

Economic Impact of the SSENT Pathway 2030 Investment Programme

A report to Scottish and Southern Electricity Networks
May 2023



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1.

Executive Summary

The SSENT Pathway to 2030 Programme is expected to deliver £6.2 billion Gross Valued Added (GVA) and support up to 20,570 jobs across the UK, of which £2.6 billion GVA and 9,250 jobs would be in Scotland.

The SSENT Pathway to 2030 is a series of investments in the North of Scotland's grid capacity, which will be worth £9.4 billion, equivalent to five Queensferry Crossings.

These will support the transition to net zero and enable the continued expansion of Scotland's renewable energy sector. The projects will include replacing and upgrading existing lines, new connections within the North of Scotland, and new connections between Peterhead and the Humber.

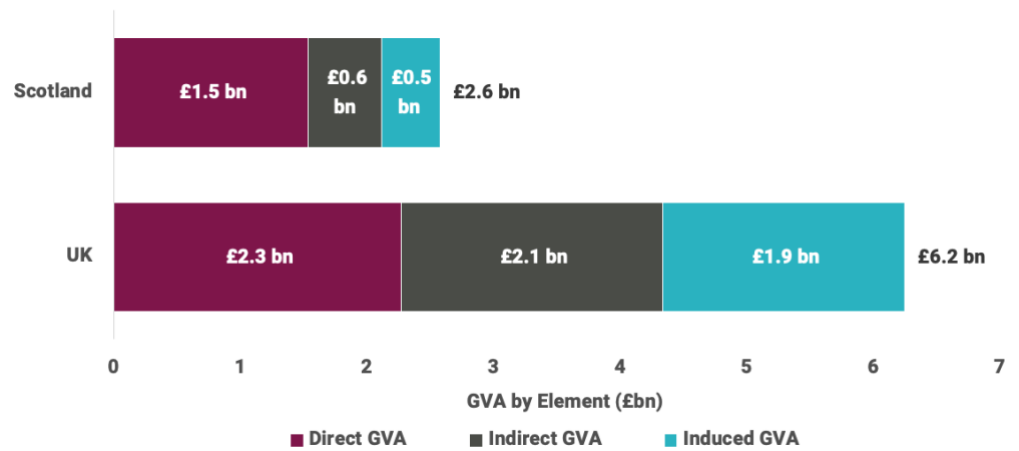
The SSENT Pathway to 2030 Programme is expected to support significant employment and economic activity in the Scottish and UK economies during the development and construction phases. It was estimated that the total value of contracts secured in the UK could be up to £5.5 billion. In Scotland, it could be up to £3.7 billion (equivalent to a fifth of turnover in the Scottish construction sector in 2020).

It is estimated that the cumulative economic impact associated with the initial £5.5 billion expenditure in the UK, including the direct impact of spending as well as further spending in the supply chain and spending by staff, will contribute £6.2 billion GVA and 94,490 years of employment in the UK. This includes £2.6 billion GVA and 40,410 years of employment in Scotland. This is equivalent to 20,570 jobs across the UK, with 9,250 jobs being within Scotland.

The majority of this will be associated with the direct GVA of SSENT and its primary contractors. This will generate £2.3 billion GVA in the UK, of which £1.5 billion GVA will be in Scotland.



Figure 1.1: Cumulative Economic Impact in Scotland and the UK (GVA)

