ARUP

Virtual Energy System

Workstream 2 - Common framework

Demonstrator project plan and advisory groups

August 2022

nationalgridESO

Virtual Energy System
Powered by National Grid ESO

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Contents

Introduction

Purpose of this document

Purpose

The Virtual Energy System (VirtualES) SIF Discovery highlighted several areas that are key to supporting and enabling the successful delivery of the proposed common framework demonstrator project.

The document presents the proposed deliver plan, governance structure, advisory groups approach, and cross-workstream collaboration that will enable the successful delivery of the demonstrator.

Alpha phase demonstrator

The VirtualES application for SIF Alpha funding was declined on the basis that the outcome did not have a clear route to production, and it would benefit from smaller trials.

This feedback has been explicitly addressed in this refined demonstrator project, which is now progressing through NIA funding to continue the VirtualES development progress and pace.

This demonstrator should be considered as an “Alpha” phase, which follows on from the recommendations of the Discovery phase. This Alpha is aligned with the GDS (UK Government Digital Services) agile delivery framework.

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Demonstrator delivery plan, programme governance, and risk management

Demonstrator work packages

The proposed work packages and activities for the common framework demonstrator

Context

At the heart of the delivery plan is on going cross-sector and in-sector collaboration. It is essential to build on the work of the initiatives driving change in the energy sector, such as EDTF, EDiT, the National Digital Twin programme, Energy Data Visibility Project and Open Energy, and VirtualES work conducted to date.

The demonstrator is considered an "Alpha" phase, that follows on from the recommendations of the Discovery phase. This Alpha is aligned with the GDS (UK Government Digital Services) agile delivery framework.

The proposed work packages, aims, and milestones for the demonstrator are presented here, supported by an PMO function.

Outline sprint plans for each work packages are in Appendix A.1.

WP1: Project Management Office (PMO)

AIM: To manage the budget, deliverables and reporting throughout the demonstrator through a small, dedicated PMO support team

WP2: Demonstrating the common framework through the whole-system flexibility use case

WP2.1: Data assessment & preparation	WP2.2: Technology	WP2.3: Wireframe the demonstrator
AIM: To establish which key data sets are required to be sharable across the industry with the appropriate detail, frequency and granularity required for it to be used to fulfil the needs of the use case	**AIM:** To determine that it is possible to make energy data visible and accessible to actors across the industry through a secure and scalable solution to store shared data and modelling	**AIM: I**teratively show how the demonstrator will be developed
Deliverable/milestone • Data needs and gaps report (M1) • Data relationships developed & tested (M2)	**Deliverable/milestone** • Technology review report (M3)	**Deliverable/milestone** • Interoperability report (M4) • Data licensing template (M5) • Data sharing assessment demonstration (M7)

WP3: Developing the common framework best practice guidance

WP3.1: Social (socio) factors	WP3.2: Technical factors
AIM: To iterate best practice documents for each of the 3 priority social (socio) factors using lessons learnt in demonstrating the use case and from industry.	**AIM:** To iterate best practice documents for each of the 3 priority technical factors using lessons learnt in demonstrating the use case and from industry.
Deliverable/milestone • Best practice recommendation on the three priority social (socio) factors (M8-M10)	**Deliverable/milestone** • Best practice recommendation on the three priority technical factors (M11-M13)

WP4: Benefits of the use case & common framework

WP4.1: Benefits
AIM: To commence identification and initial quantification of benefits to the system operation / planning and ultimately the consumer and investors of developing the use case and using the common framework
Deliverable/milestone • Benefits report on the use case (M6) • Benefits report on the common framework (M14)

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Demonstrator project schedule

