September 2015

SHE Transmission
Annual Performance Report 2014/15

Scottish and Southern Energy
Power Distribution

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Executive Summary

> This report outlines how we are performing against some of our most important commitments.

The standards of service we set ourselves to provide energy in a safe, reliable and sustainable way challenges us to improve our performance year on year. An affordable, secure network is vital to the UK's goal to lower carbon emissions. We recognise and remain committed to the important role we play in the transition to a low carbon economy.

Building on last year's performance, I'm pleased to say we're on track to deliver the commitments we made in our business plan. Our extensive investment programme has been boosted by additional funding from Ofgem for a further three important strategic wider works projects, including SSE plc's largest ever capital investment project – the Caithness–Moray HVDC subsea link.

As well as supporting economic growth in the north of Scotland, these vital upgrades will increase the capacity of our network in areas of high demand, freeing up space for more renewable generation to connect. Earlier this year we also achieved the key milestone of energising our section of the upgraded 400kV overhead line from Beauly–Denny, one of Scotland's largest infrastructure projects in recent years.

The complexity of the challenges facing our industry requires collaborative and innovative solutions as we modernise our network to meet the future needs of the sector. Over the last year we've made good progress with a number of exciting new innovation projects that will ensure our network is able to safeguard security of supply in response to the UK's dynamic energy mix.

Our focus remains on completing our projects on time and on budget, keeping costs as low as we can for the end consumer.

We will achieve our objectives by working closely with the people we serve – our customers and stakeholders. Our strategic approach to engagement over the big issues is helping us to understand how we can improve and I hope you'll see from this report the progress we've made over the course of the past year.

David Gardner
Director of Transmission

About us

> What we do

We own the high voltage transmission network in the north of Scotland, transmitting large volumes of electricity over long distances from where it is generated to areas of demand.

Our network comprises:

117
substations

100km +
of underground cables

328
circuit breakers

We maintain over
4800km
of transmission network

The massive increase in the number of renewable generation schemes looking to connect to the grid, particularly onshore wind, provides both opportunities and challenges as we look to expand our network to meet renewable energy targets, reduce emissions and promote sustainable economic growth.

Our intended investment over the remainder of RIIO-T1 is expected to be in the region of £2.4 billion[1], over £600 million of which we anticipate spending in 2015/16. This level of expenditure places a huge responsibility on us to serve our customers and stakeholders as best we can to keep the lights on across the country while keeping costs as low as possible.

> How we are regulated

There are three Transmission Owners (TOs) in Great Britain; each has a monopoly with responsibility for maintaining and investing in new electricity infrastructure, such as substations, subsea cables and overhead lines and towers (pylons) in its licensed area. To mimic the effects of market competition, the industry is regulated by Ofgem – The Office of Gas and Electricity Markets.

Ofgem is responsible for granting licences that set out the range of services each TO must deliver. The amount of money that each of the three TOs can earn is determined by a set price control .

The current price control period, RIIO-T1, runs for eight years from 2013 to 2021 and is made up of the following parts:

Revenue = Incentives + Innovation + Outputs

Our price control was finalised in April 2012, earmarking between £3 to £5 billion of investment for the network in the north of Scotland over the current price control period. Not all of this is immediately available for us to spend: in some cases, such as our major projects, Ofgem has to approve our proposals before we start work. In others, the amount we can spend is linked to the extra capacity we install on the network.

[1]All costs are in 2009/10 prices

Looking ahead

> Our vision

Our challenge is to successfully meet the needs of both industry and consumers now and in the future. To do so, we've developed the following six strategic priorities for 2015/16 and beyond.

1 Meet key project milestones, safely and sustainably

Working with high voltage electricity can be extremely dangerous without stringent health and safety processes.

We've committed to training in behavioural change for our colleagues and contractors to help reduce our Total Recorded Injury Rate (TRIR). We'll work with our principal contractors and Scottish Power Transmission to establish a set of common safety practices across all Transmission projects in Scotland.

