WELCOME TO THIS **PUBLIC EXHIBITION**

Thank you for visiting our virtual public exhibition, providing an update on the proposed Hydrogen Production Plant at at Gordonbush Wind Farm.

We value your views, and we would like this exhibition to be an opportunity for you to provide your feedback on the proposed development, whether you are supportive of the proposal or have concerns that we can respond to before submitting a planning application.

This virtual exhibition will be **live from Monday 18 April until Sunday 24 April**. Members of the project team will be available to discuss any matters regarding the project during **live chat sessions on Monday 18 April from 5-7pm** and **Friday 22nd April from 2pm-4pm**.

We will also be hosting a Public Exhibition at the **Brora Scout and Guide Hall** on **Wednesday 20 April from 11am-6pm**.

You can also get in touch with us or request further information through the "Contact Us" link or by clicking on the "Live Chat" button during operating hours.

If you have any other queries after attending this event, please do not hesitate to contact our Stakeholder Engagement Manager **Jade O'Hara** either via email: **jade.ohara@sse.com** or call on **07436 482792**

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WHO WE ARE

SSE Renewables is a leading developer and operator of renewable energy across the UK and Ireland, including Onshore Wind, Offshore Wind and Hydro. Our strategy is to drive the transition to a net zero future and deliver value for society through the world class development, construction and operation of renewable energy assets.

With an operational renewable portfolio of 4GW and a development pipeline including over 1GW of onshore wind and the largest offshore wind pipeline in the UK and Ireland at around 7GW, SSE Renewables is well placed to provide the future renewable power needed to power a green hydrogen economy.

3GW
of consented or in construction offshore wind projects out of total development pipeline of over 6GW in the UK and Ireland.

2GW
of operational offshore wind capacity with over 1GW under development.

300MW
of pumped storage.

750MW
of flexible hydro.

OUR 2030 GOALS

Cut carbon intensity by 80%

Reduce Scope 1 carbon intensity by 80% by 2030, compared to 2017/18 levels, to 61gCO_2e/kWh.

13 CLIMATE ACTION

Increase renewable energy output fivefold

Build a renewable energy portfolio that generates at least 50TWh of renewable electricity a year by 2030.

7 AFFORDABLE AND CLEAN ENERGY

Enable low-carbon generation and demand

Enable at least 20GW of renewable generation and facilitate around 2 million EVs and 1 million heat pumps on SSEN's electricity networks by 2030.

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Champion a fair and just energy transition

Be a global leader for the just transition to net zero, with a guarantee of fair work and commitment to paying fair tax and sharing economic value.

8 DECENT WORK AND ECONOMIC GROWTH

SSE RENEWABLES PARTNERSHIP WITH SIEMENS GAMESA RENEWABLE ENERGY (SGRE)

Siemens Gamesa is a world-leading supplier of on and offshore wind turbines and services and is also at the forefront of developing technologies and innovative wind-to-hydrogen solutions, playing a pivotal role in the energy transition.

SSE Renewables and Siemens Gamesa Renewable Energy have signed a Memorandum of Understanding (MoU) to explore the opportunity to produce and deliver green hydrogen through electrolysis using energy from Gordonbush Wind Farm.

The partnership aims to encompass the full green hydrogen value chain, including construction, supply chain management, customer offtake and storage, end user requirements, reliability and operation and maintenance. We will also aim to work with green hydrogen customers across a range of industries including transportation, major distilleries, and gas network operators.

sse Renewables in partnership with SIEMENS Gamesa RENEWABLE ENERGY

SSE IN **SUTHERLAND**

For over 10 years, SSE Renewables has been an active supporter of communities across Sutherland through the investment of over £640 million in building and operating four onshore wind farms in the region.

Our report ‘Delivering Investment, Supporting Jobs’ shows the socio-economic value from SSE Renewables’ projects in Sutherland through their development, construction and operation with analysis from onshore wind projects.

The county is rich in natural resources and vital in helping us to deliver the progress towards net zero that will make our country more sustainable. This map shows our current assets across the North Highlands including hydro and projects that are in development.

TOTAL LIFE TIME ECONOMIC CONTRIBUTION:

£131m
Highland

£327m
Scotland (Incl. Highland)

£485m
UK (Incl. Scotland)

Click here to view a larger image

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THE SITE

GORDONBUSH WIND FARM

The operational Gordonbush Wind Farm and it's recently completed Extension are situated in an area between 2km north west and 10km west of Brora and have a combined capacity of up to 109MW.

Gordonbush Wind Farm first entered commercial operation in 2012, while the Extension was officially opened in Summer 2021 by Scotland's Cabinet Secretary for Net Zero and Energy, Michael Matheson, making it one of Scotland's newest onshore Wind Farms.

