse knowledge, expertise, and experience of the sector, ensuring it is inclusive and representative and responsive to stakeholder needs.
- **Build an expanding community of users that share the VirtualES values:** Having individuals who align with the values of the VirtualES, the program can create a sense of belonging and collective ownership that unites individuals behind its overall vision. This promotes a supportive environment that encourages active participation, collaboration, and the sharing of best practices among users creating collective value.
- **Encourage stakeholders to become advocates of the VirtualES:** Promoting joint advocacy of value, thinking, and needs.

2.1

Identifying the stakeholders

Identifying stakeholders

Approach to identifying relevant internal and external stakeholders

Overview

When an organisation is looking to engage with and participate in the VirtualES, they will start by identifying their relevant internal and external stakeholders.

- **Internal stakeholders:** This will include relevant business functions, such as IT and legal, and potential users of the VirtualES, such as network planners, operational planners, and asset managers.
- **External stakeholders:** This will include other organisations that their organisation interacts or interfaces with, for example local authorities. It will also include individuals within those organisations, who could be technical, non-technical, or managerial personnel.

There are several considerations that can assist an organisation in identifying the relevant internal and external stakeholders. An indicative list of these considerations have been outlined in the adjacent box.

To assist in identifying external stakeholders, an indicative list of stakeholder groups is summarised on the following three pages. These groups include, for example, DNOs, Government, academia, and financiers.

Considerations when identify stakeholders

- **Who are the direct users of the VirtualES?**

  The organisations, teams, and individuals that will be the direct users of the VirtualES and the outcomes it enables.

  They may be the requesters of particular use cases for the organisation. For example, flexibility service providers, or network planners.

- **Who are the indirect users of the VirtualES?**

  The organisations, teams, and individuals that will be the indirect users or beneficiaries of the VirtualES.

  For example, they are users or beneficiaries of outcomes that have been derived from the VirtualES by another direct user or use case.

- **Who are the key decision-makers/advocates?**

  The stakeholders that hold decision-making authority over aspects such as resource allocation and those that could be influential advocates for participating in the VirtualES.

- **Who can influence success?**

  Stakeholders who have the power or influence on shaping participating in the VirtualES.

- **Who has a vested interest and/or will be impacted by the outcomes of the VirtualES?**

  The stakeholders who have a significant interest in the organisation participating in the VirtualES. These interests could be, for example, financial, strategic, operational, or reputational.

- **Who has the specialised knowledge or skills that are relevant to participating and using the VirtualES?**

  Stakeholders with the various inter-disciplinary knowledge and skillsets required to participate in participating in the VirtualES.

- **Who will oppose participating in the VirtualES?**

  Stakeholders to be aware of who have concerns, objections or conflicting interests that may oppose participating in the VirtualES.

Stakeholder groups (1 of 3)

Indicative stakeholder groups that will interact with the VirtualES

Regulator

Ofgem (Office of Gas and Electricity Markets) is an independent energy regulator with primary duty to protect existing and future consumers' interests in relation to gas conveyed through pipes and electricity conveyed by distribution or transmission systems.

In relation to VirtualES, it is expected that Ofgem will continue to be involved in regulating the standardisation and sharing of data between energy sector actors.

Government (National & Local)

Several government departments play a role to establish policies related to data sharing in the energy sector. This includes Department for Energy Security & Net Zero (DESNZ). They can provide the supportive legal framework, promote energy integration, foster innovation, and provide legitimacy.

Alongside Mayoral Combined Authorities, Local Authorities, city and town sustainability officers, and regional planning officers, their involvement is crucial to support Local Area Energy Planning (LAEP).

System Operators (ESO & NGT)

The Electricity System Operator (ESO) and National Gas (NGT) are responsible to ensure a reliable, secure system operation to deliver electricity and gas, respectively, when customers need it.

They are a vital stakeholder for the VirtualES and are sponsors of the VirtualES programme.

