BiGGAR Economics

Hagshaw Long Duration Electricity Storage Socio-Economic Impact Assessment

A report to
Hagshaw LDES Ltd

April 2025

BiGGAR Economics

Contents

1. Executive Summary

This report describes the potential socio-economic benefits of the proposed Hagshaw Long Duration Electricity Storage project (the "Proposed Development").

The assessment of socio-economic benefits is based on the Proposed Development featuring a 500MW system capable of discharging power for up to 12 hours.

The Proposed Development will generate socio-economic benefits as a result of its construction, operations and maintenance phases, with the potential of additional benefits resulting from the manufacturing of long duration batteries in Scotland.

During manufacturing and construction, the total economic benefits[1] (including direct, indirect and induced impacts) are expected to be[2]:

- £17.1 million Gross Value Added (GVA) and 180 years of employment in South Lanarkshire (90 jobs each year, over a period of two years); and
- £770.0 million GVA and 1,630 years of employment in Scotland (815 jobs each year, over a period of two years).

The annual expenditure for the operations and maintenance of the Proposed Development could deliver up to (including direct, indirect and induced impacts):

- £3.1 million GVA and 40 jobs in South Lanarkshire; and
- £8.0 million GVA and 70 jobs in Scotland.

The Proposed Development is expected to support the provision of local public services and the investment priorities of local communities. During its operations and maintenance, it is expected to generate approximately £2.5 million in non-domestic rates yearly.

The Proposed Development is of a scale that would make a material, positive impact to the local area and to the wider Scottish economy.

The Proposed Development will contribute to four of the five pillars of Community Wealth Building in South Lanarkshire (spending, workforce, financial power, and land and property). The Applicant will promote local contracting opportunities and apply a Responsible Contracting Policy to support local suppliers wherever possible. the

[1] Figures from manufacturing and construction phase are based on utilising candidate battery technology manufactured in Scotland. The final selection of technology will be determined through a full procurement process, with the implementation of the Applicant's Responsible Contracting Policy.

[2] GVA figures are rounded to one decimal place, while total employment figures are rounded to the nearest ten

Proposed Development will create direct and indirect employment and bring underutilised land back into productive use. While community benefit funding is not a standard practice for energy storage developments, the Proposed Development will provide up to £50,000 per year in community benefit funds to support community-led initiatives over its operational lifetime.

The Proposed Development supports NPF4 Policy 11c by maximising net economic impact through job creation and supply chain development. The Proposed Development is expected to use long duration batteries manufactured in Scotland. This presents an opportunity to retain a greater share of investment nationally.

Based on these community and economic benefits expected, it can be concluded that the Proposed Development **contributes to the Community Wealth Building pillars in South Lanarkshire and maximises net economic impact** meeting the requirement for energy proposals set out in Policy 11(c) of NPF4.

2. Introduction

BiGGAR Economics was commissioned by Hagshaw LDES Ltd. ("the Applicant") to assess the potential socio-economic impacts from the construction, operations and maintenance of the Hagshaw Long Duration Electricity Storage Project (the "Proposed Development").

2.1 Background

The Proposed Development comprises a 500MW system capable of discharging power for up to 12 hours located on land south-west of Junction 11 of the M74 in South Lanarkshire.

Long Duration Electricity Storage (LDES) using flow batteries is an emerging technology designed to store and discharge electricity over extended periods (more than 8 hours), offering significant advantages over traditional lithium-ion batteries which generally store and discharge electricity over much shorter periods (usually around 2 hours). LDES systems will play a crucial role in maintaining a stable and reliable energy grid by storing surplus renewable energy and delivering it during times of high demand or reduced generation. By extending battery storage capacity beyond the typical duration of lithium-ion solutions, flow battery systems are an LDES technology that can be delivered quickly enabling greater integration of renewable generating sources and enhancing grid resilience.

The Proposed Development adjoins the Hagshaw Energy Cluster in South Lanarkshire and is strategically located in the Southern Scotland Electricity Transmission Zone.

2.2 The Applicant

The Applicant is part of the 3R Energy group of companies. 3R Energy is a developer of renewable energy projects based in South Lanarkshire. The 3R Energy group of companies also includes: Mitchell Energy Ltd, Mitchell Farming Partnerships and William Mitchell & Sons (WMS) Ltd, based at Newtonhead Farm Rigside and Hazelside Farm Douglas respectively, which manage the farming assets of the Group. Together the Group:

- owns and manages 3,500 acres of land in the Douglas Valley;
- has farmed the land for over 120 years;
- generates a combined annual turnover of c.£6 million; and

- employs 15 people as a direct result of its renewable energy and farming operations within the Hagshaw Energy Cluster.

3R Energy is also a founding partner of the award-winning Hagshaw Energy Cluster Development Framework (see section 7) which represents an ambitious vision for the future of the Hagshaw Energy Cluster and surrounding area, identifying opportunities to enhance and invest in the local environment, communities and place.

3R Energy has worked with local stakeholders and regulators to develop large-scale renewable energy projects and has now consented over 330 MW of onshore wind developments in the Hagshaw Energy Cluster. The existing projects developed by 3R Energy comprise of:

- Douglas West Wind Farm (45 MW total capacity);
- Douglas West Extension (78 MW total capacity);
- Hagshaw Hill Wind Farm Repowering (84 MW total capacity); and
- Cumberhead West Wind Farm (126 MW total capacity).

2.3 The Existing Hagshaw Energy Cluster

The Hagshaw Energy Cluster is a leading example of how economies historically reliant on coal mining can transform into renewable energy hubs and provide new economic opportunities.

The Hagshaw Energy Cluster is comprised of onshore wind farms which are expected to generate over 584 MW in the coming years (operational and consented developments). There is also the potential of a further 1 GW from wind farm repowering and extensions, energy storage, solar PV generation and green hydrogen production. This will play a crucial role in the increase of renewable energy and storage capacity required to meet Scotland's Net Zero targets and those of the UK Government as set out in the recent Clean Power 2030 Action Plan (the CP30 Action Plan).

These developments position the Hagshaw Energy Cluster as a model for a Just Transition, transforming the region's coal-intensive past into a sustainable future. By aligning renewable energy production with job creation, skills development, and circular economy principles, the Hagshaw Energy Cluster supports Scotland and the UK's clean energy ambitions while delivering long-term economic and social benefits to local communities.

