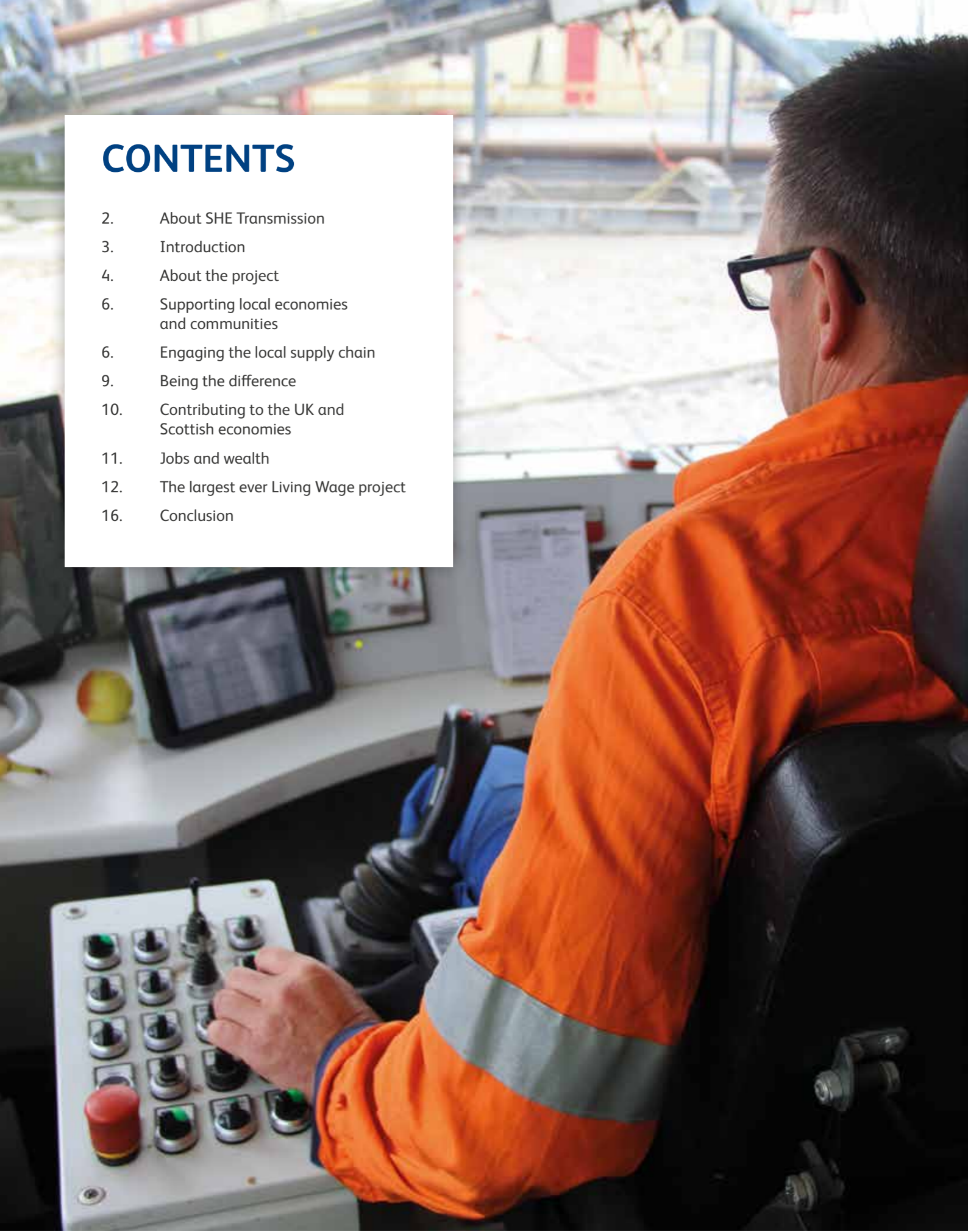


# CAITHNESS-MORAY TRANSMISSION PROJECT

DELIVERING ECONOMIC AND  
SOCIAL BENEFITS

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# FOREWORD



**The Caithness-Moray project is at the heart of the biggest renewal of the north of Scotland's electricity network in a generation.**

By bringing electricity to many communities for the first time and harnessing clean power from the glens, our forebears made an enduring contribution to life in the Highlands while tackling the energy challenge facing the country as a whole.

Scottish Hydro Electric Transmission's task today is to build on their legacy, delivering a secure and affordable electricity system that meets the needs of twenty-first century consumers. Our work is required to harness renewable energy from the north of Scotland's wind and water resources. Without a modern and efficient transmission network, cutting the carbon intensity of energy in the UK would be much harder and more expensive.

Our commitment is broader than renewing the electricity network alone. We seek to complete our work in a responsible and sustainable way. That means working closely with local communities and maximising the benefits of our investment to the economy that sustains them. It also means paying a fair wage to all our staff and contractors; and ensuring we make a fair and transparent contribution in tax.

