



Challenges and Opportunities

Scotland nearly quadrupled its renewable electricity generation between 2002 and 2016 to 9211MW, enough to power over 7 million homes. There are now 49,000 jobs in the Scottish low carbon and renewable energy sector.

A wide range of roles are required within the sector to facilitate the change taking place, from engineering to finance to public relations. This transformation is not only effecting electricity generation businesses, it has had a far-reaching impact across the sector including electricity networks.

The electricity transmission network, owned by Scottish and Southern Electricity Networks (SSEN), part of SSE Plc, in the north of Scotland, is adapting from a centralised model focused on large solid fuel power stations to a distributed one with multiple renewable generators spread across the country and its coastal waters. As an SSE employee, I've been lucky enough to be involved in some of the projects that are facilitating this change. Scotland is a challenging environment and undertaking projects in this location requires innovative thinking.

Stronelairg Windfarm is located in the Monadhliath Mountains, as the transmission owner SSEN were responsible for connecting this site to the National Grid via two substations and a 10km underground cable. Stronelairg Substation is accessed by a 20km track which connects the site to the nearest road due to its isolation, a 70-bed onsite accommodation complex was created in the mountains for the construction team with its own caterers and even a fully fitted gym. This allowed the project to be completed safely, by reducing the amount of travel, and in record time.

Dorenell Windfarm Connection was another challenging project. To connect this windfarm to the network, a new 20km overhead line was required in the heart of the Scottish Whisky Trail in North East Scotland. Through early engagement with the local community and government, we identified a key objective of the project was to minimise the visual impact of this new overhead line. The delivery team took this onboard and identified a potential solution in Canada which utilises modern composite materials. The Engineering team refined the design for the project to form a composite structure made of two poles which although 8m taller than a traditional arrangement, reduced the number of poles required by 75%, significantly reducing the impact of this development.

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Both of the projects above required individuals from a wide range of job roles to come together to find a solution. They are a small example of the types of practical challenges projects face in this industry and the creative thinking that takes place to solve those challenges.

A final thought, every five weeks China adds 9500 electric buses to its roads, the same number as the entire London bus fleet. As the associated technology continues to improve and increased production volumes reduce cost, this pace of change will come to the UK. We will require new solutions to manage this change and this will lead to more opportunities in the future.

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