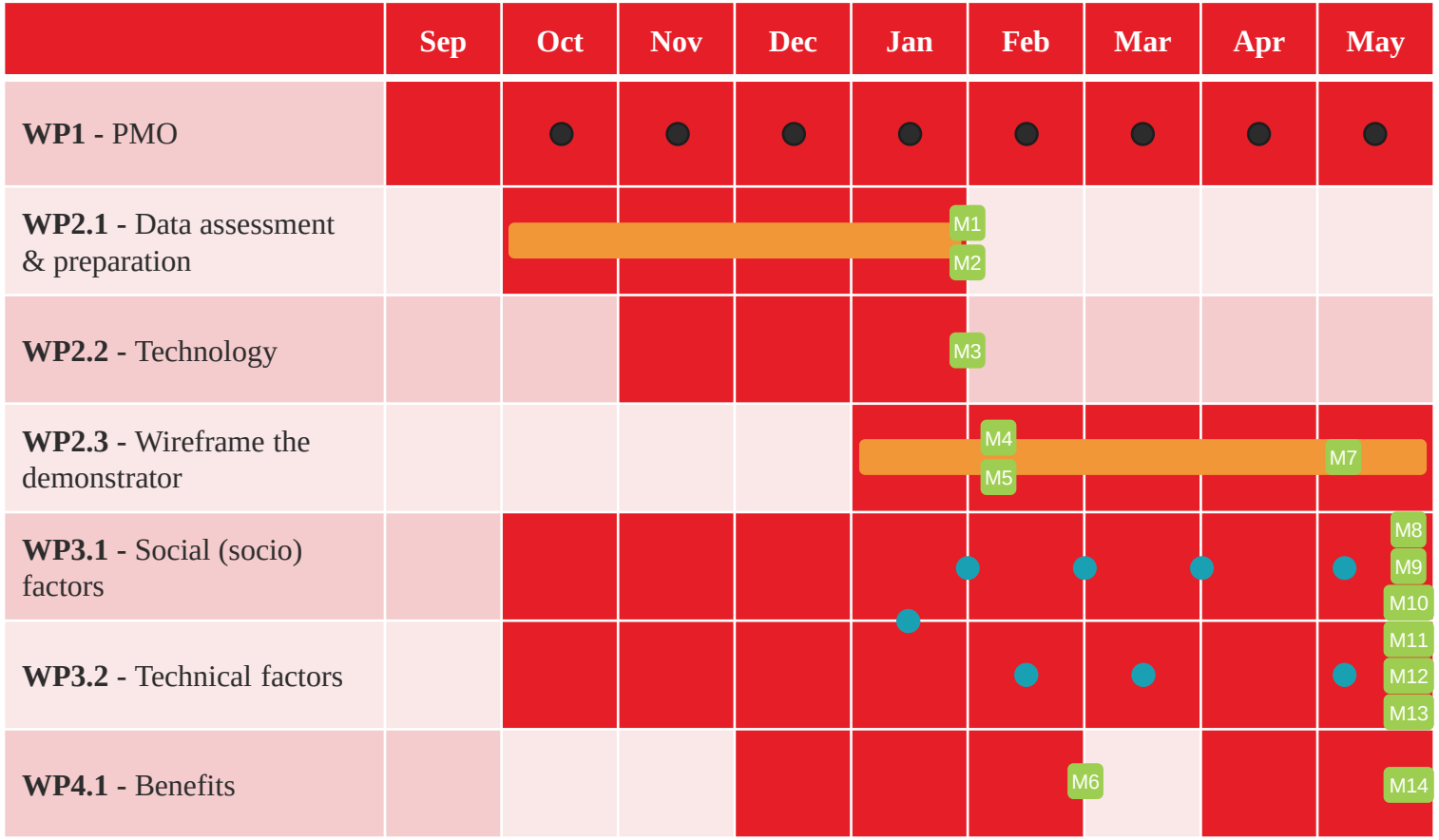
Assuming a project mobilisation date of 26 September 2022

The following high-level schedule of activities is considered for this demonstrator project.

A description of each work package (WP) aims and deliverables is given on page 5, with the overall sprint plans for each work package detailed in Appendix A.1.

The milestone / deliverable dates are subject to their necessary dependencies being completed.

The project schedule considers a project duration of nine months from the mobilisation date. The current mobilisation date is assumed as 26 September 2022.



Working practices, risk management, and engagement

Collaborating and communicating continuously and clearly

Agile, inclusive, and iterative

The project will continue to follow an agile approach to delivery, which includes working in fortnightly 'sprints'. Working in sprints, periods of focused effort, enables the team to keep abreast of priorities and identify risks and risk mitigation strategies early.

Each sprint cycle starts with a planning session and ends with a review, with daily stand ups throughout and an end of week project meeting.

Risk management

Risks and issues will be actively monitored and managed throughout the demonstrator by the PMO, in line with the below five-point risk management approach.

The proposed programme governance structure (page 8) will be followed if escalation is required.

- **Identification:** Regular, monthly, risk workshops will be held with all project partners to identify new risks and issues early, creating a culture of everyone owning risk identification.
- **Mitigation:** A robust risk register will be maintained, and detail mitigation plans and deadlines for completion of de-risking activities. The register is a live document and will be updated following each risk workshop, or more regularly where required. The register will be circulated to partners following each update for visibility and actioning.
- **Ownership:** The register specifies individuals responsible for owning each risk and mitigation plans, ensuring accountability for the completion of actions.
- **Governance:** A robust risk governance process will be put in place. This includes, for example, governance for this five-point approach, and a risk escalation policy to make sure risks are appropriately managed.
- **Awareness:** A summary of the risk register will be published on the VirtualES website for visibility and transparency, allowing interested stakeholders to access. Any risk impacting certain stakeholder groups will be anonymised on the public summary, with those parties contacted separately and the proposed mitigation strategies discussed.

Engagement & external communication

The development and delivery of the VirtualES will need a sector-wide transformational change, delivered through a collaborative and principled approach with work conducted 'in the open'.

This will require explicit and proactive engagement, within the energy sector and with cross-sector stakeholders.

For the common framework demonstrator, it is considered that show and tell sessions be held virtually monthly, or as appropriate, to share findings and outcomes, and gain informal feedback and comments from the wider energy sector and the leading digital twin community. These sessions can be VirtualES programme-wide.

A marketing plan should also be established, and the programme findings, outputs, and key messages regularly shared, and communicated through social media channels and where possible trade press.

It is considered that this engagement, external communication, and marketing will be applicable to the entire VirtualES programme, and will be owned and managed by the VirtualES Stakeholder workstream.

Proposed programme governance

Three stakeholder groups that provide strategic input, guidance, and oversight

Advisory groups

The advisory groups consisting of panels of cross-sector and in-sector subject matter experts that will be assembled to contribute to the development of the programme through focused meetings and workshops on specific aspects of common framework demonstrator.