KEY FACTS

46
turbines generating an installed capacity of up to 109MW

105,000
homes approximately powered by Gordonbush Wind Farm

149.9m
maximum tip height

WHY GORDONBUSH?

The extension to Gordonbush is SSE's first non-subsidy Wind Farm. Because of that, it is likely to be asked by National Grid to be switched off more often than other Wind Farms. At these times the power it produces could be used to create hydrogen.

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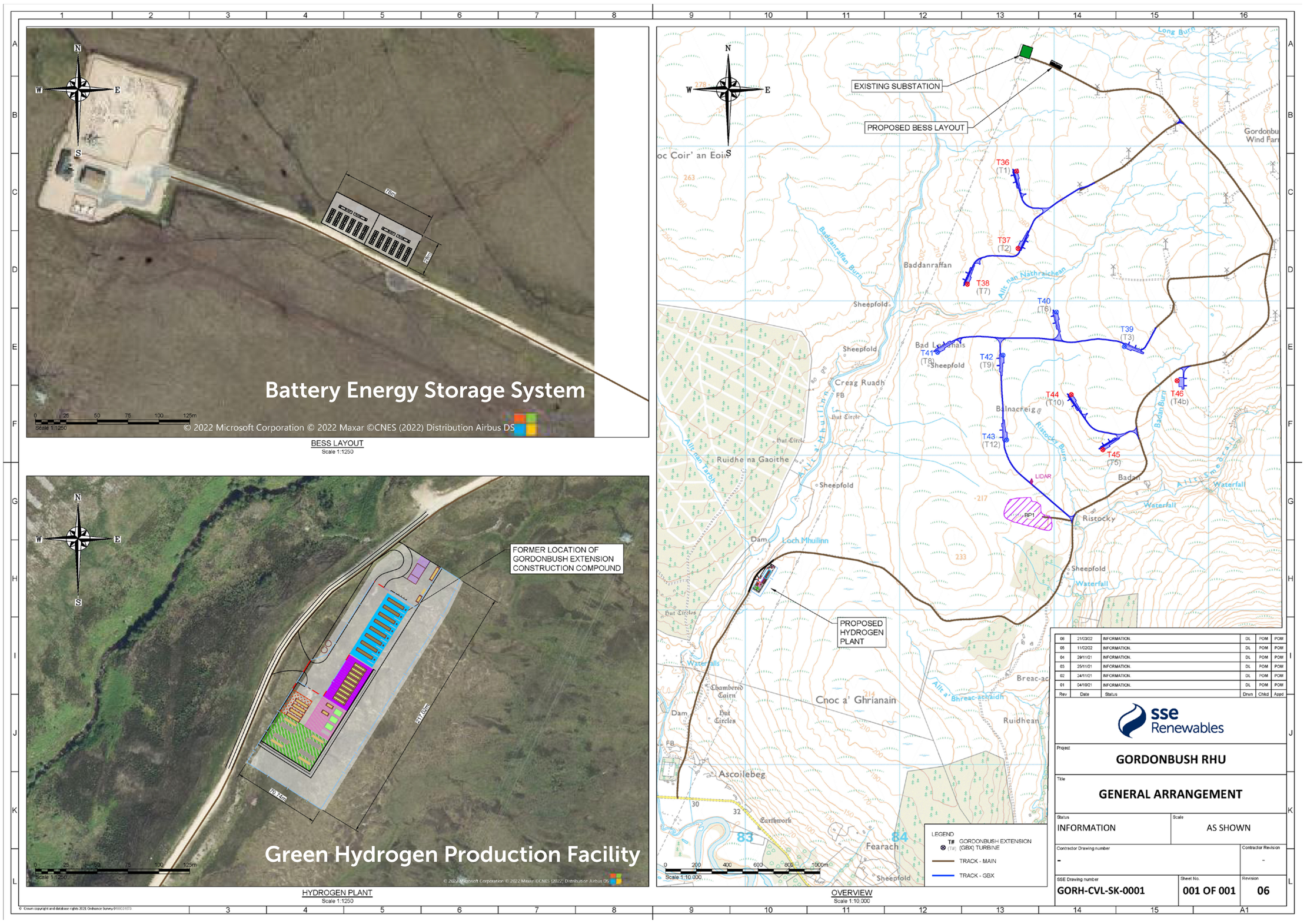
THE PROJECT

The proposed Hydrogen Production Plant will be located at the operational Gordonbush Wind Farm, situated in an area between 2km north west and 10km west of Brora.

The Proposed Development comprises of 2 main components: a green hydrogen production facility and a battery storage system. These would be located within the existing infrastructure of the Wind Farm. At this stage, the detailed design of these elements has not been fully developed and a level of refinement of the scheme is expected prior to submission of a planning application.