Distribution System Operators (DSO)

"*Distribution System Operation (DSO) brings network decision making closer to consumers, with network operators managing the network at a local level with more control over local supply & demand.*" (source: ENA)

DSOs manage the distribution of electricity from a variety of sources, including renewable energy sources, and for developing new technologies that can help to make the grid more efficient and reliable.

Transmission Network Owners (Gas & Electricity)

Gas and electricity transmission operators are responsible for operating, maintaining, and developing the gas and electricity transmission networks.

They own and maintain both on-shore and off-shore networks.

These stakeholders will both supply and consume data that is shared through the VirtualES and may develop additional use cases.

Distribution Network Operators (Gas & Electricity)

Distribution network operators (DNOs), and Gas distribution network operators (GDNOs) are licensed companies that own and operate the gas and electricity networks that bring energy from the transmission network to consumers.

Each network operator has as specific geographic area of operation. These stakeholders will both supply and consume data that is shared through the VirtualES and may develop additional use cases.

Stakeholder groups (2 of 3)

Indicative stakeholder groups that will interact with the VirtualES

Energy producers, importers, and interconnectors

Energy producers are generators, such as nuclear power stations and wind farms, that produce the electricity sold on the wholesale market. There are hundreds of organisations with generator licences in GB.

Importers and interconnectors import gas and electricity from other countries via tankers or subsea cables.

This data is an important contribution to VirtualES, particularly through the prevailing diversification into renewable energy generation.

Energy retailers (B2B & B2C)

Retail (B2B & B2C) are commercial companies which buy electricity and gas in the wholesale market and sell it on to the consumers.

Retailers maintain the customer interface. They are a crucial access point to consumers themselves.

Energy consumers

Energy consumers consume or purchase energy for their own use. The uptake of decentralised microgeneration has also created 'prosumers' - those who also produce energy. Both groups are split across the residential, transport, industrial and commercial sector.

This stakeholder group will be the ultimate beneficiaries of most use cases but are unlikely to be direct users of the VirtualES.

Non-governmental organisations (NGOs)

NGOs, such as Energy Systems Catapult, Icebreaker One, and the Open Data Institute, promote and foster innovation, and help facilitate the sector transitioning to net zero.

These stakeholders will support the development of VirtualES and its communities of practice and suggest and develop future use cases.

Academia & research institutions

Academia and research institutes in the UK play a vital role in the energy sector by driving innovation, conducting research, informing policy decisions, share public discourse, developing and training the next generation, and influence energy-related decision-making.

They contribute to public awareness and understanding of energy issues, and help policymakers make informed choices based on scientific evidence.

Aggregators

Aggregators pool electricity supply and/or demand to sell this capacity in the electricity markets, facilitating a flexible system. They exist as independent entities or are embedded within certain energy retailers.

Flexibility is a fundamental enabler for a net zero energy system dominated by renewables. Aggregators would act as important participants in the VirtualES, accessing data to allow more effective decisions to be made about their operations.

Stakeholder groups (3 of 3)

Indicative stakeholder groups that will interact with the VirtualES

Innovators

Innovators will bring new products and services to the energy market. The modernisation and change brought on by these products and services lay the initial foundation of the energy transition. Their continued participation is crucial to accelerate it.

Innovators will develop new uses cases. These will rely on the data, including the accuracy and granularity, that can be provided by the VirtualES.

Industry bodies or associations

Industry bodies and associations provide a collective voice for individual businesses/operators within the sector.

They hold an important role, facilitating and unifying communication across their specified stakeholder group.

For example, the Energy Networks Association (ENA) supports the collaboration of all the energy networks.

Investors & finance community

Various investors will be evaluating the opportunities within the energy sector and will have requirements relating to the transmission of data and access to it in order to facilitate their opportunities.

Open-source community

The open-source communities could use the outputs from VirtualES to develop their own propositions or use cases.

This could be components of the digital infrastructure supporting the VirtualES being built in an open-source principles, or through data made available by the VirtualES, supporting open-source communities.

Industry experts

Individuals with expertise in many components relating to the GB energy system will be key stakeholders for the VirtualES and can highlight challenges and opportunities that the VirtualES can influence.

