Coire Glas

Helping Scotland and the UK deliver net zero

sse Renewables

Powering change

SSE Renewables is a leading developer and operator of renewable energy, headquartered in the UK and Ireland, with a growing presence internationally.

Our strategy is to lead the transition to a net zero future through the world-class development, construction and operation of renewable power assets. We have an operational portfolio of around 4GW of onshore wind, offshore wind and hydro generation, with a secured future project pipeline of over 13GW in development.

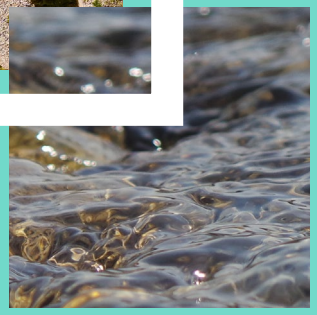
SSE Renewables is part of SSE plc, the UK-listed integrated energy group which is investing £12.5bn over five years, or £7m a day, to deliver a Net Zero Acceleration Programme to address the climate crisis. This includes plans by SSE Renewables to double our installed renewable energy capacity to 8GW by 2026 and ambitious targets to treble capacity to over 13GW by 2031, increasing output fivefold to over 50TWh annually – enough to be able to power around 20 million homes each year.

We're a team of around 1,500 renewable energy professionals based across the UK, Ireland, Spain, France, Italy, Greece, the Netherlands, Japan and the USA, all committed to delivering the green energy the world needs now and in the future.

Building on the achievements of the hydro pioneers who brought power to the Scottish Glens 80 years ago, our team at SSE Renewables is now pursuing the delivery of the next generation of hydro powered energy projects. This includes our flagship Coire Glas pumped hydro storage project which is at the heart of SSE's Net Zero Acceleration Programme and could play a crucial role in getting the UK to net zero.

"At SSE Renewables we're taking action. The world needs green energy and we're ready to deliver it. The people in our pioneering team have the knowledge, skills and experience to lead this fight as we develop and operate world class renewable energy generation sites to address climate change head on. And as we do so, our promise is to deliver a fair and just transition to net zero, and beyond."

– Stephen Wheeler, Managing Director, SSE Renewables



"In 2023, we're celebrating our hydro business in Scotland turning 80. So, there's never been a better time for SSE Renewables to bring forward our Coire Glas project. This multi-billion-pound project will be one of the most ambitious energy infrastructure schemes the UK has ever seen. It is a key component of our commitment at SSE Renewables to help lead Scotland and the UK's energy transition."

– Finlay McCutcheon, Director of Onshore Europe, SSE Renewables

Landmark Coire Glas in the Scottish Highlands could power 3 million homes and more than double GB electricity storage

Located on the shores of Loch Lochy in the Scottish Highlands, between Fort William and Inverness, the Coire Glas project would be the first pumped hydro storage scheme to be built in the UK in 40 years. If built, Coire Glas will become a flagship addition to SSE's operational 1.5GW hydro portfolio, which already includes 300MW of pumped storage and 750MW of flexible hydro.

The project, which received planning consent from the Scottish Government in 2020, would more than double Britain's total current electricity storage capacity – providing vital back up to an increasingly renewables-led system and bolstering energy security.

Coire Glas would be a major civil engineering construction project requiring a capital investment of over £1.5 billion to construct. SSE Renewables hopes to make a final investment decision on the project in 2024, subject to positive development progress and the prevailing policy environment in the UK, and to fully construct and commission the pumped storage scheme by 2031.

Coire Glas is expected to be one of the biggest engineering projects in the Scottish Highlands since the 1943 Hydro Electric Development (Scotland) Act kickstarted the construction of major hydro-electric schemes across Scotland 80 years ago. At peak delivery, the project would create up to 500 full time construction roles.

30GWhs is enough storage to power over

3,000,000

UK homes for 24 hours

Doubling Britains electricity storage capacity

£1.5+bn capital investment

£100m to progress

The first pumped hydro storage scheme to be built in the UK in

40 Years

How Coire Glas will work

Coire Glas will embrace pumped hydro technology first pioneered in the early 1900s and deploy that technology as today's answer to the energy storage challenge of the future.

Pumped hydro storage works by using two reservoirs of water at different elevations over a short distance that can generate power as water moves down from one reservoir to the other, passing through turbines. Pumped hydro storage also works by pumping water back into the upper reservoir at times of excess renewable energy generation; this allows the excess renewable power to be captured and stored, similar to a giant natural battery. Then the energy is discharged for use on those still, cold and grey days when the wind doesn't blow or the sun doesn't shine. This flexible technology will be critical to a renewables-led energy system in the UK in the years ahead and will also help remove constraint's on the country's transmission network.

