

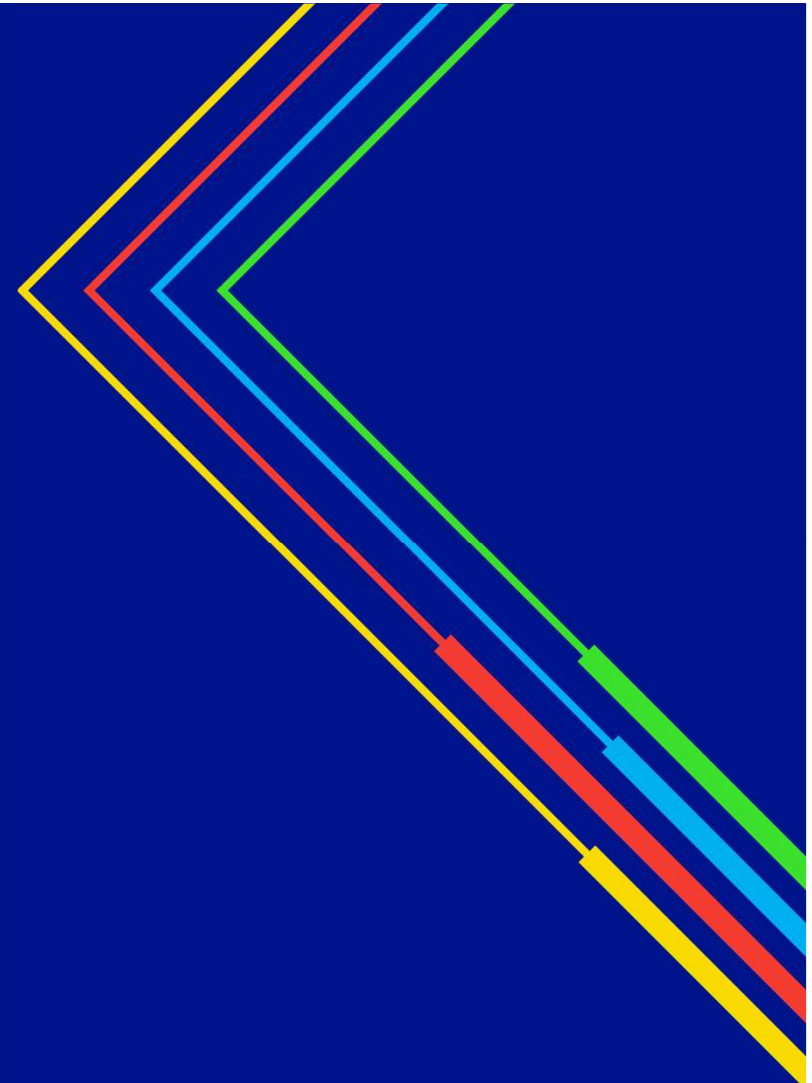
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PRIDE SIF Project

Discovery Phase

**End of Discovery Phase Meeting
19th June 2023**

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Agenda

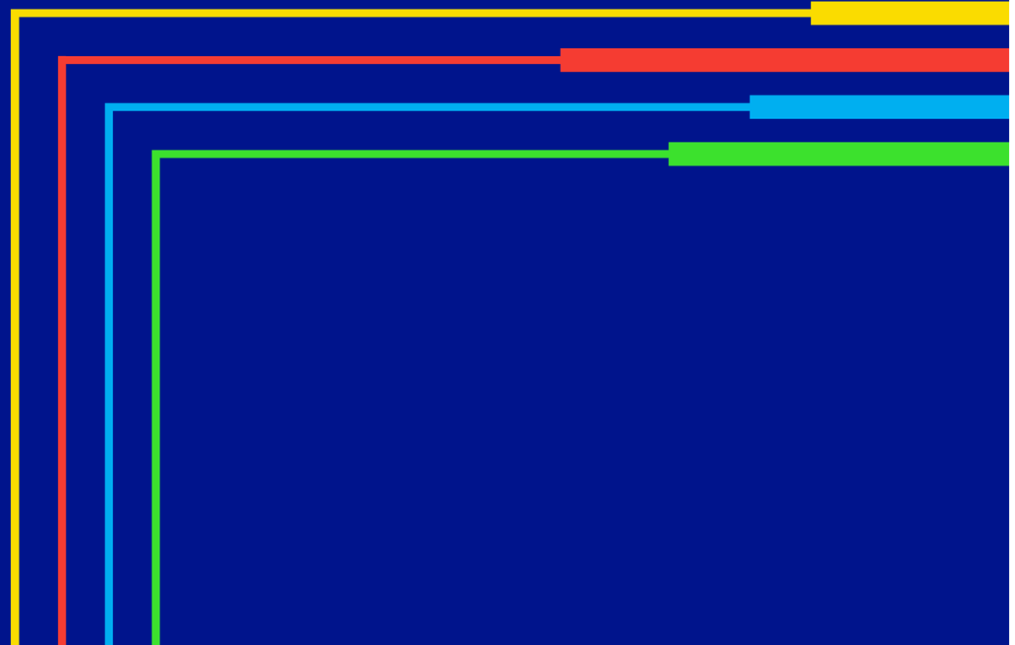
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01

Introductions

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Project Team

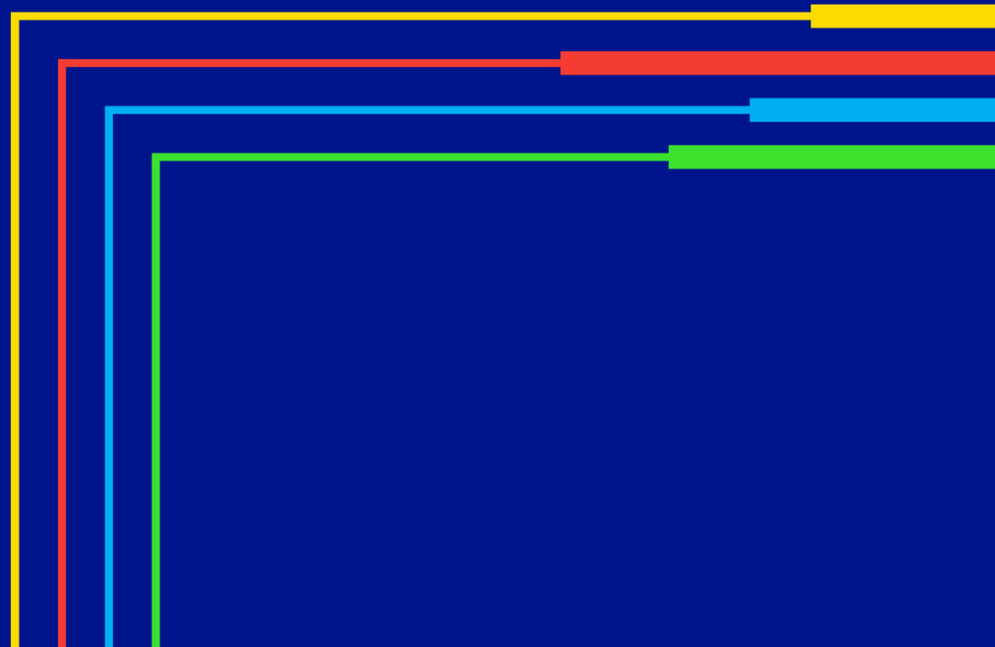
National Grid Electricity Distribution	Jenny Woodruff
National Grid Electricity System Operator	Stuart Fowler
West Midlands Combined Authority	Kate Ashworth, Eleanor Pitcher
Advanced Infrastructure Technologies Limited	Christopher Jackson
Smart Grid Consultants	David Penfold

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02

Project Overarching Summary

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RESO: aims and key findings

Regional Energy System Operator (RESO) – InnovateUK Prospering from the Energy Revolution – 2020-2021 - Coventry

Aim: highlighting the importance of local governance in achieving a smart local energy system.

