SIF Alpha Round 3 Project Registration

Date of Submission

Oct 2024

Project Reference Number

10124552 (2)

Initial Project Details

Project Title

SIF R3 Alpha: SeaChange

Project Contact

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Challenge Area

Whole system network planning and utilisation to facilitate faster and cheaper network transformation and asset rollout

Strategy Theme

Data and digitalisation

Lead Sector

Electricity Distribution

Other Related Sectors

Gas Transmission

Project Start Date

01/10/2024

Project Duration (Months)

6

Lead Funding Licensee

SSEN - Southern Electric Power Distribution Plc

Funding Mechanism

SIF Alpha - Round 3

Collaborating Networks

National Gas Transmission PLC

Technology Areas

Commercial

Modelling

Resilience

Stakeholder Engagement

Project Summary

The decarbonisation of the marine sector is likely to drive a substantial surge in national electrical demand. The sector has a critical role in UK economy and supporting island communities, but is also complex, with huge diversity across ports and their stakeholders.

Seeking to address this challenge, SeaChange will:

*build a replicable, localised model for exploring energy transition scenarios for the sector and electricity network .

*develop a tool to understand potential maritime energy demands and considerations for optimised network investment planning

*investigate potential business models to facilitate the transition; and

*consider regulatory implications for critical national infrastructure.

Add Preceding Project(s)

SeaChange01 - SeaChange

Add Third Party Collaborator(s)

Ricardo

European Marine Energy Centre

Associated British Ports

British Ports Association

PNDC

Project Budget

£494,655.00

SIF Funding

£445,189.00

Project Approaches and Desired Outcomes

Animal testing (not scored)

- ○ Yes
- ◉ No

Problem statement

Our core understanding of the problem has not changed; UK's target of achieving zero-emissions shipping by 2050 will drive a substantial increase in electrical demand at ports and harbours. Often located at the edge of Great Britain's (GB) grid, the transition of maritime operations presents a significant new load, estimated between 250-4,000 GWh/year, whilst the industry itself is an entirely new user group for electricity networks.

SeaChange will build on relevant innovation projects identified in the PM workbook, to engage with industry stakeholders to better understand their challenges and gain a clearer understanding of current progress. There are multiple areas to be tackled in the sector, with huge variation in the classes of vessel, challenges with the port-side infrastructure including transport infrastructure, logistics, cranes, loading equipment -- all of which need to be decarbonised. The Discovery phase of SeaChange has not only confirmed this, but in fact uncovered that the challenge is more complex than we initially assumed. There are wide variations in port size, no one clear fuel choice for vessel decarbonisation, shore power appears to be a cyclical dependency between vessel operators and port operators and the relationship between ports and energy providers is very much in its infancy. We have discovered that there is acknowledgement amongst Port Owners/Operators that there needs to be increased coordination and understanding between the electricity networks and the maritime industry, but there has yet to be any significant, tangible steps taken, which SeaChange will address. Our initial workings, based on current assumptions, estimate that a coordinated approach could save an estimated £315 million in reinforcement costs between 2024 and 2050.

One key evolution of SeaChange has been the emergence of our understanding of the "ripple effect"; a domino effect of electrical consumption in the areas around a port, based on a port's activities (e.g. a spike in Electric Vehicle (EV) charging before a ferry departs, or a future spike in Heavy Goods Vehicle (HGV) EV charging around container vessels arrivals). Effective network investment to prepare the grid for this new load pattern requires a holistic approach in partnership with the wider stakeholder group.

The maritime sector is pivotal to global trade and increasingly important to emerging industries such as offshore renewables. Ports also provide lifeline services to island populations, making the sector vital not only for resilience but also the viability for more than 300,000 residents living in the isles around GB. Through Discovery we realised that resilience needs to be quantified and considered as an integral part of SeaChange. Similarly, ports are key pieces of national infrastructure, which means overall network resilience will need to be considered as the project evolves to ensure that these essential cogs of the UK economy are secured and resilient.

SeaChange will develop a replicable model Navigating Energy Transitions (NET) to explore transition scenarios which will be used by Port Owners, to help identify key network investment requirements, and inform and enable ports and their users to plot their most viable decarbonisation pathways.