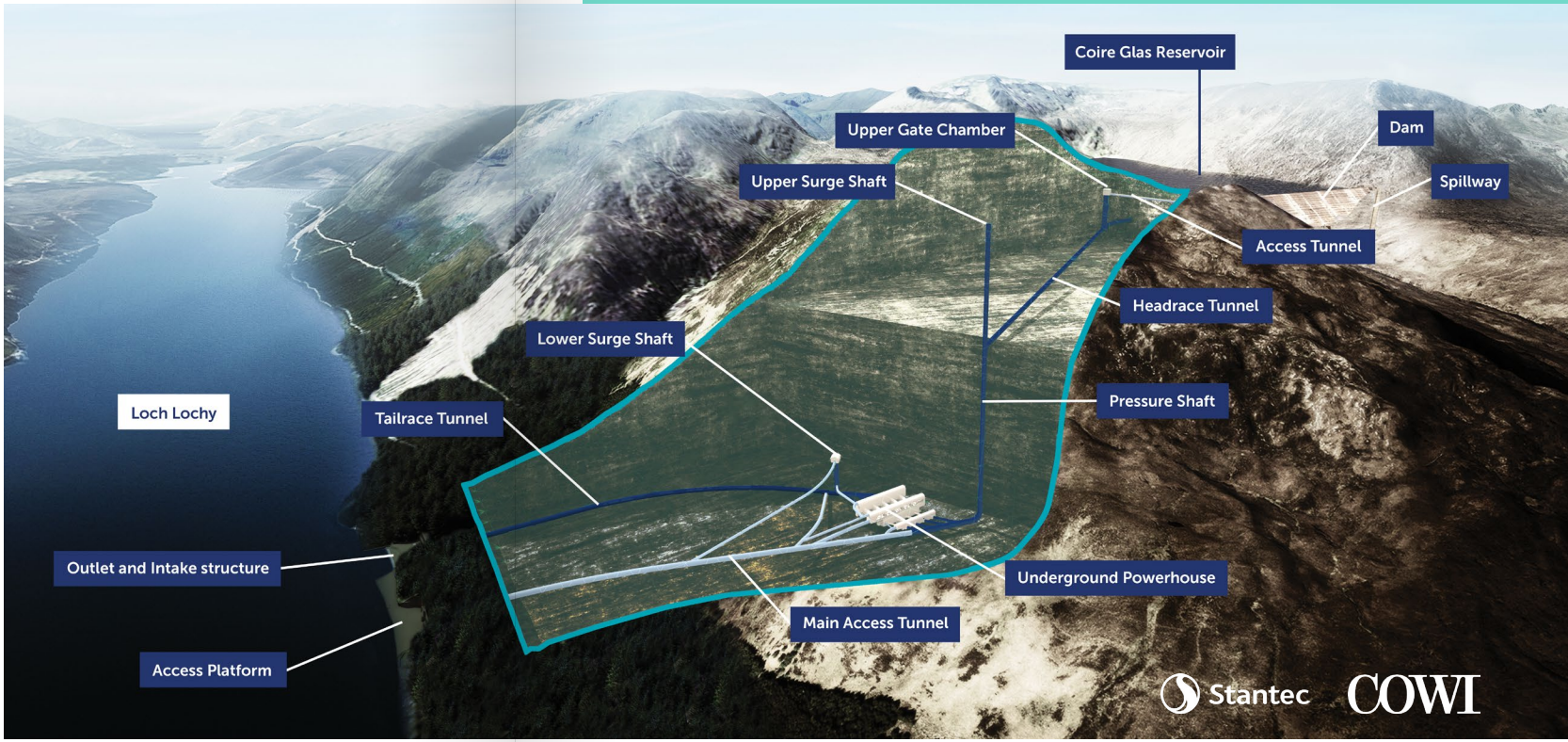
Coire Glas will comprise a large lower reservoir at Loch Lochy and a new upper reservoir, up to 700m wide, situated in a coire, or hollow, standing more than 500m above the Loch. This upper reservoir will require the construction of a new dam up to 92 meters in height to store up to 26 billion litres of water – equivalent to 11,000 Olympic-sized swimming pools. The dam and upper reservoir will be largely hidden from ground-level view, retaining the natural beauty of this historic Great Glen area.