2.4 Report Structure

The report is structured as follows:

- section 3 places the development in the context of national and regional economic strategies;

- section 4 provides a socio-economic context;
- section 5 considers the economic impact from the Proposed Development;
- section 6 assess how the Proposed Development aligns with NPF4 Policy 11c and Community Wealth Building pillars;
- section 7 contains a case study of the Hagshaw Energy Cluster Development Framework;
- section 8 contains a conclusion on net economic benefit and contributions to Community Wealth Building pillars; and
- the appendix (section 9) includes the Applicant's Responsible Contracting Policy.

3. Strategic Context

This section considers national and regional strategies and how the Proposed Development supports their delivery.

3.1 National Strategic Context

3.1.1 National Performance Framework[3]

The National Performance Framework sits at the top of the policy hierarchy in Scotland, with all other policies and strategies designed to meet its purpose and outcomes. The purpose of the National Performance Framework is:

"To focus on creating a more successful country with opportunities for all Scotland to flourish through increased wellbeing, and sustainable and inclusive economic growth".

The National Performance Framework sets out 11 outcomes, underpinned by 81 indicators, that combine to give a better picture of how the country is progressing towards these goals. As well as Gross Domestic Product (GDP) and employment measures, the National Performance Framework's outcomes reflect the desired fabric of communities and culture, education, the environment, health and wellbeing and measures to help tackle poverty. It is these indicators on which the Scottish Government focuses its activities and spending to help meet the national outcomes.

The Proposed Development would contribute to the achievement of the national outcomes set out in the National Performance Framework. Investment in energy projects can increase productivity in the economy and by creating jobs in the local area. The Proposed Development will contribute towards the fulfilment of national outcomes by supporting the decarbonisation of the Scottish economy, creating jobs, and supporting the ambitions of local communities. Of the 11 national outcomes, the Proposed Development will contribute to:

- economy: have a globally competitive, entrepreneurial, inclusive, and sustainable economy;
- environment: value, enjoy, protect, and enhance their environment;

[3] Scottish Government, Scotland's National Performance Framework.

- fair work and business: have thriving and innovative businesses, with quality jobs and fair work for everyone.

3.1.2 National Planning Framework 4 (NPF4)[4]

NPF4 is Scotland's national spatial strategy, setting out the principles to be applied to planning decisions, regional priorities and national developments.

The first of the six spatial principles to be applied is a just transition that ensures the transition to Net Zero is fair and inclusive, as is rural revitalisation, supporting sustainable development in rural areas. Applying these and other principles is intended to support the planning and delivery of sustainable places, where emissions are reduced, and biodiversity is restored and better connected.

As part of the Policy 11(a), all forms of renewable technologies will be supported. This is subject to the test outlined in Policy 11(c), which states that: "*the development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities*".

The Proposed Development will support employment and create opportunities for local businesses at both the construction, and operations and maintenance phases.

3.1.3 Scotland's National Strategy for Economic Transformation[5]

In March 2022, the Scottish Government published the National Strategy for Economic Transformation, which set out its ambition for Scotland's economy over a decade. The Scottish Government's vision is to create a wellbeing economy where society thrives across economic, social and environment dimensions, which delivers prosperity for all Scotland's people and places. Of particular importance is the ambition to be greener, with a just transition to net zero, a nature-positive economy and a rebuilding of natural capital.

A key longer-term challenge identified in the strategy is to address deep-seated regional inequality, including rural and island areas that face problems such as a falling labour supply and poorer access to infrastructure and housing. The transition to net zero presents a further challenge of delivering positive employment, revenue and community benefits.

To deliver its vision and address the economy's challenges, five programmes of action have been identified (with a sixth priority of creating a culture of delivery), including:

- establishing Scotland as a world-class entrepreneurial nation;
- strengthening Scotland's position in new markets and industries, generating new, well-paid jobs from a just transition to net zero;

[4] Scottish Government, Scotland's National Performance Framework 4.
[5] Scottish Government, Scotland's National Strategy for Economic Transformation

- making Scotland's businesses, industries, regions, communities and public services more productive and innovative;
- ensuring that people have the skills they need to meet the demands of the economy, and that employers invest in their skilled employees; and
- reorienting the economy towards wellbeing and fair work.

The Proposed Development will contribute to the strategy by capitalising on new market opportunities from the transition to net zero, specifically in battery storage systems, with the potential of manufacturing in Scotland.

3.1.4 Draft Energy Strategy and Transition Plan[6]

The Scottish Government has identified battery storage as a critical component in achieving a net-zero energy system by 2045. Its Draft Energy Strategy and Just Transition Plan places strong emphasis on the need for greater flexibility within the electricity system, recognising grid-scale battery storage as a key enabler of that flexibility.

The Draft Strategy highlights a range of technologies that can support this transition, including long duration storage, noting their potential to deliver broader benefits for consumers and society. It also acknowledges the existing battery storage capacity in Scotland and the growing pipeline of consented projects, while stressing the need for a substantial increase in capacity to meet future energy needs and ensure a secure, decarbonised power system.

3.2 Regional Strategic Context

3.2.1 South Lanarkshire Economic Strategy 2022-2027[7]

In its Economic Strategy for 2022-2027, South Lanarkshire Council outlines its aim to promote employment creation, social inclusion, physical development, and sustainability. The Council has outlined three key themes to promote these aims:

- People: putting people first and reducing inequality;
- Places: recovering, progressing, and improving; and
- Planet: working towards a sustainable future in sustainable places.

The Proposed Development has the potential to contribute to the key themes outlined by the South Lanarkshire Council in several ways. Firstly, the Proposed Development is expected to stimulate economic activity, contributing to the recovery, progress, and improvement of the region.

Secondly, by creating employment opportunities in the renewable sector, the Proposed Development supports both the Places and Planet priorities. The Proposed Development will enable jobs in construction and operational roles in the regional area while simultaneously promoting a sustainable future.

[6] Scottish Government (2023). Draft Energy Strategy and Transition Plan.
[7] South Lanarkshire Council, Economic Strategy 2022-2027.

Thirdly, the Proposed Development addresses the People priority through various Community Wealth Building initiatives as described in section 6. These efforts aim to put people first and work towards reducing inequality in the region.