Other sectors

Other sectors, including transport, water, and telecoms, are increasingly dependent on the energy sector and the data within it.

The VirtualES can facilitate relevant data being shared with non-energy market participants.

2.2

Understand the identified stakeholder

Understand the identified stakeholders

Understanding stakeholders through the power-interest matrix

Overview

Understanding the identified stakeholders means acknowledging the diverse perspectives, aims, and contributions they bring. It also entails understanding their specific needs, interests, and evolving roles.

Key stakeholders can significantly influence or be influenced by the decisions, actions, and performance of the activities associated with engaging with and participating in the VirtualES.

Building a strong understanding of their needs, expectations, and concerns is essential for effective stakeholder management and achieving the desired outcomes.

Stakeholder mapping

The power-interest matrix is a common approach to categorising the identified stakeholders based on the intersection of their power and interest.

It divides stakeholders in four stakeholder categories:

- **High power, high interest:** key players and likely to be decision-makers. These players should be partnered with and ensure they become champions of the programme.
- **High power, low interest:** actively engaged but limited involvement in the project. These players informed about the programme to keep them interested.
- **Low power, high interest:** likely to be impacted involved; therefore, consulted and helpful for detail requirements.
- **Low power, low interest:** kept informed about the project but require little engagement. These players informed about the programme to keep them interested.

The categorisation of these stakeholders can change as the programme progress; therefore, it needs to live and regularly reviewed.

Based on Mendelow's Matrix (1991), the matrix is based on stakeholder's power or influence and their level of interest.

2.3 — Define the stakeholder engagement success metrics

Define the stakeholder engagement success metrics

Measuring success for stakeholder engagement activities

Overview

Defining success metrics for stakeholder engagement activities provides clear criteria and indicators to assess the effectiveness and impact of engagement efforts.

These metrics are for stakeholder engagement only and are separate to any business performance or operational improvement metrics resulting from the outcomes the VirtualES and its use cases enable.

The success metrics for stakeholder engagement activities could consider criteria such as:

- Increase in the number of proposals for potential use cases
- Increased direct and indirect users, and internal champions of the VirtualES
- Regulatory and government stakeholder validation
- Collecting qualitative feedback from stakeholders included in the engagement plan

There are several considerations that can assist an organisation in identifying and defining the success metrics. An indicative list of these considerations have been outlined in the adjacent box.

Considerations for defining success metrics

- **Do the success metrics support strong awareness and advocacy for participating in the VirtualES?**

  Awareness ensures that stakeholders have a clear understanding of the purpose, goals, and potential impact of participating in the VirtualES, allowing them to make informed decisions and contribute meaningfully.

  Advocacy empowers stakeholders to voice their concerns, interests, and needs, fostering a sense of ownership and inclusivity.

  Robust awareness and advocacy also facilitate transparency, trust, and collaboration, leading to better decision-making and outcomes.

- **Can the success metrics be measured using the defined communication channels?**

  Communication channels enable the flow of information, ideas, and feedback between stakeholders. They provide clear and timely dissemination of updates, objectives, and outcomes, ensuring stakeholders are informed.

- **Will the success metrics support the evaluation of engagement?**

  The engagement strategies given in Section 2.4 are methods of interfacing with stakeholders.

  The metrics should support understanding the success and impact of the strategies against the identified stakeholder groups.

2.4

Determine stakeholder engagement strategies

Determine stakeholder engagement strategies

Inbound and outbound strategies for engagement

Overview

Stakeholder engagement involves developing tailored engagement strategies for different stakeholder groups.

This may involve a combination of ***inbound*** and ***outbound*** approaches such as surveys, focus groups, workshops, one-to-one meetings, or online platforms. These approaches are summarised in the adjacent box.

Early engagement with stakeholders can also improve engagement and success in adoption, by capturing and addressing stakeholder needs, expectations, and concerns,

Activities should also align with the cultural values of the organisation and the VirtualES. For more information see the *raising awareness & fostering culture* priority key factor.