Focus: the governance structures needed to establish and operate a regional system operator.

Additional output: vast wealth of data, insights and information were collected but were inaccessible for meaningful engagement due to being within excel documents.

Key Headlines

- **RESO will accelerate more cost-effective decarbonisation.**
- **RESO needs a local data governance and whole-systems planning capability. This is the progressive, least-regrets pathway to start RESO implementation.**
- **For optimised cost and time efficiency of delivering a RESO it would help if stakeholder boundaries (infrastructure networks, local authorities etc.) could be aligned.**
- **RESO was entirely consistent with current DESNZ/Ofgem policy and regulation and replicable across the UK.**
- **Implementation of a RESO could deliver £721m NPV over 30 years for Coventry.**

Project Overview

PRIDE developed the Local Area Energy Planning use case identified in the **VirtualESO**. PRIDE explored how using a digital twin to visualise and model changes to electricity, heat, gas, transport, digital and water infrastructure, can make interdependencies, market opportunities and business cases more visible, therefore ensuring the investment decisions enabling decarbonisation of major loads are efficient and optimised.

The **Discovery Phase** has considered three areas, the Use Cases that could be developed, the data that can be used and the likely future organisational structures.

In the **Alpha Phase** we will specify, deliver and test upgrades to the digital platform while specifying and preparing for the organisational trial that will use the improved digital platform.

In the **Beta Phase** we will deliver an organizational trial that will test and validate organisation and governance structure for local area energy planning.

Project Overview

Definitions:

A **digital twin** is a digital representation of a real-world physical system for the purposes of **managing assets, strategy and planning and assurance**.

A **use case** is a written description of how users (actors) perform task.



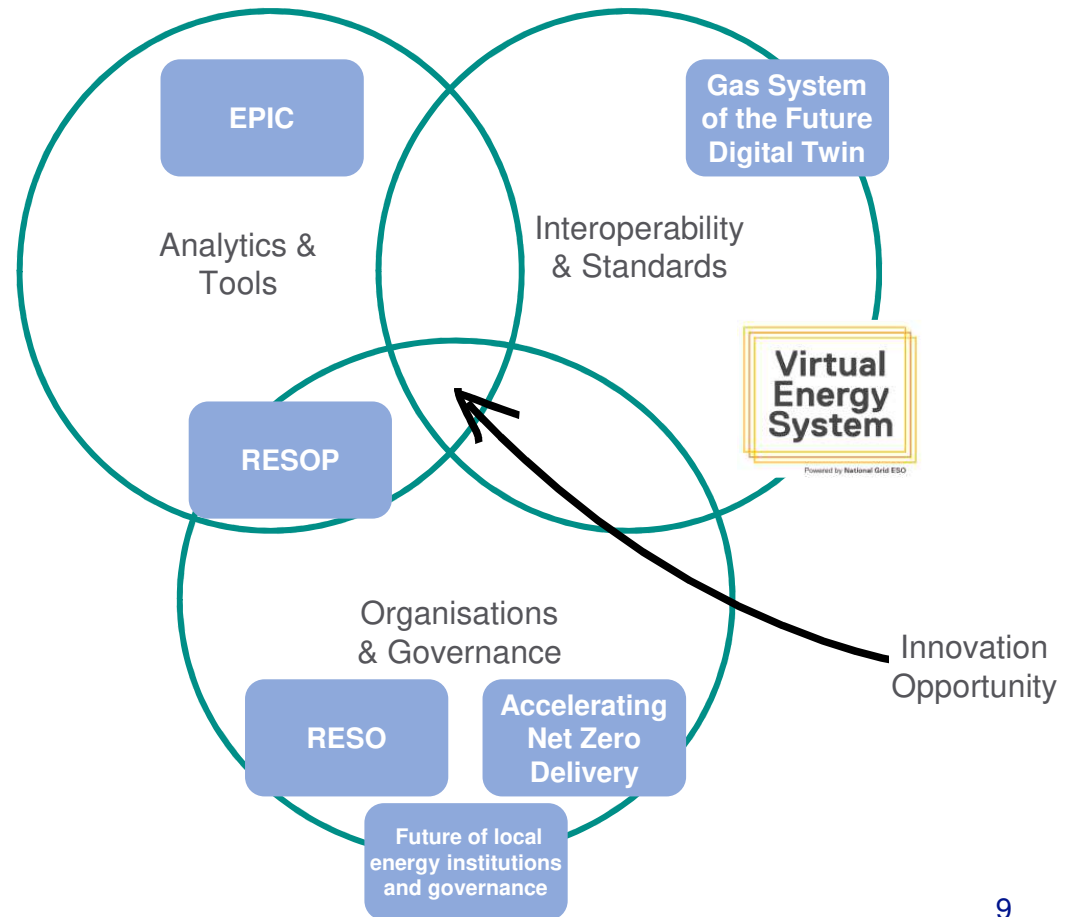
Project Overview

We explored the alignment between ESO Virtual Energy System and other projects and mapped and innovation landscape identifying three board areas of analytics & tools, digital twins, and organisations & governance.

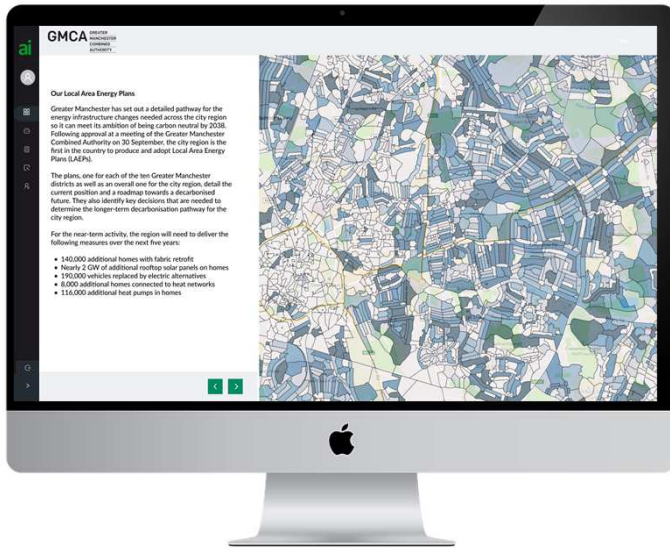
PRIDE aligns with VirtualESO use case no. 24 Planning of local LCT implementation.

PRIDE also aligns with Gas System Future Digital Twin use case Helen (LAEPs).

Neither of the two projects aim to explore the organizational aspects or to fully deploy tools to address the common use case.