Through Discovery, we have identified that the primary users of SeaChange will be DNOs, Port Owners and Operators; however the project affects many more stakeholders indirectly. For example, a Port Owner may use the NET tool, to simulate conversation around decarbonisation with the operators on the port estate i.e. logistics operators, as well as vessel operators using the port.

For DNOs, SeaChange will provide more accurate and better informed data on this new and emerging demand to enable network planning, therefore addressing the innovation challenge of improving coordination and planning capability across networks.

Innovation justification

SeaChange will enable maritime decarbonisation by informing strategic investment for networks, ports and their users. While the sector faces great barriers to decarbonisation, all pathways will require significant electrification -- a realistic counterfactual is that any meaningful electrification of the maritime sector is significantly delayed due to the lack of coordination between maritime and

energy stakeholders or, at best, uncoordinated applications are made to DNOs.

The need for SeaChange is clear; the counterfactual of ports making piecemeal, uncoordinated applications based on limited energy assumptions will lead to ineffective and inefficient electricity network investment decisions. Without any coordination, the economic impact of extended uncertainty, and the avoidable costs of pursuing workaround solutions, would be significant. This directly addresses the theme of digital simulation and advanced modelling techniques to facilitate whole system network planning and development.

SeaChange Discovery phase interacted with stakeholders ranging from vessel operators such as Serco to Shipping Agents, including Denholm, which has informed the direction of Alpha. To date, research into grid impacts of maritime decarbonisation has largely focused on the likely pathways for specific maritime sectors or vessel types. SeaChange intends to take a whole-port perspective, working directly with the port authorities and users; this approach will develop the network's understanding of these new users, as well as build confidence for port stakeholders on their decarbonisation trajectory. With the addition of the British Ports Association (BPA) to the project team for Alpha, we plan to expand the number of stakeholders we work with and that can promote, challenge and refine SeaChange with us.

Initially focusing on ferries, cruise and containers, the project will develop a model which can then be more widely applied. We envisage that the initial focus will be on the maritime sector, but intend to investigate the applicability for other critical national infrastructure, such as airports.

As well as maritime stakeholders, we have interacted with other SIF projects such as Electric Thames and HyNTS Maritime. We will continue to build upon these relationships and share lessons learnt as we progress the project through planned Alpha and Beta stages.

SeaChange aims to produce a useable modelling tool and validation of example ports during Alpha; on completion, we anticipate the tool will have moved from Commercial Readiness Level (CRL) 3 to CRL 4 following real-world verification with stakeholders at Technical Readiness Level (TRL) 5-6. In preparation for Alpha we have started to expand the project's technical understanding, as demonstrated in the appendix.

Our proposed approach goes beyond incremental innovation because it will enable understanding of not only technical, but economic and social interactions, including the ripple effect of port electrical use -- critical for UK ports due to their logistical, economic and resilience significance. This makes the Project appropriate for SIF funding and objectives for the relevant innovation challenge, and not business as usual (BAU), as it not only helps DNOs to make investment decisions at the right time and at the right scale, but helps ports develop credible decarbonisation pathways.

The proposed SeaChange project is the most suitable way to investigate this issue, given that it is investigating potential changes outside current "BAU" practices. By coordinating within the industry via project partners with relevant and specialised expertise, the Project is a suitable means of investigating improvements for the benefits of GB energy consumers.

Impact and benefits (not scored)

Financial - future reductions in the cost of operating the network

Financial - cost savings per annum on energy bills for consumers

Financial - cost savings per annum for users of network services

Environmental - carbon reduction – direct CO2 savings per annum

Environmental - carbon reduction – indirect CO2 savings per annum

Revenues - improved access to revenues for users of network services

Revenues - creation of new revenue streams

New to market – products

New to market - services

Impacts and benefits description

Ports currently lack a straightforward and accurate method to map their decarbonisation pathways and the subsequent electricity network requirements. The SeaChange project aims to address this by creating a tool - called Navigating Energy Transitions (NET) - that will:

*Inform and enable ports and their users to map their most viable decarbonisation pathways.