The workstream project team will prepare the material to share with the advisory groups, and the outcomes fed back into the project and reported to the steering and project boards.

It is considered that the advisory groups will be owned and managed by the VirtualES Stakeholder workstream.

The advisory groups facilitate a "*start by starting*" approach. More details are given in Section 2.

Expert & project partners steering board

This board consists of a selected group of external experts in connected digital twin and energy data (likely to be senior management level), and senior representatives from the VirtualES project partners and other energy networks. They are invited to contribute to the success of the programme through periodic meetings. The membership here is intentionally selected to facilitate organisations and sectoral buy-in.

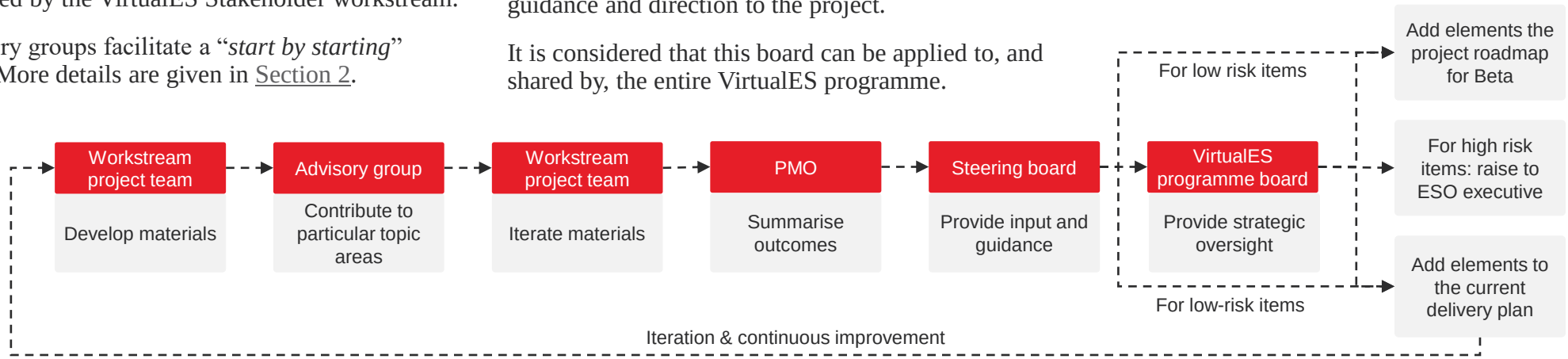
The workstream project team will report progress to the steering board, including the outcomes from the advisory groups. The steering board will provide guidance and direction to the project.

It is considered that this board can be applied to, and shared by, the entire VirtualES programme.

VirtualES programme board

Attended by the VirtualES programme director, National Grid ESO project sponsor, VirtualES workstream leads, BEIS, Ofgem, and members of the project team (where appropriate).

The meeting is used to report progress to the senior sponsors periodically, escalate any high risk items raised through the governance process, and receive feedback on the project direction. It is considered that this programme board can be applied to, and shared by, the entire VirtualES programme.



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Advisory groups

Advisory groups

The context, membership and objectives of advisory groups

Context

Throughout the planning and delivery of the VirtualES programme it is recommended that several 'advisory groups' are formed to provide expert input and review.

An advisory group consists of a panel of volunteer cross-sector and in-sector subject matter experts that are actively recruited. They are periodically assembled to contribute to the development of the programme through focused meetings and workshops on specific subjects.

Advisory groups benefit the VirtualES by providing best practice recommendations, promoting knowledge sharing and collaboration, and explicitly conducting work 'in the open'. As the VirtualES is a socio-technical programme, this type of forum is critical in obtaining industry support.

The complexity and multi-year nature of the VirtualES means that it will inevitably evolve over time. The underlying intent of the advisory groups is to "*start by starting*". They build early consensus that is focused on what is considered acceptable or tolerable at this point and explicitly acknowledge it will be iterated, rather than pursue a idealistic solution.

It is considered that the advisory groups will be owned and managed by the VirtualES Stakeholder workstream.

Membership

Each advisory group should include a range of members from across private and public organisations.

Each group should have a minimum of eight members. Members are actively recruited from industry. For certain advisory groups, such as those proposed for the demonstrator (see page 11), it may be necessary to recruit or offer positions to nominated SMEs from the VirtualES project partners and other energy networks.

Members are explicitly asked to act as an ambassador or representative of their sector/industry and not their employer, and, as far as possible, contribute without individual or organisational bias. This applies if members are nominated by a project partner or energy network.

All members are volunteers, and so their time must be respected. Individual engagement with members between meetings, to share developments and capture any emerging ideas or concerns, will ensure that the input and discussion time within the meetings is maximised and the members feel they can contribute meaningfully to the group.

A terms of reference template for the proposed advisory groups is given in Appendix A.2.

Objectives

The key objectives of the advisory groups are:

- Contribute to the successful development of the VirtualES through harnessing the collective expert knowledge and experience of the group members.
- To provide updates and learnings from relevant ongoing in-sector and cross-sector projects.
- Facilitate a "*start by starting*" approach, whereby members build consensus on what is acceptable or tolerable at this point so that progress can be made, rather than pursue a idealistic solution.
- Raise awareness, actively promote, and build advocacy for the VirtualES and its adoption across the energy sector, and facilitate cross-sector learning and knowledge transfer.