3.2.2 Community Wealth Building – South Lanarkshire[8]

South Lanarkshire Council published a strategy for Community Wealth Building in 2021. Community Wealth Building is an alternative approach to traditional economic development, which seeks to develop resilient, inclusive local economies, with more local employment and a large and more diverse business base.

Community Wealth Building acts as a framework for activity across five interlinked pillars:

- Spending: maximising community benefits through procurement and commissioning, developing good enterprises, fair work and shorter supply chains;
- Workforce: increasing fair work and developing local labour markets that support the wellbeing of communities;
- Land and property: growing social, ecological, financial and economic value that local communities gain from land and property assets;
- Inclusive ownership: developing more local and social enterprises which generate community wealth, including social enterprises, employee-owned firms and cooperatives; and
- Finance: ensuring that flows of investment and financial institutions work for local people, communities and businesses.

The Proposed Development will support Community Wealth Building in South Lanarkshire through its construction and operational activity and potential initiatives supporting local economic development. Section 6 outlines the proposal for maximising community benefits.

3.2.3 Glasgow City Region Economic Strategy

The Glasgow City Region Economic Strategy[9] was developed in partnership between eight councils in the Glasgow city region area (including South Lanarkshire Council) and with government partners and agencies, the strategy sets the vision of becoming the “most innovative, inclusive, and resilient (regional) economy in the UK” by 2030. The strategy identifies three major challenges that present a roadblock to the growing development and prosperity of the region, these include to:

- create an inclusive economy: tackle low employment rates, employment in low paid sectors, rising underemployment, deprivation, and improve qualifications;
- enhance productivity: improve health of people, average skills qualifications, employment in more productive sectors, businesses per capita, and innovation;

[8] South Lanarkshire Council, Community Wealth Building Strategy.
[9] Glasgow City Region (2021). Glasgow City Region Economic Strategy.

- climate emergency: prepare infrastructure for climate risks, support businesses to Net Zero, and place equity at the core of the Just Transition to Net Zero;

To achieve the vision while directly addressing these challenges, several key opportunities are set out as providing the foundation for a growing and prosperous regional economy, these include:

- foundational economy: residents in deprived areas work in the foundational economy, which includes a high proportion of low-paid, less productive jobs;
- high growth sectors: focus developing opportunities in Net Zero, Digital, and High Value Manufacturing which can help close the region's productivity gap;
- accelerating climate action: reducing emissions can reduce inequalities through lower energy costs whilst also creating jobs to build an inclusive economy;
- health: addressing health issues is critical to improving labour participation and ensuring a productive economy;
- skills: more skills are needed to achieve Net Zero, reduce unemployment, and prepare workforce for the demands of digitalisation.
- technology: emerging technologies will reshape key industries of the Region, including health, energy, manufacturing, retail, and transportation.
- place: tackle deprivation through access to skills, education, and decent employment opportunities.

The Proposed Development aligns with the goal of attracting more projects in the high-growth sectors of Net Zero. It would support the Just Transition to Net Zero by supporting jobs across the renewable energy sector, including in construction and operational roles throughout its lifecycle, with the added potential of supporting growth in manufacturing jobs in Scotland. These opportunities could contribute to a more inclusive and productive regional economy by providing employment to individuals whilst also enhancing job security.

3.3 Local Strategic Context

Douglas, Rigside and Coalburn are surrounding settlements around the Proposed Development that have local strategies and community action plans[10]. Whilst some of these are now dated, they include longer term objectives and so provide an indication of the aspirations and priorities of local communities. There are several consistent objectives highlighted:

- economic diversification: create new opportunities to offset the decline of traditional industries;
- tourism and heritage: use natural landscape and local heritage to drive growth;
- infrastructure and connectivity: improve transport links and address vacant properties;
- community led development: encourage local participation to drive change;

[10] Rigside & Douglas Water Community Action Plan 2018 – 2023; Coalburn, Douglas and Glespin: Community Action Plans.

- enhancing public spaces: revitalise town centres and invest in community facilities and events; and
- retaining and attracting young people: develop affordable housing and create more opportunities to retain younger generations;

The Proposed Development will provide employment opportunities and support the local economies, the project will also generate community benefit revenue for the local area, having a beneficial impact to the neighbouring communities.

3.4 Summary of Strategic Context

The Proposed Development will have a number of socio-economic benefits in line with national, regional and local strategic policy priorities.

At a national level, the Proposed Development will deliver on issues covered by Scotland's National Performance Framework and NPF4 by providing economic opportunities for people in Scotland across the construction and operational phases of the Proposed Development, and potentially in its manufacturing phase also. The Proposed Development will support sustainable and inclusive growth across Scotland.

The Proposed Development will play an important role in the delivery of Net Zero targets through the development of a flexible and resilient electricity grid which will be increasingly reliant on non-dispatchable electricity production from renewable energy.

At a regional level, the Proposed Development has the opportunity to support key strategic aims including the Just Transition to Net Zero through the creation of jobs in both the operational and construction phases of the Proposed Development. It will also contribute to local and regional Community Wealth Building priorities through its proposals with regards to spending, workforce, land and property, and financial power.

4. Socio-Economic Context

This section discusses the socio-economic context of the Proposed Development

4.1 Study Areas

The socio-economic baseline for the Proposed Development focuses on the following study areas:

- Local Area (defined as the electoral ward of Clydesdale South);
- South Lanarkshire; and
- Scotland.

4.2 Demographics

4.2.1 Population Estimates

In 2021, the Local Area had a population of 14,621, representing 4.4% of the population of South Lanarkshire (330,280) and 0.3% of Scotland's total population (5,490,100).

The proportion of the working age population in the Local Area (60.7%) was lower than that of South Lanarkshire (62.5%) and Scotland (63.4%). This may indicate a lack of economic opportunities in the area with working-age people having moved to different locations in search of more available employment options.

Table 4-1 Population Estimates, mid-2021 and mid-2023

	Local Area	South Lanarkshire	Scotland
Aged 0-15	17.2%	16.9%	16.9%
Aged 16-64	60.7%	62.5%	63.4%
Aged 65+	22.1%	20.6%	20.3%
Total	**14,621**	**330,280**	**5,490,100**

Source: National Records of Scotland (2024), mid-2023 population estimates; National Records of Scotland (2022). Latest data for the local area is from 2021 while the latest data for South Lanarkshire and Scotland is from 2023. *While the retirement age was changed to 66 in the UK in 2020 this is not yet reflected in some of the source data used in this report, figures are presented for people aged 16 to 64 and 65 and over to maintain consistency.