Digital tools for Local Area Energy Planning



Optioneering Use Case



Heat pump siting usecase

Project Outputs & Key Learning

Output	Status
WP1 Use Case Workshop	✓
WP2 Organisation Workshop	✓
WP1 Use Case Report	✓
WP2 Organisation Report	✓
WP3 Data and Model Evaluation Report	✓

Key Learning

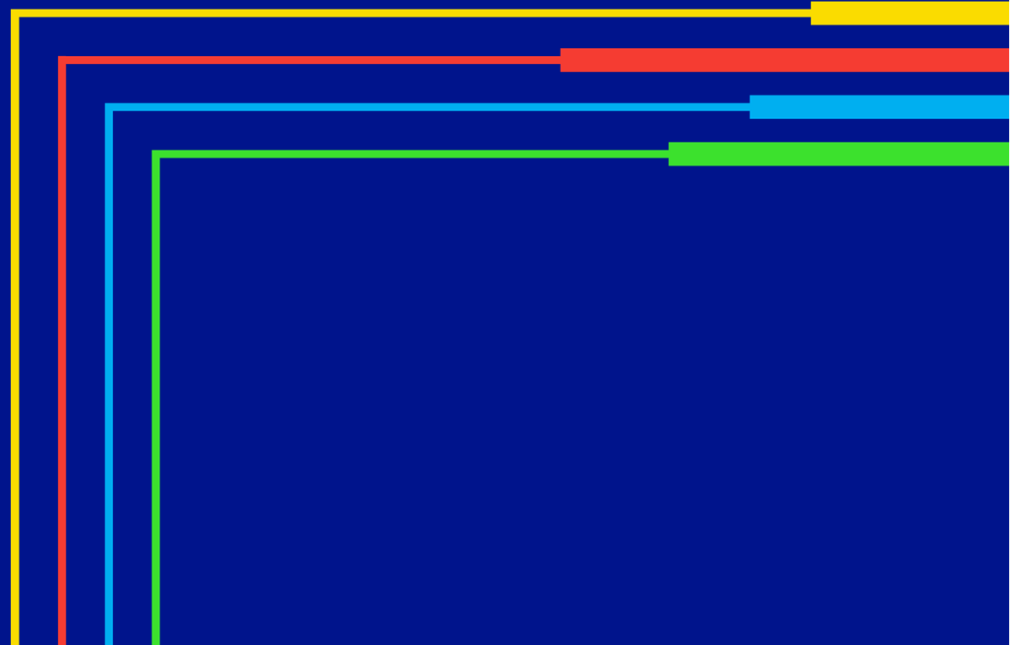
- VirtualESO use case no. 24 he Local Area Energy Planning explored in detail
- 17 user stories identified for further development
- InnovateUK RESO and Ofgem RSP organisational structure mapped and explored

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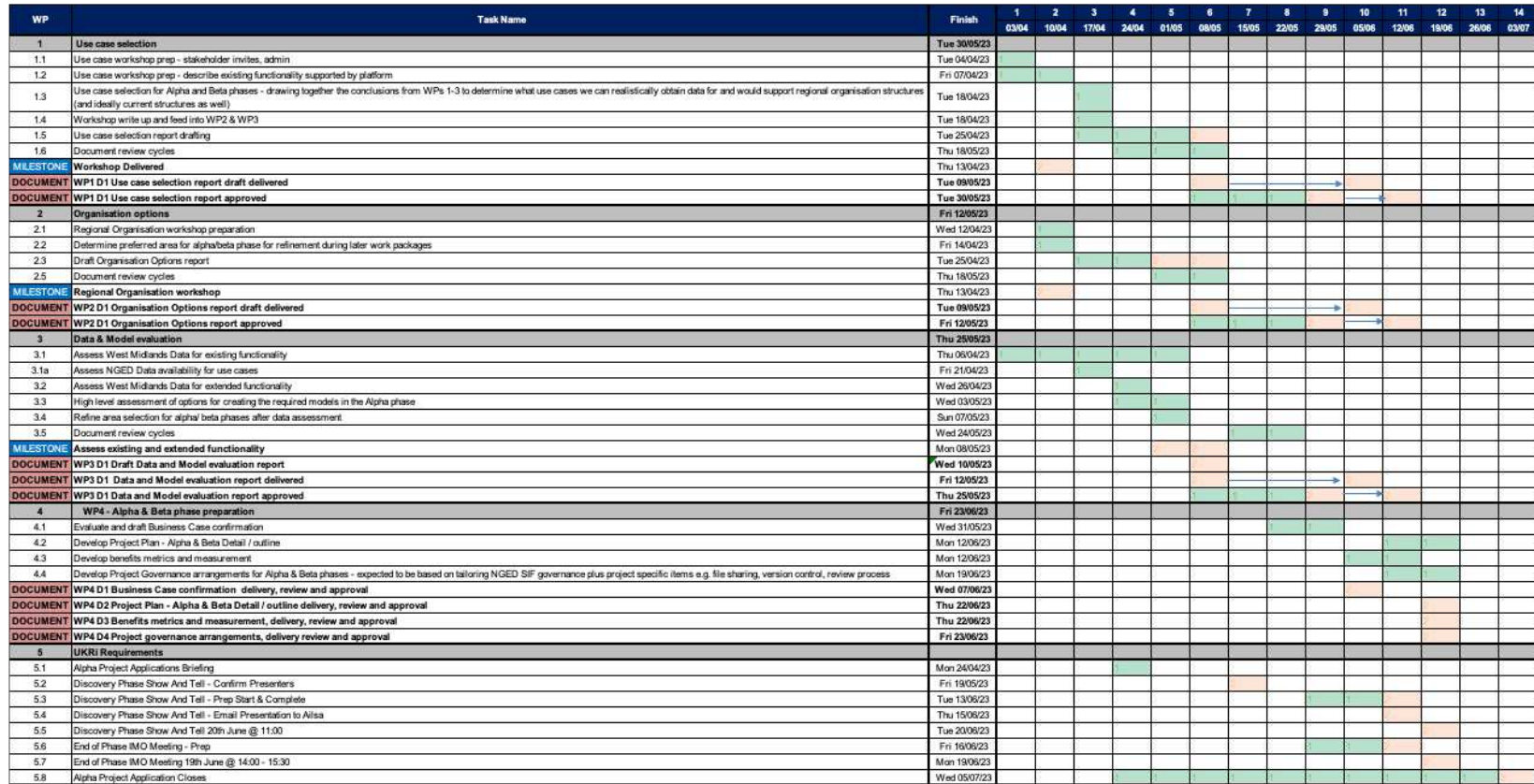
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Project Plan

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Project Gantt

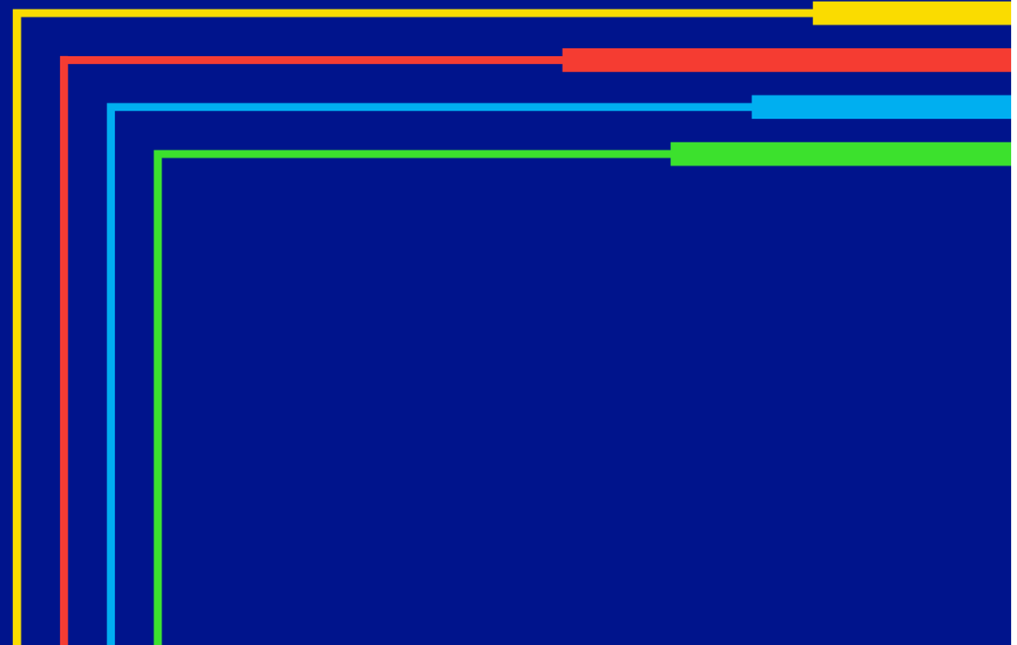


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Work Package Deliverables

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WP2 – Organisational Options

This outlines how LAEP+ supports users across different organisational structures, and demonstrates how the platform can integrate across local, regional and national energy planning.