2 Provide excellent service to all generation and demand customers

Many connections for new generation rely on the completion of our projects.

We've introduced a number of measures to improve the connections process for developers, including increasing the number of transmission contract managers, assigning a dedicated contract manager to each application, and publishing a connections guide.

3 Continue to implement RIIO-T1, maintaining system availability

Maintaining the transmission network and replacing ageing infrastructure and assets are essential.

We will carry out the necessary upgrades to the network at the lowest possible cost to consumers while ensuring security of supply is unaffected.

4 Work within the changing policy and regulatory framework

The electricity industry is undergoing radical change with increasing levels of intermittent renewable generation added to the energy mix. Our challenge is to overcome uncertainty in order to plan for future energy scenarios.

We will continue to engage further with Ofgem and the Department for Energy and Climate Change (DECC) to ensure we can continue to complete our projects on time and on budget.

5 Maintain and develop effective stakeholder relationships

We cannot function effectively in isolation. Our success in supporting the growth of the low carbon economy relies on our ability to make stakeholders an important part of our decision making process.

6 Ensure we have the right skills, resources and supply chain relationships to support growth

With around £600m of investment planned for 2015/16 alone, we have expanded the expertise and capacity of our workforce to make sure we successfully complete our project programme.

We are also recruiting the talent of tomorrow. A recent report measuring the impact of SSE's workforce found that for every £1 invested in our apprenticeship programme £4.29 of economic value is created and shared by wider society.

Meeting the needs of renewable energy

Connections applications by generation type (2014/2015)

> Making connections

Making sure that generation developments can connect to our network is one of our primary responsibilities.

Our job is to make the applications process straightforward for developers, as well as ensuring we construct our projects on time and on budget to ensure we can connect new generation in line with their contractual agreements.

We received 98 applications, via National Grid, from developers looking to connect to our transmission network in 2014/15. This figure represents a 109% increase in applications on the year before. The increase reflects the continuing growth of renewable generation in the north of Scotland.

Onshore wind accounted for 62 out of 98 applications. It remains the most common type of renewable generation for applicants despite an increase in the number of applications for alternative sources of generation, such as hydro, solar PV, and offshore wind this year.

Offshore wind

Hydro

Wave

Solar PV

> Contributing towards Government targets

The demand for access to the grid from developers is largely driven by public policy, mandatory EU renewable energy targets for the UK, and Scottish targets for the production of electricity from renewable sources.

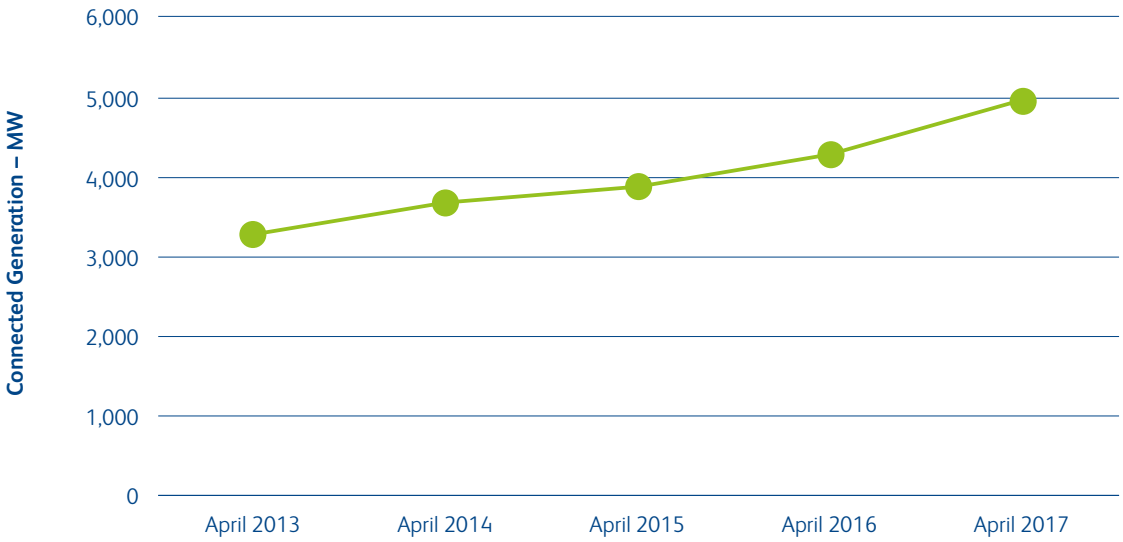
Our aim is to provide timely connection of renewable generation to our connections customers, helping the country to meet renewable energy targets, reduce emissions and promote sustainable economic growth.

