SIF Beta Round 2 Project Registration

Date of Submission

Sep 2024

Project Reference Number

10120244

Initial Project Details

Project Title

PRIDE-Beta

Project Contact

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Challenge Area

Accelerating decarbonisation of major energy demands.

Strategy Theme

Data and digitalisation

Lead Sector

Electricity Distribution

Project Start Date

01/11/2024

Project Duration (Months)

35

Lead Funding Licensee

NGED - National Grid Electricity Distribution

Funding Mechanism

SIF Beta - Round 2

Collaborating Networks

National Grid Electricity System Operator

National Grid Electricity Distribution

Technology Areas

Heat Pumps

Low Carbon Generation

LV & 11kV Networks

Modelling

Electric Vehicles

Energy Storage

Stakeholder Engagement

Project Summary

Planning Regional Infrastructure in a Digital Environment (PRIDE) combines novel governance structures with a cutting-edge digital tool that lets local authorities, energy networks and regional stakeholders collaborate to deliver local and regional decarbonisation ambitions. The digital tool supports local authorities and networks to quickly and cost-effectively share detailed information to inform planning and investment activities. The governance structure then bring together local and regional stakeholders - informed by data in the digital tool - to work together to make more informed strategic decisions, accelerating net-zero delivery.

Project Budget

£4,148,195.00

SIF Funding

£3,733,401.00

Project Approaches and Desired Outcomes

Solution statement and solution focus

A critical barrier to meeting the UK's climate targets is the lack of dynamic information exchange between stakeholders to enable integrated local and regional planning for the decarbonisation of major energy demands.

Energy networks struggle to respond to changing local energy demand due to limited visibility of key local data and information, while local authorities are neither required nor resourced to deliver consistent Local Area Energy Plans (LAEPs).

Technical barriers, such as non-interoperable data between LAEP and network modelling, also makes integrated planning difficult. PRIDE Alpha demonstrated that this creates uncertainty and hinders decisions on infrastructure investment.

HOW OUR PERCEPTION/SOLUTION HAS EVOLVED

The Discovery and Alpha phases of PRIDE showed how an interactive digital tool and governance structure can facilitate dynamic, integrated and cost-effective local authority and network planning.

Reflecting Alpha user experience, breaking the barriers of data interoperability and creating more iterative information flows between local authorities and networks is a key Beta priority, enabling both to make more agile and confident decarbonisation decisions.

Our perception of the problem has also evolved with growing emphasis on Regional Energy Strategic Planners (RESPs). PRIDE's work has already informed RESP development. There is now a heightened need to demonstrate information sharing and associated governance that can aggregate to support regional collaboration.

CHALLENGE AIM

Using pioneering information exchange to support multi-stakeholder decision making, PRIDE is developing technical and political solutions to integrated planning to enable the acceleration of the decarbonisation of major energy demands, in a way that reduces costs and timescales for all stakeholders (Round 2, Challenge 4). Through digital and governance innovations, our approach facilitates the integration of multiple demands and demand-side solutions.

To meet this Innovation Challenge, PRIDE Beta will:

1. **Unlock dynamic and integrated energy planning and investment.** Development of the digital tool will enable local authorities to more easily develop cross-vector digital infrastructure plans, creating a live feedback loop between networks, local authorities and regional stakeholders to support integrated planning for the decarbonisation of major energy demands.

2. **Demonstrate processes for local-regional information exchange and governance.** Alpha established a new governance structure in the West Midlands Combined Authority (WMCA) area to support decision making on the decarbonisation of heat and transport at local and regional levels. This structure will be expanded to different geographies and functionality developed to enable aggregation of integrated plans to a regional level, tested within new governance structures in practise.

Key users in the Project and of the innovation are:

Distribution System Operators (DSO): PRIDE Beta will directly inform DSO planning and network development, operation, flexibility market design and stakeholder requirements. PRIDE Alpha has demonstrated the value of stronger engagement and more granular, temporal, stakeholder-verified data. Beta will deepen this work to establish more efficient ways for DSOs to work with LAs and stakeholders to glean the information they require to make confident decarbonisation investment decisions.

Local authorities: Through PRIDE, local energy, net zero, planning, waste and housing teams benefited from a cost-effective process to develop LAEPs and safely share commercially sensitive information – including large energy user plans – with networks. Per Alpha feedback, Beta will develop new interoperable data and functionalities, while the governance structure will provide new opportunities for regional collaboration on local and regional priorities.

