



Project Brief

Green Energy Production and the Shetland Economy – Request for Input

A new study by the University of Strathclyde’s Centre for Energy Policy

As covered recently in the [Shetland News](#), our team at the [Centre for Energy Policy](#) (CEP) is currently undertaking a project titled ‘[Maximising the benefits for Shetland’s economy and long-term sustainability of transitioning to green hydrogen production using renewable wind power](#)’. Our objective is to use our expertise in conducting scenario simulation analysis using economy-wide models to help decision makers maximise the benefits of energy transition activity for the people and economy of Shetland. Moreover, we aim to inform and support the required policy leadership and coordination at Shetland, Scotland and UK levels.

The initial focus is on investigating the potential impacts on the Shetland economy of developments in green hydrogen (and derivative fuels) production enabled by emerging offshore wind capacity, linked to CEP’s role on the Engineering and Physical Sciences Research Council (EPSRC) [Ocean REFuel](#) project. Here, we are giving particular attention to how key elements of Shetland infrastructure and associated local supply chains may be positively affected by the transition. This includes the Sullom Voe Terminal (SVT), where green hydrogen and derivative fuels could be produced, and the Greenhead Base, which could service offshore windfarm requirements. We are also interested in investigating how the potential displacement of other activities – through, for example labour market challenges and/or multiple uses of marine resources – may be avoided.

For our study to be useful to policy and industry decision makers, it is crucially important that we engage with a range of stakeholders, both to ensure that the scenarios we model are well-informed and to make our results and findings accessible and relevant. For this reason, a small team from CEP will make an initial visit Shetland during the week beginning 2nd September 2024, and we hope to engage with a range of people during and after that trip. The purpose of this short paper is to provide information on what we propose investigating and how, and to invite input at this early stage of our project, which will run into 2025 and hopefully beyond.

Understanding economy-wide impacts: income generation and labour market constraints

Studying economy-wide impacts involves considering the impacts of different industrial/sector developments on things like Shetland’s GDP, employment and the labour market, real incomes, prices, exports vs. imports, contribution to government revenues, etc. Our economy-wide approach also allows us to quantify distributional impacts, and the basis for community benefits and local wealth creation, across sectors and local households, over different timeframes.

Here, two central drivers of outcomes will be (a) what happens to different elements of income generation and (b) any constraints (e.g., in Shetland’s labour market) and other potential causes of displacement (e.g., uncoordinated competition over marine resources).

This means that, in investigating the economy-wide impacts of changes in any one sector and its local supply chain, we need to understand what happens to:

- Employment and wages.
- Returns to investment and the ownership of capital.
- The extent of local ownership of firms and industries affected.

Outcomes will also depend on the scale of the sector and activity in question within the wider Shetland economy, before and after any changes linked to the energy transition.



Two examples for potential consideration in the current CEP project include:

1. Impacts of green hydrogen (and/or derivative fuel) production at/proximate to the Sullom Voe Terminal (SVT)

Key Research Question: To what extent would green hydrogen production at/proximate to SVT replicate the sectoral and supply chain characteristics of current oil processing activity at the site?

In terms of the issue raised above, we anticipate that green energy production at SVT is likely to be relatively capital-intensive. That is, there could be relatively limited direct employment, though the processes involved could have additional labour requirements relative to current oil processing activity. However, much of the employment impact of new green energy production could be indirect, particularly if SVT's current relatively strong supply chain linkages within Shetland are sustained? Moreover, local supply chain reliance could potentially increase given the remoteness of Shetland and considering the likely equipment and maintenance requirements? Similarly, any benefits linked to local ownership may be associated with supply chain activity given the largely non-Shetland ownership of SVT production facilities for green hydrogen and the derivative fuel production enabled. A big unknown right now is the economic scale. Physical scale – for example, the 3 GW scale for hydrogen feedstocks – is better understood but for this project we need to understand how this translates to the potential value of economic outputs/commodities (i.e., in terms of new exports or energy supplied within Shetland). Once we know this, we can begin to scale scenario and use our model to investigate the dynamic impacts of introducing this type of green energy activity across the Shetland economy.

2. Impacts of new activity at the Greenhead Base working on offshore structures

Key Research Question: What will the implications be for supply chains in relation to new 'green' activity at the Greenhead Base, and to what extent will there be complementarity or competition with other activities such as decommissioning of oil and gas assets?

The Greenhead Base is another key element of Shetland's infrastructure, with a greater level of local ownership via the Port Authority. Again, we need to understand what supply chain implications would be. Furthermore, the extent to which there would be complementarity or competition with other activities such as decommissioning of oil and gas assets. In terms of sources of income generation, new activity supporting the development of offshore wind at the Greenhead Base may be more labour-intensive than green fuel production at SVT. One implication thereof may be that direct employment impacts may be more important in driving local income generation, combined with more wealth creation associated with local ownership.

Net wider economy impacts are likely to be constrained and could involve displacement of other activities

In any and all cases we may study, the extent of wider economic expansion is likely to be constrained not least by Shetland's labour supply constraint, which could introduce cost and price pressures that could act to partly displace other activities. One route to reducing such pressure and improving wider economic outcomes is to bring in more people to support both expanding industries and exploit local supply chain opportunities. However, this will have implications for things like housing and public services. Of course, there is also potential for other forms of displacement – e.g., if offshore wind developments have implications for fishing grounds and stocks, where the NE1 sites are likely to have implications for haddock and other fishing activity in Shetland's fishing industry, which is a large and important part of the local economy.

Further information and contact

The project is being led by Professor Karen Turner, the CEP Director. For further information about the project please contact Hannah Corbett, Senior Knowledge Exchange Fellow, CEP, hannah.corbett@strath.ac.uk.

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