Since the start of the current price control, we've connected around 500MW of renewable generation to the grid in the north of Scotland and despite future uncertainty around financial support for onshore wind, we expect to connect another 1.2GW from renewable sources over the next two years taking the total level of renewable generation connected to around 5GW.

We take a long-term view of network planning to make sure wider system capacity is available when it is needed.

Our future generation scenarios are designed to assess and manage uncertainty by matching the pace of transmission infrastructure development with the demand for renewable generation. Our objective is to deliver the right network upgrades at the right time and at the lowest possible cost to our connection customers and energy consumers.

SSEPD Renewable Generation Forecast to April 2017



Keeping the lights on

> A reliable network

We do everything we possibly can to avoid interrupting customers' electricity supplies. When things do go wrong on our network, we aim to restore power as quickly as we can in a safe and cost effective way.

We are the first and only Transmission Owner in Great Britain to offer compensation to customers affected by a power cut caused by a fault on the transmission network lasting more than six hours.

Last year we successfully supplied 99.994% of energy generated to customers. Energy not supplied totalled 106.1MWhrs for 2014/15, coming within the 120MWhrs target set by Ofgem. None of our customers were offline for more than six hours, making this the first year in the RIIO-T1 price control period where we did not pay customers through our voluntary compensation scheme.

The maintenance of our existing assets is an important factor in avoiding loss of supply. If we can do this successfully, then the likelihood of a fault that results in a supply interruption is greatly reduced.

That is why we have produced a Transmission Operations ENS (Energy Not Supplied) Annual Improvement Plan for 2015/2016 to improve our overall performance by reducing the number of faults and outages on our network.

This plan includes an in-depth review of our storm support procedures, new system commissioning arrangements and new frameworks with our supply chain for strategic stock items and standby cover.

> Looking after our assets

The condition of our assets is closely monitored and reviewed before any decision is taken to replace, refurbish or upgrade our network, and we prioritise the assets which play a strategic role in our network.

We intend to replace, upgrade or refurbish **511km** of overhead line, **3km** of underground cable, **23** transformers and **2** circuit breakers over the next seven years.

The total value of our assets is **£1,732 million.** We expect the value of our assets to triple in size by 2021 as we meet the needs of the low carbon economy.

Because we manage our assets in this manner, we have improved the condition of our network to the extent that we only expect to replace one asset on our 275kV network before 2021 in the next 10 years, while on our older 132kV network, we expect around 94% of our assets not to require replacement before 2021.

While we continue to invest in the condition of our infrastructure, we want to secure the best value for our customers. That is why we are working closely with Ofgem and the other TOs to jointly agree a new method for assessing how we prioritise replacement of our assets so we only invest money in the right places and at the right time. This review is due to be completed by the end of 2015 and should result in network performance being further improved.

Investing for a low carbon economy

Our investment programme is driven by our commitment to doing the right thing by our customers and stakeholders. That means building the required infrastructure to support new connections to our network, investing sustainably in the communities we serve, and keeping costs as low as possible for consumers.