Carved around 1km inside the mountain, buried under centuries' old rock, will be a hidden power station comprising four pumped hydro storage turbines rated at 324MW each, with a total generating capacity of 1296MW, and a series of tunnels. The power station will use surplus renewable electricity from the Grid and use it to pump water 500 meters up from Loch Lochy to the reservoir at the top of the mountain. The water can then be stored before being released back through the tunnels and turbines to generate energy at times when wind output is low and customer demand is high.

Once complete, Coire Glas will be capable of delivering 30GWh of long duration energy storage. From a standstill, Coire Glas will be able to provide its full output of 1296MW within minutes . From an operating standby condition Coire Glas will be operational at full load within 30 seconds. Critically, Coire Glas could provide enough storage to power over three million homes for 24 hours.

Key Facts

Energy storage	30GWh
Turbine capacity	4 turbines, 324MW each
Height to upper reservoir from loch lochy	500 meters
Upper reservoir capacity	26 billion litres
Upper reservoir width	700m
Dam height	92 meters
Fast start	5 minutes
Quick reserve from minimum stable generation	30 seconds
Operating time at full output	24 hours non-stop



Combating the climate emergency and energy crisis

The need for long duration pumped hydro storage schemes like Coire Glas will become more pressing as renewable energy capacity increases.

As the deployment of renewable energy developments is accelerated to support the transition to net zero, infrastructure like Coire Glas will play an integral role in maximising the use of renewable energy with its ability to absorb energy created by surplus renewable energy generation, like wind, and provide clean power on days where renewable energy generation is lower.

Long-duration Energy Storage solutions, such as Coire Glas, will assist in the acceleration to net zero by ensuring security of energy supplies in the UK and reduce reliance on imported energy from overseas and the use of fossil fuels.

Research from Imperial College London, commissioned by SSER, indicates long duration storage schemes like Coire Glas would provide cost savings of up to £690 million per year by 2050.

75% of the savings would be the result of reduced spending on higher cost electricity generation technologies, such as new nuclear facilities, that would otherwise be needed to meet the target of making the UK carbon neutral by 2050.

Pumped hydro storage could save the consumer money by reducing:

- £ Peak wholesale prices of electricity
- The cost of constraining excess renewable generation
- The costs of managing transmission system constraints
- The cost for network stability and security management

Generating local investment

Coire Glas represents a multi-billion-pound investment in Scotland's renewable infrastructure with the potential to bring a host of environmental and economic benefits to the Highlands.

Community

We have commissioned an independent study to assess the potential impacts and opportunities on tourism, leisure and recreation in the area as a result of cumulative development activity. This will cover Coire Glas and other local projects e.g. wind farm developments, Forestry and Land Scotland operations and SSE Networks Transmission upgrades.

"Pumped hydro storage at Cruachan and other sites such as [Coire Glas] can support the energy network, as well as providing tourism and recreation opportunities."

– Scottish Government's National Planning Framework 4*

GVA impact of **£81.5 million** to the **Highlands** and **£123.9 million** at the **Scottish level** over the **seven-year core construction period**

* (Revised Draft 2/11/2022)

Providing **Homegrown energy** and renewables back-up for the UK from the Scottish Highlands

One of the biggest engineering projects in the **Scottish Highlands and the UK**

Creating up to **500 full time** construction roles in Scotland

"Coire Glas is this generation's continuation of `Power from the Glens'. The project will contribute to the local economy during construction, and its operation will extend for many, many years just like all the other hydro schemes throughout the glens of Scotland."

– Ian Innes, Coire Glas Project Director, SSE Renewables

Supply Chain

With safety, sustainability and responsibility at the heart of our strategy, we are committed to maximising the use of local suppliers across the construction and operational phases of the Coire Glas development.

We will be hosting regular meet the buyer events and you can register your interest via **coireglas@sse.com**

Future Generations

Delivering Net Zero today paves the way for future generations to come. The Coire Glas project team are committed to developing the young workforce and engaging with education initiatives, particularly within Lochaber and the wider Highland region.

We are the Official STEM partner of the Hydro Ness project after Coire Glas invested £50,000 to support educational information points at the site and school outreach materials.

For more visit
coireglas.com

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SSE Renewables
Registered in United Kingdom No: SC435847

Registered Office:
Inveralmond House, 200 Dunkeld Road, Perth, PH1 3AQ.

sserenewables.com

Follow us on LinkedIn and Twitter

For all project enquiries please contact us at **coireglas@sse.com**

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