Regional Energy Strategic Planners (RESP): The RESP will require sight of local authority and network plans to deliver integrated regional planning. How this will work in practice needs to be tested before it is rolled out by NESO. Beta will demonstrate how the digital tool can provide "live" data and aggregate local plans into a regional view, with the governance

structure demonstrating key processes for regional information sharing and decision making.

Innovation justification

PRIDE develops technical and political solutions to integrated energy system planning to facilitate connection of decarbonised heat and transport demand, reducing overall cost and timescales (Round 2, Challenge 4). The Beta phase will establish dynamic governance and information sharing mechanisms to unlock integrated local-regional energy planning and investment.

PRIDE **Alpha demonstrated** the value of digital tools to support agile, cost-effective energy planning within local authorities and between local authorities and networks in the West Midlands Combined Authority area. This phase established two stakeholder governance panels to support identification and collaboration on regional energy opportunities.

Key lessons:

- The digital tool enabled cost-effective LAEP development, but data coverage and interoperability are barriers to collaboration, slowing investment.
- The governance mechanism can support local-regional collaboration, but there is a need to test this on a wider scale and in different settings to demonstrate replicability.

Beta builds on these to:

- Break down interoperability barriers between networks and local authorities and enable more iterative information sharing within the digital platform.
- Incorporate and enhance low-voltage data from gas networks, heat network zones, industrial clusters, and network scenario modelling.
- Develop functionality and test governance to support regional aggregation of plans across geographies, including: the wider (RESP) West Midlands; South Wales where static LAEPs have been developed; and Oxfordshire where multiple networks operate in a single area.

Learning from the other projects include:

- LEO-N facilitates integrated energy demand decarbonisation at a hyper-local level, adopting similar principles to PRIDE for behind-the-meter solutions. PRIDE is in close contact with LEO-N, leveraging insights from its street- and county-level coordination activities.
- Powering Wales Renewably (PWR) develops a digital twin of transmission and distribution in Wales. PWR Discovery identified a need for data standardisation, and highlighted that governance is a key component of integrated planning which we are building on.
- NIA projects RESOP, Equinox, Defender, Venice and EPIC provide lessons on flexibility, energy efficiency impacts, integrated future load profiles.

We actively **engaged stakeholders** throughout Alpha maximise value from our innovation. Ofgem and NESO were closely involved in all activities to challenge assumptions (both ways), enabling our innovation to respond to and inform real-time policy and regulatory change.

We conducted ongoing engagement with project partners (local authorities, regional infrastructure providers) so that the innovation could iterate to reflect their needs as they evolved.

Open promotion of project activities through the Energy Capital Partnership and sector forums has resulted in significant interest from new local authorities and stakeholders.

PROJECT INNOVATIONS

The digital platform has shifted from TRL5 in Discovery to TRL7 today (TRL8 by the end of Beta)

A limited number of tools/processes exist for cost-effective LAEP development and dynamic information sharing between networks, local authorities and other stakeholders. PRIDE is unlocking this functionality for effective integrated decarbonisation planning.

No consistent processes exist for integrated local-regional information exchange and decision making. PRIDE Beta will establish replicable governance and information sharing processes which facilitate aggregation of integrated plans to regional level in different areas and demonstrate how this can enable multi-vector investment decisions about local and regional energy priorities.

WHY PROJECT CANNOT BE FUNDED ELSEWHERE

PRIDE Beta enables testing of solutions at meaningful scales by the DSO before their adoption by other network operators. The trial of new governance and information sharing mechanisms are not suitable for exploration under business-as-usual and there is no other funding stream that supports development of systems for multi-vector energy planning and network impacts.

COUNTERFACTUAL

The counterfactual solution requires the use of consulting engineers to replace the missing local authority skills and capacity. This approach is significantly more costly and fails to grow and embed skills and capacity in local authorities. No funding models exist for ongoing consultant support and non-digital human-resource based approaches are unsustainable.

Impacts and benefits selection (not scored)

Financial - future reductions in the cost of operating the network

Others that are not SIF specific

Impacts and benefits description

CURRENT POSITION AND INNOVATION MERICS

From a technical perspective a limited number of digital tools are provided by DNOs to support local authorities such as open data portals. However, these tools do not support the requirements of the use case of LAEPs explored in this project. Current digital tools have limited impact because they have no analytical functions and have limited low voltage data visibility. Current tools neither provide a collaborative workspace, nor support larger portfolios of projects, nor scenario nor the development of decarbonisation pathways.

