

Form name	Integrated Impact Assessment
Reference	IA546440189
Date	12/09/2023



Policy details

Request date	12/09/2023 12:00
Directorate	PCC Portsmouth International Port
Service	Commercial
Title of policy, service, function	SEA CHANGE - Sustainable Energy and Air Quality improvements for Coastal Harbours to Achieve Net-zero with Grid Enhancements
Type of policy, service, function	New
What is the aim of your policy, service, function, project or strategy?	<p>The SEA CHANGE (Sustainable Energy and Air Quality Improvement for Coastal Harbours to Achieve Net-zero with Grid Enhancements) project will build and operate a new shore power system serving the 3 largest and busiest berths at Portsmouth International Port. This project has been awarded funding by the Department for Transport ZEVl grant (Zero emissions vessel and infrastructure).</p> <p>The system will allow Brittany Ferries vessels and visiting cruise ships to 'plug-in' and therefore switch off their engines whilst at berth. Additionally, the system will support the charging of 2 new hybrid/LNG ferries that will enter and leave the port under electric power, further reducing CO2 and air pollutants.</p> <p>The shore power system will support simultaneous powering of multiple vessels, with different on-board AC frequencies, voltages, and ship-shore connectors. This pioneering system will be the first of its kind in the UK.</p> <p>The project will build on and integrate innovative technologies developed by UK SMEs in the earlier PESO and SHAPE UK projects at the port. CO2 savings will be calculated and reported for the port and the vessels. The air quality monitoring system at the port will be enhanced measure the resulting reduction in pollution.</p>

	<p>The project aims to prevent the production of more than 20,000 tonnes of CO2e emissions per year, by 2027. Savings will be calculated and attributed to the port or, where appropriate, to the visiting vessel. This project provides an exceptional opportunity to accelerate the green transition within the UKs maritime operations and is seen as a flag ship project within the ZEVI Grant.</p> <p>The ZEVI fund awarded £80m to 10 projects, meaning the Port accounts for 25% of the total grant fund.</p> <p>Our consortium is made up of Brittany Ferries, Swanbarton, IOTICS labs, Barter4things group, University of Portsmouth and MSE international.</p> <p>A cost breakdown is provided below.</p> <ul style="list-style-type: none"> - Total project cost £24,733,195 - Total grant awarded £19,858,063 - Total project cost for PIP £23,122,698 - Costs funded at 80% £18,474,158 - Costs funded at 60% £18,000 - Total grant awarded for PIP £18,492,158 - Match fund required £4,630,540
<p>Has any consultation been undertaken for this proposal?</p>	<p>no</p>

Equality & diversity - will it have any positive/negative impacts on the protected characteristics?

<p>This section is not applicable to my policy</p>	<p><input checked="" type="checkbox"/></p>
---	--

Crime - Will it make our city safer?

<p>This section is not applicable to my policy</p>	<p><input checked="" type="checkbox"/></p>
---	--

Housing - will it provide good quality homes?

This section is not applicable to my policy	<input checked="" type="checkbox"/>
--	-------------------------------------

Health - will this help promote healthy, safe and independent living?

Please expand on the impact your policy/proposal will have, and how you propose to mitigate any negative impacts?	<p>Potential improvement on quality of life by this project, due to the improvements in Port and therefore local air quality.</p> <p>The Nelson and Charles Dickens wards shoulder the port, and suffer with the consequences of poor health outcomes because of poor local air quality. By enabling vessels to turn off auxiliary engines whilst at berth, we will reduce the amount of air pollutants emitted by these visiting vessels which may improve the impact on the health of local residents.</p>
How are you going to measure/check the impact of your proposal?	<p>We already have 3 years worth of Air quality (AQ) data from the 5 AQ monitors at our port, these measure a variety of pollutants such as PM, NOX, SOX & CO2.</p> <p>The expansion of sensors during our project will enable us to expand and enhance the current picture of AQ at the port, and we have ambitions and hopes to extend this further across the city and harbour. We have already engaged with the travel/air quality team in the council about AQ monitoring, and hope to collaborate further throughout the project and 3 year demonstration phase to really understand and measure the impact of our project.</p>

Income deprivation and poverty - will it consider income deprivation and reduce poverty?

This section is not applicable to my policy	<input checked="" type="checkbox"/>
--	-------------------------------------

Carbon emissions - will it reduce carbon emissions?