Capital expenditure 2014/15	To support the growth of the low carbon economy, our expenditure amounted to £271.0m compared to an allowance of £311.3m, resulting in an underspend of £40.3m. The difference largely reflects lower than anticipated customer connection requests due to the delay or cancellation of schemes in development.
Strategic Wider Works (SWWs)	The Kintyre–Hunterston and Beauly–Mossford projects were approved during 2013/14 and the Caithness–Moray reinforcement was approved during 2014/15. The total expenditure on these three projects during the year was £187.9m. This is £24.8m above the allowance for the year, mostly due to acceleration of works on the Kintyre–Hunterston project. Both Kintyre–Hunterston and Beauly–Mossford (Phase 2) are forecast for completion during 2015/16 within our allowance, while Caithness–Moray is on course for completion in 2018/19 at our allowance level.
RIIO-T1	The Capex forecast for the entire RIIO T1 period is £2,416.6m, 15.9 % under allowance. These include the additional allowances under the various volume driver mechanisms. This is mainly due to lower costs and reduced generation forecasts, including change to the anticipated timetable for island connections.
Beauly–Denny	The only scheme under the Transmission Investment for Renewable Energy mechanism (TIRG) is Beauly–Denny. During 2014/15, Beauly–Denny has incurred costs of £107.8m, the costs to date on this scheme are £616m (nominal). This scheme is due to energise during 2015/16. Expenditure will continue into 2016/17 as we dismantle the old network, reinstate land and finalise outstanding claims from land owners. At present, the full project forecast is £680m (nominal).

All prices quoted are in 2009/10 prices

Working responsibly

Our part of the Beauly–Denny project is delivering Gross Added Value for the UK of around **£528m** (2010 prices) and has supported an average of **2,000 jobs** each year over seven years.

> Sustainability

Enabling the transition to low carbon electricity generation is one of our key strategic priorities for the RIIO-T1 price control period.

Being the owner of the transmission network in the north of Scotland involves working on some challenging projects.

Responding to issues such as climate change, using resources responsibly and managing wider environmental impacts connected with our work is vital to our plans.

> Environmental Discretionary Reward

We recognise we have a role to play in the UK's goal to lower carbon emissions and manage the wider environmental impacts connected with our work. Through the annual Environmental Discretionary Reward, Ofgem incentivises TOs to demonstrate their approach and commitment to this.

Across the north of Scotland we already work to meet the demand for renewable energy connections, while protecting our natural heritage and reducing harmful emissions of carbon and other greenhouse gases into the environment.

Ofgem encourages us to look beyond the conventional and we've responded. Collaborating with a range of stakeholders to implement new thinking and provide innovative solutions to challenges faced by the whole electricity system. Our aim is to become and stay the best in class.

The results of our submission under this scheme will be published following Ofgem's assessment later in the year.

> Preserving visual amenity

As part of our future project planning, we make every effort to understand how the natural environment can be used to screen our transmission assets, where possible, using natural contours, gullies and ridges to reduce the visual impact of our network on the surrounding landscape.

During RIIO T1 an additional Special Licence Condition 6G allows us to participate in a scheme where we may apply for funds to reduce the visual impact of our existing infrastructure with National Parks and National Scenic Areas.

We are currently assessing our existing network assets to understand what areas qualify for this scheme and are due to publish a draft policy for stakeholder comment in late 2015, followed by stakeholder consultation events, to better understand the feasibility and effectiveness of potential projects.

> Minimising our carbon footprint

The breakdown of our business carbon footprint in CO^2 emissions in 2014/15

Losses:
328,831

Buildings Energy Use:
2,965
(down by 2% compared with the previous year)

Operational Transport:
5,238

Business Transport:
1,000

Fugitive Emissions:
4,334
(a 30% reduction from last year)

Fuel Combustion:
34

Due to our growing construction programme, our emissions are likely to increase in the coming years as we expand sections of our network.

We want to report our carbon footprint in an open and transparent way that allows stakeholders to understand our year-on-year performance against a background of business growth.

We measure and report the combined carbon emissions of our own activities and those of our contractors. This year's data benefits from improved engagement with contractors to improve the accuracy for calculating a true carbon footprint for the business.

Our total business carbon footprint for 2014/15 was 342,403 tonnes of CO^2 – an increase of 86%. This growth is the result of increased losses in the transmission network.

Losses vary significantly depending on fluctuations in the amount of energy generated and energy demand from domestic and commercial customers.