4.2.2 Population Projections

Between 2023 and 2043, the population of South Lanarkshire is expected to decrease by 0.7% compared to an increase of 1.5% for Scotland as a whole. Over the same period, the number of working-age people in South Lanarkshire is projected to

decrease by around 15,500 (a fall of 7.5%). This is significantly greater than the 3.4% decline projected for Scotland as a whole.

While a lack of economic opportunities may not be the sole factor leading to a higher decrease of the working-age population in South Lanarkshire and by extension in the Local Area, it may be a contributing factor, indicating a need for more opportunities for those of the working-age living in the Local Area.

Table 4-2 Population Projections, 2022 - 2043

	South Lanarkshire		Scotland	
	2023	2043	2023	2043
Total	**330,280**	**328,001**	**5,490,100**	**5,574,819**
Aged 0-15	16.9%	15.5%	16.3%	14.8%
Aged 16-64	62.5%	58.2%	63.4%	60.3%
Aged 65+	20.6%	26.3%	20.3%	24.9%

Source: National Records of Scotland (2024), mid-2023 population estimates. National Records of Scotland (2020), population projections for Scottish areas (2018-based).

4.3 Industrial Structure

As shown in Table 4-3 in 2023 both wholesale and retail, and transport and storage were the sectors with the highest proportion of employment in the Local Area (14.1% each). Education was the third largest source of employment, accounting for 12.3% of local employment respectively.

Of those working in the Local Area, 10.6% were employed in the construction industry, compared to 8.3% in South Lanarkshire and 5.1% in Scotland. This is likely to be one of the main beneficiaries from opportunities for local content associated with the construction phase of the Proposed Development.

Table 4-3 Industrial Structure, 2023

	Local Area	South Lanarkshire	Scotland
Wholesale and retail	14.1%	16.5%	13.2%
Transport and storage	14.1%	5.0%	4.5%
Education	12.3%	7.4%	8.2%
Construction	10.6%	8.3%	5.1%
Accommodation and food service	10.6%	7.4%	8.6%
Human health and social work	10.6%	17.4%	15.6%
Administrative and support services	8.8%	6.6%	6.8%
Manufacturing	4.4%	8.3%	6.7%
Professional, scientific and technical	4.4%	5.0%	7.2%
Arts, entertainment and recreation	3.5%	2.9%	2.7%
Other service activities	1.8%	1.9%	1.7%
Real estate activities	1.4%	1.2%	1.5%
Agriculture, forestry and fishing	0.9%	2.1%	3.4%
Electricity, gas, steam etc. supply	0.9%	0.7%	0.8%
Water supply, sewerage, waste	0.5%	1.0%	0.8%
Mining and quarrying	0.4%	0.1%	0.9%
Information and communication	0.4%	1.2%	3.1%
Financial and insurance activities	0.4%	1.4%	3.2%
Public administration and defence	0.4%	5.8%	6.2%
Total Employment	**2,840**	**121,000**	**2,657,000**

Source: ONS (2024), business register and employment survey, 2023

There are several sub-sectors in the Local Area and South Lanarkshire which may benefit from the construction phase of the Proposed Development. Both the Local Area and South Lanarkshire have a higher proportion of the population working in civil engineering (2.6% and 1.7% respectively) which is higher than the Scottish average (0.9%).

Similarly, the Local Area and South Lanarkshire both have a higher concentration of the population working in specialised construction (5.3% and 4.1%) which include activities such as demolition and site preparation as well as electrical and plumbing. This is higher than the Scottish average of 2.8% working in specialised construction.

4.4 Economic Activity

The unemployment rate in South Lanarkshire was 2.9%, lower than the Scottish average of 3.3%. However South Lanarkshire had lower rate of economic activity (76.1%) compared to Scotland as a whole (76.6%).

Table 4-4 also shows that the median annual gross wage for residents (full and part time) in South Lanarkshire which was £33,017, 3.5% higher than that of the Scottish average (£31,891).

Table 4-4 Labour Market Indicators

	South Lanarkshire	Scotland
Economic Activity Rate	76.1%	76.6%
Unemployment Rate (%)	2.9%	3.3%
Median Annual Gross Income (Residents)	£33,017	£31,891

Source: ONS (2025), annual population survey – data for oct 2023 to sept 2023; ONS (2025), annual survey of hours and earnings – resident analysis – 2023; ONS (2025), model-based estimates of unemployment – data for oct 2023 to sept 2024.

4.5 Summary of Local Economic Context

As the Local Area faces a projected rise in its ageing population over the next two decades, creating local employment opportunities will become even more important. The Proposed Development will help to increase employment in the Local Area through direct economic activities. Therefore, the Proposed Development will play a role in attracting and retaining the working-age population.

The Proposed Development will provide opportunities for construction contracts, particularly civil engineering and specialised construction. The construction sector is more important to employment in South Lanarkshire than in Scotland as a whole, particularly in the Local Area, and so the local economy is well-placed to benefit.

5. Economic Impacts

This section presents the economic impacts generated during the construction, operations and maintenance phases of the Proposed Development[11].

The decommissioning phase has not been assessed in this report due to the long-time horizons and associated uncertainties, which limit the ability to evaluate this stage with sufficient accuracy at present.

5.1 Manufacturing and Construction

5.1.1 Construction Spend

The Proposed Development is a 500MW system capable of discharging power for up to 12 hours. Based on BiGGAR Economics' experience in the sector, along with estimates from the Applicant and suppliers, the average expenditure on the construction of battery storage sites can be estimated using an average spend of £226,557 per MWh

On this basis, the total capital cost for the Proposed Development is estimated to be approximately £1,359 million (£1.359 billion) at 2024 prices.

The expenditure is split into five main contract categories. As shown in Table 5-1, it is assumed that 92% of capital expenditure would be on battery units, 4% would be on grid connection, 2% on balance of plants, 1% on development and 1% on other capex expenditure.