Applicability across the VirtualES programme

It is considered that the advisory group approach will benefit all workstreams within the VirtualES. The groups should be considered as a '*task-and-finish*' group. Their exact scope, format, and schedule will depend on their purpose. Where possible, duplication of members across multiple advisory groups should be avoided.

Details of the groups are proposed for the common framework demonstrator are given on the next page.

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Advisory groups for the common framework

Scope, format, and schedule of the proposed common framework advisory groups

Scope

Two groups are considered for the common framework:

1. **Social (socio) factors:** Supporting WP3.1 (page 5), with a specific focus on developing the best practice guidance for the three priority social (socio) factors:
   a) Raising awareness and fostering culture
   b) Engaging stakeholders
   c) Governance
2. **Technical factors:** Supporting WP3.2 (page 5), with a specific focus on developing the best practice guidance for the three priority technical factors:
   a) Increasing visibility and enabling sharing
   b) Creating an interoperable tech-stack
   c) Aligning models and taxonomies

It is envisaged that the advisory groups will persist throughout the common framework development, beyond the initial demonstrator project.

Membership and project partner representation

In addition to the membership requirements on page 10, the common framework advisory groups should also recruit or offer positions to nominated SMEs from the VirtualES project partners and other energy networks.

Meeting format and schedule

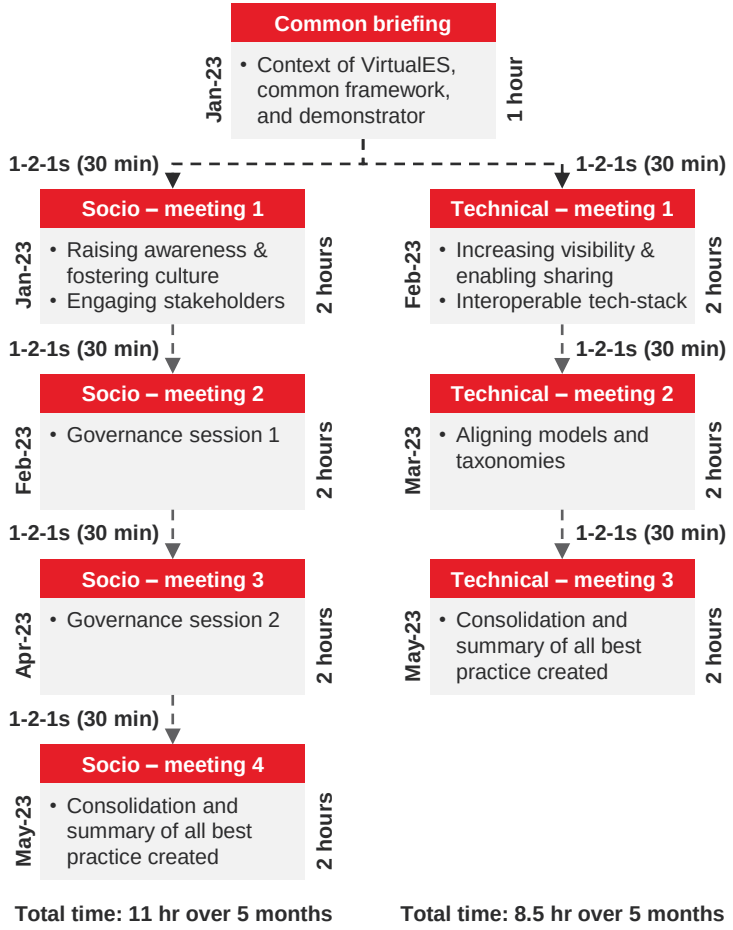
To make the most of volunteers' time, it is considered that the membership of each group will be different given the topics each covers.

All members will attend a common briefing where the context and objectives of the VirtualES, common framework, and demonstrator will be provided. Members will then receive short individual (one-to-one) engagements prior to each advisory group to share the key points of the developing best practice guidance and capture any immediate comments.

The common briefing and individual engagements will ensure that the input and discussion time within the advisory group meetings is maximised, and the members are able to contribute meaningfully. The number of individual calls will depend on the membership size.

The final group meeting in each series is a consolidation session to capture and discuss outstanding topics. Outputs of the groups will be shared with the steering and programme boards periodically (see page 8).

Appropriate collaboration tools will be used throughout, and the engagement and contributions observed to iterate and improve the group format and schedule. It is considered all meetings will be conducted virtually, providing maximum incentive for members to join.