This report is an assessment of the most material economic and social impacts of the Caithness-Moray transmission project. It is one part of our efforts to quantify and therefore value the wider impacts of our business activity. I am proud of what our team is achieving, both locally and for the country as a whole and hope, by valuing these impacts we can understand and enhance them in future projects too.

**David Gardner**  
Director of Transmission



## ABOUT SHE TRANSMISSION

**The SSE Group has an essential purpose at its core: to provide the energy people need in a reliable and sustainable way.**

SSE is the UK's broadest-based energy company, involved in the generation, transmission, distribution, and supply of electricity; in the production, storage, distribution and supply of gas; and in other energy services.

Scottish Hydro Electric Transmission plc ('SHE Transmission') is part of the SSE Group, responsible for maintaining and investing in the electricity transmission network in the north of Scotland. The network comprises almost 5,300km of high voltage overhead lines and underground cables, serving around 70% of the land mass of Scotland. As the licensed transmission company for the area, SHE Transmission has to ensure there is sufficient network capacity for those seeking to generate electricity from renewable and other energy sources.

## INTRODUCTION

The Caithness-Moray transmission reinforcement ('Caithness-Moray' or 'the project') is a major investment in Scottish strategic infrastructure that will enable the transition to a low carbon economy. Investment in the renewable energy sector in Scotland has increased significantly over the past ten years. In 2015, Scottish renewables generated 57.7% of Scotland's total electricity consumption, in comparison to just 14.1% in 2004. At the end of 2015, Scotland had a total installed renewable electricity generation capacity of 7.7GW with an additional 13GW in planning, consented or in construction.

To accommodate this newly constructed generation capacity and ensure the future security of energy supply across the UK, a major reinforcement of the transmission network serving the north of Scotland is required.

The Caithness-Moray project represents a £1.1bn capital investment by SHE Transmission, centred on a submarine cable capable of carrying up to 1,200MW beneath the Moray Firth. With associated reinforcement of the existing onshore transmission network, the project will represent the largest investment in the north of Scotland's electricity network since the hydro development era of the 1950s.

This report evaluates the UK and Scottish economic and social impacts from the £1.1bn which is being spent by SHE Transmission with suppliers and contractors to construct the various elements of the Caithness-Moray project. Through economic modelling, the impact of the project on the UK and Scottish economy and jobs has been calculated, as well as looking at the positive economic impact the project has had on local businesses and jobs in the north Highlands and Moray through initiatives such as SSE's Open 4 Business platform. With the largest ever Living Wage contract to date awarded as part of the Caithness-Moray project, the difference this has made to employers and employees involved in the project across the supply chain is also highlighted within this report.