From an organisational perspective, networks engage with local authorities and developers on an uncoordinated bilateral process. Local Authorities have no statutory duty or funding to coordinate LAEPs. And coordination between place-based actors is beyond their skill and capacity. The WMCA under the framework of devolution is requesting these powers be devolved to the regions. While the RESP is being established to support coordination within regions.

The innovation metric used to calculate the benefits is the increased rate of deployment of low carbon technologies. The benefits calculations assume between 2%-15% increase in the deployment rate of these technologies. Leading indicators of success are the increase in the maturity model of local authority skills and capabilities which will be measured by observational research of the ability non-technical users to complete technical tasks.

BENEFITS FORECAST

Deployment of the solution nationwide across all network operators has a NPV of £194million and a benefit to cost ratio of 4.3 through to the end of the ED3 period. These benefits sit within the £51billion of benefits of a placed-based energy transition identified in the Accelerating Net Zero Delivery Report (InnovateUK & PwC 2022). The report compared the energy transition under a place-agnostic and place-based scenario between 2022-2050.

Financial Benefits to Networks: We have identified three sources of net financial benefits accruing to Networks totalling £10.6million through to the end of the ED3 period (CBA items 3.1-3.3). These benefits are derived from the reduced cost to serve customer connection requests, LAEP support activity and aligning strategic investment with future demand.

Societal Benefits to Local Authorities and citizens: We have identified fourteen sources of benefits accruing to Local Authorities and citizens totalling £183million through to the end of the ED3 period (CBA items 1.1-1.6, 2.1-2.6, and 4.1-4.2). These benefits are derived from the rate of deployment of low carbon technologies, releasing capital from the private sector, and reducing spending on external support for low carbon technology deployment.

CONFIDENCE AND SENSITIVTY ANALYSIS

Of the £194million of benefits, £12million are high confidence and £183million are medium confidence. High confidence benefits are those within the financial control Networks. Medium confidence benefits are those influenced by Local Authorities. The benefits are most sensitive to the nationwide adoption rate of the innovation which assumes a 50% penetration by 2028. Delaying

this figure by one year reduces net benefits by £18million. Further analysis will be undertaken during the project to reduce the uncertainty of this sensitivity to the adoption rate.

BENEFITS REALISED TO DATE

WMCA has accelerated the delivery of LAEP across 5 districts under the Alpha trial. It has evidenced the compatibility of its governance model with the RESP, engaged both NGED and ESO within working groups and held a series of stakeholder workshops to obtain senior political support for the Beta phase. WMCA will build on learning from the PfER RESO (Regional Energy System Operator) and SIF PRIDE Discovery and Alpha phase to advise Ofgem through their consultation processes on how a Regional Energy System Planner (RESP) may operate effectively and work with its stakeholders to acheive its multi-vector, regional goals

Teams and resources

There are no changes to the project team, but wider geographical engagement will take place through Beta with other pioneers, to ensure maximum knowledge exchange and demonstrable replicability.

National Grid Electricity Distribution (NGED): is the network operator for the PRIDE target areas and responsible for supporting the region's transition to net zero. The DSO team is the business sponsor for PRIDE. The team has responsibility for converting demand forecasts from DFES into investment decisions in capacity and network upgrades. The team also performs a new function of local authority engagement and has been incorporating learnings from PRIDE Alpha into service delivery to date. This project is led by the NGED innovation team and will draw on corporate knowledge of open data/digital tooling, forecasting, modelling and stakeholder engagement

National Grid ESO (ESO): will observe the impact of the technical solution to inform the design of the Regional Energy Strategic Planner (RESP) role. They will have the ability to shape and be part of the proposed governance structures, with an advisory role, sharing emerging thinking on the RESP design to support the overall project and planned governance trial.

Advanced Infrastructure Technology Limited (AITL): is an enterprise SaaS provider for DNOs and local governments. The company leads the digitalisation of the Energy System Catapult methodology for LAEP in the form of the LAEP+ tool. It is the technical partner that owns the LAEP+ digital tool and will have responsibility for the enabling functionalities created by the platform. AITL will perform a crucial role in continuing to develop the technical solution that allows enhanced engagement and more effective infrastructure planning.