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VirtualES workstream integration

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Workstream integration

Maintaining integration, collaboration, and communication with growth

Context

The VirtualES programme has three workstreams:

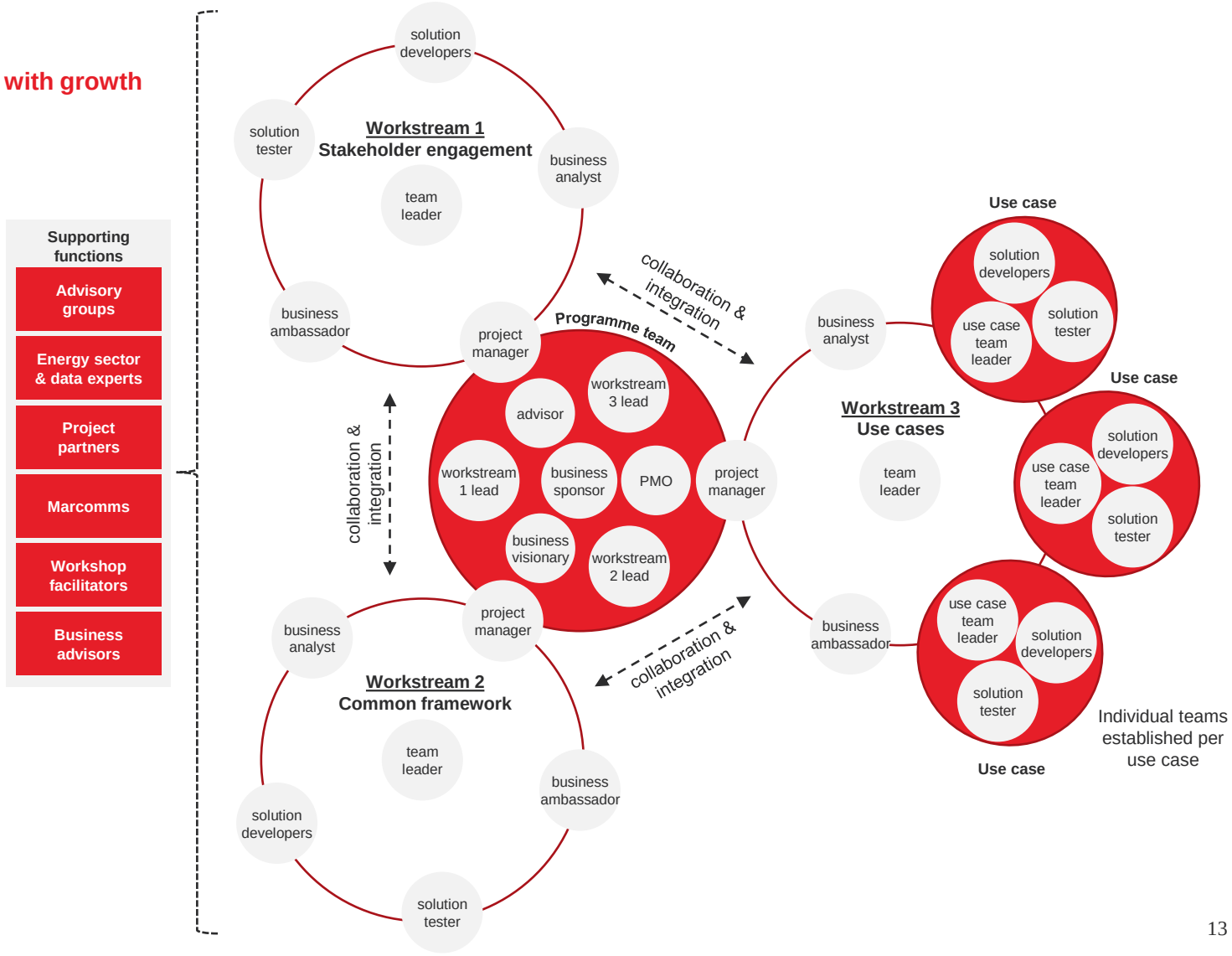
- Workstream 1 - Stakeholder engagement
- Workstream 2 - Common framework & principles
- Workstream 3 - Use cases

These workstreams already actively and successfully collaborate and communicate with each other.

As the VirtualES programme develops it is expected that the delivery teams within each workstream will also grow in size. This growth will require closer integration between the workstreams to maintain the same close collaboration and communication.

It is proposed that the common framework demonstrator continues to be delivered through an agile project management approach. With the increase in stakeholders and focus on a particular use case for the demonstrator, it is considered that further elements of agile delivery be adopted and extended across the workstreams - in particular the approach of team/workstream integration.

The adjacent diagram and subsequent pages outline a proposed team integration structure, based on the Dynamic Systems Development Method (DSDM). For more details see Appendix A.3.



Roles and responsibilities – programme team

Outline responsibilities for each role

Business / programme sponsor

Key responsibilities:

- Provide high level steer and direction
- Secures and approves budget
- Responsible for the programme business case
- Board-level VirtualES champion

Business visionary / programme director

Key responsibilities:

- Interpret the needs of the sponsor and the business. Communicating these within the business case and to the project teams
- Provide strategic direction
- Own the deployed solution and be responsible for benefits realisation

Programme-level PMO

Key responsibilities:

- Provide high level, agile, leadership
- Coordinate all aspects of the project at a high level
- Detailed planning delegated to the workstream delivery teams

Workstream lead

Key responsibilities:

- Interpret programme requirements in the context of the workstream
- Responsible for the workstream direction and outcomes
- Ensure cross-workstream engagement

Workstream project manager

Key responsibilities:

- Facilitate communication between the programme team, workstream lead, and the workstream delivery team
- Manage workstream level budget and resourcing

Advisor

Key responsibilities:

- Ensure that the workstreams are technically coherent
- Ensure that the project is coherent with other initiatives driving change in the energy sector (e.g. EDTF, EDiT, the National Digital Twin programme, and Open Energy)
- Advise on socio-technical decisions and innovation

Roles and responsibilities – workstream team

Outline responsibilities for each role

Business ambassador

Key responsibilities:

- Representative of the business needs within the workstream delivery team
- In small teams, the business ambassador and workstream lead can be the same person.