Table 5-1 Manufacturing and Construction Spend by Contract Category

	%
Long Duration Batteries	92%
Grid Connection	4%
Balance of Plants	2%
Development	1%
Other	1%
Total	**100%**

Source: BiGGAR Economics Analysis. *Totals may not add up due to rounding

[11] GVA figures are rounded to one decimal place, while total employment figures are rounded to the nearest ten

5.1.2 Local Content

The economic impact of the manufacturing and construction phase was estimated for South Lanarkshire and Scotland as a whole. For this, it was necessary to estimate the proportion of each type of contract that might be secured in each of the study areas. The assumptions were based on BiGGAR Economics' previous experience across energy storage developments and information received by the Applicant.

To estimate the expenditure for each contract in each of the study areas, the proportions of contract type that might be secured in each area were multiplied by the estimated expenditure on each of the construction contracts.

In this way, it is estimated that South Lanarkshire could secure contracts worth up to £31.8 million, equivalent to 2% of total capital expenditure. The largest opportunities would be the contracts related to grid connection works, as companies in the area could secure up to 40% of that spending, worth £20.0 million.

Scotland (including South Lanarkshire) is estimated to secure £1,323.0 million, equivalent to 97% of total capital expenditure. The largest opportunity lies in contracts related to long duration batteries. As outlined in Section 6.2.1, based on the current candidate technology the manufacturing process for these batteries is presently anticipated to take place in Scotland: this would mean Scottish manufacturing to supply a contract valued at approximately £1.25 billion, 92% of the total estimated capital costs. The final selection of technology will be determined through a full procurement process, with the implementation of the Applicant's Responsible Contracting Policy.

The second largest opportunity would be grid connection works, worth around £50 million. In addition to the manufacturing activity in Scotland, it is estimated that Scotland could secure around £73 million in other contracts, 5% of the total estimated capital costs.

Table 5-2 Manufacturing and Construction Spend by Study Area

	South Lanarkshire		Scotland	
	%	£m	%	£m
Grid	40%	20.0	100%	50.0
Development	35%	3.3	88%	8.2
Balance of Plants	18%	5.3	39%	11.6
Other	16%	3.3	16%	3.3
Long Duration Batteries	-	-	100%	1,250.0
Total	**2%**	**31.8**	**97%**	**1,323**

Source: BiGGAR Economics Analysis. *Totals may not add up due to rounding.

5.1.3 Economic Impacts

To estimate the direct GVA from each of the main contract categories, each contract was split into sub-contracts. Using industry-specific data on turnover and GVA from the Scottish Annual Business Statistics[12], turnover/GVA ratios were adjusted to 2024 prices and applied to each specific sub-contract to estimate GVA.

In this way, it is estimated that construction contracts could directly generate £12.6 million GVA in South Lanarkshire and £452.6 million GVA in Scotland, as shown in Table 5-3.

Excluding the manufacturing activity in Scotland, is estimated that contracts could directly generate £70.6 million GVA in Scotland, including from civil engineering, construction and grid connection works.

Table 5-3 Direct GVA by Contract Type and Study Area (£m)

	South Lanarkshire	Scotland
Grid Connection	7.0	17.5
Development	1.8	4.4
Balance of Plants	2.0	4.5
Other	1.8	1.8
Long Duration Batteries	-	424.4
Total Direct GVA	**12.6**	**452.6**

Source: BiGGAR Economics Analysis. *Totals may not add up due to rounding

Similarly, the contract values potentially awarded in each area would support employment. Turnover per job for each of the industries involved is also given by the Scottish Annual Business Statistics and adjusted to 2024 prices which allows the employment from any increase in turnover to be estimated.

In this way, it is estimated that the Proposed Development could support 140 direct years of employment in South Lanarkshire, and 910 direct years of employment in Scotland.

Excluding the manufacturing activity in Scotland, is estimate that the Proposed Development could generate 370 direct years of employment in Scotland.

Accounting for a two-year construction period, the Proposed Development is expected to generate approximately 70 jobs per year in South Lanarkshire and 455 jobs across Scotland. This includes both on-site and off-site employment associated with the delivery of the Proposed Development.

On-site construction jobs refer to activities such as groundworks, electrical and civil engineering, and the installation of the battery units. Off-site employment will also be

[12] Scottish Government, 2022. Scottish Annual Business Statistics

generated in areas such as project development and design, planning and consultancy and transport and logistics.

Table 5-4 Manufacturing and Construction Employment by Contract Type and Study Area (Years of Employment)

	South Lanarkshire	Scotland
Grid Connection	78	195
Development	18	44
Balance of Plants	25	54
Other	19	19
Long Duration Batteries	-	600
Total Direct Years of Employment	**140**	**910**

Source: BiGGAR Economics Analysis. *Totals may not add up due to rounding

There would also be multiplier effects associated with spending in the supply chain and from spending by employees in the local economy. These effects are estimated by applying Type I (indirect) and Type II (indirect and induced) GVA and employment multipliers[13] to the direct GVA and employment impacts.

Indirect effect refers to the impact associated with spending in the supply chain of Tier 1 suppliers. This is captured by applying Type I multipliers to the direct economic impact. The induced effect is the impact associated with staff spending their wages in the wider economy and is captured by subtracting Type I multipliers from Type II multipliers and applying this to the direct impact.

In order to adjust these multipliers, which consider the national economy, for the economy of South Lanarkshire, it was assumed that indirect multiplier effects would be 33% of the national impact, and induced multiplier effects, which consider the effect of local spending, would be 70% of the national impact.

Adding together direct and indirect impacts, it is estimated that the Proposed Development could generate a total £14.4 million GVA and support 161 years of employment in South Lanarkshire and £632.6 million GVA and 1,345 years of employment in Scotland during manufacturing and construction.

In total (including induced impacts), the Proposed Development could generate £17.1 million GVA and support 180 years of employment in South Lanarkshire and £770.0 million GVA and 1,630 years of employment in Scotland.

The manufacturing and construction phase is expected to take approximately two years, and the impacts will occur during this time period. Therefore, it is expected

[13] Scottish Government, Supply, Use and Input-Output Tables.

that the Proposed Development will generate 90 jobs in South Lanarkshire during each year of manufacturing and construction and 815 jobs in Scotland.