Regen: is an independent not for profit centre of energy expertise and market insight. Regen offers independent expert advice to governments and market insight on all aspects of sustainable energy delivery; having published local authority decarbonisation planning and network investment studies and reports setting out evidence-based thought leadership to support detailed design of the RESP. Regen delivers the DFES for NGED and SSEN and has pioneered the development of data driven approaches to regional planning. Regen will lead on delivering robust evaluation and impactful insights through PRIDE Beta.

West Midlands Combined Authority (WMCA): is the regional authority for the PRIDE project area, able to take a strategic overview across the West Midlands, with detailed and nuanced knowledge of constituents and non-constituent members; with existing working relationships with stakeholders across the region and a specific responsibility for regional transport system planning. Energy Capital within the WMCA, provides place-specific energy expertise and are trailblazing approaches to local energy system governance and retrofit delivery. During PRIDE Beta, they will continue to be responsible for the delivery of government programmes across a wide social housing consortium; holding relationships and engaging with the local authorities, housing developers, housing associations, retrofit installers and others as they deliver retrofit and energy systems programmes.

EXTERNAL STAKEHOLDERS AND CUSTOMERS

WMCA will build on the success of the Alpha governance trial and continue deep engagement through The Net Zero Infrastructure Delivery Panel (NZIDP), consisting of gas, electricity, heat and water network operators and developers; and The Local Area Energy Planning Co-ordination Group (LAEP-CG) consisting of local authorities and data owners. Both will link to customer segment groups being established across housing, transport, industry and public estates.

WMCA , NGED and Regen will also engage with additional PRIDE Beta LAs (i.e. in Wales and Oxfordshire – already agreed with them) to test replicability of the governance structures and informational data flow processes.

EQUIPMENT AND FACILITIES

This project will draw on over 100 datasets developed from previous innovation projects. It will utilise NGED's open data portal and other data assets identified through Alpha. Modelling approaches and methods used by NGED, ESO, REGEN and AITL will be made available for the Beta phase to develop interoperable approaches and whole system methods for digitalised local area energy planning to support and enable the decarbonisation of major demand assets.

Project Plans and Milestones

Project management and delivery

PROJECT MANAGEMENT METHODS

This project has been planned using Prince 2 Agile and Government Design Principles for user-centric service development. Prince 2 Agile is a variation of PRINCE2, designed for agile software development and user-centred design projects. The methodology allows for sprint-based working and regular releases of trial outputs for testing. This award will provide the consortium with access to all the necessary human, data, software and computing resources necessary.

Our project management approach breaks the overall workload into seven Work Packages (WPs). Software Work Packages will be managed using Scrum on a fortnightly sprint cycle. We will use industry-leading task management ticketing and knowledge base tools (Jira sprint boards and Confluence wikis) to support the programme's agile approach. The programme team operates around the daily stand ups, sprint set-up and sprint close-down calls to maintain communication across the teams. Weekly project review meetings will include all project partners in which RAID Logs, Gantts and risk registers will be used to manage project progress.

REPORTING LINES

As tested through Alpha, Project lead (Troshka, NGED), supported by the NGED DSO team, leading PRIDE Beta. Project lead will oversee governance lead (Hiles, WMCA), Software Lead (Cairns-Haylor, AITL) and RESP Engagement and Insights Lead (Stewart, Regen). The Software Lead will oversee software engineering, academic support, and modelling. The Governance Lead will oversee stakeholder management and engagement including, but not limited to, major energy users, housing associations, community partners and Local Authorities. The RESP Engagement and Insight Lead acts as independent voice for RESP development, reporting to project lead. The Core Team has responsibility for the delivery, meeting weekly and is led by senior management responsible for the growth of the company. The Core Team will have the responsibility of agreeing the Detailed Project Plan (DPP). Each work package is divided into sub-tasks, with defined deliverables.

The project will benefit from direct contribution from the ESO RESP Team in an advisory position.

GOVERNANCE

The project will be governed under standard SIF Governance Document including attribution of IPR, conflict resolution and change management. An advisory panel will be available to support the Project Lead in monthly reviews. The panel will offer project governance and inclusion monitoring. This ensures that best practice developments are utilised in the project where possible and monitors potential conflicts and biases. The panel provides a key strategic function for the overall direction and exploitation of the proposed innovation. The panel is drawn from company leadership not involved in the project, industry groups, public sector groups and a fuel poverty charity.