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BATTERY ENERGY **STORAGE SYSTEM**

GREEN HYDROGEN FACILITY

The Proposed Development would consist of an electrolyser system that could produce approximately 2000 tonnes of hydrogen per Annum. The site would extend to 1.87Ha, based on the site platform of approximately 217 metres (m) x 67m with a maximum height of 5.2m.

The initial indicative layout would involve the following infrastructure:

- Modular Electrolysis Units;
- Fixed Hydrogen storage;
- Hydrogen storage tube trailers;
- Auxiliary process plant;
- dispenser units to fill the tube trailers;
- infrastructure for water supply and treatment;
- internal access roads;
- foundations and hardstandings (including construction of site drainage);
- perimeter security fencing; and
- security lighting.

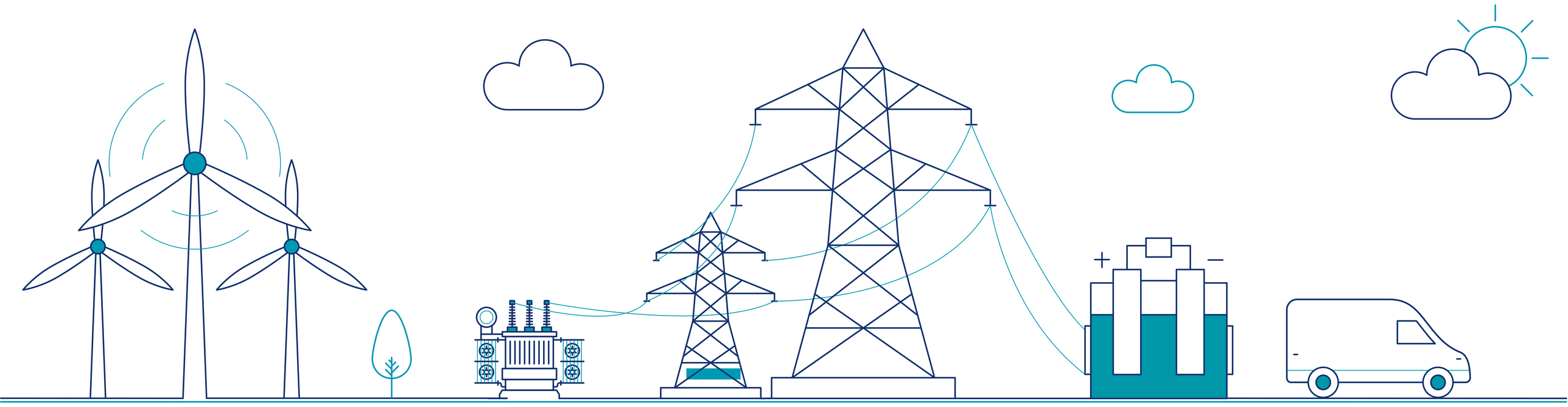
The platform would reuse the existing infrastructure extending wherever possible, including the existing access tracks and a reinstated borrow pit. Site drainage would be constructed around the perimeter of the facility.

BATTERY ENERGY STORAGE SITE (BESS)

The proposed development would also include a battery energy storage system which would be capable of storing any surplus, or constrained, renewable energy produced by the Wind Farm at times of excess wind on the electrical grid. This would allow such excess green energy to be stored in lithium-ion batteries for possible later use, including the potential to power the electrolyser for green hydrogen production or to dispatch to the national grid at times when the wind is not blowing.

There would be approximately 16 containers located within the BESS compound and these would house battery cells and control system. An underground cable connection would connect the BESS to the main electrical busbar of the existing Wind Farm substation.

The BESS will be submitted to the Scottish Government Energy Consents Unit under a separate Section 36C planning application.



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GREEN HYDROGEN FROM **GENERATION TO USE**

The proposed facility would produce approximately 2000 tonnes of Green Hydrogen, by splitting the elements of water (H_2O) into the component parts of Hydrogen and Oxygen, using a process called Electrolysis.

As well as water, the electrolysis process requires a significant volume of electrical energy. We would source renewable energy from Gordonbush Wind Farm and utilise surplus, or constrained, energy produced by the Wind Farm at times of excess wind on the electrical grid.

Hydrogen can be used as a clean alternative to petrol or diesel and can be used to power a variety of things including cars, lorries and heating systems. Other fuel sources omit carbon dioxide into the atmosphere when burnt however, when hydrogen is used, the only waste product is water vapour.

During peak production it is anticipated that approximately 8 tonnes of green hydrogen would be produced per day. All hydrogen would be temporarily stored in 8 tube trailers and 8 fixed storage units of maximum capacity of 1tonne. Before the hydrogen is transported off site it would be compressed allowing it to be transported more efficiently and be ready for commercial use.