*Help identify key electricity network reinforcement investment requirements.

NET's primary goal is to facilitate coordination among DNOs, ports, and other maritime stakeholders on their decarbonisation pathways, ensuring that DNOs can optimise network investment. This project has a dual benefit:

*For DNOs, it allows for optimised network planning, avoiding unnecessary reinforcement costs.

*For maritime stakeholders, it supports their net-zero efforts by providing grid access and reducing emissions.

Financial Benefits - Future reductions in the cost of operating the network, annual cost savings on energy bills for consumers, annual cost savings for users of network services.

*Initial high-level CBA Discovery calculations suggest that, network reinforcement costs could be reduced by between £315m and £619m depending on the scenario.

*Coordinated port-level electrification capacity will lead to a simpler more efficient design that is easier implement and managed compared to the current uncoordinated approach.

*Whole systems planning benefits achieved from this project will enable more accurate forward investment with lower costs.

*Encouraging more flexible use of electricity during low-demand times (e.g., EV charging for ferry and cruise passengers).

Environmental Carbon Reduction -- direct and indirect CO2 savings per annum

*Through reduced use of marine diesel.

*Through reduced gas and diesel fuel to generate electricity to meet demand from shore power. Initial CBA Discovery calculations suggest that between 5 037 tCo2e and 10 073 tCO2e could be saved by reducing fuel oil emissions on a UK scale.

*Through reduced embodied carbon from avoided reinforcement. Initial CBA Discovery calculations suggest that between 103 264 tCo2e and 247 526 tCO2e could be saved by reducing embodied carbon at the UK scale.

*Accelerated decarbonisation of ports through optimised reinforcement of the power network infrastructure.

Revenues - improved access to revenues for users of network services and creation of new revenue streams

*Ports using energy storage or flexible demand to access income from ancillary services.

New to market -- products, processes and services

*Create a new UK vessel energy hub market through introduction of significant UK shore power facilities ahead of the curve. This is amplified when linked with other maritime fuel projects, such as SIF-funded HyNTS Maritime.

*Amendments to current DNO local/regional energy planning processes will be achieved, providing greater accuracy for ports compared to current general assumptions.

*Whole energy systems modelling and future scenario planning tools for Port stakeholders to help them better map out viable decarbonisation pathways and investment cases.

Others that are not SIF specific

*Reduced economic impact of delayed uncertainty.

*Maintain or elevate GB's position and reputation as a leading Maritime nation.

*Improve the reputation of the energy sector by working collaboratively with maritime stakeholders (for example vessel operators

and port operators) to move from a 'blocker' to facilitator of maritime decarbonisation efforts.

*Air quality improvements in ports and port towns and cities.

*Supports resilience and viability of island populations.

*Supports local employment and economic activity stimulated around port locations.

Teams and resources

All Discovery partners will continue into Alpha, with three additional partners :

Associated British Ports (ABP) Southampton is UK's number one hub for deep-sea trade, Europe's leading turnaround cruise port and the UK's second-largest container terminal. Additionally, ABP Southampton installed UK's first cruise ship shore power facility.

• ABP Southampton's portfolio positions them to be voice of the customer for Port Owner/Operator cargo sector customer.

• ABP will provide cruise and container data to test NET in Work Package (WP) 2.

• ABP will be a critical friend in all WPs to ensure value to the maritime industry.

British Ports Association (BPA) is a national membership body for Ports in the UK, representing interests of operators that handle 86% of UK Ports. BPA has a wide range of experience and strong relationships with a plethora of maritime stakeholders.

• BPA will add a holistic, 'big picture' port perspective.

• Directly contribute to WP3 and WP6 with their relationships and knowledge.

National Gas Transmission (NGT) own and operate the national gas network, delivering energy to where it is needed in every part of the country. NGT will provide peer review.

SSEN Distribution is a DNO responsible for ensuring a safe, reliable supply of electricity to 3.9 million customers including significant ports on the Central Southern England and in Scotland. SSEN-D has delivered many successful innovation projects.

• Provide network insights relevant to ports.