We also face the challenge of transmitting electricity over long distances between renewable generation connected in the north of Scotland and the significant centres of demand located in central Scotland and England.

> Reducing our impact

We reduced our SF6 leakage from **259kg** in 2013/14 to **181kg** in 2014/15.

SF6 leakage constituted **2%** of total volume of SF6; a reduction from **3.6%** in 2013/14.

Sulphur hexafluoride (SF6) is a highly effective electrical insulator, however it's also a potent greenhouse gas. Each year we are either incentivised or penalised for SF6 emissions, depending on our performance against our target, agreed with Ofgem.

Our total SF6 leakage for 2014/15 was 181kg. This is a substantial decrease compared to the 2013/14 loss figure of 259kg but is still slightly above our baseline target figure of 173.1kg due to an event outside our control.

Although some leakage is unavoidable, we do everything we can to minimise leaks. We've made further investment in SF6 leakage detection cameras to pinpoint any leaks on our equipment and have also completed a trial of a compound solution to reduce leakage rates. Results so far have been very encouraging.

> Valuable employees

The success of our business hinges on the skills and expertise of our employees. Last year our parent company, SSE plc, commissioned a study to measure the economic value that SSE employees add to the local economy. The study found that the economic value of SSE's Human Capital is £3.4bn across the UK and Ireland, £1.12bn of which is in Scotland.

SSE plc became the first energy company to achieve Living Wage accreditation in September 2013.

From April 2014, we extended that requirement to our supply chain, so everyone working on our projects receives at least a Living Wage.

In December 2014, the largest ever Living Wage contract was awarded – worth £460million – to ABB Limited. The contract is part of the Caithness–Moray Transmission Project, it is Scotland's largest ever Living Wage contract to date, and it is expected to support at least 600 jobs.

Building an innovative network

> Our innovation objectives

- > Minimise the cost of providing network capacity.
- > Maximise the use of existing assets to deliver capacity and speed connection.
- > Maintain and improve network performance.
- > Maintain and improve safety and environmental performance.
- > Provide more accurate information on the short and long-term asset condition information to allow more informed decision making.
- > Accelerate network development and connections including the integration of increasing amounts of renewable generation.
- > Remain at the forefront of innovation to maintain a competitive edge.

Innovation is one of the key components that make up the RIIO-T1 price control framework.

Our transmission network has changed dramatically in recent years. Traditionally, the majority of power came from a small number of large power plants. Now, with a large number of relatively small generation sites spread across our area, there is a greater need than ever to adopt new and efficient ways of working.

We have acted quickly and kept up with advances in technology and changes to the way we generate, store and consume energy. Our primary focus remains on minimising the costs of the work required, delivering as much efficiency and value for money to end customers as possible.

Case Study
The National HVDC Centre

Start date:
January 2014
Duration:
Approximately seven years

Problem: The expected growth of High Voltage Direct Current (HVDC) systems could make Great Britain's electricity grid one of the world's most complex. To date, there is limited experience in GB of the design, construction and operation of HVDC systems.

What we are doing: Together with National Grid Electricity Transmission Limited (NGET) and ScottishPower Transmission Limited (SPT) we are building a collaborative facility to plan and test HVDC transmission systems in Great Britain.

The facility, known as The National HVDC Centre, will house a real-time digital simulator, IT infrastructure and replica HVDC control panels.

HVDC systems are widely recognised as a cost-effective solution for subsea transmission (for distances in excess of 60 to 70km), and will play a critical role in connecting offshore developments to the electricity grid.

Working together

The decisions we take as a business are driven by the current and future needs of the energy market. Effective decision making relies on the input of people from outside our business.

Ensuring we listen to our customers' and stakeholders' voices and act on their feedback is vital if we are to provide the infrastructure to support the growth of the low carbon economy.

We pride ourselves on being open, honest and accessible, actively seeking to understand the views of our stakeholders. The quality of our engagement was assessed independently by external assurers who concluded that we had exceeded compliance with our 2014/2015 Stakeholder Engagement Strategy and Implementation Plan.