Team leader

Key responsibilities:

- Organise the workstream delivery team to ensure the goals of the project are met
- Communicate with the project manager on the prioritisation of features
- In small teams, the team leader and project manager can be the same person.

Business analyst

Key responsibilities:

- Communicate between business and technical needs to ensure appropriate decisions are made
- Manage the business needs and communicate these with the workstream delivery team

Solution developer

Key responsibilities:

- Iterate on solutions which meet the needs of the project under the different work packages
- Communicate with the team leader to overcome hurdles

Solution tester

Key responsibilities:

- Provide quality assurance on project outcomes
- Ensure outcomes meeting objectives

Appendix

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A.1
Demonstrator delivery sprints schedule

WP1 - Project management office (PMO)

Assuming a project mobilisation date of 26 September 2022

The table below outlines the high-level activities anticipated within each two-week sprint period. The exact activities will be finalised during each sprint planning.

Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6		Sprint 7	Sprint 8	Sprint 9
26-Sep	**10-Oct**	**24-Oct**	**07-Nov**	**21-Nov**	**05-Dec**		**03-Jan**	**16-Jan**	**30-Jan**
Mobilisation	Tracking: Deliverables Budget Resourcing Supporting board meeting	Tracking: Deliverables Budget Resourcing	Tracking: Deliverables Budget Resourcing Supporting board meeting	Tracking: Deliverables Budget Resourcing	Tracking: Deliverables Budget Resourcing Supporting board meeting	Christmas	Tracking: Deliverables Budget Resourcing	Tracking: Deliverables Budget Resourcing Supporting board meeting	Tracking: Deliverables Budget Resourcing

Sprint 10	Sprint 11	Sprint 12	Sprint 13		Sprint 14	Sprint 15	Sprint 16	Sprint 17	Project End
13-Feb	**27-Feb**	**13-Mar**	**27-Mar**		**17-Apr**	**01-May**	**15-May**	**29-May**	**02-Jun**
Tracking: Deliverables Budget Resourcing Supporting board meeting	Tracking: Deliverables Budget Resourcing	Tracking: Deliverables Budget Resourcing Supporting board meeting	Tracking: Deliverables Budget Resourcing	Easter	Tracking: Deliverables Budget Resourcing Supporting board meeting	Tracking: Deliverables Budget Resourcing	Tracking: Deliverables Budget Resourcing Supporting board meeting	Final reporting Project retrospective	Project end date

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WP2.1 - Data assessment and preparation

Assuming a project mobilisation date of 26 September 2022

The table below outlines the high-level activities anticipated within each two-week sprint period. The exact activities will be finalised during each sprint planning.

Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6		Sprint 7	Sprint 8	Sprint 9
26-Sep	**10-Oct**	**24-Oct**	**07-Nov**	**21-Nov**	**05-Dec**		**03-Jan**	**16-Jan**	**30-Jan**
Mobilisation	Identification of potential users Scheduling of interviews	Schedule interviews Interview guide Identify legal teams to engage	Interviews Initial conversations with legal on data licensing agreements	Interviews Draft data licensing agreements	Final interview Synthesis Draft data licensing agreements	Christmas	In depth conversations with legal on data licensing agreements Synthesis	Reporting	-

Sprint 10	Sprint 11	Sprint 12	Sprint 13		Sprint 14	Sprint 15	Sprint 16	Sprint 17	Project End
13-Feb	**27-Feb**	**13-Mar**	**27-Mar**		**17-Apr**	**01-May**	**15-May**	**29-May**	**02-Jun**
Reporting	-	-	-	Easter	-	-	-	Final reporting Project retrospective	Project end date

WP2.2 - Technology

Assuming a project mobilisation date of 26 September 2022

The table below outlines the high-level activities anticipated within each two-week sprint period. The exact activities will be finalised during each sprint planning.

Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6		Sprint 7	Sprint 8	Sprint 9
26-Sep	**10-Oct**	**24-Oct**	**07-Nov**	**21-Nov**	**05-Dec**		**03-Jan**	**16-Jan**	**30-Jan**
Mobilisation	-	Stakeholder mapping Identification potential platforms	Conversations with platform holders Agreeing the deliverable template	Conversations with platform holders	Mapping of pros and cons of each platform		Reporting	-	-

Sprint 10	Sprint 11	Sprint 12	Sprint 13		Sprint 14	Sprint 15	Sprint 16	Sprint 17	Project End
13-Feb	**27-Feb**	**13-Mar**	**27-Mar**		**17-Apr**	**01-May**	**15-May**	**29-May**	**02-Jun**
-	-	-	-		-	-	-	Final reporting Project retrospective	Project end date

Christmas

Easter

WP2.3 - Wireframe the demonstrator

Assuming a project mobilisation date of 26 September 2022

The table below outlines the high-level activities anticipated within each two-week sprint period. The exact activities will be finalised during each sprint planning.

Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6	Christmas	Sprint 7	Sprint 8	Sprint 9
26-Sep	**10-Oct**	**24-Oct**	**07-Nov**	**21-Nov**	**05-Dec**		**03-Jan**	**16-Jan**	**30-Jan**
Mobilisation	-	-	-	-	-		-	-	Share data license agreement for signature

Sprint 10	Sprint 11	Sprint 12	Sprint 13	Easter	Sprint 14	Sprint 15	Sprint 16	Sprint 17	Project End
13-Feb	**27-Feb**	**13-Mar**	**27-Mar**		**17-Apr**	**01-May**	**15-May**	**29-May**	**02-Jun**
Iterate wireframe of demonstrator	Iterate wireframe demonstrator	Preparation of data for trial	Data sharing assessment and trial		Iterate wireframe of demonstrator	Preparation of data for trial Data sharing assessment and trial	Assessment of next steps Reporting	Final reporting Project retrospective	Project end date

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WP3.1 - Social (socio) factors

Assuming a project mobilisation date of 26 September 2022

The table below outlines the high-level activities anticipated within each two-week sprint period. The exact activities will be finalised during each sprint planning.

Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6		Sprint 7	Sprint 8	Sprint 9
26-Sep	**10-Oct**	**24-Oct**	**07-Nov**	**21-Nov**	**05-Dec**		**03-Jan**	**16-Jan**	**30-Jan**
Mobilisation	Agree format of best practice guidance and	Advertise advisory groups	Develop draft content of guidance 1-2-1 engagement	Develop draft content of guidance 1-2-1 engagement	Develop draft content of guidance 1-2-1 engagement	Christmas	Preparation for AG common briefing	AG common briefing	Refine guidance based on feedback

Sprint 10	Sprint 11	Sprint 12	Sprint 13		Sprint 14	Sprint 15	Sprint 16	Sprint 17	Project End
13-Feb	**27-Feb**	**13-Mar**	**27-Mar**		**17-Apr**	**01-May**	**15-May**	**29-May**	**02-Jun**
Preparation for advisory group and refine guidance based on feedback	Preparation for advisory group and refine guidance based on feedback	Preparation for advisory group and refine guidance based on feedback	Preparation for advisory group and refine guidance based on feedback	Easter	Preparation for advisory group and refine guidance based on feedback	Prepare guidance for final advisory group sessions Advisory group final sessions	Prepare guidance for final advisory group sessions Advisory group final sessions	Final reporting Project retrospective	Project end date

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WP3.2 - Technical factors

Assuming a project mobilisation date of 26 September 2022

The table below outlines the high-level activities anticipated within each two-week sprint period. The exact activities will be finalised during each sprint planning.

Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6		Sprint 7	Sprint 8	Sprint 9
26-Sep	**10-Oct**	**24-Oct**	**07-Nov**	**21-Nov**	**05-Dec**		**03-Jan**	**16-Jan**	**30-Jan**
Mobilisation	Agree format of best practice guidance and	Advertise advisory groups	Develop draft content of guidance 1-2-1 engagement	Develop draft content of guidance 1-2-1 engagement	Develop draft content of guidance 1-2-1 engagement	Christmas	Preparation for AG common briefing	AG common briefing	Refine guidance based on feedback

Sprint 10	Sprint 11	Sprint 12	Sprint 13		Sprint 14	Sprint 15	Sprint 16	Sprint 17	Project End
13-Feb	**27-Feb**	**13-Mar**	**27-Mar**		**17-Apr**	**01-May**	**15-May**	**29-May**	**02-Jun**
Preparation for advisory group and refine guidance based on feedback	Preparation for advisory group and refine guidance based on feedback	Preparation for advisory group and refine guidance based on feedback	Preparation for advisory group and refine guidance based on feedback	Easter	Preparation for advisory group and refine guidance based on feedback	Prepare guidance for final advisory group sessions Advisory group final sessions	Prepare guidance for final advisory group sessions Advisory group final sessions	Final reporting Project retrospective	Project end date

WP4 - Benefits

Assuming a project mobilisation date of 26 September 2022

The table below outlines the high-level activities anticipated within each two-week sprint period. The exact activities will be finalised during each sprint planning.

Sprint 1	Sprint 2	Sprint 3	Sprint 4	Sprint 5	Sprint 6	Christmas	Sprint 7	Sprint 8	Sprint 9
26-Sep	**10-Oct**	**24-Oct**	**07-Nov**	**21-Nov**	**05-Dec**		**03-Jan**	**16-Jan**	**30-Jan**
Mobilisation	-	-	-	-	-		Agree approach for benefits report on the use case	Conduct cost benefit analysis	Conduct cost benefit analysis

Sprint 10	Sprint 11	Sprint 12	Sprint 13	Easter	Sprint 14	Sprint 15	Sprint 16	Sprint 17	Project End
13-Feb	**27-Feb**	**13-Mar**	**27-Mar**		**17-Apr**	**01-May**	**15-May**	**29-May**	**02-Jun**
Reporting on benefits of the use case	-	-	Agree approach for benefits report on the common framework		Conduct cost benefit analysis	Conduct cost benefit analysis	Reporting on the benefits of the common framework	Final reporting Project retrospective	Project end date

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A.2
Advisory group terms of reference template

Advisory group terms of reference template

An outline template for developing terms of reference across the VirtualES programme

Ambition of the Virtual Energy System

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. It 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. This sharing of data will facilitate more complex scenario modelling to deliver optimal whole-system decision making. Whole-system decisions will result in better outcomes for society, the economy, and environment by balancing the needs of users, electricity/gas systems and other sectors.