Inbound strategies

These are strategies that aim to pull stakeholders towards an organisation, rather than actively reaching out to them.

For example:

- **Content creation:** Creating content such as blog posts, articles, videos, infographics, and e-books. The content is designed to provide useful information and engage with the target audience.
- **Show & tells**: Leveraging media platforms to engage with the target audience, share content, and gather feedback.
- **Workshops:** Bringing together key stakeholders to engage and increase knowledge by gathering feedback or sector insights.
- **Advisory groups:** Bringing together industry experts to provide insight, strategic direction and feedback.

Outbound strategies

These are strategies where an organisation actively reaching out to potential stakeholders. It relies on pushing messages to a broad audience, hoping to capture the attention of individuals who may be interested, ensuring thorough going transparency about the programme.

For example:

- **Advertising:** Utilizing various advertising channels such as TV, radio, print media, billboards, and online display ads. The goal is to reach a large audience and create awareness.
- **Events:** Participating in trade shows, or conferences, to showcase the scope of the programme. It allows for direct interactions and demonstrations.
- **Social media marketing:** Leveraging social media platforms to engage with the wider audience, share content, and build relationships.

Stakeholder engagement activities (1 of 3)

Methods of stakeholder engagement and knowledge captured

Overview

There are a variety of consultative and collaborative stakeholder engagement and knowledge capture methods that can be used by an organisation engaging with and participating in the VirtualES.

- Advisory groups
- Interviews
- Workshops
- Feedback from high priority stakeholders
- Surveys
- Conferences
- Wider stakeholder presentations & webinars
- Social and digital media

A combination of these activities can be used according to the intended outcome of the engagement and the type of stakeholder involved.

Advisory groups

Advisory groups are panels of cross-sector and in-sector subject matter experts that are assembled to provide experience, guidance, and advice on specific subjects or areas of interest.

Their main objective is to provide informed recommendations and perspectives on key topics related to the organisation's use cases and engagement and participation in the VirtualES.

The main benefit of the advisory group is the provision of constructive feedback during the development of key aspects and ensure stakeholder and industry support.

They also provide a platform for experts to collaborate, share their experience, and foster partnerships across use cases and the VirtualES, enhancing collective knowledge and fostering innovation.

The VirtualES programme currently operates three advisory groups at a programme-level. These are:

- People and process
- Data and technology
- Use case

Interviews

To gain in-depth knowledge from stakeholders, the interviews should be designed according to the specific activity they support, and the stakeholders being targeted.

They can use both semi-structured and targeted interviews with individuals.

- **Semi-structured interviews:** follow an outline interview script, enabling the interviewers to guide the conversation and obtain rich and in-depth information. It provides flexibility to the interviewer to pursue areas of interest as they emerge during the interview.
- **Targeted interviews:** to target a set of specific topics for investigation. They should use a set interview script developed for that interview.

Interviews can assist in gathering feedback for a particular use case, on select technical and non-technical requirements and development, etc.

They can also be helpful in acquiring certain pieces of knowledge from SMEs or leaders across the energy sector.

Stakeholder engagement activities (2 of 3)

Methods of stakeholder engagement and knowledge captured

Workshops

Workshops are a method of engaging selected groups of internal and/or external stakeholders for a concentrated amount of time, using hands-on activities to work on a specific brief.

Workshops can be run in a variety formats, designed around the requirement and the participant selected. The objective and quality of each workshop should be reviewed and agreed at the start of each respective requirement.

They can be done through online collaboration tools (such as Miro, Teams, SharePoint) to capture workshop outputs live.

When engaging and participating in the VirtualES, workshops can assist in defining data requirements for a particular use case, gather feedback on select deliverables, or bring awareness for a certain aspect of the programme.

Feedback from high priority stakeholders

An organisation might identify a group of internal and/or external experts to be engaged, in the role of a “critical friend” for topics such as use cases, technical and non-technical requirements and developments, and engagement activities.