<p>Please expand on the impact your policy/proposal will have, and how you propose to mitigate any negative impacts?</p>	<p>By working closely with our project partners (Brittany Ferries) and wider customers across the cruise industry, we have been able to calculate our expected CO2e emissions savings. We have based our figures from 2027 onwards, as the year 2026 is when the final BF vessel is scheduled to be retrofitted to take shore power. We have calculated that we will save over 20,000 tonnes of CO2e emissions per year. These emissions savings will be felt across our three busiest berths as cruise and ferry vessels utilise shore power.</p>
<p>How are you going to measure/check the impact of your proposal?</p>	<p>Sensors collect data throughout our project, and this includes AQ, SP utilisation and CO2 emissions savings. We will be able to monitor and measure shore power usage and therefore calculate the emissions reduction of these activities. Data and information will be shared between vessels and the port, meaning we can accurately make calculations on emissions savings that are beneficial for the port and vessel owner (especially as the predicted voluntary offsetting scheme comes into play in the UK). We can use this data to report on all the metrics mentioned above, to measure the impact of our shore power system.</p>

Energy use - will it reduce energy use?

<p>Please expand on the impact your policy/proposal will have, and how you propose to mitigate any negative impacts?</p>	<p>This project will not result in the reduction of our energy use at the port. It will, however, fully utilise the 15MVA grid upgrade we secured in early 2023. We will charge vessels to use shore power whilst at berth and help demonstrate the benefits of doing so through the dashboard for emissions reduction and AQ improvements. This will mean we can utilise the power secured whilst vessels are alongside and are currently in discussions to enable us to fully utilise the power during the Ports quieter periods.</p>
<p>How are you going to measure/check the impact of your proposal?</p>	<p>With the energy nodes on our sensors, we will be able to track and report on SP utilisation throughout the projects 3 year demonstrator period. The work we are conducting on federated knowledge graphs will allow us to measure the impact of this even further, as we begin to learn more about our own energy systems, shore power utilisation and what impact this has had on CO2 emissions and local air quality.</p>

Climate change mitigation and flooding - will it proactively mitigate against a changing climate and flooding?

Please expand on the impact your policy/proposal will have, and how you propose to mitigate any negative impacts?	<p>Portsmouth International Port has significant influence when it comes to reducing vessel emissions whilst at berth. Reducing over 20,000 tonnes of CO2e emissions entering our atmosphere each year is a significant achievement, and not something other ports across the UK are currently able to do. Any reduction in global emissions is a good news story, and reducing emissions for vessels visiting Portsmouth could help mitigate climate change and the impacts being felt both locally and globally. We are designing our sensors and dashboard around port and vessel operator requirements, so that the benefits of utilising shore power are clear for all to see. We hope this encourages adoption of shore power whilst at berth in Portsmouth and other UK ports. Regulation across Europe now calls for more and more ports to be shore power ready, as set out in the European fit for 50 plan. If UK government wants ports to be able to achieve ambitious net zero goals, shore power systems need to be rolled out and utilised on a much larger scale, and Portsmouth will have first mover advantage and influence on all of this.</p>
How are you going to measure/check the impact of your proposal?	<p>We will be able to track, report and calculate SP utilisation and emissions reduction throughout the projects 3 year demonstrator period, and beyond. The dashboard tools will allow us to monitor our own energy systems, shore power utilisation by visiting vessels and what impact this has had on CO2 emissions and local air quality.</p>

Natural environment - will it ensure public spaces are greener, more sustainable and well-maintained?

<p>Please expand on the impact your policy/proposal will have, and how you propose to mitigate any negative impacts?</p>	<p>Our project does indeed conserve and enhance our natural environment, with the reduction of noise, air and water pollutants. By allowing vessels to plug into shore power, this will significantly reduce noise, air and water pollution across our site. The two new vessels from Brittany ferries can maneuver in and out of the harbour on battery propulsion, charged by the port on a fully green energy tariff.</p> <p>We anticipate this will have benefits for both people who work and live on and near the port, and this could have further benefits for species and nature across the site, both land and water side.</p>
<p>How are you going to measure/check the impact of your proposal?</p>	<p>We have included as part of our proposal, for the sensors to be equipped with new noise monitoring features. As the sensors will be developed early in the project, we should be able to get a good/baseline understanding of noise levels across the site and then compare this with data throughout the demonstration. Our AQ has been measured at the port for 3 years, so we will be able to measure and compare the impact of the project throughout. In this project we received a letter of support from the Solent NEG. We would be eager to collaborate on future projects that could encourage, preserve or enhance biodiversity and protect habitats.</p>

Air quality - will it improve air quality?

<p>Please expand on the impact your policy/proposal will have, and how you propose to mitigate any negative impacts?</p>	<p>When vessels come into the port, they need to continue running their auxiliary engines to perform loads on-board. The vessels who visit the port run on a variety of fossil fuels which produce air pollutants. Marine Gas Oil and Heavy Fuel Oil are common, but we now have several ships visiting us which run on Liquefied Natural Gas (LNG) which is far better for local air quality.</p> <p>If we were to be able to provide shore power to all these vessels, they would be able to power down their auxiliary engines for the 3-12 hrs whilst at berth. This will result in a significant reduction of key pollutants and emissions being emitted into the surrounding atmosphere, improving air quality for people who live, work and visit our Port and city. This will help achieve the councils ambitions of creating a cleaner and healthier city. This system once fully operational, will be able to plug in vessels for the foreseeable future, having a long lasting impact on the health and wellbeing of local people.</p>
---	---

How are you going to measure/check the impact of your proposal?	We have measured air quality at the port for three years. With the installation of new and improved sensors, we will be able to track and report on air quality impacts throughout the projects 3 year demonstrator period and beyond.
--	--

Transport - will it make transport more sustainable and safer for the whole community?