• Provide overall project governance and access to relevant SMEs and domain knowledge to drive the SeaChange's success.

European Marine Energy Centre (EMEC) - As the world's leading marine energy test centre and pioneer in green hydrogen, EMEC has a proven record in a broad range of maritime transition projects, including electric and hydrogen ferries.

• Using its diverse experience in the sector to contribute to policy and regulations WP.

• Direct contributions through WP2, working with stakeholders to provide cruise and ferry data to test and verify NET.

• EMEC will support on wider stakeholder engagement.

• EMEC offers additional opportunities for replicability and demonstration.

Power Networks Demonstration Centre (PNDC) - As a flagship Innovation Centre at the University of Strathclyde, PNDC integrates academic expertise with its established role as a whole energy systems research and demonstration centre. PNDC brings unparalleled expertise in developing and deploying innovative energy and transport technologies.

• PNDC will leverage its policy and regulation proficiency to lead WP3.

• Using PNDC's prior experience of a 'Living Lab', for Alpha they will build the foundations for a 'Living Port' demonstration in Beta, providing advanced modelling and validation using real port data links.

Ricardo led a number of projects to help ports and vessel operators switch to lower carbon fuels. These include projects in the UK, Europe, the US and work for the International Maritime Organization. Ricardo will:

• Apply insights from working with UK ports to scale up potential benefits from ports covered in Discovery.

• Develop NET to enable network planning optimisation, leveraging a pre-existing Ricardo product for mapping maritime decarbonisation pathways. This will utilise data from specific ports within Alpha.

• Prepare CBA and investigate Business Case.

Key Stakeholder -- Portsmouth International Port (PIP)

PIP has bold ambition to reach net zero by 2030, and has their own ambitious Zevi-funded SeaChange shore power project.

• Contribute data, particularly relating to their SeaChange project.

• Provide test cases for ferry and container.

There are no additional external parties, network users, or consumers that are vital for successful delivery of the Project.

Resources

Will be provided by the project partners; no additional resources, equipment and facilities are needed for Alpha.

Project Plans and Milestones

Project management and delivery

SSEN-D will continue to follow its well-established project management processes that have successfully delivered SIF Discovery, Alpha, NIC and NIA projects. Two face-to-face meetings are planned during Alpha, hosted at Partner locations to save costs and enhance collaboration.

SeaChange will be delivered in six WP, each assigned a lead and with clearly outlined deliverables. All deliverables will be tracked using the PM tools ; full details in attached PM Book.

Alpha Key Outputs:

*Initial prototype of tool - Navigating Energy Transitions (NET) - created and tested with 3-6 use cases from Ferry, Cruise and Container;

*User Feedback on NET;

*Policy and Regulation that will impact and influence SeaChange;

*Use Case Design and High -Level Architecture for Living Port virtual power and energy network model.

*Updated Business Case, including CBA;

*Workshop to facilitate Maritime and DNO Capacity Building.

WP1 -- Project Management

Lead: SSEN

Support: All Partners

Purpose: Coordination of deliverables, project performance, UKRI engagement and Beta application.

Key Outputs

*PM Book

*Risk Register

*Meeting outputs

*UKRI Review Packs

WP2 -- Create and Test NET Prototype

Lead: Ricardo

Support: ABP, EMEC, PIP

Purpose: Create initial prototype of NET, and test with 3-6 use cases.

Key Outputs

*Prototype NET;

*3- 6 use Cases run through NET;

*Consideration of Resilience and how this can be integrated into NET(e.g. community, economic etc.);

*Plan for Beta.

WP3 -- Regulatory and Policy Horizon

Lead: PNDC

Support: BPA, EMEC & SSEN-D

Purpose: Investigate policy and regulation that will impact and influence SeaChange, with focus on Energy and Maritime.

Key Outputs

Policy and Regulation report on impacting and influencing SeaChange.

WP4 -- Living Port

Lead: PNDC

Support: Ricardo

Purpose: Develop a "Living Port" - virtual power & energy network model to assess the local and national energy network impacts of the port decarbonisation scenario data output from NET and to provide validation of NET-generated port activity.