The experts are key individuals from within the relevant stakeholder groups and/or technical subject matter experts. They can be engaged either singularly or collectively to provide early feedback.

Surveys

The use of surveys to collect information and feedback across a wide sample of internal and external stakeholders.

The survey can use a mix of quantitative (numerically rated items) and qualitative research strategies (using open-ended questions), according to the survey objective.

When engaging and participating in the VirtualES surveys can be used to acquire:

- **Feedback:** can include feedback on engagement activities, stakeholders, etc..
- **Technical requirements:** validate and rate the criticality of certain requirements by a selected pool of stakeholders.
- **Use cases:** request new use cases and feedback on proposed use cases.

Stakeholder engagement activities (3 of 3)

Methods of stakeholder engagement and knowledge captured

Conference, events, and industry forums

Conferences, events, and industry forums bring together experts, researchers, policymakers, academia, and industry from different backgrounds to discuss the latest trends, technologies, and strategies in the energy sector.

An organisation should target participation through:

- **Technical stakeholder engagement presentations:** Presentations that focus on stakeholder engagement and sharing the developing thinking on the use cases, the demonstrator, governance models, and technical design.
- **Panel discussions:** Be part of relevant interactive sessions where the emerging findings can be shared, questions discussed, and stakeholders engaged
- **Regular industry forums:** Forums, such as the Digital Twin Hub or ENA's Data and Digitalisation Steering Group, helps facilitate wider sharing into different stakeholder groups within the sector, and cross-sector.

Conferences, events, and industry forums also provide a platform for engaging new and existing stakeholders, exchanging ideas, collaborating with industry, and raising awareness of participating in the VirtualES.

Wider stakeholder presentations & webinars

A wider stakeholder group presentations or webinar, such as a "Show & Tell", are an informal presentation that involves a short presentation (~15 minutes) followed by questions (~15 minutes).

It is an intentional mechanism of sharing emerging or developing thinking to a wide audience. The presentation can be hosted online (e.g., Microsoft Teams or equivalent) and are intentionally wider-access for an in-sector and cross-sector audience. They can be advertised to stakeholders engaged through the study, and through social media and other online mediums.

The purpose and benefits include:

- **Stakeholder engagement:** Sharing of stakeholder engagement and their feedback. Sharing stories and use cases to inspire the sector to engage with and build momentum for the VirtualES.
- **Demonstration:** They provide a forum to informally discuss use cases and how they working, providing the audience with a better understanding of benefits.
- **Gathering feedback:** Gather feedback from potential users and stakeholders on use cases, technical and non-technical requirements and developments.

Social and digital media

To ensure wide and accessible knowledge sharing, it is necessary to use social media (e.g., LinkedIn), and digital media (e.g., articles, twitter, and blogs).

By using these platforms effectively, it is possible to create wide-spread awareness, build a community around the VirtualES, and share valuable resources and insights that can help others understand the importance and benefits of participating in the VirtualES.

- **Social media:** Professional platforms such as LinkedIn will be used to share short, concise messages about the programme through posting links to published material and stakeholder engagement events.
- **Digital media:** Articles can be used to share feedback and emerging thinking in longer-form stories or articles that will informally outline findings, and outcomes. A dedicated repository, such as the VirtualES website, could provide a central hub for sharing and accessing resources and interim deliverables and provide a mechanism for feedback.