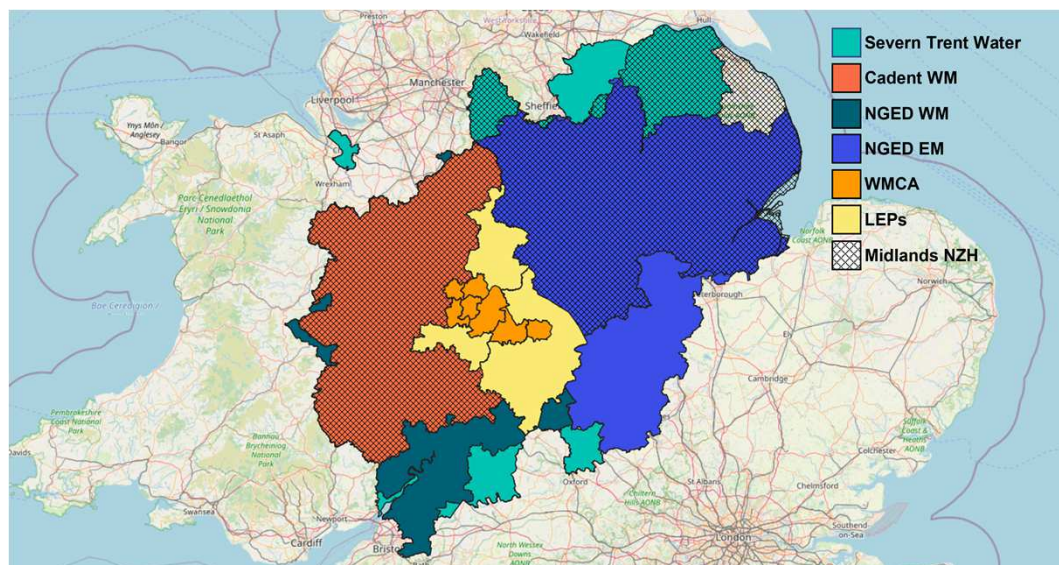
The Regional System Operator (RESO) project demonstrated there was significant potential for releasing additional value in the transition to net zero by taking localised action. This was particularly evident for problems such as domestic heating, transport and manufacturing where specialised solutions would vary from place to place.

This work package considers two challenges:

- The meaningful engagement and facilitation of efficient working between a diverse range of stakeholder groups
- The regional governance structures required to support energy infrastructure planning, and the interactions of this with Ofgem's proposals and the FSO

WP2 – Organisational Options

- Spatial mapping of the organisation boundaries within the WMCA show a fragmented and overlapping structure in which the periphery of the region suffers from fragmented coverage of supporting organisations
- Electricity, gas and water providers service territories that are intersected by multiple Tier 1 and Tier 2 local authorities. Supporting organisations such as Net Zero Hubs and Local Enterprise Partnership do not overlap comprehensively with network operators
- The table shows that 1 in 3 local authorities are served by at least 2 network operators

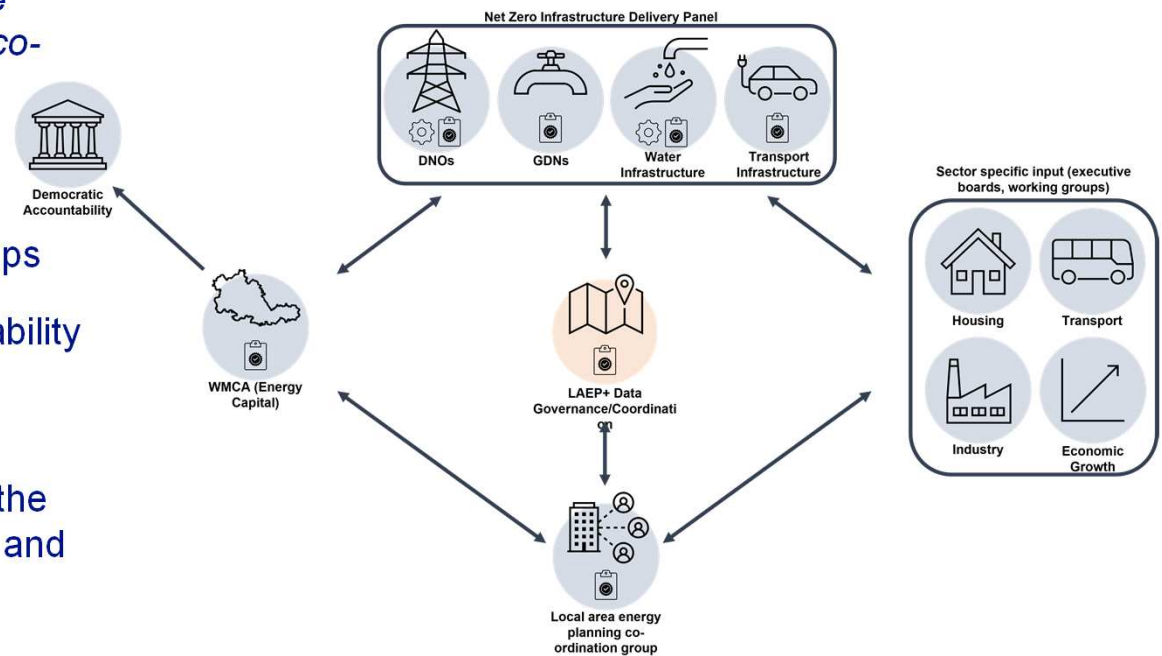


	Locally authorities wholly within the area of service	Partially within the area of service
National Grid Electricity Distribution (EM and WM)	62	28
Cadent Gas Networks (WM)	29	8
Severn Trent Water	64	12

WP2 – Organisational Options

“Alignment between administrative and physical boundaries of infrastructure networks, local authorities and RESOs would be helpful to reduce data and engagement costs, but will rarely occur without major restructuring in England.”

- Support meaningful engagement between local planning and energy infrastructure providers (*Local area energy planning co-ordination group, and the Net Zero Infrastructure Delivery Panel*)
- Ensure regional sector specific input is captured through regional working groups
- Feed into regional democratic accountability structures with elected officials
- Within this structure LAEP+ has been identified as a critical tool in facilitating the most effective meaningful engagement and co-working environment between local planners and infrastructure providers