An internal NGED project review group will be set-up to enable regular update and interaction with a project sponsor (DSO director) to ensure the project remains aligned with wider NGED organisational strategy; assist with resolving strategic level issues and risks; and ensure a smooth transition into business-as-usual

RISK MANAGEMENT METHODS

Risks are categorised by likelihood, impact and criticality. A dynamic risk register utilising risk screening monitors the project, adhering to ISO31000 principles. Risks and critical path analyses have been conducted and will be reviewed at fortnightly meetings, led by the Project Lead to ensure active risk monitoring, contemporaneous mitigation measures, root cause analysis as necessary and proactively minimise knock-on delays. A dynamic risk register is attached to the annex, managed by the Project Lead. Stage-gates have been introduced into Beta to further manage risk.

CONSTRAINTS

Evolving regulatory environments, data access and evolving governance mechanisms are constraints upon this project. NGED is committed to support this project at director-level and placed a significant amount of data in the public domain and is committed to the Ofgem Data Best Practice Guidance. Project partners will bring additional knowledge to support and manage regulatory and governance uncertainty throughout the project.

PRIDE Beta will ensure major energy demand customers have access to the necessary information they need to make investment decisions that allows the timely decarbonisation of their assets. Their needs will be assessed through the Governance mechanism and contact undertaken through the customer groups.

Project will ensure major energy demand consumers have access to the necessary information they need to make investment decisions that allows the timely decarbonisation of their assets. Their needs will be assessed through the Governance mechanism and contact undertaken through the customer groups

Key outputs and dissemination

BETA OUTCOMES

We will:

- Demonstrate the practical, technical and organisational steps to delivering integrated local and regional energy planning between local authorities, networks, regional stakeholders and the RESP to ensure network and non-network investment supports the decarbonisation of major energy demand in places
- Demonstrate how digital tools can support more dynamic information flows and decision-making between stakeholders.
- Test and refine new tool data and functionalities for whole-system coverage and interoperability between local authorities and networks.
- Pilot functionality to support aggregation of local data into integrated regional plans.

BETA OUTPUTS

1. A large-scale trial with up to 400 users for the technical solution across 23 local authorities. User research and testing will validate the functional and non-functional specifications of the technical solution. New software prototypes will be developed for three use cases:

2. Use Case 1: demonstrate the Local Authority requirement to be able to digitalise LAEP data outputs on to the LAEP+ tool and dynamically update plans.

3. Use Case 2: demonstrate the Networks requirement to be able to programmatically query, modify and reflect changes in digital LAEPs and their impact of DFES and strategic network planning.

4. Use Case 3: demonstrate the RESP requirement to be able to view and analyse subregional LAEPs into an aggregated regional plan and to modify assumptions and reflect changes in coordinated whole systems approaches.

5. Demonstration and evaluation of operational trial for local-regional energy information exchange and decision making. Beta will expand regional infrastructure governance bodies successfully piloted in Alpha by the WMCA to include a wider pool of West Midlands local authorities and replicate these in the South Wales area.

6. We will demonstrate responsive data interoperability between LAEP, DFES and FES modelling functions.

7. We will work with Ofgem's local governance team who will observe the trial to understand regulatory barriers to whole system coordination. Feedback from the trial will be documented to inform RESP development and regulatory amendments.

RESPONSIBILITIES

Advanced Infrastructure will lead outputs 1-4 with the support of NGED, WMCA an NESO. Regen will lead Output 5-7 with the support of all partners.

DISSEMINATION

Informing development of regional and local energy planning: We will share outputs directly for OfGEM to consider, including through the OfGEM Local Governance Working Group, and will feed learnings directly into the RESP detail design process (supported by project partner NESO to ensure alignment with emerging thinking). Our governance models and processes will be fully shared and publicised for stakeholders to explore and replicate. We will share findings throughout the project through existing engagement channels including M12, the Local Government Association, Regen local authority membership and Net Zero Hubs.

Promoting to the sector: We will conduct show and tells as part of the NGED Innovation Conference (26toZERO), WMCA

monthly Collaboration Days, and the annual Energy Capital Conference, and target wider innovation forums such as Utility Week and Innovate UK's Thriving Places programme. We will also sponsor a deep-dive discussion of PRIDE on the Local Zero podcast (18,200 unique listeners since 2022, 800-1100 listens per episode) and cross-promote with other relevant media platforms.