Table 5-5 Manufacturing and Construction GVA Impacts by Study Area (£m)

	South Lanarkshire	Scotland
Direct	12.6	£452.6
Indirect	1.9	£180.0
Induced	2.6	£138.8
Total (including induced)	**17.1**	**£770.0**

Source: BiGGAR Economics Analysis. *Totals may not add up due to rounding

Table 5-6 Manufacturing and Construction Employment Impacts by Study Area (Years of Employment)

	South Lanarkshire	Scotland
Direct Jobs	140	910
Indirect Jobs	21	435
Induced Jobs	24	280
Total (including induced)	**180**	**1,630**

Source: BiGGAR Economics Analysis. *Totals may not add up due to rounding

Excluding the manufacturing activity in Scotland, is estimate that the Proposed Development could generate £120 million GVA, and 325 jobs annually in Scotland, associated with civil engineering, construction and grid connection works.

5.2 Operations and Maintenance

5.2.1 Operations and Maintenance Spend

The operations and maintenance impact of the Proposed Development is estimated as the impact that would persist throughout the operational lifespan of the Proposed Development (40 years).

Annual expenditure on operations and maintenance was estimated based on evidence from the Applicant, suppliers and BiGGAR Economics experience in the sector. The evidence suggests on average annual operational spending is around £4,080 per MWh. It is estimated that the annual operations and maintenance expenditure associated with the Proposed Development could be up to approximately £24.5 million (excluding non-domestic rates).

5.2.2 Local Content

To estimate the economic impact of the operations and maintenance expenditure in South Lanarkshire and Scotland, it was first necessary to estimate the proportion of contracts that could be secured in each of these areas. These assumptions were

based on the analysis of the industries present in each of the study areas, as well as BiGGAR Economics' previous experience on other energy developments.

On this basis, it is estimated that South Lanarkshire could benefit from £5.6 million in operations and maintenance contracts, with Scottish businesses potentially benefitting from £11.5 million.

Table 5-7 Annual Operations and Maintenance Spending by Study Area

	South Lanarkshire	Scotland
Turnover (£m)	5.6	11.5
Share (%)	23%	47%

Source: BiGGAR Economics Analysis. *Totals may not add up due to rounding.

5.2.3 Economic Impacts

As with the construction phase, the contract values awarded in each of the study areas represent an increase in turnover in those areas. The economic impact of the increase in turnover on GVA and employment was estimated in the same way as the construction expenditure.

Therefore, it is estimated that turnover generated by the operations and maintenance of the Proposed Development could support each year £2.3 million GVA and 30 jobs in South Lanarkshire (including roles such as maintenance engineers, a dayshift manager, and administrative personnel), and £4.4 million GVA and 40 jobs in Scotland.

Table 5-8 Annual Operations and Maintenance Direct Impact by Study Area

	South Lanarkshire	Scotland
Direct GVA (£m)	2.3	4.4
Direct Jobs	30	40

Source: BiGGAR Economics Analysis. *Totals may not add up due to rounding.

There would also be indirect and induced impacts during the operation and maintenance of the Proposed Development, which were estimated using the same method as for the construction phase.

By applying indirect and induced economic multipliers, it is estimated that each year the spending required for the operation and maintenance of the Proposed Development could contribute £0.8 million GVA in South Lanarkshire, and £3.6 million GVA in Scotland in indirect and induced impacts.

Total impacts in South Lanarkshire are estimated at £3.1 million GVA and 40 jobs, and £8.0 million GVA and 70 jobs in Scotland.

Table 5-9 Total Annual Economic Impact during Operations and Maintenance by Study Area

	South Lanarkshire	Scotland
Total GVA (£m)	3.1	8.0
Total Jobs	40	70

Source: BiGGAR Economics Analysis. *Totals may not add up due to rounding.

The Proposed Development would be liable for non-domestic rates, the payment of which would directly contribute to public sector finances. Based on industry information, it is assumed that the contribution to non-domestic rates is approximately £417 per MWh. Therefore, it has been estimated that the Proposed Development would contribute around £2.5 million annually through the payment of non-domestic rates.

6. Maximising Economic and Community Benefits

This section outlines how the Proposed Development will contribute to NPF4 Policy 11c and to the pillars of Community Wealth Building in South Lanarkshire.

6.1 Contribution to Community Wealth Building

The Proposed Development directly contributes to 4 out of 5 pillars of Community Wealth Building. These are described below.

6.1.1 Spending

The main driver of economic activity associated with energy projects, such as the Proposed Development, is the expenditure during the construction, operations and maintenance phases. The more expenditure that can be secured by local businesses, the greater the economic impact will be for the community.

Since the early stages of the Proposed Development, the Applicant has taken action to support local spending by promoting contracting opportunities. This has been achieved through public consultation events and by establishing an open line of communication for individuals and businesses interested in opportunities during the construction, operation, and maintenance phases.

The Applicant also operates under a **Responsible Contracting Policy** (see section 9), which seeks to widen access to procurement opportunities for local and regional firms. This approach has already benefited businesses involved in other projects within the Hagshaw Energy Cluster, allowing them to develop sector-specific expertise and build relationships with larger contractors.

Opportunities in the renewable energy sector are often overlooked by local small suppliers, partly because the supply chain is not always visible at the community level. Even when local companies are involved, they may define themselves by the goods or services they provide—rather than the sectors they supply—making their role in energy projects less apparent.

Nevertheless, the renewable energy sector is a significant and growing industry. Once a supplier gains experience and builds a track record in this space, it often leads to further opportunities, both locally and across the country. By opening up access to this sector, the Applicant helps local suppliers enter a high-growth industry and position themselves for future work within and beyond the region.

6.1.2 Workforce

The Applicant will support the local workforce through employment opportunities during the construction, operation and maintenance phases of the Proposed Development.

As described in Section 5, it is anticipated that the Proposed Development will generate at least 90 local jobs (within South Lanarkshire) per year during the construction phase, and around 40 jobs per year during the operation and maintenance phase within South Lanarkshire.

These estimates include both on-site and off-site employment within South Lanarkshire. On-site jobs involve activities such as groundworks, electrical and civil engineering, the installation of the battery units, maintenance engineers, a dayshift manager, and administrative personnel. Off-site jobs relate to design, planning and consultancy services, as well as transport and logistics linked to contract spending. Additional employment will also be supported through local supply chain activity and the wider economic benefits generated by the spending of wages within the local area.

In addition to the employment opportunities generated within South Lanarkshire, there is also potential for further job opportunities for South Lanarkshire residents through one of the battery manufacturing sites located in neighbouring North Lanarkshire.