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

More information about the VirtualES and the work completed to date can be found at: www.nationalgrideso.com/virtual-energy-system

Purpose of advisory groups and this group

The purpose of VirtualES advisory groups is to contribute to the successful development of the VirtualES through harnessing the collective expert knowledge and experience of the members. The purpose of this group is to [purpose]. The governing principle is a "*start by starting*" approach, whereby members look to actively build consensus on what is acceptable or tolerable at this point, to facilitate progress being made.

Membership commitment

The advisory groups consists of a panel of volunteer cross-sector and in-sector subject matter experts.

Members are expected to attend [four] meetings (each two hours in duration) over a period of [five] months. There will be individual (one-to-one) meetings with the project team between advisory group meetings (each 30 minutes). Pre-reading will be issued ahead of meetings, and members are expected to prepare ahead of time and contribute to meetings. The total time commitment for members is [11 hours] plus pre-reading. All meetings will be held virtually.

Members are explicitly asked to act as an ambassador or representative of their sector/industry and not their employer, and contribute as impartially as possible.

Values and working methods

The advisory groups will exhibit the following values:

Collaboration

- Be fundamentally collaborative and collegiate.
- Seek agreement and alignment, building consensus
- Encourage coordination and alignment, not aim to control.

Communication

- Work 'in the open' for all activities, with outcomes made publicly available.
- Raise awareness, actively promote, and build advocacy for the VirtualES and its adoption across the energy sector

Expertise

- Bring cross-sector expertise, and respect the expertise and experience of others.
- Act impartially for the benefit of the programme and the wider sector.
- Adopt a "*start by starting*" approach, facilitating progress and forward-thinking developments.

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A.3
Agile philosophy and principles

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Agile project management

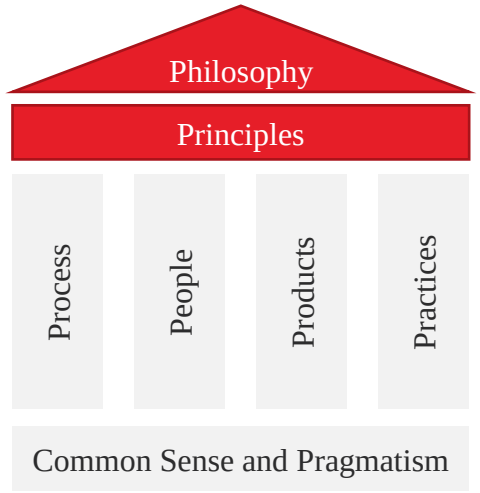
The philosophy and principles of agile project management

Philosophy

The Dynamic Systems Development Method (DSDM) agile project management approach has the philosophy:

> ***"Best business value emerges when projects are aligned to clear business goals, deliver frequently, and involve the collaboration of motivated and empowered people"***

This philosophy and agile approach has been the method of delivery for the common framework workstream activities to date. It is proposed that this method be continued into the demonstrator phase.



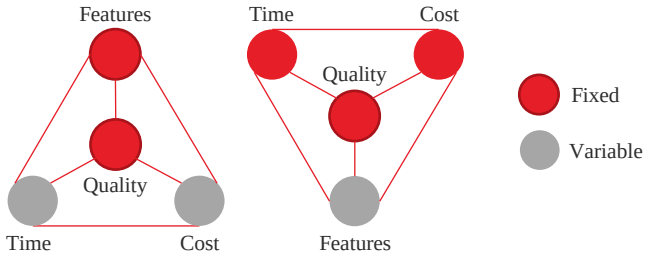
Principles

The philosophy is underpinned by eight principles:

1. **Focus on the business need**
   "The VirtualES is being developed for the energy sector by the energy sector"
2. **Deliver on time**
   "Delivery to schedule and cost will be prioritised"
3. **Collaborate**
   "*The VirtualES is being developed for the energy sector by the energy sector"*
4. **Never compromise on quality**
5. **Build incrementally from foundations**
   "The VirtualES will be developed through use cases"
6. **Develop iteratively**
   "The VirtualES will iterate on deliverables in order to build in industry feedback"
7. **Communicate continuously and clearly**
   "The VirtualES will work in the open"
8. **Demonstrate control**
   "The VirtualES will be built with rigorous governance to ensure the projects progress"

Traditional vs agile

In traditional projects, scope is clearly defined, in detail early in the project lifecycle. It is important to deliver exactly what the project set out to do, this may be because the outputs will be subject to regulation. The need to deliver all features, can often result in projects running behind schedule and over budget.



The VirtualES will continue to adopt an agile approach, time and cost will be fixed for each project phase. Features will be prioritised at the start of each project phase and for each use case to ensure that the features most critical to the energy sector are delivered in a timely manner to cost. It is accepted that not all possible features will be delivered. Quality is always fixed and therefore is never compromised.

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