Our approach over the past year has seen focus on engaging at the highest levels on the most important issues facing our industry. We believe this will lead to greater long-term benefits as we adapt to meet challenges and take advantage of new opportunities over the coming years.

> Stakeholder satisfaction

Each year we carry out an independent survey of our stakeholders to gauge our performance and identify areas for improvement.

Stakeholders' overall satisfaction with SHE Transmission in 2014/15 increased to 7.7 out of 10, up from 6.5 from 2013/14, the highest level of customer satisfaction we have achieved since the price control period began.

> Performance

Our key performance indicators allow stakeholders to measure our performance each year to make sure we achieve the high standards of service we know our stakeholders expect.

Our overall key performance indicator score for 2014/15 was 86%. Although down on last year's score of 91%, we believe this demonstrates that our targets have been set realistically and will consistently challenge us to get better over the remainder of the price control period.

Customer commitments

1 We will develop, maintain and operate our networks safely at all times.

2 We will seek to provide our customers and stakeholders with the best possible service.

3 We will maintain our commitment to delivering value for money across our activities.

4 We will operate in a sustainable manner, with consideration to the long-term impact of our activities.

5 We will build and maintain lasting, mutually beneficial relationships with those affected by our activities.

6 We will work smarter, deploying innovative solutions where these can assist us in developing, maintaining and operating our networks.

7 We will report regularly on our performance so you can assess how we are delivering on these commitments and our wider obligations.

> Stakeholder engagement

Our activity this year has benefited from a more structured approach based upon operational, organisational and strategic levels of engagement.

Based on Ofgem's assessment of our stakeholder engagement performance for 2014/15, we received a score of 6 out of 10, our highest score yet and double that recorded in the first year of RIIO-T1.

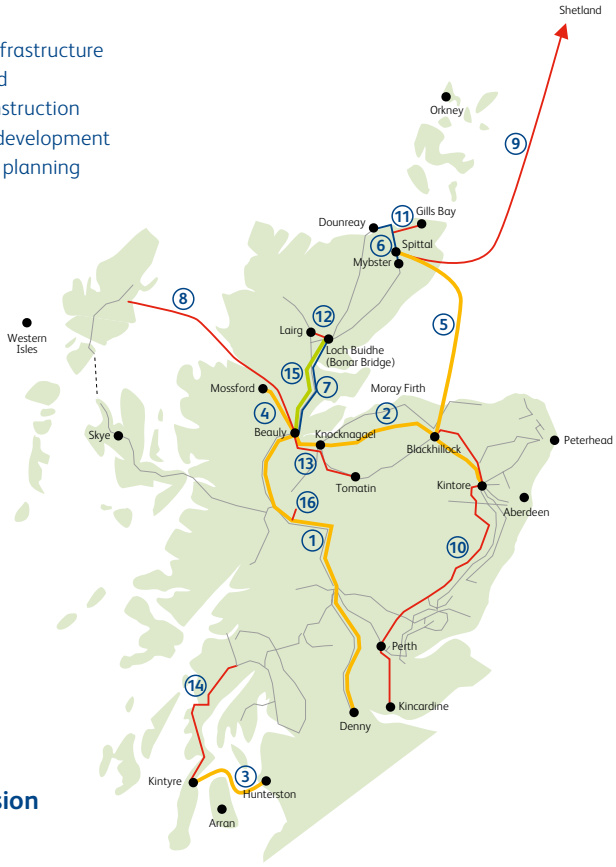
Key initiatives over the past year include improving our compensation payment process, introducing stakeholder service training and action plans for 90 % of our staff, and improving communications with developers during the application process.

We believe working together effectively means improving how and where we engage with our stakeholders wherever we can. That means we continually review our plans to provide a better, more productive service to our stakeholders.