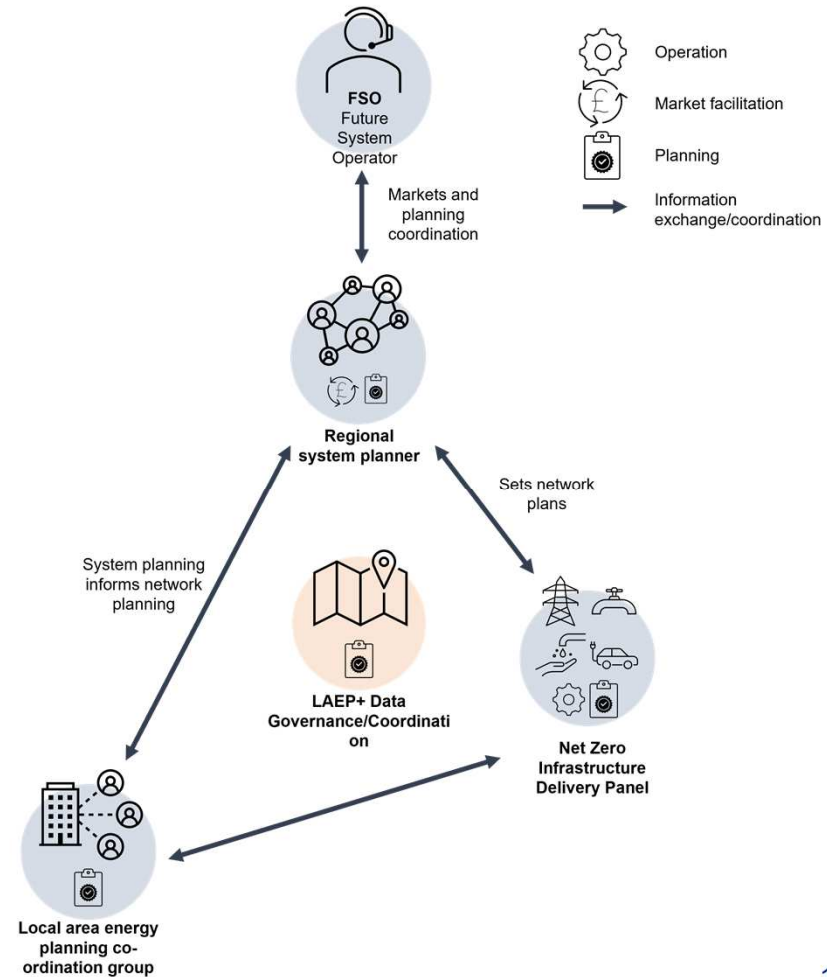
WP2 – Organisational Options

“A progressive, least-regrets pathway to RESO implementation is possible starting with data governance and whole systems planning functions, and supported by rapid implementation of neighbourhood-level citizen engagement and consumer protection functions.”

Regional System Planner	Future System Operator	Distribution Network Operator	Market Facilitator	Relevant Actor	Undecided
System insights	National system architect	Strategic network planning	Data governance	Data digitisation	Customer engagement and behavioural change
Network development	Market strategy function				
Coordination with DNOs	Long-term forecasting				
Regional System Architect	Network emergency coordinator				
Advisory role on net zero transition					
Integrated place-specific whole-energy system planning					

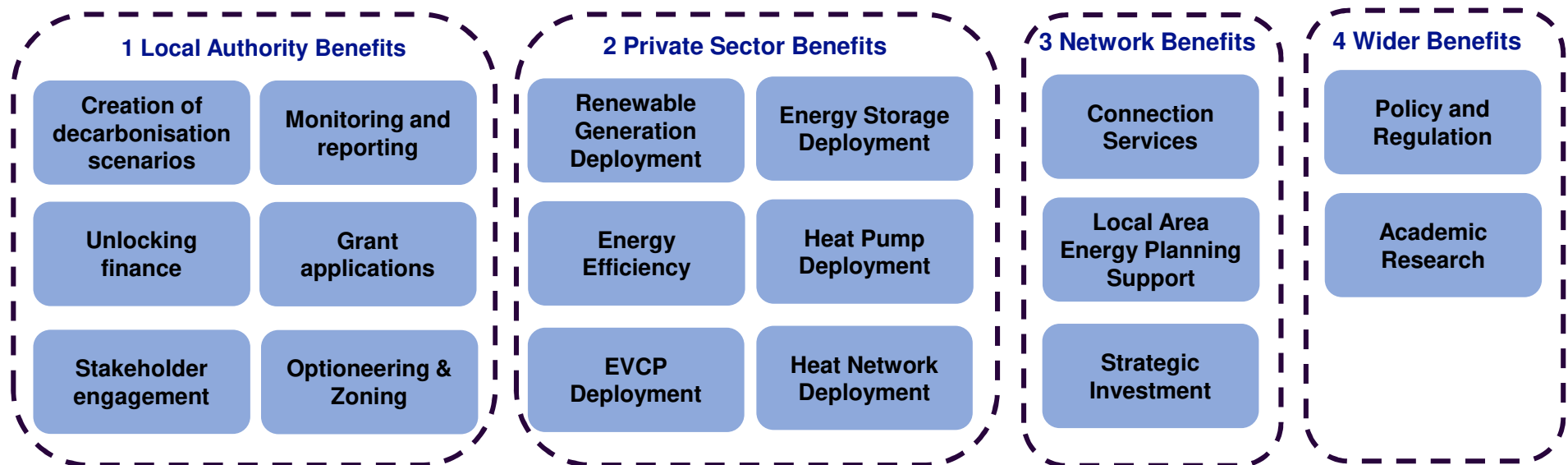
WP2 – Organisational Options

- This proposed framework captures all organisations with an identified role in the previous slide
- Highlighting the proposed engagement flows, and of what information
- For “*customer engagement and behavioural change*” it would be expected that the LAEP-CG, NZIDP, RSP and FSO would all undertake this as part of their business-as-usual
- For “*data digitisation*” LAEP+ has been identified as the appropriate actor in this model