Turning outputs into action: We will have a direct link with West Midlands Local Net Zero Accelerator Programme where the tool and decision-making structures will be used to develop infrastructure opportunities which opens opportunities to disseminate to a wider investment community as facilitated by GFI and UKIB. We will continue to work collaboratively and transparently with partners, sharing and testing our thinking as it develops with the sector and relevant stakeholders. We will promote all project outputs publicly and work directly with other innovation projects to share relevant learnings. We will continue to maintain an open dialogue with Ofgem, NESO and Innovate UK.

Commercials

Intellectual Property Rights, Procurement and Contracting (not scored)

The project partners will contribute background IPR to this project under the default arrangements for IPR required under the SIF Governance Document. The partners will also follow guidance for the calculation of royalties for any foreground IPR. The Licensee will make available Background IPR created by previous innovation projects under their respective governance terms.

Foreground IPR is expected to be developed through this project in the form of software and datasets. Advanced Infrastructure owns background IPR associated with the software tool including algorithms and datasets that will be made available to project partners.

The partners will enter into a Data Sharing Agreement that will allow the sharing of datasets between the parties. Partners supplying third-party datasets for the project will ensure that all licensing conditions are satisfied including that of derived usage. Foreground IPR in the form of datasets rights will be made available to the Licensee according to the default arrangements for IPR required under the SIF Governance Document.

Foreground IPR is expected to be generated by the development of new models within PRIDE which will be shared by project partners in proportion to their involvement in the generation of the models. The definitions of the algorithms of these models will be available to third parties.

Foreground IPR from the output of the models, (e.g. costs of connections for different loads at different locations, geographic overlays, investment plans etc.) will be shared by the project partners in proportion to their involvement with the generation of those items.

Where there are no issues with confidentiality, and where this can be shared without the inclusion of datasets where the IPR is not owned by the project, this information will be shared with third parties.

Commercialisation, route to market and business as usual

ADOPTION INTO BUSINESS-AS-USUAL (BaU)

Enterprise software vendors who deliver data and analytics products to Networks and local governments would be suppliers for the technical solution trialled in this project. Project partner Advanced Infrastructure is a market leader in this area and is currently delivering the Energy Systems Catapult's digital LAEP tool. Advanced Infrastructure and other vendors will commercialise new services based on this innovation.

Outputs of the project will be a software prototype and a detailed software specification that would form the basis of any future procurement activity. Route-to-market for the innovation will be through existing direct sales activity of software vendors such as Advanced Infrastructure. It would be expected that Advanced Infrastructure and other software vendors would compete in a procurement process to deliver the software service for a contracted period. The procurement exercise will be replicable across all Network Operators. Project Lead with support from the NGED Project Sponsor will oversee product/specification development stages to ensure there is a defined plan for BaU adoption upon completion.

The Governance model will be considered by NESO and OfGEM and recommended as good practice to local government and wider stakeholders to support RESP set up and delivery as appropriate.

CONTRACTUAL ARRANGEMENTS

Commercial arrangements for the technical solution are complex due to multiple user groups. This makes procurement of the technical solution challenging without a trial and further understanding of the value proposition and funding landscape for the Local Area Energy Planning function between Network Operators and local government bodies. The innovation will be used by a consortium of stakeholders including gas and electricity distribution operators, National Grid ESO, statutory transport planning authorities and local authorities. The primary users are the Local and Combined Authority, as they would lead on the creation of a Local Area Energy Plan.

VALUE PROPOSITION AND REVENUE MODELS

Estimated operational costs for the nationwide solution are £6million/year implying a software licence fee of £0.5million per Gas and Electricity Network Operator or approximately £20k per Local Authority. Typical Enterprise SaaS licence fees for structured data and software for energy planning applications ranges from £20,000/year to £1,500,000 for complex solutions. Benchmarking the cost model against consultants' fees for similar desktop surveys evidences immediate savings and value for money.

DEVELOPMENT COSTS

Future funding will be shared between ESO, NGED and the software vendor. NGED and ESO are committed to making data more available to third parties and much of the ongoing costs would be associated with ongoing data provision that would be funded via Data and Digitalisation obligations. WMCA has an ongoing commitment to support Local Area Energy Planning which this project would support by making data visible between stakeholders.