Appendices

> 1. Key projects

- Existing infrastructure
- Completed
- Under construction
- Potential development
- Advanced planning



Overview of Transmission projects

1 Beauly – Denny
2 Beauly – Blackhillock – Kintore
3 Kintyre – Hunterston Link
4 Beauly – Mossford
5 Caithness – Moray HVDC
6 Dounreay – Mybster
7 Beauly – Loch Buidhe Reconductoring
8 Western Isles Link
9 Shetland Isles Link
10 East Coast Phase 1
11 Gills Bay Radial
12 Lairg – Loch Buidhe
13 Beauly – Tomatin
14 Inveraray – Crossaig Reinforcement
15 Beauly – Loch Buidhe Reinforcement
16 Melgarve Substation (Stronelairg Wind Farm Connection)

Beauly–Denny

Details: The upgraded 400kV overhead line will allow up to 1.2GW of additional renewable energy to connect to the network. The line will be fully energised during November 2015 once Scottish Power Transmission has completed its section of the line, with work to dismantle and reinstate the original 132kV continuing into 2016.

By the end of 2015, as a direct result of the Beauly–Denny project, 30 individual renewable developments across the north of Scotland will have progressed to completion, totalling over 700MW of new renewable generation. As a result of this the total level of generation either connected to the transmission system or currently under construction is over 4GW which is already far greater than could have been accommodated on transmission network if the Beauly–Denny line had not been upgraded.

Expected completion date: Q3 2016

Beauly–Denny, a true feat of engineering and construction:

- Over 20,000 tonnes of steel
- 2,600km of aluminium conductor – enough to run from Perth to Rome
- More than 4 million nuts and bolts – a million more than the number of rivets on the Eiffel Tower
- 1,500 employees involved in construction

Caithness–Moray

Details: To provide the capacity needed to allow around 1.2GW of renewable generation to connect by 2018, we are installing an HVDC subsea cable between Caithness and Moray, and reinforcing onshore infrastructure in Caithness, the largest investment in the North's electricity network since the hydro development era of the 1950s.

At £1,118m, the new subsea cable beneath the Moray Firth and associated onshore reinforcement represents SSE plc's largest ever investment. Following work with national poverty campaigners and the Scottish Government amongst others, we awarded the contract for Scotland's largest ever Living Wage contract to date – worth £460million – to engineering firm ABB Limited that will support at least 600 jobs.

Expected completion date: Q4 2018

Kintyre–Hunterston
Details: The project to install a new subsea 220kV link connection from Kintyre to Hunterston is driven by the need to relieve the growing pressure on the local network and to support the growth of renewable generation in the region.

The area around Kintyre has an abundance of renewable resources and particularly lends itself to hydro, marine and wind generation schemes – both large and small, including community schemes.

Expected completion date: Q4 2015

Beauly–Mossford
Details: Construction started in early 2013 to construct a replacement 132kV overhead transmission line between Beauly and Mossford.

Substation and underground cable works are now complete with both circuits successfully energised. The replacement overhead line is on schedule to be completed in late 2015.

Expected completion date: Q3 2015

Beauly–Blackhillock–Kintore
Details: The Beauly–Blackhillock–Kintore 275kV transmission line was originally constructed in the early 1960s and runs approximately 155km.

We are replacing the existing overhead lines between Beauly, Blackhillock and Kintore with modern conductors (wires). This will increase capacity by 500MW.

Expected completion date: Q4 2015

Future links

A number of projects are at advanced stages in the development process.

The Islands
The Scottish islands benefit from some of the best wind resources in Europe. Although the islands are ideally placed to accommodate the development of onshore wind generation schemes, the complexity around consents, subsidies and the cost of constructing a transmission circuit between mainland Scotland and the Western Isles and Shetland poses significant challenges as we try to identify a solution that meets the expectations of all stakeholders involved.

We already have well-developed proposals for the installation of cables between mainland Scotland and the Western Isles and Shetland and will work closely with Ofgem and other stakeholders to overcome the current barriers with a view to submitting robust needs cases as early as possible to allow both of these projects to go ahead.