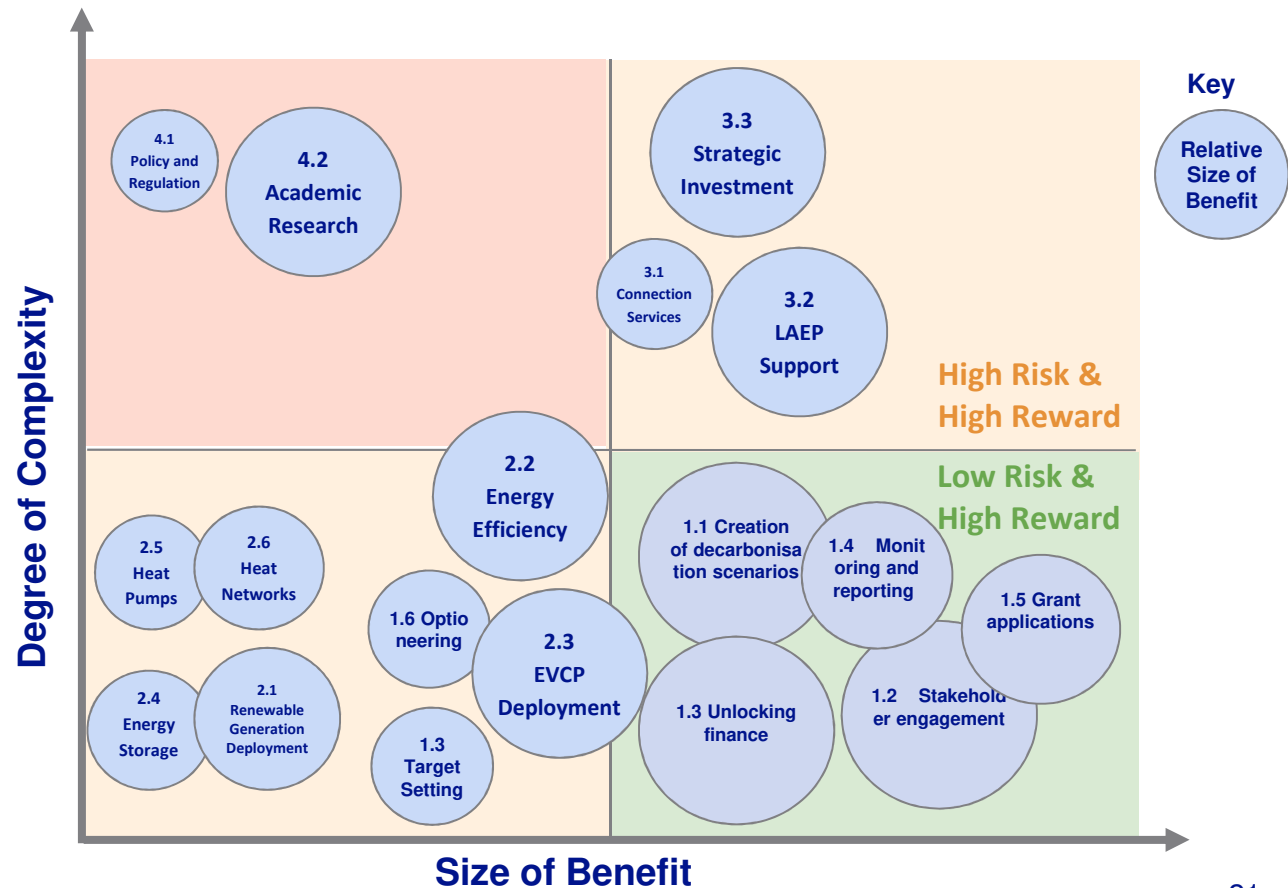
WP1 – Use Cases

17 use cases were identified in project PRIDE. These were clustered into four sets of benefits accruing to Local Governments, Customers, Energy Networks and the wider economy



WP1 – Use Cases

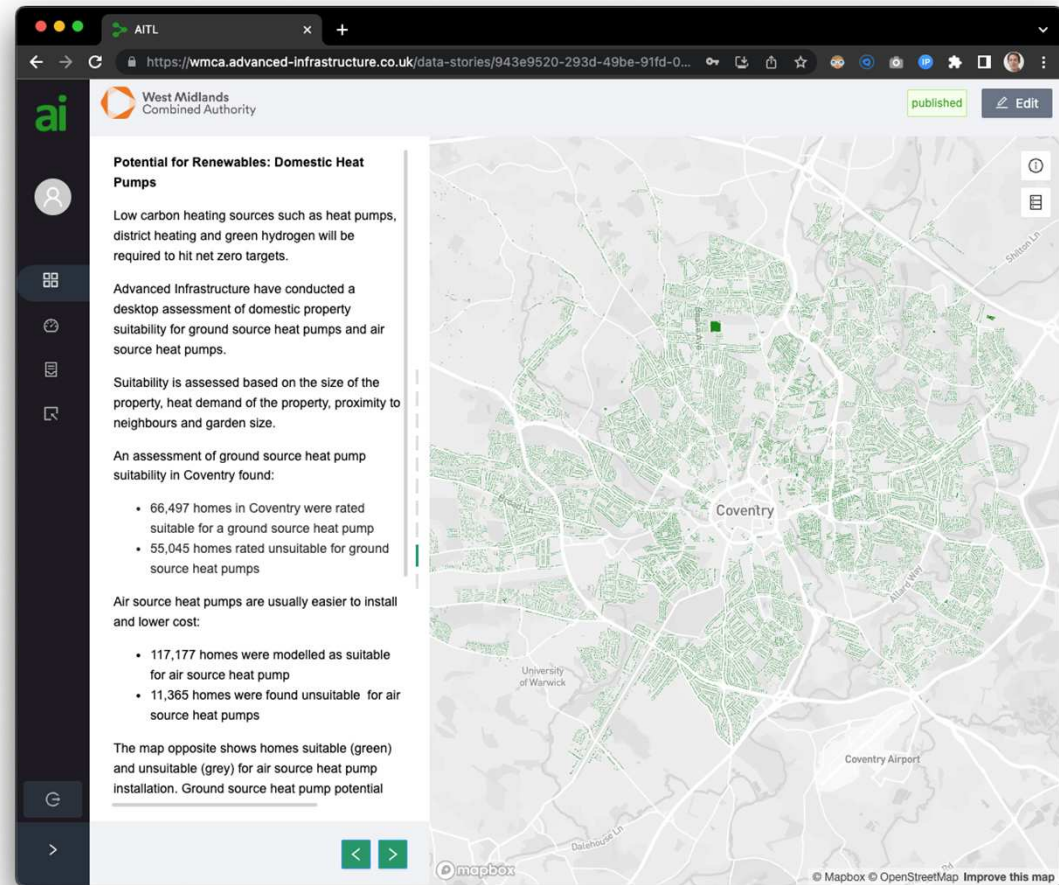
Mapping the use cases against benefit complexity allows us to identify priority use cases for development. We then prioritise with respect to cost to develop, impact and alignment with the competition aims.



WP3 – Data Model

Project RESO collated over 100 datasets for the LAEP use case. However, users were unable to gain insight from the data without visualisation and analytics skills.

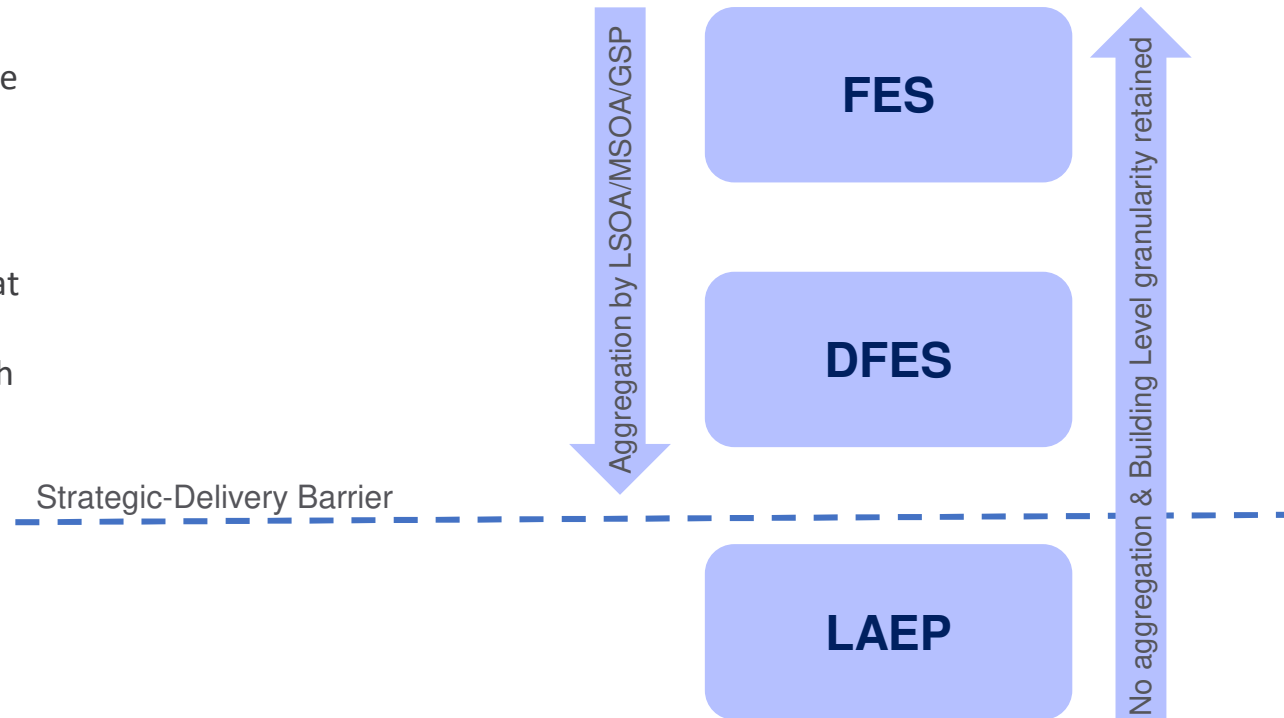
We trialled a prototype digital tool with Coventry City Council. Project RESO dataset were visualised in the tool so that third parties could browse and visualize the data.