Of particular relevance, the Applicant is a Lanark-based company with strong ties to the area. This local presence, combined with its experience in partnering with large investment companies to deliver energy infrastructure in the area, positions the company well to deliver on commitments supporting local jobs and businesses.

6.1.3 Financial Power

Community benefit funds are a well-established mechanism through which onshore wind energy developers provide voluntary financial contributions to support local communities. While this is not standard practice for battery storage or long-duration energy storage developments, the Proposed Development is committed to supporting the local area and will contribute £50,000 per year (index-linked) in community benefit funding.

This funding will be made available throughout the operational life of the Proposed Development and is intended to provide a reliable, long-term source of income for community-led projects and initiatives.

The Applicant will work closely with community representatives to ensure the effective management and allocation of funds. Existing Community Action Plans provide a useful starting point for identifying potential areas of focus, which may include:

- skills development and training opportunities;
- support for local community organisations;

- improvements to leisure and recreational facilities;
- investment in physical regeneration projects; and
- support for local events and community activities.

6.1.4 Land and Property

The Proposed Development will increase the economic value generated by the land by making productive use of a strategically located, underutilised site, while also contributing to the growth of the Hagshaw Energy Cluster.

The Proposed Development will form part of the existing Hagshaw Energy Cluster, increasing the critical mass of low-carbon infrastructure in the area. This addition to the Cluster will expand the reach and extent of the positive impacts generated by the wider energy development, supporting further opportunities for investment, innovation, and economic activity.

In addition, the Proposed Development is located in a strategically positioned site adjacent to south-west of Junction 11 of the M74 motorway. Despite this favourable location, the land has remained largely unused for economic purposes for at least 15 years. The development of the Proposed Development will bring this underutilised site back into productive use, supporting the regeneration of the area.

6.2 Contribution to NPF4 Policy 11c

NPF4 Policy 11c outlines that development proposals will only be supported where they maximise net economic impact, including local and community socio-economic benefits such as employment, associated business and supply chain opportunities.

The Proposed Development contributes to employment generation and supply chain development.

6.2.1 Supply Chain Development

The Proposed Development will support the development of the national supply chain by contributing to the growth of Scotland's emerging vanadium flow battery (VFB) manufacturing sector. Unlike commonly known lithium-ion battery storage projects, which rely on imported technology, the Proposed Development is expected to use VFB technology manufactured in Scotland[14].

The Proposed Development has been designed using a candidate technology of VFBs from Invinity Energy Systems, a Scotland-based company and global supplier of modular VFBs for utility-scale energy storage. Invinity has recently expanded its manufacturing capacity in Scotland by opening a new facility in Motherwell, complementing its existing operations in Bathgate. This expansion is already resulting in the creation of up to 41 new green jobs.

[14] Figures from construction phase are based on utilising candidate VFB technology manufactured in Scotland. The final selection of technology will be determined through a full procurement process, with the implementation of the Applicant's Responsible Contracting Policy.

With all the battery units coming from Motherwell and Bathgate, it is anticipated that up to 100% of battery-related expenditure will remain in Scotland, supporting manufacturing employment in Scotland. This contrasts with lithium-ion projects, where most equipment is sourced internationally and much of the associated spending flows abroad.

VFB systems also involve a higher up-front investment than lithium-ion alternatives, meaning a greater share of value could be retained within the Scottish economy through domestic manufacturing and related supply chain activity assuming the VFB supply contract is ultimately placed with a Scottish-based manufacturer.

6.2.2 Employment Generation

As outlined in Section 6.1.2, the Proposed Development will support local and national employment. In addition to on-site roles in South Lanarkshire, contracts associated with construction and operations and maintenance are expected to support jobs across Scotland.

It is anticipated that up to 815 jobs will be generated annually during the construction phase (1,630 years of employment), and around 70 jobs per year during operation. These figures include direct, supply chain, and induced employment.

7. Case Study: The Hagshaw Energy Cluster Development Framework

The following case study has been included to demonstrate how the Proposed Development, that sits within the Hagshaw Energy Cluster, aligns with the strategic objectives of the Hagshaw Energy Cluster Development Framework (HECDF).

The Hagshaw Energy Cluster is a mixed renewable energy development delivering economic, environmental, and community benefits. The Proposed Development will add to this cluster, increasing the renewable energy offering and contributing to wider positive economic impacts.

The Applicant is a founding partner of the award-winning Hagshaw Energy Cluster Development Framework (HECDF), which represents an ambitious vision for the future of the Hagshaw Energy Cluster and surrounding area, identifying opportunities to enhance and invest in the local environment, communities and place.

South Lanarkshire Council, in partnership with East Ayrshire Council, has adopted this Framework to shape future developments within the Hagshaw Cluster. The councils aim to facilitate community engagement and support economic and environmental objectives aligned with regional and national policies.

The HECDF exemplifies a collaborative model where local authorities and renewable energy developers work to deliver sustainable energy solutions, economic growth, and environmental enhancement in the region.

Key Aims of the Development Framework:

- Support the efficient delivery of the renewable energy potential of the cluster, taking account of all appropriate technologies and the optimisation, extension and repowering of existing wind farms;
- Maximise the social, economic and environment benefits of renewable energy development within the cluster;
- Support the Just Transition to a low carbon future through a place-based approach;
- Minimise adverse impacts of development on the environment and local communities; and

- Deliver investment in nature to enhance climate change and biodiversity resilience.

Potential Benefits of the Hagshaw Energy Cluster:

Environmental:

- Space for nature and improved ecological resilience;
- Support for landowners and land managers to make wildlife improvements;
- Increased climate change mitigation via carbon capture and sequestration, on the journey to achieving Net Zero;
- Improved air quality; improving human health and nature;
- Reduced risk of flooding and improved water quality through nature based solutions;
- Protection and enhancement of priority habitats and species across moorland, wetland, woodland, and farmland;
- Investment in Natural Capital, delivering wider complementary benefits.

Development:

- A clearer vision of what may represent appropriate and acceptable development;
- Increased prospect and certainty of positive planning outcomes for stakeholders;
- Increased opportunities for renewable energy generation and provision of green energy to communities;
- Coordinated and innovative technical solutions;
- Cost and time efficiencies to delivery of green energy developments on the route to achieving Net Zero;
- Increased developer and investor confidence allowing the ability to plan for long-term investment.