SHE Transmission contributes as a member of the Scottish Islands Renewable Delivery Forum – a group co-chaired by the Scottish and UK governments – bringing together organisations such as local authorities, Ofgem, National Grid, SHE Transmission, DECC and developers of renewable generation. Each member is committed to addressing the issues within their area of responsibility to bring about a fully informed decision.

East Coast
Details: We plan to upgrade the existing east coast transmission line, allowing new energy generation to link to the main transmission system and centres of demand.

Running from Blackhillock in Moray to Kincardine in Fife, the project is listed in Scotland's National Planning Framework 2 as a Strategic Grid Reinforcement – an essential upgrade to realise the potential of Scotland's renewable energy resources, maintain long-term security of electricity supply and support sustainable economic development. The project is undergoing review to ensure optimal timing of investment.

> 2. Innovation projects

Key large scale projects
The Network Innovation Competition takes place annually, with network companies competing for funding. Money is awarded to the best innovation projects which contribute towards environmental benefits, security of supply and cost reductions as Great Britain goes through the transition to a low carbon economy.

Modular Approach to Substation Construction (MASC)
Start date: January 2015
Duration: Four and a half years

Problem:
The current approach to substation construction differs little from that of 60 years ago. Meanwhile many innovations in engineering could create a substation which is cheaper, faster to deploy and more suited to Great Britain's low carbon future.

What we are doing:
We estimate that up to 3.9GW of new substation capacity is required between 2014 and 2023. To maximise value for money and reduce the environmental impact of our substations, we are working with stakeholders to create a new, standardised configuration for substations – up to 70% smaller than traditional models.

The project could, if widely adopted by all of the GB licencees for anticipated substation projects between 2014 and 2050, bring cost savings of up to £655 million and could help the faster connection of new, renewable generation.

Progress:
Over the past year we've consulted numerous stakeholders via a variety of events such as workshops, an online survey and face-to-face meetings.

The information being gathered from the stakeholder engagement has been very informative. Further work is ongoing to analyse and rank stakeholder feedback, as well as identifying a suitable trial location.

Key small scale projects
In 2014/15, we spent a total of £1,396,736.11 on 13 different projects. The funding was provided by Ofgem as part of the Network Innovation Allowance (NIA), which aims to fund small scale innovation projects that have the potential to deliver benefits to customers.

Lightning Protection
Start date: December 2013
Duration: 36 months

Problem:
If lightning strikes an overhead line with towers that have high footing resistance, the inadequate earthing will lead to the lightning not being discharged into the ground but travelling along the transmission conductors and causing over-voltage which can damage components of the line.

What we are doing:
This project involves building models that simulate lightning strikes on lines at 132kV and above with towers that have high footing resistances. This will allow us to evaluate protection options and the best options to limit the effects of lightning strikes on our network.

Expected Benefits:
This project's aim is to optimise the design of lightning protection for towers to cut costs by reducing the potential for disruption during periods of adverse weather. If successful, we anticipate that savings of up to £30,000 may be made per tower with high footing resistance.

132kV Insulated Cross Arm trials
Start date: April 2013
Duration: 24 months

Problem:
Currently the only method open to Transmission Network Owners (TOs) who wish to uprate their 132kV lines to 275kV is to rebuild the towers to a higher specification (i.e. larger towers), at a significant cost, due to the increased clearances from ground required by law for higher voltage lines.

What we are doing:
Insulated Cross Arms (ICAs) will enable the uprating without the need to rebuild the towers (by effectively raising the height of conductors from the ground). This would allow greater throughput of power on the existing network with less expense on upgrades and quicker time frames for increasing network capacity.

The aim of the Insulated Cross Arms is to maximise the capacity of existing infrastructure without rebuilding tower lines.

Progress:
Since August 2013, six crossarms have been installed on towers of the 132kV Kintore-Craigiebuckler circuit. So far, the crossarms have delivered good results and we continue to develop a methodology to roll out this technology more widely across the business.

Media enquiries should be directed to
SSE's Press Office on +44 (0)845 0760 630.
Investor enquiries should be emailed to ir@sse.com

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