CRITERION 4: DEVELOPMENT OF COMPETITIVE MARKETS

Currently the contractual arrangements between buyers, vendors and users of collaborative tools are unclear which makes procuring and implementing long term SaaS agreements without this project challenging. These commercial arrangements will be better understood through the project and those outputs will be published openly and foreground IPR licensable to third party software vendors. This project will develop a competitive market for data and digital tools for demand forecasting and Local Area Energy Planning.

SENIOR SPONSORS IN THE BUSINESS

NGED is the network operator for the WMCA area. This project has the NGED DSO business as a sponsor, who have responsibility for converting demand forecasts from DFES into investment decisions in capacity and network upgrades. The team is also incorporating the new function of local authority engagement and will incorporate learnings from this project into their service delivery before the end of ED3.

Policy, standards and regulations (not scored)

DATA PRIVACY

GDPR and the requirements for smart meter data aggregation may be potential barriers to the development of fully optimised digital twins supporting the widest range of modelling functions in the Beta phase. This risk will be investigated as part of the project planning activities within Beta phase.

DATA LICENCING

We rely on commercial datasets for building information. Providers charge significant fees for derived usage of data in machine learning systems. Using lower-costs or open-source data providers risks reducing the accuracy of the machine learning model. To overcome this challenge, Advanced Infrastructure is developing its own proprietary building information datasets that we can substitute for commercial datasets if a commercial agreement is not reached.

GOVERNANCE

The Regional Energy Strategic Planner is a new role for the NESO and will need to be delivered at pace following Ofgem’s detailed policy framework design. The PRIDE project provides NESO an opportunity to test some key aspects relevant to RESP from a digital and governance perspective. The digital platform developments will showcase how local energy data can be digitised and aggregated and the challenges associated with this. As RESP aims to provide local democratic accountability, the proposed governance trial(s) would provide the opportunity to test approaches, and learn lessons in a timely manner to inform the enduring design of the RESP.

REGULATORY

While there were no regulatory barriers expected during the Beta phase of the project, how the digital twin will support effective decision making will be impacted by future governance structures for decision making (DNO/DSO) being considered by Ofgem. This project will seek to inform these decisions by testing the PRIDE model and providing evidence of how decision making can be facilitated and enhanced.

ORGANISATIONAL

There is now a regulatory requirement under RIIO-ED2 for Distribution Network Operators to support local area energy planning activities. This requirement is complicated by the introduction of the RESP role where there are currently no defined roles and responsibilities established; and no defined methods for data exchanges between key stakeholders set-up. The PRIDE Beta seek to demonstrate how a digital solution can support data flow, supported by a robust governance structure to address many of these issues..

Consumer impact and engagement

This project supports benefit for consumers by enabling more cost-effective and locally informed planning of the energy system. Innovations from PRIDE can reduce resource and investment costs for both local authorities and networks, in turn saving costs for consumers in the long-term.

It is also a key enabler for unlocking the far bigger consumer value from local planning and delivery of net zero. PRIDE can enable more local authorities and regions to deliver effective energy planning and investment, reducing “postcode lottery” inequities between LAs with more resource to hire consultants and deliver ambitious projects. With this more widespread place-based approach, PwC (2022) estimate £431 billion in energy savings and wider social benefits, including reduced energy bills, local skills and supply chains and improved housing.

To **account for the needs of different consumer segments,** the project will engage with participant local authorities, networks and stakeholders to promote best practise in citizen and community engagement, ensuring the needs of diverse consumers are meaningfully reflected in governance and information sharing processes, maximising the potential of the innovation to deliver equitable social and economic value.

PRIDE will place **particular emphasis on ensuring that the needs of consumers in vulnerable circumstances are captured within ongoing project activities, inputs and outputs,** seeking to include regional fuel poverty, community energy and social value organisations in stakeholder engagement processes – providing additional information about the project and energy system planning where necessary to help them engage more meaningfully. Where appropriate, we will seek to include representation from consumer organisations within the governance trial itself. This will in turn allow insights and activities to be shaped directly by these organisations.

We will also include such stakeholders in ongoing project insights, post-evaluation and dissemination to **ensure that the potential benefits, risks, impacts and future opportunities of the innovation are made clear.** Specific lessons for unlocking PRIDE for an equitable distribution of benefits will be included in relevant project reports.