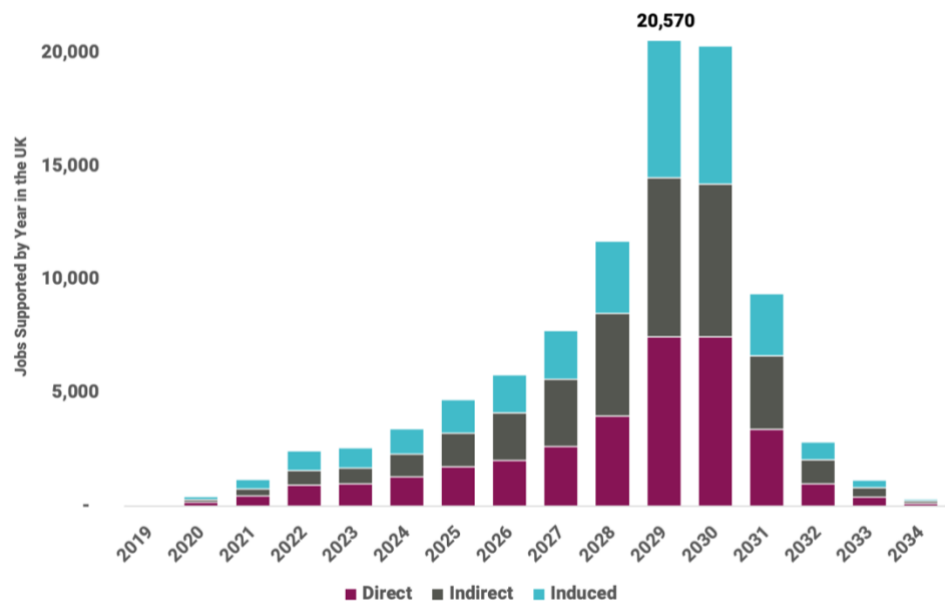


Source: BIGGAR Economics Analysis. Note, totals may not sum due to rounding.

Scottish companies are expected to have opportunities related to developing the projects, as well as the construction and installation of overhead lines, underground cabling, and substations. At the peak level of employment in 2029, it is anticipated that these projects will support 20,570 jobs across the UK, with 9,250 jobs in Scotland.

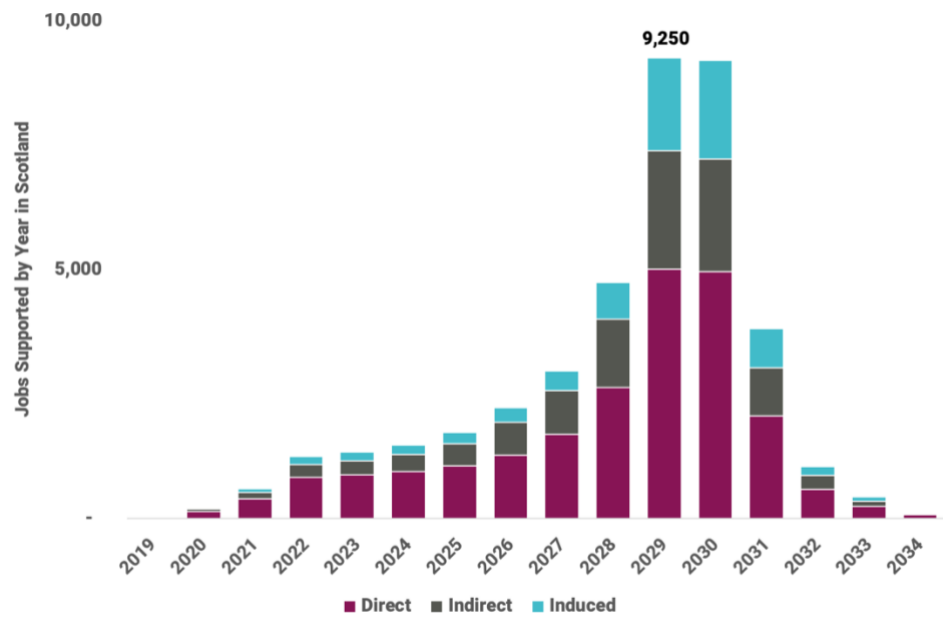
The projects' timescales will also ensure a steady schedule of work for businesses across Scotland and the UK over the next decade. In this way, SSENT's investment will both support employment in the medium term and contribute to the long-term shift towards net zero.

Figure 1.2: Employment over Time in the UK, 2019-34



Source: BIGGAR Economics Analysis.

Figure 1.3: Employment over Time in Scotland, 2019-34



Source: BIGGAR Economics Analysis.

Early investment in grid infrastructure will be crucial to maximise the economic benefits to Scotland from the ScotWind offshore leasing round. Delays in grid connection investment may result in a compression of timescales for the delivery of ScotWind projects, creating capacity issues for the Scottish supply chain and reducing the potential economic impact.

The SSENT Pathway to 2030 Programme is expected to support the development of 12.4GW of ScotWind projects. While these will require investments from a range of other organisations, the role of SSENT will be critical to ensuring that they have a route to development.

On average, during the construction period, these offshore wind projects could support £2.8 billion GVA and 42,000 jobs each year in the UK, including £1.1 billion GVA and 18,000 jobs each year in Scotland.



2.