2.5

Develop the stakeholder management plan

Develop a stakeholder management plan

Creating a stakeholder management plan using the EAST framework

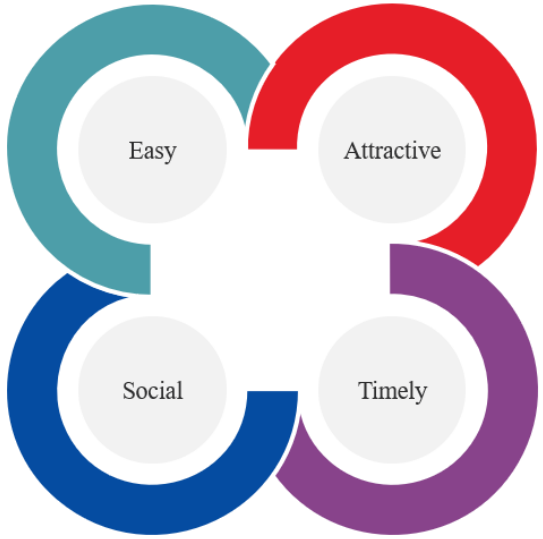
Overview

A stakeholder management plan is a strategic document that outlines the approach and activities for effectively engaging and managing stakeholders. It serves as a roadmap for building positive relationships, minimising conflicts, and maximising support and cooperation.

The stakeholder management plan should:

- Ensure a robust approach to act as a guide and be updated engaging with and participating in the VirtualES.
- Set out a strategy for effective early and ongoing engagement that is consistent, supportive and helpful.
- Become a key tool for recording and reporting the engagement and consultation activities, and how they have influenced decisions.
- Provide ‘one source of truth’ to facilitate the transfer of information, and avoid information being lost across multiple documents.

The EAST (Easy, Attractive, Social and Timely), as shown in the diagram below, is a framework of four simple principles used to support practitioners designing pragmatic and effective behavioural-led stakeholder engagement approaches.



EAST (Easy, Attractive, Social and Timely) framework

E: Make it Easy

When designing stakeholder engagement strategies, you want to remove “friction costs” which are the small actions or details that make a task more difficult. This can be done through:

- **Simplifying the message:** keep the message concise with complex goals broken down into smaller, easily actioned steps.
- **Harnessing the power of defaults:** when an option is set as the default, its chances of adoption increase.
- **Reducing the “hassle factor” of taking part:** try to remove as many barriers to the action as possible.

How could these principles be applied?

- When creating internal engagement strategies for the VirtualES, include the key message/call to action in the subject line of communications.
- Avoid using over technical language, depending on the target audience.
- When designing events consider making them hybrid/virtual and have a direct link to register rather than redirecting them to another webpage.

Develop a stakeholder management plan

Creating a stakeholder management plan using the EAST framework

A: Make it Attractive

Stakeholder engagement strategies should make participation attractive. This tends to work best when you appeal to individuals' intrinsic motivation (e.g., personal development) as opposed to offering extrinsic motivation (e.g., financial rewards). This can be done through:

- **Attracting attention:** highlighting the benefits of participation to the target audience and personalise these if possible. Leverage imagery or graphics to make the message simpler and more accessible.
- **Designing rewards for maximum effect:** consider using gamification techniques to reward engagement. Draw attention to the positive self-image, personal growth, and increase in sector awareness that will come with participation in the activity.

How could these principles be applied?

- When designing workshops personalise them to the audience by aligning the benefits with development goals or other organisational strategies.
- During conferences consider creating competitions aligned with the outcomes you want to achieve.

S: Make it Social

People are highly influenced by what those around us do and say. We are much more likely to carry through an activity if we have made a commitment to someone else.

- **Showing that others perform the desired behaviour:** describing how other people are acting in the expected ways can increase participation.
- **Using the power of networks:** build networks to enable collective action and share peer-to-peer learning.
- **Encouraging people to make a commitment to others:** when we are being held accountable to our actions by others it increases the likelihood that we will perform that action.

How could these principles be applied?

- Inform people how many people previously registered and attended events.
- Create forums to offer chances for people to collaborate and share knowledge and success stories.
- Leverage existing organisational processes (e.g., performance reviews) to encourage individuals to commit to engaging with the programme.

T: Make it Timely

People tend to respond to calls to action different depending on when they occur. If you can time prompts to occur at a more salient time you can increase the likelihood that participants will respond positively.

- **Prompting people when they are likely to be most receptive:** it is generally easier to change when habits are already disrupted, such as when organisational strategies are changing or when starting a new role.
- **Considering the immediate benefits:** we are more influenced by benefits that take effect immediately.
- **Helping people plan their response:** support individuals to bridge the gap between intention and behaviour by identifying the barriers to action and removing them.