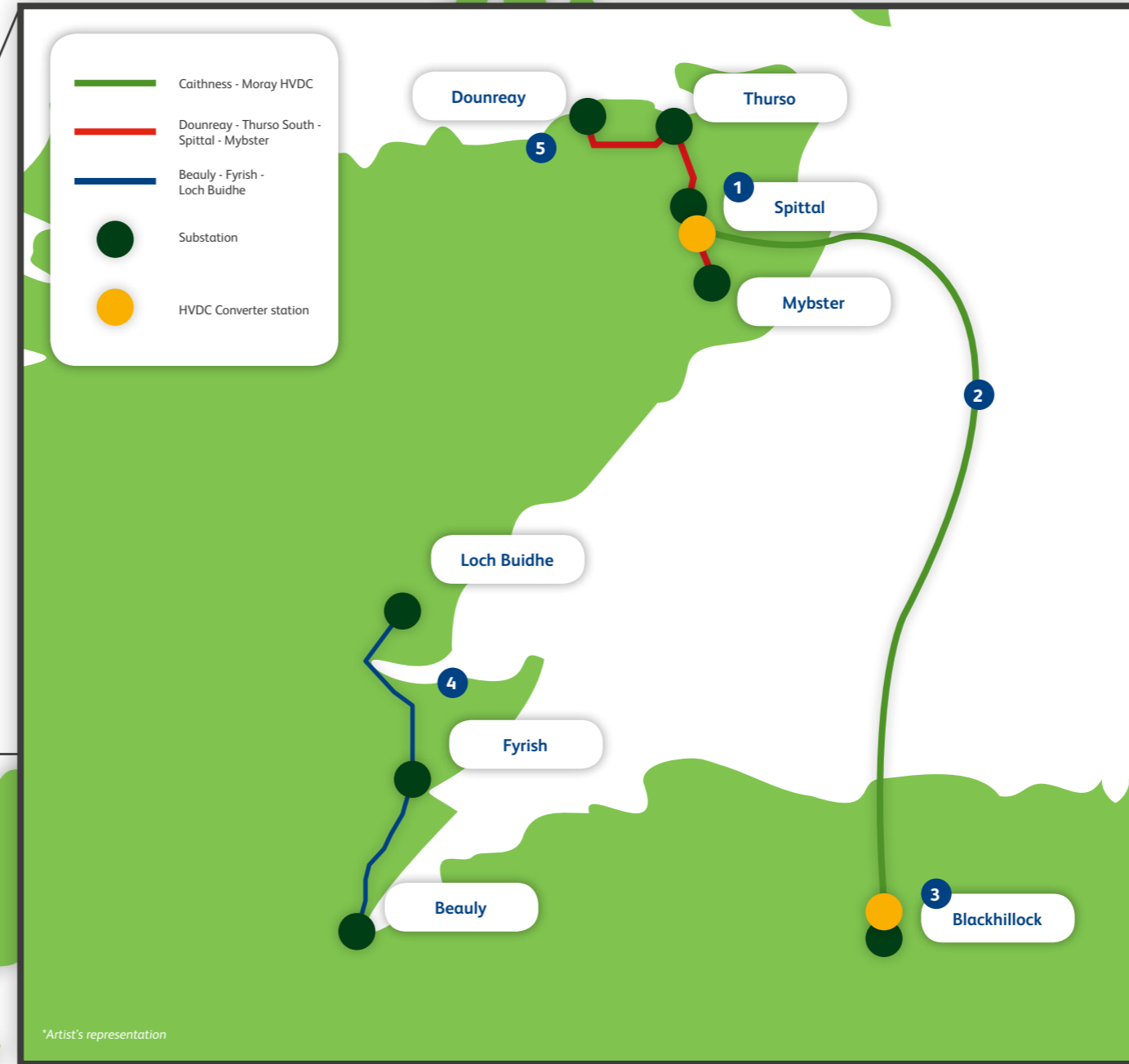
# ABOUT THE PROJECT

The Caithness-Moray submarine cable will use High Voltage Direct Current (HVDC) technology to transmit power beneath the seabed between converter stations at Spittal in Caithness and Blackhillock in Moray. This well-established technology allows the efficient transmission of large volumes of electricity across long distances. Routing the cables across the Moray Firth rather than over land ensures greatly reduced visual impact.

Reinforcement of the onshore transmission network between Dounreay and Mybster in the north and between Loch Buidhe and Beauly further south will also optimise the existing network in combination with the new cable.

# PROJECT ELEMENTS

Along with the installation of the HVDC submarine cable itself, the project consists of four further core elements. These encompass work at eight substation sites, two converter stations and two overhead line reinforcement projects.



**1**  
**SPITTAL SUBSTATION AND HVDC CONVERTER STATION**

A new indoor substation and a HVDC Converter Station are being built at Spittal in central Caithness.

**2**  
**HVDC SUBMARINE CABLE**

A new submarine cable will be installed, capable of carrying up to 1,200MW of electricity beneath the Moray Firth.

**3**  
**BLACKHILLOCK SUBSTATION AND HVDC CONVERTER STATION**

An expanded substation and a HVDC Converter Station are being built at Blackhillock, near Keith, in Moray.

**5**  
**DOUNREAY TO MYBSTER REINFORCEMENTS**

The existing 132 kilovolt(kV) overhead line between Dounreay and Spittal is being replaced with a 275kV overhead line, via a new substation south of Thurso. An additional 132kV overhead line will be built between Spittal and Mybster, where the existing substation is being extended.

**4**  
**LOCH BUIDHE TO BEAULY REINFORCEMENTS**

Two new substations are in construction at Loch Buidhe, north of Bonar Bridge, and at Fyrish, near Alness. The conductors (wires) on the western side of the 275kV overhead line will also be replaced between Loch Buidhe and Beauly.

## SUPPORTING LOCAL ECONOMIES AND COMMUNITIES

The nature and scale of strategic energy projects requires the involvement of large contractors and highly specialised technology. In addition, electricity networks are extensive and the economic benefits of construction work are therefore widespread. In the case of Caithness-Moray, work is taking place across eight major sites and numerous locations between them, spanning two local authority areas and five historic counties in the rural north of Scotland.

Every site represents an opportunity to bring construction jobs and business opportunities to its own local economy, supporting the development of new skills and capacity in the local supply chain. SHE Transmission believes the lasting value of its economic contribution is built 'from the ground up' and it incentivises its largest contractors to recognise and support this approach.

## ENGAGING THE LOCAL SUPPLY CHAIN

Successful engagement of the local supply chain in work of this scale doesn't come about without effort. Learning from its previous experience, SSE established the Open4Business (O4B) Highlands and Islands portal in 2012 to enable local suppliers to access opportunities more easily, supported by its main contractors.

SHE Transmission supports use of the O4B initiative, which has now advertised and awarded contracts worth over £100m to local businesses. There are over 1,700 organisations registered on the platform and in excess of £47m has been awarded through O4B in conjunction with key large contractors involved in the Caithness-Moray work such as Balfour Beatty, BAM Nuttall and ABB.