Social:

- Improved access to high quality open spaces;
- Improved physical and mental health, and wellbeing of communities and visitors;
- Improved social and physical connectivity between communities around the cluster;
- Land brought into community ownership, delivering local benefits;
- Active travel opportunities such as walking and cycling;
- Improved aesthetic value and reinforced sense of place;
- Increased opportunities for play, education, and interaction with nature
- Facilitates access to green spaces, improves public health, promotes active travel, and enhances aesthetic value.

Economics:

- Increased investment and annual spend into the local and regional economy from development within the cluster;

- Increased and more coordinated community benefits, which can achieve better outcomes for communities;
- Creation of new skilled industries, businesses and sustainable jobs in the green economy;
- Increased economic activity and attractiveness for inward investment;
- A local economic identity to serve the cluster and wider regional renewable energy development;
- More productive and efficient use of land to deliver on strategic national targets, such as timber production.

The HECDF demonstrates the Applicant's commitment to supporting local economic development in areas where it operates, actively contributing to regional prosperity. The experiences and initiatives implemented within the Hagshaw Cluster provide valuable insights that can inform future projects, including the Proposed Development. Lessons learned here are anticipated to have broader impacts, offering potential economic and environmental benefits across the local area and creating networks that strengthen the renewable energy industry in South Lanarkshire.

8. Conclusion

The Proposed Development delivers significant economic benefits and wider benefits that align with Community Wealth Building pillars and maximises net economic impacts for the local area.

This report assesses the potential socio-economic and community effects of the Proposed Development in the context of the NPF4 Policy 11(c) requirement to maximise net economic impact and its contribution to the five pillars of Community Wealth Building in South Lanarkshire.

The Proposed Development, a 500MW system capable of discharging power for up to 12 hours, will generate socio-economic benefits during its construction, operations and maintenance phases.

The socio-economic structure of the Local Area and South Lanarkshire highlight a more rapid decrease in the working age population compared to the Scottish average while the strategic context also emphasised the need to diversify away from traditional industries and move towards a Net Zero economy and to promote economic opportunities to retain younger generations.

During the manufacturing and construction phase it is estimated that the Proposed Development could generate up to:

- £17.1million Gross Value Added (GVA) and 180 years of employment in South Lanarkshire (90 jobs each year, over a period of two years); and
- £770.0 million GVA and 1,630 years of employment in Scotland (815 jobs each year, over a period of two years).

The expenditure required for the operations and maintenance of the Proposed Development could generate each year:

- £3.1 million GVA and 40 jobs in South Lanarkshire; and
- £8.0 million GVA and 70 jobs in Scotland.

The Proposed Development is expected to support the provision of local public services and the investment priorities of local communities. During its operations, it is expected to generate approximately £2.5 million in non-domestic rates yearly.

Other initiatives that will be taken forward by the Applicant in support of the Community Wealth Building pillars include:

- Continuing promoting contracting opportunities within the local area;
- Responsible Contracting Policy;

- Up to £50,000 annual community benefit fund;
- Productive use of underutilised land

The Proposed Development aligns with NPF4 Policy 11c by delivering measurable economic benefits through employment and supply chain development. A key aspect of the Proposed Development is its expected use of VFBs manufactured in Scotland, which offers an emerging opportunity to retain a larger share of investment within the national economy. By sourcing from Scottish facilities in Motherwell and Bathgate, the Proposed Development would help grow the domestic energy storage supply chain and support job creation across Scotland.

Based on these community and economic benefits expected, it can be concluded that the Proposed Development **contributes to Community Wealth Building pillars in South Lanarkshire and maximises net economic impact** meeting the requirement for renewable energy proposals set out in Policy 11(c) of NPF4.

9. Appendix

Hagshaw LDES Ltd. Responsible Contracting Policy

9.1 Aims

The aim of this policy is to ensure that the community and local employment benefits offered by contractors are recognised in the evaluation and award of contracts. This will result in tenders submitted by contractors offering community and local employment benefits being more highly rated by Hagshaw LDES Ltd. during its tender evaluation than those without such benefits. The safety, quality and environmental management obligations placed on the selected contractor will not be compromised by this policy.

9.2 Justification

Tenders are normally selected on the basis of the "most economically advantageous offer". By recognising the economic advantage that the contract may bring to local communities and individuals within the definition of what is economically advantageous to Hagshaw LDES Ltd, this policy seeks to foster a closer relationship between Hagshaw LDES Ltd and the local communities. The construction of the Proposed Development will be the first physical activity in a project that will exist for at least 40 years and a close relationship between those parties is desirable for all concerned.

9.3 Site Information

The following steps will be taken by Hagshaw LDES Ltd. to implement this policy through the various stages of development of the project.

9.3.1 Planning Contract Procurement

- Consider the wider benefits for the community, which the contract could offer.
- Ensure that the pursuit of community benefit does not conflict with any relevant polices or regulations and that it is within the Company's powers.
- Compare with any existing case studies, where possible.

9.3.2 Prequalification of Tenderers

- Identify any external partners who may be able to support the project e.g. Job Centre plus, built environment sector skills, careers agencies etc.
- Include requirement for contractor to offer community benefits in contract notices and communication with potential contractors and sub-contractors.
- Engage with potential contractors and sub-contractors to share with them the strategy in respect of community and local employment benefits and discuss their commitment.

- Include details of the policy objectives in prequalification questionnaires sent to interested parties.
- Evaluate questionnaires submitted, offering to debrief those not invited to tender.

9.3.3 Tendering

- Include requirement for contractor to offer community benefits in contract notices and communication with tenderers.
- Organise meeting to brief tenderers, explain the objectives of this policy.
- Tenderers to include details of community and local employment benefits offered as part of their tender submission, including details of how these benefits would be realised, monitored, measured and reported.
- Community and local employment benefits offered by selected contractor are included within the contractual obligations to be delivered.

9.3.4 Reporting

- Contractor implements the plans submitted.
- Regular monitoring and reporting scheme established between contractor and Hagshaw LDES Ltd.
- Regular reporting of performance against community and local employment objectives between Hagshaw LDES Ltd. and local communities.
- Learn lessons from implementation of policy and use these to improve future performance.

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