Key Outputs

*Virtual Port Use Case Design and Modelling High-Level Document;

*Virtual port environment prototype;

*Logged port energy data.

WP5 -- Business Case, including CBA
Lead: Ricardo

Support: SSEN

Purpose: Gain more clarity on impact of maritime electrification and the route to commercialisation.

Outputs

*CBA

*Business Case

WP6 -- Communication and Wider Stakeholder Engagement

Lead: BPA

Support: SSEN, EMEC

Purpose: Communicate and engage with wider Maritime community so NET is of value to key stakeholders.

Outputs

*Report outlining key stakeholder engagement.

*Maritime - DNO Workshop to build cross-sector knowledge and capacity building.

General

Weekly sessions and effective use of PM tools will allow the Project to continue to monitor cross-deliverable dependencies to ensure outputs. This can be seen within the Gantt Chart -- e.g., WP2's outcome will be used in WP4 as part of the Living Port. Also, the outcomes from WP3 Regulatory and Policy Horizon, will inform WP5 Business Model.

Several risks and barriers have been identified, with SSEN-D responsible for the overall Risk Register. A brief list of risks and

barriers is below. Full list of risks and barriers, including mitigating actions identified, is available in the PM Book.

Risk - Insufficient or poor quality data compromises the accuracy and reliability of the model's outputs.
Barrier - If Policy and regulatory are too great to overcome, the project is unfeasible and project stops.
Alpha will not have adverse impact on existing or future energy consumers, with no planned or unplanned supply interruptions for this project. However, the anticipated savings of a successful SeaChange project would reduce the cost and timescales for Maritime energy consumers in the future, and contribute to a faster, efficient and more reliable path to net zero for the UK.

Key outputs and dissemination

The Alpha phase of SeaChange will centre around the development of the tool and stakeholder engagement, with key aims and outputs detailed below.

NET Prototype

One of the key outputs of the Project will be the tool, NET. NET is an interface between maritime and electricity data; taking the energy demand of the port, and the surrounding area incorporating the 'ripple effect', and converting it into the data required to assist DNOs in making informed network investment decisions. The Alpha development of the tool will include the following key outputs, led by Ricardo, supported by PNDC:

*Historical and live port data collected, formatted and validated for use with the tool.

*A usable, draft prototype tool, likely in excel.

*Use cases to be a minimum of two different ports and two different vessel sectors.

*Plan for Beta development of the tool.

*Report on how economic and community resilience will be integrated into the tool.

Stakeholder Engagement

SeaChange is acutely aware that stakeholder engagement and feedback is key to the success of NET, particularly as it enters business as usual. Stakeholder engagement outputs for Alpha include:

*User testing and key stakeholder feedback on the tool prototype, led by Ricardo.

*Engagement with diverse stakeholders through maritime and policy regulation investigation, led by PNDC.

*Workshop for DNO and Maritime stakeholders to build cross-sector knowledge and capacity building, led by BPA

*Presenting SeaChange at any relevant conferences and events, led by BPA.

Living Port

In Alpha we will start development on a 'Living Port' for demonstration in Beta; a virtual power & energy network model to assess both local and national energy network impacts of the port decarbonisation scenario data output from the developed tool and to provide validation of the tool generated port activity profile and energy/power profiles. This work will be led by PNDC, with support from Ricardo. The Alpha outputs will include:

*Virtual Port Use Case Design & Modelling Environment High-level Document.

*Working prototype of the virtual port environment.

*Energy network and resource models.

Project Management

Underpinning all of the work packages will be Project Management, led by SSEN-D. Although all of the WPs have a lead and support partner, there will be close cross-functional working across all partners. This collaboration will be actively encouraged and facilitated through weekly meetings and three face-to-face meetings across the project timeline. Outputs include:

*Project Management book

*Risk Register

*Meeting Notes

Dissemination

Stakeholder engagement will form the basis of our dissemination activities, allowing us to interact with a wide variety of organisations. Project reports, findings and learnings will be made freely available to DNOs, maritime organisations and any other interested parties.