Appendix A – SSENT Pathway to 2030 Projects

2.1 SSENT Pathway to 2030

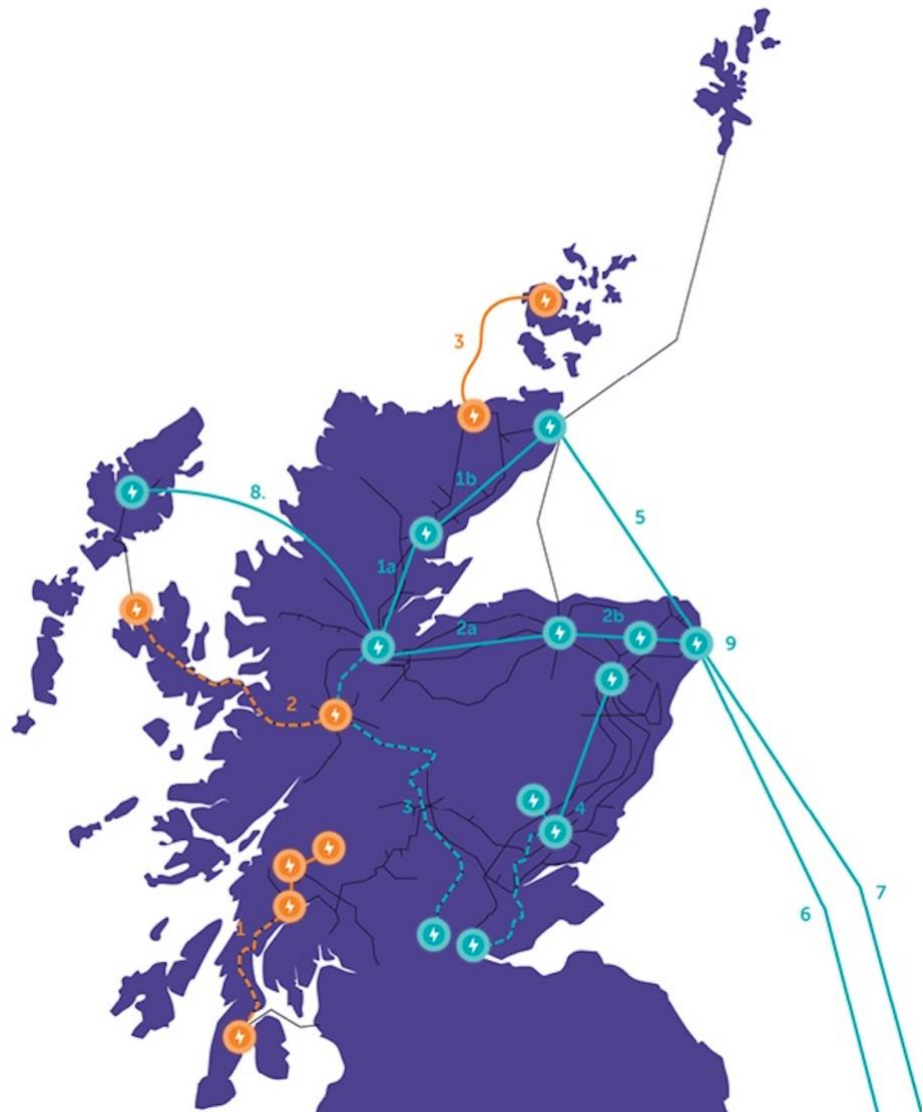
The analysis in this report considers SSENT Pathway to 2030 investment programme, a portfolio of nine projects, including:

- Beaully to Loch Buidhe to Spittal (BLN4 and SLU4);
- Beaully to Blackhillock to New Deer to Peterhead (BBNC and BPNC);
- Beaully to Denny (BDUP);
- Kintore to Tealing to Westfield (TKUP);
- Spittal to Peterhead (PSDC);
- Peterhead to Drax (E4D3);
- Peterhead to South Humber (E3L5);
- Western Isles 1.8GW HVDC link; and
- the Peterhead HVDC Switching Station/Aquila Pathfinder.

As can be seen in Figure 2.1, there are several projects connecting the north of Scotland to the rest of the UK via Peterhead, projects improving connections with the north of Scotland and the central belt, and projects that increase interconnections within the north of Scotland.

The Pathway to 2030 Programme projects are highlighted in light blue (ongoing capital projects are highlighted in orange).

Figure 2.1 SSENT Pathway 2030



Source: SSENT

2.2 Study Objectives

In September 2022, BiGGAR Economics was commissioned by SSENT to estimate the economic impact associated with the development and construction of the SSENT Pathway to 2030 Programme, as well as its operational portfolio. This report delivers on the first element of the commission: to estimate the economic impact of SSENT's planned investments. Subsequent reporting will consider the operational impact.

The study will improve understanding of the benefits associated with the investment programme, facilitating engagement with stakeholders.