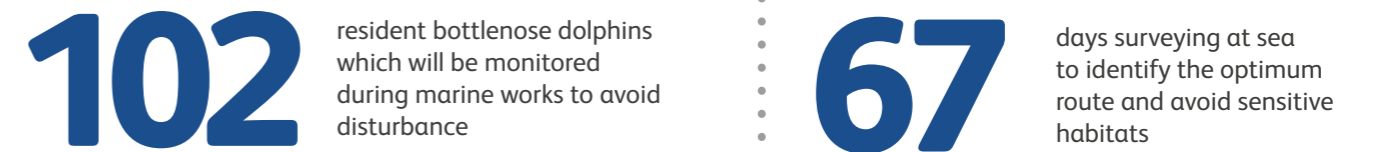
A series of events and meetings was organised to support the initiative during the project's development in Caithness and in Moray. The difference this has made is evident on every site. For example, at Spittal in Caithness the following local businesses have all played key roles in construction to date:

- Clean Crazy for cleaning services (Thurso)
- Edward MacKay for civil engineering (Brora)
- Caithness Stone Industries for aggregates (Wick)
- MM Miller for civil engineering (Wick)
- John Gunn for civil engineering and black top (Swiney, Lybster)
- CS Drilling for drilling and blasting (Thurso)
- GMR Henderson for aggregates (Wick)
- AJ Engineering for structural steel work (Forres, Moray)
- Alba Traffic Management for traffic Control (Inverness)

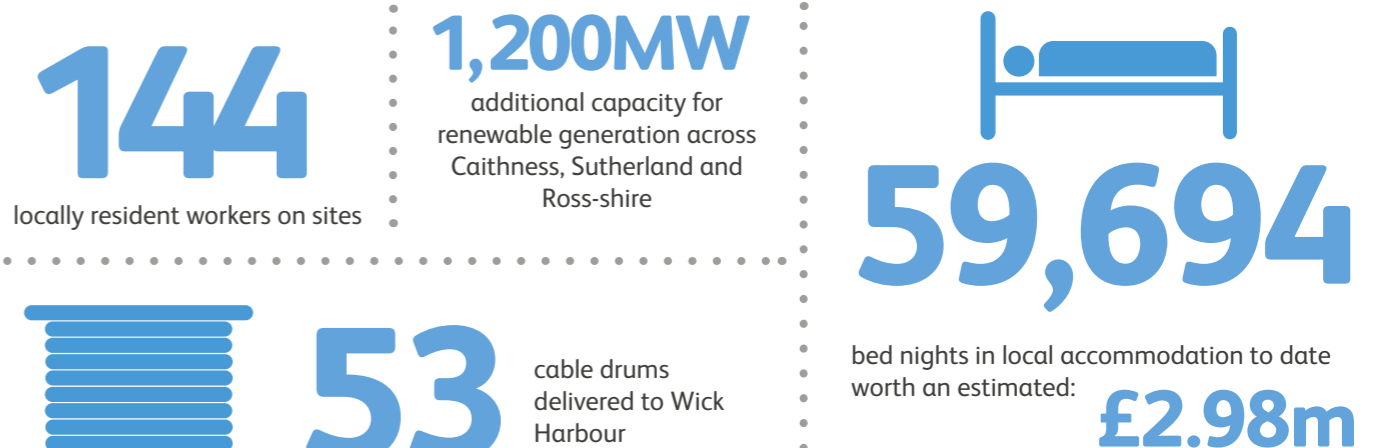


To measure the immediate local impact of the project, a snapshot was taken of the project on 31 March 2016. For example, the employment figures below reflect the actual number of locally resident workers engaged on the project sites at that date.

### OVERVIEW



### CAITHNESS AND SUTHERLAND



### MORAY



CASE STUDY

**EDWARD MACKAY  
CONTRACTOR LTD**

With a staff of 65, Edward Mackay Contractor Ltd is a family run civil engineering company based in Brora in the Highlands. Established nearly 60 years ago, the company has diversified throughout the decades into sectors such as infrastructure and renewables, constructing some of Scotland's first wind farms in 1996.

In recent years the firm has been heavily engaged in SHE Transmission's Beaully-Denny overhead transmission line, one of the largest civil engineering projects in Europe at the time. Currently Edward Mackay Contractor Ltd is employed as part of the Caithness-Moray project, providing access works for the new overhead line between Dounreay and Mybster; and substation earthworks at Spittal, Mybster, Thurso South and Dounreay.