Representative organisations from relevant social, accessibility, vulnerability and just transition stakeholders will be identified via project partners and participants who are well-embedded in their local areas. Local authorities, with their duties to support those in vulnerable circumstances and those with accessibility and other enhanced needs, are well placed as project participants to maximise the reach of the engagement process. NGED likewise facilitate an Independent Stakeholder Group, from which relevant organisations can be identified and engaged.

The LAEP process itself also enables wider input into energy planning – supported in PRIDE by making the LAEP process more intuitive, joined-up and cost-effective. The consultation, engagement and co-creation processes associated with LAEP development can further leverage local authority networks to provide another avenue of input. The process steps also include the optioneering of outcomes that allow the implemented measures to best fit the needs of the individual or business user.
Developing options through LAEP+ allows users to more easily see the scale and benefits of the energy opportunity as well as to understand the constraints and risks that may arise.

Finally, the development of the aggregation/disaggregation function of the tool can support hyperlocal planning of neighbourhood and community-level energy projects such as WMCA's Net Zero Neighbourhoods Programme. Under such arrangements, more of the benefits accrue to the community and the individuals within it, whilst still creating value for system operators in the form of avoided upgrade and frequency response costs, enhanced balancing and overall enhanced levels of service reliability.

Value for money

Eligible Costs £4,148,195 Grant Request £3,733,401

This is a 3 year industrial research project. The consortium targets the energy, construction and transport sectors, which is prohibitively expensive for innovators without financial backing, as substantial R&D expenditure is necessary. This project focusses on software and organisational structures and therefore does not use subcontractors, materials or capital equipment. Commercial partner labour costs are below market-rate as all staff being incentivised by EMI options. This extends project value and ensures knowledge is retained and commercialised and/or utilised by the partners. All employees are UK-based and paid by PAYE/NI representing a benefit to the taxpayer. Local government partners will be donating a substantial amount of officer time pro-bono to develop the tools for their markets representing additional value for money and customer support. All prices have been quoted from multiple sources for maximum cost-efficiency. Lowest cost data and computing resources are used where possible.

ALTERNATIVE SOURCES OF FUNDS

Network operators cannot fund this project through the NIA mechanism because the benefits accrue to a wider group of users than is permitted under the funding mechanism. Other funding streams cannot support the scale and interdependency between technical and organisational innovation. Commercial partners cannot access funding through investment without a fully developed product and commercial arrangements.

VALUE FOR MONEY

The project brings together industry leaders from various sectors who would otherwise work in a weaker, more silo-oriented business ecosystem that would be unlikely to have the required set of resources to deliver the proposed outcomes. Collaboration will multiply the internal value of the activities through improved sharing of knowledge, including data sets, regulatory processes and user experiences. Working relationships between local authorities and infrastructure providers will endure beyond this project. These relationships will serve to accelerate net zero delivery and strength learnings and capabilities withing local government.

PRIDE team has established communication channels with key innovation projects exploring different ways to enhance and support LAEP. PRIDE team will engage regularly with RESOP (SSEN), LEON (SSEN) and Powering Wales Renewably (ESO) to avoid duplication and explore how hyper local (LEON) and top-down (Powering Wales Renewably) approaches to energy planning can complement PRIDE RESP trial.

PROJECT IMPACT

Public funding will provide the necessary development acceleration to be first-to-market and will allow commercial partners to procure the additional resources and talents it needs to increase the likelihood of project success. Alternative approaches such as subsidies to low carbon technology installers would fail to leverage market forces to drive decarbonisation.

Commercial partners will commence sales within six months of project close. Without this grant, this would likely be pushed back at least two years, with a detrimental impact on the environment and allowing European companies to establish their position. Delaying sales forecast by one year could result in 45 fewer UK jobs and £20 million less in revenue by 2028. By securing this funding, it is estimated that commercial partner R&D spend would increase by 50%, as per the intended objectives of the Government's 2027 goal of investing 2.4% of GDP on R&D (Gov-UK, 2020; UKRI, 2020). The proposed next steps include seven new hires across the consortium who will further contribute towards future R&D spend. Technical partner Advanced Infrastructure will match-fund from current investors Rockstart Energy Fund. A set of KPIs has been agreed with these funders that will unlock follow-on funding of over £5 million if commercial and technical milestones are met.

Is this an associated Innovation Project?

- ○ Yes (please remember to upload all required documentation)
- ◉ No (please upload your approved ANIP form as an appendix)

Supporting documents

File Upload

No documents uploaded

Documents uploaded where applicable?

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