3.

Appendix B – Methodology Statement

3.1 Approach

3.1.1 Types of Impact

Contracts associated with the development and construction of the SSENT Pathway 2030 Programme will generate three types of economic impacts:

- direct impacts: this is the direct impact associated with Tier 1 suppliers, including employing, and paying staff, and generating profits. This impact is calculated by dividing the expenditure on a contract by the turnover/GVA and turnover/employee ratios^{1 2} for the relevant sectors to estimate the direct GVA and employment impacts;
- indirect impacts: this is the impact associated with spending in the supply chain of Tier 1 suppliers. This is captured by applying Type 1 economic multipliers^{3 4} to the direct economic impacts; and
- induced impact: this is the impact associated with staff spending their wages in the wider economy and is captured by subtracting Type 1 multipliers from Type 2 multipliers and applying this to the direct impact.

3.1.2 Measurements

The following measures of economic impact have been considered:

- Gross Value Added (GVA): a measure of economic activity expressed as the difference between an organisation's turnover and its non-staff operational expenditure;
- Jobs: this is a measure of employment which considers the headcount employment in an organisation or industry. The impact in a given year is expressed as jobs; and
- Years of Employment: a measure of employment used in the context of jobs associated with construction activity and lasting over a short period, or to express cumulative employment impacts over a project's lifespan.

3.1.3 Study Areas

The analysis of economic impacts focussed on the following study areas:

- Scotland; and
- the UK.

¹ Scottish Government (2021), Scottish Annual Business Statistics 2019

² ONS (2021), Annual Business Survey 2019

³ Scottish Government (2021), Scottish Input Output Tables 2018

⁴ ONS (2021), UK Economic Multipliers 2017



3.1.4 Impacts over Time

The analysis considers economic impacts occurring over the period to 2033/34, with some of the project development activity having started before 2021/22. To account for the different value that individuals tend to give to future costs and benefits compared to present ones ('social time preference'), in line with HMT's guidance, impacts have been discounted by 3.5%⁵. On this basis, cumulative benefits are expressed in NPV terms.

3.2 Input-Output Modelling

3.2.1 Development and Capital expenditure

SSENT provided the total investment and high-level expenditure by category for each project, which was used as the basis for estimating the economic impact.

For some categories of spend, such as overhead lines, subsea/underground cables and substations, more detailed assumptions were made about subcategories of spend. For example, spending on substations was split into construction, equipment, and installation, based on publicly available sources and BiGGAR Economics' experience from previous projects.

For each category and project, an assumption was made about the share of expenditure that could be secured in each study area, based on BiGGAR Economics' understanding of the Scottish and UK supply chains and SSENT's previous experience. This was also informed by an earlier piece of analysis undertaken by BiGGAR Economics on behalf of SSENT, analysing the Eastern Link Portfolio of Projects, which will connect Peterhead to South Humber and Spittal via subsea cable.

Additionally, for each category and project, assumptions were made about when they are expected to happen, though these may be subject to further refinement. For example, the first stage of expenditure is likely to relate to development, while installation is anticipated to be the final stage of investment, coming after construction and the purchase of equipment.

3.2.2 Economic Impact

Each category of expenditure was then categorised into a Standard Industrial Classification (SIC) sector. These are the basis for the collection of statistics in the Scottish Annual Business Statistics, which includes turnover, GVA and employment⁶. This allows the standard turnover/GVA or turnover/employee ratio for a company in that sector to be calculated and used as the basis for estimating the economic impact associated with a given level of turnover.

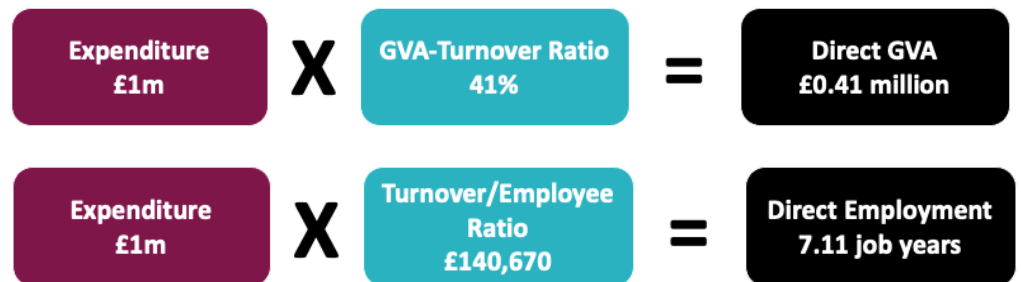
For example, for the construction sector, £1 million in turnover would be expected to support £0.41 million GVA and 7.11 years of employment in Scotland (see Figure 3.1).