Reflecting on the impact this most recent contract has had on their business Liam Mackay, Director at Edward Mackay Contractor Ltd, says that being involved on projects like Caithness-Moray is hugely important, helping to build and enhance the firm's reputation with big companies and employers like Balfour Beatty and SSE. Liam notes that:

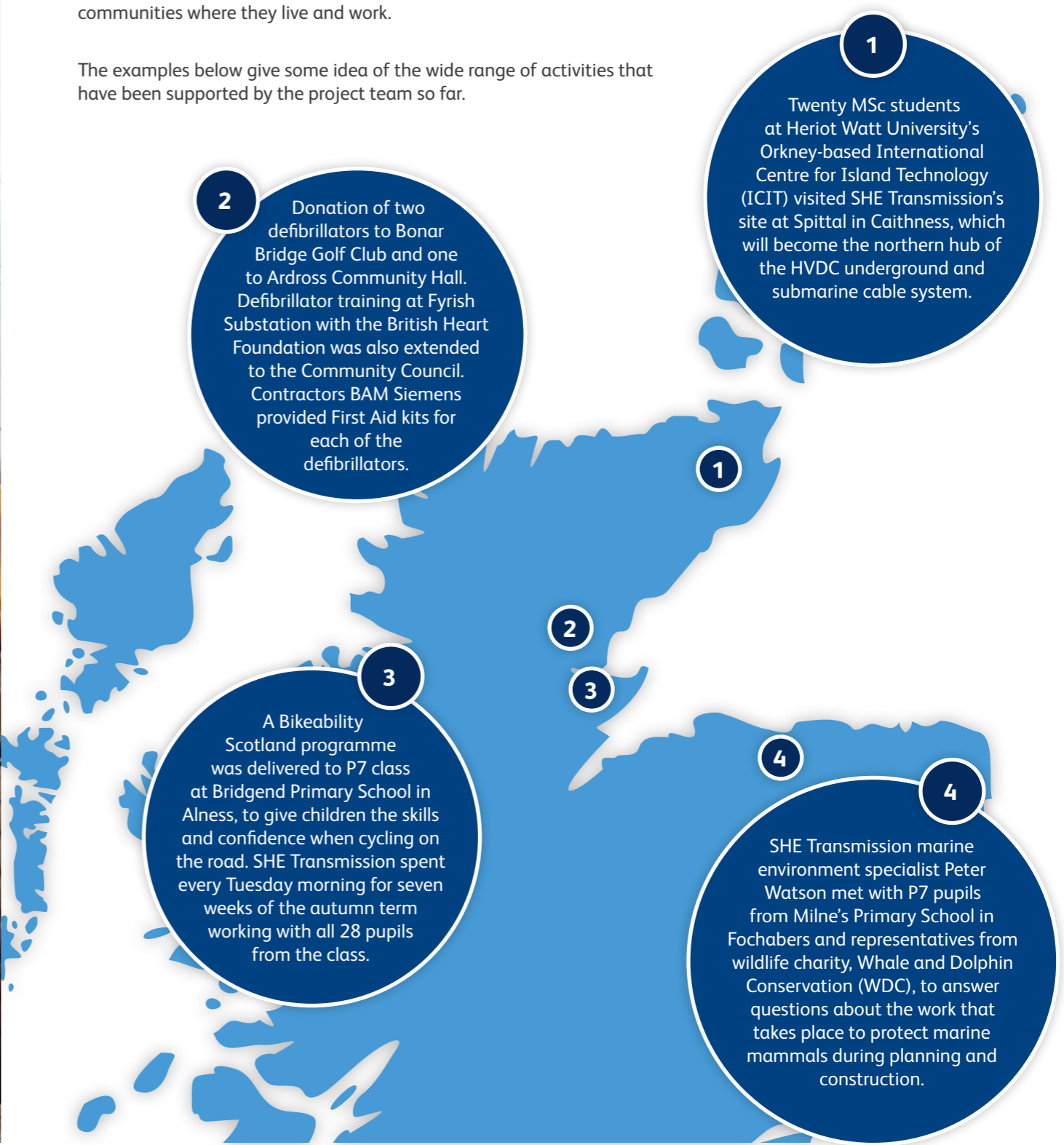
*"Edward Mackay Contractor Ltd is delighted to be involved in various projects on the Caithness-Moray link. Working on projects of this scale and prestige helps promote our company and hopefully results in continued work in the future. These projects have helped us recruit some new personnel from the Caithness area and have also allowed us to give local contractors in the area some opportunities for plant hire and quarry material supply."*



**BEING THE DIFFERENCE**

SHE Transmission employees are encouraged to give something back to the communities where they are working as part of the broader contribution SSE makes. Through the company's 'Be the Difference' volunteering scheme, employees are given the opportunity to spend a day away from their jobs and volunteer on projects that matter to the communities where they live and work.

The examples below give some idea of the wide range of activities that have been supported by the project team so far.



**1**  
Twenty MSc students at Heriot Watt University's Orkney-based International Centre for Island Technology (ICIT) visited SHE Transmission's site at Spittal in Caithness, which will become the northern hub of the HVDC underground and submarine cable system.

**2**  
Donation of two defibrillators to Bonar Bridge Golf Club and one to Ardross Community Hall. Defibrillator training at Fyrish Substation with the British Heart Foundation was also extended to the Community Council. Contractors BAM Siemens provided First Aid kits for each of the defibrillators.

**3**  
A Bikeability Scotland programme was delivered to P7 class at Bridgend Primary School in Alness, to give children the skills and confidence when cycling on the road. SHE Transmission spent every Tuesday morning for seven weeks of the autumn term working with all 28 pupils from the class.