WP3 – Data Model Evaluation

We explored the alignment between the ESO FES modelling, the NGED DFES modelling and the LAEP+ modelling.

Interviews with modelling teams suggested that a common approach would be preferred that allows for top-down strategic planning to be interoperable with bottom-up project delivery

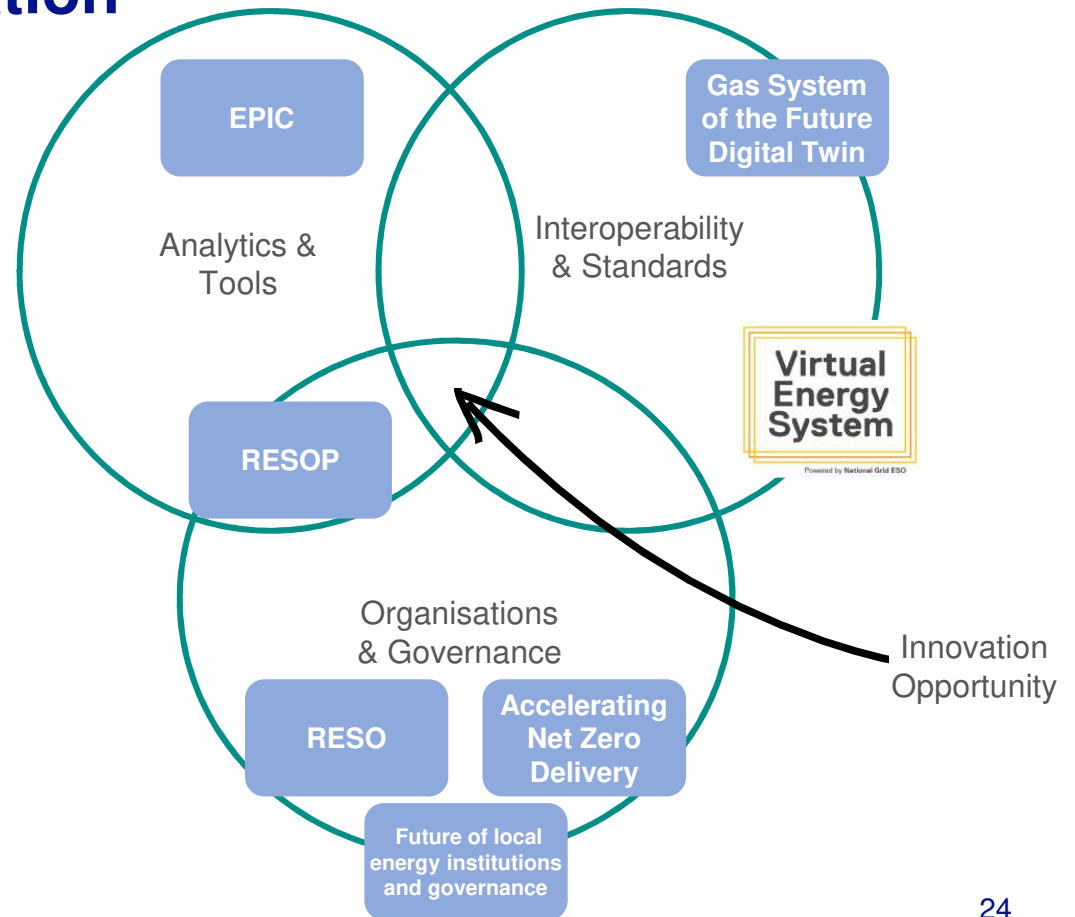


WP3 – Data Model Evaluation

We explored the alignment between ESO Virtual Energy System and other projects and mapped an innovation landscape identifying three broad areas of **analytics & tools**, **interoperability & standards**, and **organisations & governance**.

PRIDE aligns with VirtualESO use case 1 Transition and Gas System of the Gas System Future Digital Twin use case Helen.

Neither of the two projects aim to explore the organizational aspects or to fully deploy tools to address the common use case.

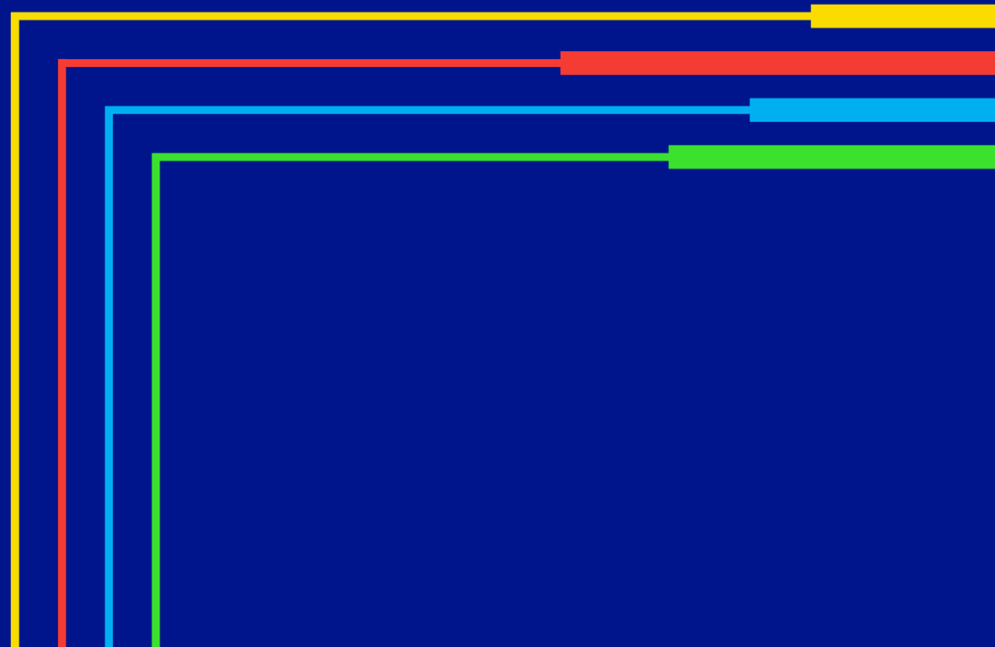


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Barriers, Risks and Issues

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Barriers and Issues

Issues Identified

- **Political:** DESNZ not providing leadership and clear instructions as to who is responsible for LAEP and what funding mechanisms.
- **Political:** WMCA capacity to stakeholders such as District, Borough and County Councils. Extracting further control from on-going devolution discussions.
- **Technical:** Evolving digital twin & digital spine landscape is not consistent between licensees and other data providers. Ofgem not mandating LTDS in CIM format until 2026.
- **Technical:** Limited vectorisation of electricity network data meaning that even if all other issues are resolved data may not exist in a usable format.
- **Commercial:** Multiple solution providers creating fragmentation in the market. Solutions developed for individual use cases may establish market dominance undermining more complex integrated solutions. Lack of interoperability between platforms may reduce the benefit of collaborative working.