How could these principles be applied?

- Time engagement activities so they are aligned to emerging organisational strategies/initiatives and link them to immediate benefits from participation.
- Engage with stakeholders through 1-2-1 interviews to understand the barriers to participation and evaluate strategies to remove them.

2.6

Measure and iterate

Measure and iterate

Assess the effectiveness of the stakeholder engagement and continuously improve

Overview

After defined the success metrics (Section 2.3), determining the stakeholder engagement strategies (Section 2.4), then developing and delivering the stakeholder management plan (Section 2.5), it is useful to measure the effectiveness of the stakeholder engagement. This will allow an organisation to iterate and continuously improve.

An indicative list of potential evaluation and measurement methods are outlined in the adjacent box.

A combination of these methods can be used, tailored to the specific success metrics being drive.

Evaluation and measurement methods

- **Key Performance Indicators (KPIs)**

  Establish KPIs aligned with the success metrics (Section 2.3) and objectives in the stakeholder management plan (Section 2.5).

  These KPIs are for stakeholder engagement only and are separate to any business performance or operational improvement metrics resulting from the outcomes the VirtualES and its use cases enable.

  KPI could include number of individuals signed up to a mailing list, number of attendees at events, or number of visits to a webpage for example.

- **Apply best practice**

  Benchmark adoption and outcomes other organisations engaged with and participating in the VirtualES to contextualise outcomes and identify opportunities for improvement.

- **A/B testing**

  Comparing two variations of a specific approach or strategy to determine which one performs better in achieving desired outcomes. By randomly assigning stakeholders to either variation A or B and analysing metrics such as open rates or feedback, a more impactful approach can be identified.

- **Continuous feedback loops**

  Establish open mechanisms for ongoing feedback and encourage stakeholders to provide feedback at different stages

- **Surveys & questionnaires**

  Conduct surveys or questionnaires to gather feedback from stakeholders. These can include feedback on satisfaction, perceptions, and experiences with the engagement process.

3 – Call to action

Ways you can engage with VirtualES

Call for action for sector stakeholders that want to engage

Overview

The success of the VirtualES is dependent on the active involvement of its stakeholders, including yourself.

This call to action implores us all to embrace the power of collaboration and the diverse perspectives that stakeholders bring to the table. By connecting with us, you can contribute to the advancement of the VirtualES and help shape the future of data sharing within the energy sector, accelerating the transition to net zero.

Ways to engage with the programme:

- Share your insights, observations, and suggestions on the work completed so far.
- Co-create new possibilities - to propose new use cases to inspire innovation.

The time to act is now.

Together though our shared commitment to net-zero, we can shape a legacy, leaving a positive impact for generations to come.

Share your insights

Your insights and feedback are essential to the continued success and growth of the VirtualES.

Your unique perspective can shed light on crucial aspects of the initiative, uncovering opportunities for improvement and innovation. Together, through open and collaborative communication, the outcomes of VirtualES will inform a user- and consumer- centric programme.

We are eager to listen and learn from your insights. A starting point is the review and feedback on the below proposals.

- The governance model for the VirtualES
- Functional technical architecture of the VirtualES
- Cost benefits analysis methodology for VirtualES use cases
- Wireframes for the VirtualES common framework demonstrator

Co-create new possibilities

As a stakeholder in the VirtualES, your use case proposals are at the heart of transforming the energy landscape.

Share your innovative ideas and suggestions to address real-world challenges and capitalise on opportunities.

Whether it's integrating renewable energy sources, optimizing distribution, or exploring smart grid applications, your insights shape the future of data sharing and sustainability in the energy sector.

We welcome input from individuals and organisations alike, aiming to tailor VirtualES as a user- and consumer- centric programme.

Please share your feedback:
VirtualES@nationalgrideso.com

Visit our website to read the published reports.

Visit our website

Join the mailing list to be invited to future events or receive further communications.

Join the mailing list

ARUP

Virtual Energy System

Powered by ESO

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