SeaChange will also participate in UKRI-led activities, such as Show and Tell and publlication of the project overview on the ENA's Smarter Networks Portal, which will be led by SSEN-D.

Commercials

Intellectual property rights, procurement and contracting (not scored)

Intellectual Property (IP)

The main contract governing the Project (the Collaboration Agreement) includes detailed, mutually agreed terms governing IP that are in line with the SIF Governance Document. For the Alpha Phase, all the Intellectual Property Rights (IPR) arrangements will follow the default recommendations of Chapter 9 SIF Governance Document.

To ensure clarity is provided to the Project Partners, UKRI and Ofgem regarding the IP landscape, the Project is using an IP register to track the Background IP provided to the Project, the Foreground IP the Project generates, and the use and access rights to all this IP.

Procurement and subcontracting

Ricardo will sub-contract Portsmouth International Port to provide their Ferry and Container data during the Alpha phase.

EMEC will subcontract Orkney Islands Council -- Orkney Harbour for access to data sets during Alpha.

"SPARK"

Ricardo propose to utilise an in-house product, "SPARK" for the benefit of the SeaChange Project. The product is "Background IP".

SPARK is a tool to support maritime stakeholders, in particular ports, with decarbonisation planning.

It is not explicitly targeted at the power sector, taking a more holistic view of port energy demands and component considerations.

During the SeaChange project, it may be beneficial to develop interfaces between SPARK and other platforms or data sources with a power system focus, in order to perform a holistic analysis. Any such interfaces will fall within the "foreground IP" categorisation for the purposes of SIF Alpha Project and as such we will follow the default IPR arrangements.

Commercialisation, route to market and business as usual

Problem

UK's target of achieving zero-emissions shipping by 2050 will drive a substantial increase in electrical demand at ports and harbours across the country. At the edge of the GB grid, the transition of maritime operations presents a significant new load, estimated between 250-4000 GWh/year, whilst the industry itself is an entirely new user group for electricity networks.

To better address this critical issue, as a national infrastructure imperative, DNOs need to be better able to understand, plan and coordinate with stakeholders, in order to optimise network planning and ensure that the economic activity and community livelihoods are resilient during the energy transition.

In particular, Island communities depend on the maritime sector and therefore the effective and optimum coordination in the sector is of strategic national importance.

NET, the proposed SeaChange tool, will improve coordination for maritime stakeholders and accelerate the sector's decarbonisation through optimised network reinforcement. This will ultimately impact end-user electricity consumers by reducing unnecessary reinforcement costs which would result as a lack of coordination.

The target customers will be Port Operators and DNOs who need support in understanding the electricity demand of maritime stakeholders and coordinating the requisite network planning.

Route to market

As NET is a software product, its route to BaU is likely to follow a similar commercialisation strategy as other software products,

such as:

*Development: upfront investment is required to develop the software. This upfront investment and development of NET could either be incurred by:

-External partner with expertise in similar software tools,

-DNO who will develop the tool internally,

-Partnership between DNO and external partner .

The DNO and project partners shall coordinate with key industry stakeholders (as proposed during Alpha). This will ensure that the tool is built in collaboration within the industry to ensure highest impact.

*Pilot: following the development of a pilot version of NET, a trial phase should be conducted at selected ports with selected business cases to test and refine it. The product owner should ensure a clear feedback process is designed to include all recommendations from this phase improve the tool.

*Deployment: the product owner should commercialise the tool to other DNOs, either through a:

-Software licensing business model, which could be perpetual, subscription, feature-based or user-based licenses,

-Freemium business model, which could include free features and then advanced product that requires payment,

-Others business models will be researched the next phase of the project.

The product owner should be agile and develop bespoke software for each DNO to ensure the highest impact and improve the tool.

In this phase, it will be essential for the DNO to include capacity-building training within the package sold to the DNO to train maritime stakeholders.

Business Models and Updates to Governance

In addition to the development of NET, the project also seeks to assess, and make recommendations to improve, the processes for network planning in areas of critical national infrastructure and inherently uncertain decarbonisation planning.

In particular this project focus will study the data from and needs of stakeholders, and consider any proposed changes to governance and operations.