Barriers Identified

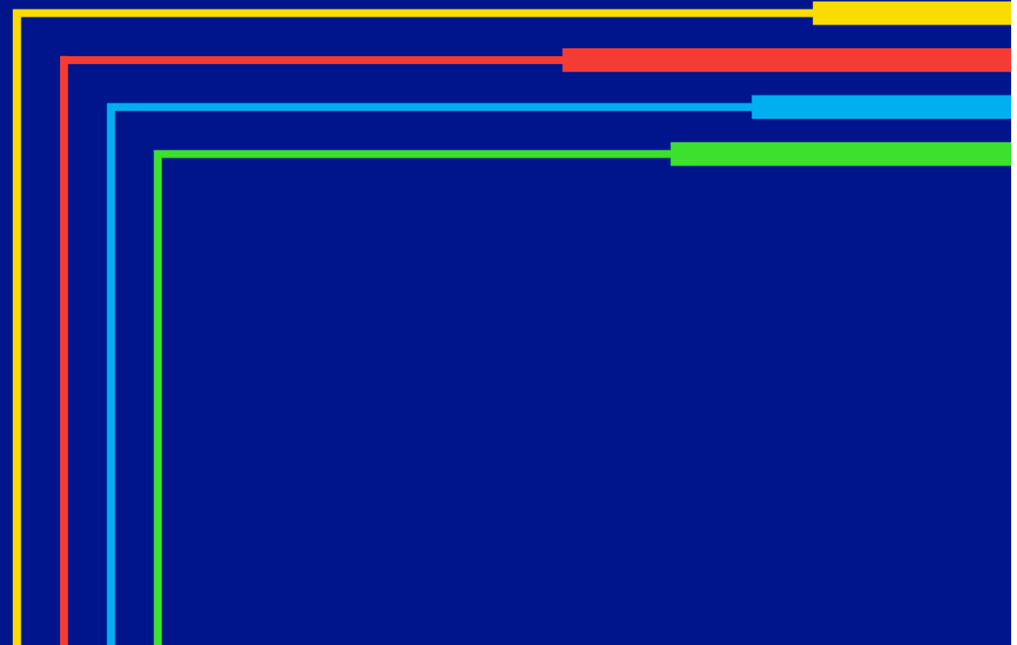
- Contracts
- Timeline/Project Length
- Concurrent Projects
- Complexity of organisational structures needing multiple touch points at different levels
 - To set the scene
 - Dig into the detail
 - Enabling granularity of information
 - To allow validation.
- Face to Face workshops produced better quality outcomes

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06

Engagement & Comms

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Stakeholder Engagement & Comms

Stakeholder engagement recognises multiple actors that influence the energy system

Priority stakeholders identified in Discovery included

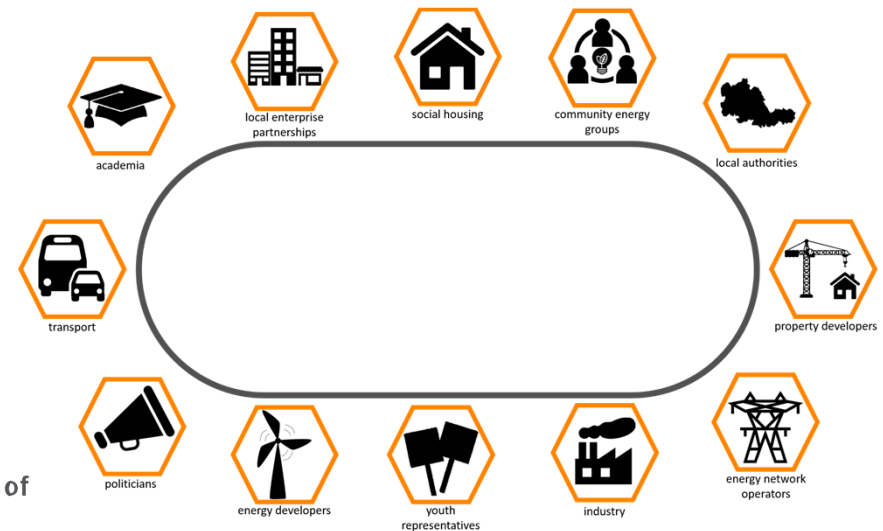
- Local Authorities
- DSO & ESO
- Other SIF projects such as TEED

Primary mode of engagement were through the workshops, F2F and online as well as utilising existing dissemination channels

- Net Zero Officers Group
- Energy Collaboration Days
- Prime Ministers Business Council Round Table on Energy and Transport

Outcome of the Stakeholder Engagement was a very engaged co-hort of LA officers looking to deliver the outcomes of Local Area Energy Planning. Continued Stakeholder engagement is planned over the summer in order to maintain project momentum

- Teams Channel to disseminate findings
- Best practise group
- Links to Net Zero Go



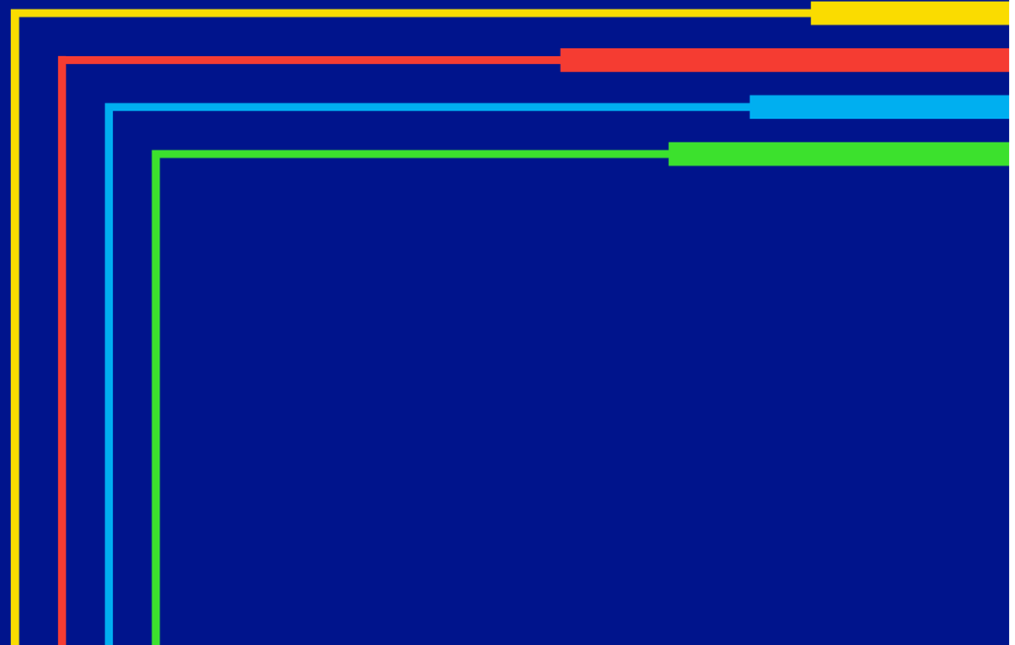
Weblink from 13th June [Webinar](#)

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Plans for Alpha

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ESO View

“If local area planning is to change and include energy we need as an industry to think about how this will be delivered and as our business transitions to FSO and we adopt a broader range of responsibilities that are new it will be essential that we can understand what processes are needed to deliver the best outcomes for customers.

At the heart of this we will need to consider “place” and PRIDE offers us the opportunity to see how a plan could be created using new data streams and then reused across GB.”

Alpha Phase

Digital Platform Development

- Deep dive workshops for the selected development areas
 - Optioneering & Zoning
 - EVCP Deployment
 - Heat Pump Deployment
- What are the most impactful upgrades that can be made for each area
- Develop & Test upgrades
- User testing with Local Authority staff / other representative users
- Evaluate - suggestions for Beta phase minor amendments

Organisational Trial Development

For the selected organisational structure, create a detailed trial plan

- What are the interactions and processes and how can we test them?
- Who participates?
- Start and end dates
- Minimum test area requirements

Trial preparation activities – e.g..

- participant sign up and training
- data preparation

Intend to use Coventry as test area.
(Early data testing is encouraging)

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