⁵ HM Treasury (2022), The Green Book, available at: <https://www.gov.uk/government/publications/the-green-book-appraisal-and-evaluation-in-central-government/the-green-book-2020>

⁶ Scottish Government (2021), Scottish Annual Business Statistics 2019.



Figure 3.1 Direct Impact



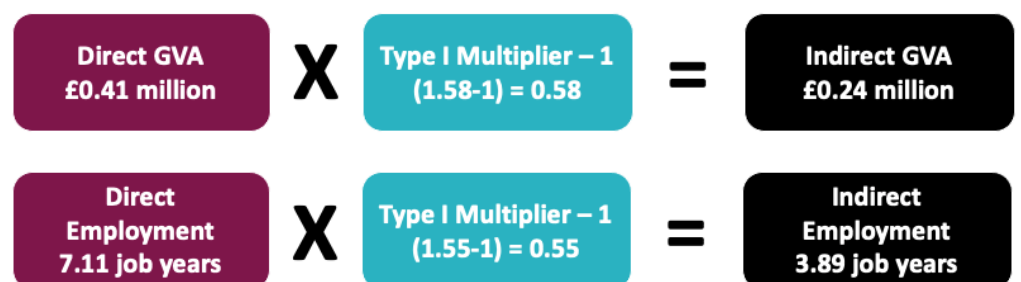
Source: BiGGAR Economics

The economic activity supported by the SSENT Pathway to 2030 Programme will not be limited to the direct contribution that contracts awarded make to the turnover of recipient companies. Contract-related spending has also an impact on the supply chain of those businesses involved in the construction and development of the projects (indirect impacts). In addition, those working on the SSENT Pathway to 2030 Programme will have an impact through their spending in the economy (induced impacts).

Indirect impacts were estimated by applying Type 1 GVA and employment multipliers, as sourced from the Scottish⁷ and UK⁸ Input Output Tables to the direct GVA and employment supported by construction and development contracts. Similarly, induced impacts were estimated by applying Type 1 and Type 2 GVA and employment multipliers to the direct GVA and employment supported.

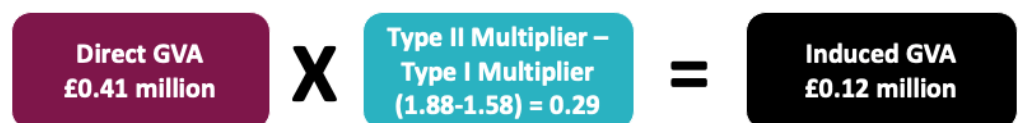
The calculations involved are shown in Figure 3.2 and Figure 3.3 below.

Figure 3.2 Indirect Impact



Source: BiGGAR Economics

Figure 3.3 Induced Impact



⁷ Scottish Government (2021), Supply, Use and Input-Output Tables.

⁸ ONS (2021), UK Input-Output Supply and Use tables



$$\begin{array}{|c|} \hline \text{Direct} \\ \text{Employment} \\ \hline 7.11 \text{ job years} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{Type II Multiplier –} \\ \text{Type I Multiplier} \\ \hline (1.75-1.55) = 0.21 \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Induced} \\ \text{Employment} \\ \hline 1.47 \text{ job years} \\ \hline \end{array}$$

Source: BiGGAR Economics

The total construction and development impact associated with the SSENT Pathway to 2030 Programme is given by the sum of direct, indirect, and induced impact, as shown below.

Figure 3.4 Total Impact

$$\begin{array}{|c|} \hline \text{Direct GVA} \\ \hline \text{£0.41 million} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Indirect GVA} \\ \hline \text{£0.24 million} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Induced GVA} \\ \hline \text{£0.12 million} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Total GVA} \\ \hline \text{£0.76 million} \\ \hline \end{array}$$

$$\begin{array}{|c|} \hline \text{Direct} \\ \text{Employment} \\ \hline 7.11 \text{ job years} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Indirect} \\ \text{Employment} \\ \hline 3.89 \text{ job years} \\ \hline \end{array} + \begin{array}{|c|} \hline \text{Induced} \\ \text{Employment} \\ \hline 1.47 \text{ job years} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Total} \\ \text{Employment} \\ \hline 12.47 \text{ job years} \\ \hline \end{array}$$

Source: BiGGAR Economics

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