Commercial readiness of individual Project Partners

The partner organisations are well established with a track record of delivery and investment in the sector. Further investment to go to market would be required for a full-scale product launch; the evidence from Alpha and potential Beta phases would provide the necessary justification and business case for this investment.

SSEN project sponsor -- the project has been approved by the Innovation Steering Board and has been sponsored by the Director of System Operations.

Policy, standards and regulations (not scored)

For Alpha, we have a work package that will focus on investigating policy and regulation that will impact and influence SeaChange.

At this point, we do not see any government policy decisions that would need to be made or any standards, such as Health and Safety Executive (HSE) standards, Gas Safety Management Regulations (GSMR) standards, Electricity Safety Management Regulations (ESMR) standards, which would need to change. We also do not foresee any barriers from policymakers or agencies with oversight for regulation and enforcement of safety that would affect the progression or implementation of SeaChange.

When discussing Beta, the project team have considered that a coordinated demand consortium from a port community,

facilitated by the SeaChange tool could be a possibility. There may need to be consideration for a derogation (current regulations stipulate no preferential treatment.), however, this will be developed further during Alpha, with any details included in a future Beta application.

Any Beta phase which seeks to utilise onsite storage as part of SeaChange may need consideration, as this would currently be classified as generation.

Similarly, initial conversations regarding Beta have considered the possibility of using metering information from stakeholders in the energy system and optimisation -- this may have an effect on individual stakeholder billing.

Currently, these are all only theoretical, potential solutions based on our Discovery knowledge. As Alpha progresses we will learn more about any further regulatory impact, as the proposed WP structures includes specific focus on regulation and business models.

Value for money

The total project cost for Alpha phase is £494, 655.

The project requests SIF funding of £445, 189 with the remaining £49, 466 (10%) funded by SSEN-D (£46,701, National Gas (£365) and ABP (£2400) through private funds, demonstrating commitment to this innovative project. The project has the potential to unlock over £459,000 of benefits over the next 45 years (see CBA) offering significant value for money.

The costs and budgets fully comply with UKRI guidance.

SSEN-D has costs of £54,708 and is requesting £8,007 SIF Funding to lead the project, manage delivery, provide guidance to other partners and to offer direct input into WP3 and WP6. SSEN-D will privately fund £56,141, which equates to 10% of the Project costs.

Ricardo has costs of £186, 910 to lead the development of the NET tool (WP2) and the Business Case and CBA (WP5), as well as supporting the Living Port and actively contributing to meetings and the wider project. Ricardo will also be subcontracting PIP to provide test data to run through the tool. Portsmouth International Port has unique data sets due to their port profile and shore power installation that is currently in progress.

Ricardo is also providing it's in-house Port Decarbonisation tool for the benefit of the project. This product has been developed via internally funded capital investment from Ricardo.

PNDC has costs of £134, 606 to lead the Living Port (WP4) and Policy and Regulation (WP3) and actively collaborate with the rest of the team in meetings.

BPA has costs of £32,840 to lead Communications and Wider Engagement (WP6) and contribution to Policy and Regulation (WP3) as well as using their vast network and contacts in the Maritime to disseminate and validate the project, with particular focus on the cross-sector workshop.

EMEC has costs of £69,941 to provide test case data for the tool (WP2), support with communication and dissemination (WP6) and use their wealth of maritime contacts to facilitate conversations. EMEC will also take an active collaboration role as a partner in the project.

ABP has costs of £12,000 to provide test data for the tool in WP2, but also take a role as a critical friend for the project, acting as the voice of the customer to ensure that the tool delivers maximum value to maritime stakeholders.

National Gas Transmission has costs of £3,650 to act as a peer review to the project, and for SeaChange and HyNTS Maritime to share learnings across their SIF projects.

Associated Innovation Projects

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

Supporting documents

File Upload

SIF Alpha Round 3 Project Registration 2024-10-10 10_03 - 82.8 KB
SeaChange_Question6_Appendix_FINAL.pdf - 119.8 KB
SeaChange Alpha Application Document.pdf - 4.8 MB

Documents uploaded where applicable?

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