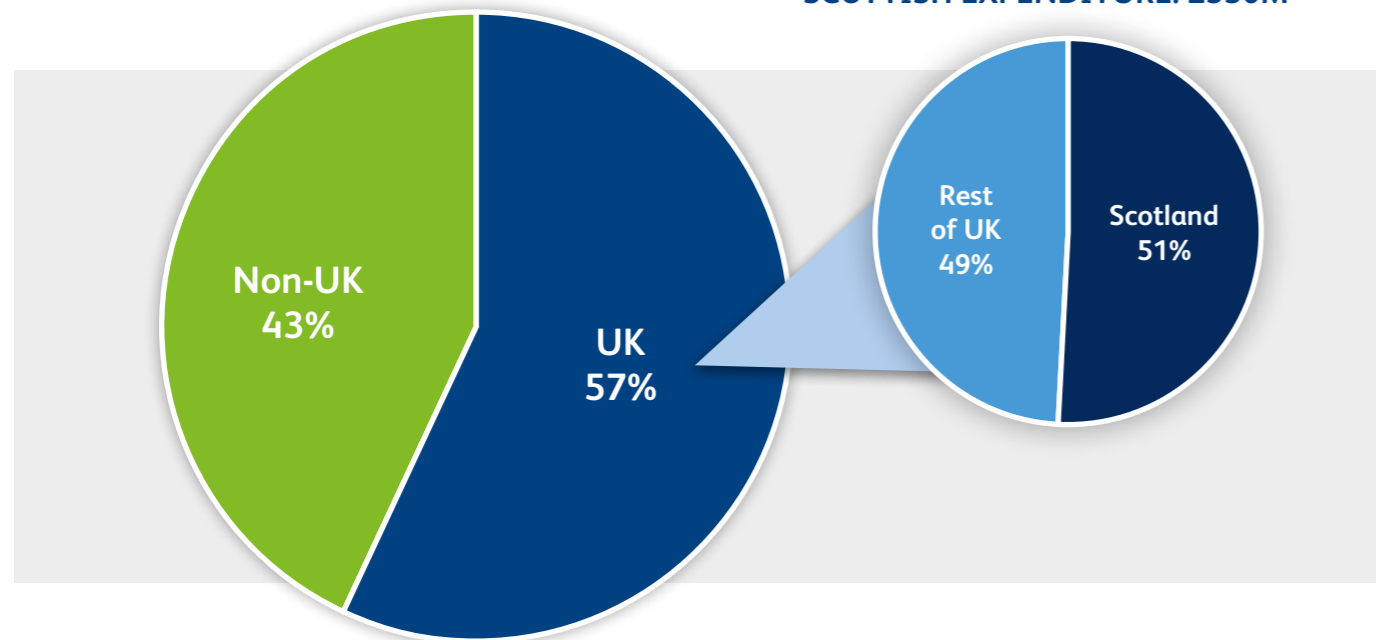
**4**  
SHE Transmission marine environment specialist Peter Watson met with P7 pupils from Milne's Primary School in Fochabers and representatives from wildlife charity, Whale and Dolphin Conservation (WDC), to answer questions about the work that takes place to protect marine mammals during planning and construction.

# CONTRIBUTING TO THE UK AND SCOTTISH ECONOMIES

The total expenditure on the Caithness-Moray project will be approximately £1.1bn. It has been estimated that around £643.5m has been, or will be, spent with UK-based suppliers and contractors. Much of the non-UK expenditure was spent on the procurement of goods that the UK does not currently have the technical capacity and expertise to produce. For example, over £330m (around 70% of non-UK spend) was spent with ABB for the submarine cables and associated marine costs.

SHE Transmission is also committed to investing in the Scottish economy and the local areas where it operates. Over half of all UK expenditure, in total just under £330m, has or will be spent with Scottish contractors and suppliers. This means that around 30% of expenditure for this £1.1bn project will be spent in Scotland.

SCOTTISH EXPENDITURE: £330M



UK EXPENDITURE: £643.5M

# JOBS AND WEALTH

SSE has estimated the overall financial contribution to the Scottish and UK economies, as well as the number of jobs supported in Scotland and the UK, from the £1.1bn investment in the Caithness-Moray project.

The Input-Output (I-O) economic model was used to calculate this economic impact from project expenditure. The I-O model calculates the direct impact from project expenditure, as well as the ripple effect across the economy from supplier expenditure and employee wage spending throughout the supply chain. The model generates the economic impact through two key indicators – Gross Value Added (GVA) and years of employment supported.

**Gross Value Added (GVA)** measures the economic contribution from wages and post-tax profits of individual projects, organisations or industry sectors at a national or regional level. The sum of GVA from all these areas equates to the total economic output of a country: the country's Gross Domestic Product (GDP).

**Years of employment supported** are the number of years of full-time employment which resulted from expenditure within the economy. It is measured in 'person years' of employment. Eight person years equates to one person working for eight years or 16 people working for half a year each or any other combination.