This section is not applicable to my policy	<input checked="" type="checkbox"/>
--	-------------------------------------

Waste management - will it increase recycling and reduce the production of waste?

This section is not applicable to my policy	<input checked="" type="checkbox"/>
--	-------------------------------------

Culture and heritage - will it promote, protect and enhance our culture and heritage?

Please expand on the impact your policy/proposal will have, and how you propose to mitigate any negative impacts?	Cleaner air, reduced emissions and a sustainably focused port attracting more customers with shared values will have hugely positive impacts for the wider city, making Portsmouth an even more attractive place to live, work and visit. This project is seen as a flag ship project of the ZEVI grant, and is on track to receive huge amounts of attention throughout the 4.5 years. We will continually publicise our project, along with our project partners, so that the city and port of Portsmouth and wider city are known for their sustainability ambitions and innovative projects.
How are you going to measure/check the impact of your proposal?	We can track this through engagement on social media, increased website visits and online interactions. We can also link in with the councils wider team to encourage events and publicise the project further.

Employment and opportunities - will it promote the development of a skilled workforce?

<p>Please expand on the impact your policy/proposal will have, and how you propose to mitigate any negative impacts?</p>	<p>Within PIPs work package we are anticipating the creation of 4 new full time green skill roles, with 3 high voltage engineers and 1 senior high voltage engineer. Plus a part time Authorising Engineer to manage the system. Other project partners will be able to secure roles within their organisations , and seek to employ graduates from local universities (Portsmouth) to help them throughout the 3 year demonstration phase as detailed in our full report to cabinet. The University of Portsmouth will be able to develop new skills and qualifications for their students, including the opportunity for students to conduct a PHD on the project. The project helps address key priorities for the region. One of the challenges for Portsmouth has been the reduction of jobs in the traditional shipbuilding industries. The 'Portsmouth economic development and regeneration strategy' calls for an innovation cluster in topics including clean technology, and PIP is already aiming to have the first zero-emissions port in the UK. The project will help develop the necessary skills for green shipping and infrastructure. New design, manufacturing and maintenance capability will be developed. Working alongside the Solent's industry clusters (MES / MIG etc), we will educate and help grow these skills across the Solent region, safeguarding existing jobs through upskilling and creating new high-skill opportunities which will drive growth and investment in the region.</p>
---	---

<p>How are you going to measure/check the impact of your proposal?</p>	<p>A concerted dissemination action (detailed within a communications plan) will expand awareness of the project and promote its relevance to companies along the complete value chain. This will make the case for investment in innovation and growth as the market develops.</p> <p>Dissemination activities will be complemented by targeted communications with key user categories, aiming to identify the early adopters who are incentivised to take up the project outputs. Workshops will be an important element of building these relationships and distributing knowledge generated by the project.</p> <p>We will hold a dissemination event, prior to the beginning of the demonstration phase, for all project participants and regional stakeholders to showcase the work carried out and to explain the purpose and value of the demonstration phase, allowing for the identification of further potential collaboration during that phase.</p>
---	---

Economy - will it encourage businesses to invest in the city, support sustainable growth and regeneration?

<p>Please expand on the impact your policy/proposal will have, and how you propose to mitigate any negative impacts?</p>	<p>Within PIPs work package we are anticipating the creation of 4 new green skill roles, with 3 high voltage engineers and 1 senior high voltage engineer. Other project partners will be able to secure roles within their organisation, and seek to employ graduates from local universities to help them throughout the 3 year demonstration phase.</p>
<p>How are you going to measure/check the impact of your proposal?</p>	<p>By achieving the ambitions set out in our 20 year master plan, which include themes around technology, environment and sustainability, the port will be able to contribute even more to the local and national economy, as well as being able to employ more people (both directly and indirectly) - as detailed in our full report to cabinet.</p>

Social value

This section is not applicable to my policy	<input checked="" type="checkbox"/>
--	-------------------------------------

Involvement

Who was involved in the Integrated impact assessment?	Mike Sellers - Port Director Steve Watkyns - Technical Director Elly Howe - Environmental & Sustainability Coordinator
Name of the person completing this form	Alison Broomfield entered online from document produced by Steve Watkyns
Date of completion	2023-09-12