## ADDING VALUE TO THE SCOTTISH AND UK ECONOMIES

Economic modelling of the £643.5m of UK expenditure shows that the project generated £643.3m of value added to UK GDP. This means that for every £1m spent on the project in the UK, around £1m of value was added into the UK economy.

As a business based in Scotland with a history of investment in the Scottish economy, SHE Transmission is committed to measuring its economic and social impact in Scotland and reporting these impacts to its stakeholders.

It has been estimated that over £265m of value was generated in the Scottish economy.

### GROSS VALUE ADDED (GVA)

£643.3m added to the UK economy of which £265.5m contributed to Scotland



## SUPPORTING EMPLOYMENT IN SCOTLAND AND ACROSS THE UK

For every 10 people directly employed through SHE Transmission's supply chain, a further 16 jobs are supported in the UK economy. This equates to a total of just over 10,970 years of employment supported in the UK because of this investment by SHE Transmission.

Within Scotland, 4,975 years of employment will be supported as a direct result of SHE Transmission's investment in this project. This means that for every 10 direct employees in Scotland, a further 12 jobs are supported in the Scottish economy.

### YEARS OF EMPLOYMENT SUPPORTED

10,971 years of employment supported in the UK economy of which 4,975 supported in Scotland



## THE LARGEST EVER LIVING WAGE PROJECT

SHE Transmission is part of the SSE Group - one of the largest Living Wage employers in the UK. This means that SSE guarantees all of its 21,000 employees at least the Living Wage as defined by the Living Wage Foundation.

SHE Transmission is proud to play its part when it comes to being a responsible employer and business - and one which helps build a fairer and more prosperous Scotland. The Caithness Moray contract makes sure employees on site get a fair day's pay for a fair day's work.

Part of SSE being a Living Wage accredited employer is ensuring that, over time, all employees who work regularly on SSE sites will receive at least the Living Wage. So as of April 2014 every new applicable service and works contract tendered across SSE's £2bn-a-year supply chain includes a 'Living Wage clause' which will ensure this is the case.

The Caithness-Moray project is responsible for awarding what is currently the largest ever Living Wage contract, worth £460million, to engineering firm ABB Limited for the manufacture and installation of the submarine cable. The Living Wage clause means that all contractors ABB employ to work regularly on SSE sites will be guaranteed a wage they can live on, not simply survive on.

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### ABB

*"Our contract with SHE Transmission for the Caithness-Moray transmission link is ABB's first major UK contract that includes the requirement to pay the 'Living Wage' as a minimum. We are endeavouring to ensure that our direct employees who work regularly on the project sites will receive at least the Living Wage. Our teams work extremely hard to provide a great service, and it's fantastic to know that SHE Transmission understands the huge benefit of a valued and motivated workforce right throughout our supply chain.*

*"Implementing the Living Wage through our contracts was relatively straightforward. We simply do the same as SSE and, as well as paying our direct employees the Living Wage, we are requiring our contractors and suppliers to pay the Living Wage to employees who are regularly engaged in the provision of work and where certain conditions are met in accordance with our contractual obligations.*

*"For ABB, paying the Living Wage should help us to support and maintain a consistent workforce to reduce turnover rates, particularly for the lower paid sectors relating to facilities management. The feedback from both management and employees so far has been positive and we're glad that ABB is contributing to making a real difference to people's lives."*

*- Gavin Pritchard, Project Director, CMS Project*







**CASE STUDY**  
**CLEAN CRAZY**

Clean Crazy Ltd was founded in 2012 by Company Director Leanne McClure as a sole trader based in Thurso, Caithness. Initially doing mainly domestic cleaning, Clean Crazy expanded to cover office, holiday lettings and end of tenancy cleaning too.

In 2015 the company grew further and now has an annual turnover of around £120k, of which an estimated £100k per annum is a result of the Caithness-Moray project. The company has now hired eight new employees to cover the work involved in cleaning the project sites.

When discussing implementation of the Living Wage in the new employee contracts, Leanne said: *“I didn’t find the process difficult at all. At the turn of the year Clean Crazy Ltd was a one woman band, there was only me. So from the start of expanding the business and employing people, I’ve always paid them the Living Wage – from my experiences though,*

*this is pretty unusual within the cleaning industry. The key barrier to paying the Living Wage is finding clients who buy into the concept. If the clients don’t buy in, the margins are very tight.*

*“That’s why it’s been so great working on the Caithness-Moray project – whether it’s SHE Transmission, Balfour Beatty or ABB, all working on the project have a mutual respect for each other which makes for a pleasant workplace and productive workforce. This, coupled with the benefits to the employees from the Living Wage, makes my job as a boss far easier.”*

Three of Clean Crazy’s employees were asked to share their experiences of being paid the Living Wage. All employees pointed out that it had made a noticeable difference to them financially; with one stating that they now have a bit extra in the bank for unseen bills and another noting she now has more money to spend on bringing up her one year old daughter.

The employees at Clean Crazy also highlighted that they feel more valued at work and felt they had more responsibility. One employee stated that she felt her confidence had grown as a result of this work, and another said *“Receiving the Living Wage makes you respect your employer – they must think highly of their staff and in return can expect a certain standard of work. It works both ways.”*

As one of Clean Crazy’s employees summarised, *“A good wage makes you more motivated. It makes you work harder and creates a good atmosphere. I enjoy my job and I know the people I work with do too.” This feeling of shared respect between employer and employee was also highlighted by Company Director Leanne who noted “I have been so lucky with the people I have chosen to share this experience with. They’re a great bunch who know what’s expected of them and they get it done. And no one has left yet so they must be happy too!”*

**CASE STUDY**  
**SECURITAY**

Securitay is a family run business, formed in 1985 by its current Managing Director, Neil Cameron. Covering the north of Scotland from their offices in Dundee, Inverness and Aberdeen, Securitay employs 160 people and has an annual turnover of around £3m. They offer a wide range of security services and have built a reputation for providing cost effective manned guarding, mobile patrol, key holding, emergency response and CCTV monitoring services to a wide range of clients in the public and private sectors.

Securitay’s contract with ABB for the security at a number of construction and office based sites on the Caithness-Moray project will be worth approximately £1.2m over three years. This has resulted in the recruitment of 18 new full time members of security staff, all of whom will receive the Living Wage.

Moray Sangster is a Securitay employee working at the ABB Buckie site. Moray says the Living Wage was definitely a factor which influenced his decision to apply for a job with Securitay, highlighting that from his experience it’s very difficult to find jobs

that pay the Living Wage in the security sector. Thinking about the difference the Living Wage contract has made to him, Moray states *“the Living Wage has been great for me personally, making things a bit easier every month and just giving me more flexibility in terms of what I do with my money. You can definitely see the benefits for the company too, with more employment generally but also employees that really value their job and want to work hard.”*

Securitay Deputy Managing Director Richard Jennings commented that without the Living Wage specification within the SHE Transmission/ABB contract, Securitay would not have been able to successfully win such a contract while paying the Living Wage: *“The payment of the Living Wage is directly related to the contract value and what the customer is prepared to pay. We have lost out on other contracts when we tendered at the Living Wage level, so it is great that with SHE Transmission and ABB we have been able to win business and pay our staff the Living Wage for the great work they do.”*

In addition to benefiting the recipient of the Living Wage, there are also benefits for the main contractor, ABB, and for Securitay. Richard describes these changes in the business; *“The Living Wage has improved our recruitment process at Securitay and we’ve definitely seen a better quality of applicants and retention of staff. As the contract with ABB develops over the next three years, we will also be able to increase the number of people we employ on the Living Wage.”*

Securitay have also been proactive in recruiting local people and developing their skills; building up a strong, mutually beneficial working relationship with the local job centre in Wick. Richard explains *“The job centre has been great in facilitating us in the selection and training of some locals who were claiming benefits and unable to find suitable employment. These claimants now have Security Industry Authority licences and are in full-time employment with us. Seeing these individuals develop their skill sets with Securitay has been a hugely rewarding experience.”*



## CONCLUSION

**The Caithness-Moray transmission reinforcement represents the largest investment in the north of Scotland's energy infrastructure since the hydro development era of the 1950s.**

This report demonstrates the scale of the contribution it is making to the Scottish and UK economies, starting in the rural north communities where the infrastructure is being built. By providing the network that is required for the UK's transition to a low carbon economy it is making a much broader contribution to society as a whole.

The construction of the project will add approximately £643m of value to UK GDP, of which at least £265m will be contributed to the Scottish economy. The impact on UK and Scottish jobs is also substantial, with 10,970 total person-years of employment supported in the UK, of which 4,975 will be in Scotland.

SHE Transmission is proud to support investment in the UK and in the communities where it operates. The investments it makes aim to maximise positive economic and social impacts both during construction and in the long term. For Caithness-Moray, local businesses provide competitive and highly-skilled services, allowing SHE Transmission to achieve value for energy consumers and grow capacity in its supply chain. So far, millions of pounds have been spent by SHE Transmission and their employed contractors and suppliers with firms in the north of Scotland.

As one of the biggest Living Wage projects in the UK to date, with the largest ever Living Wage contract awarded to ABB, there are clear social benefits as well as economic ones for individuals and businesses employed on the Caithness-Moray project. The Living Wage helps to ensure employees have enough money each month to live on, not simply survive on – and for those that can pay it, there are clear business and ethical grounds for doing so.

At its core, SHE Transmission has the essential purpose of providing the energy people need in a reliable and sustainable way. The nature of our business is providing a service that people need, not something they simply want. This means we have an additional responsibility to make sure our decisions are ethical and balanced – achieving economic, social and environmental well-being for the benefit of our customers as well as wider society too, now and in the long-term.