As well as hydrogen, one of the by-products of electrolysis is medical grade O_2. There may be an opportunity to support local business / economy with O_2 supply.

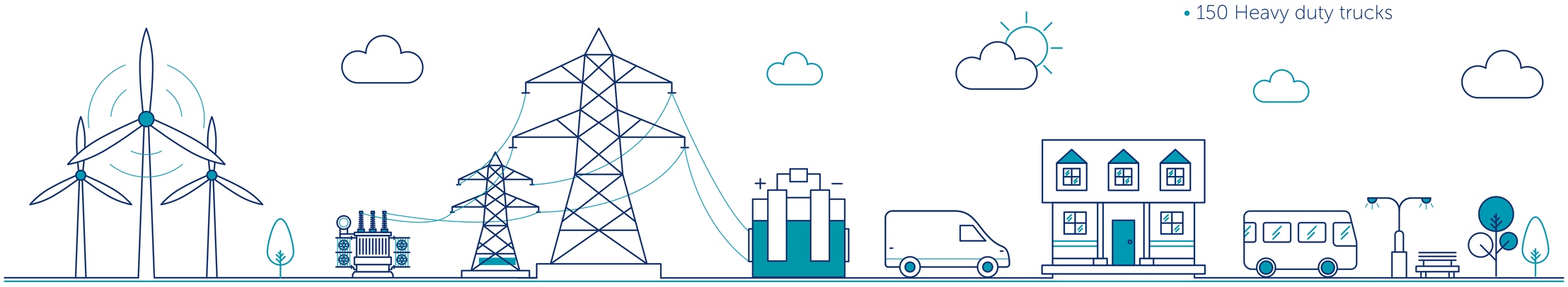
Gordonbush produces up to 108MW of renewable energy.

A Renewable Hydrogen Updgrade can produce around 2000 tonnes/year of green hydrogen.

Hydrogen is then transported to the end user.

2000 tonnes of hydrogen per year can power approximately:

- 4875 Taxis
- 275 Buses
- 150 Heavy duty trucks



BENEFITS

- The development will act as a catalyst for other businesses to use green hydrogen - providing a secure local supply of hydrogen to allow others to convert to green hydrogen.
- Green hydrogen has an important role in ensuring net zero is met by the decarbonisation of sectors that are difficult to electrify including heating, manufacturing, transportation and providing a green alternative to petrol, diesel or natural gas.
- The proposed Hydrogen Production Plant at Gordonbush Wind Farm would help kick start the hydrogen economy in Sutherland and wider Highland region.
- The project would create jobs in the short-term and support the long-term ambition of developing green hydrogen production and a supply chain locally.

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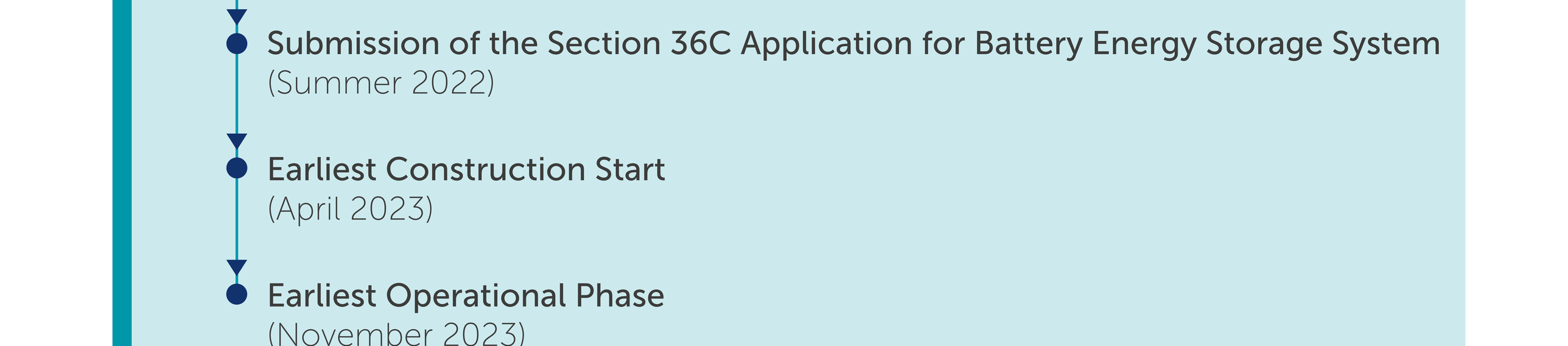
TIMELINE

- **Environmental Surveys**
  (February 2022)
- **Scoping**
  (March 2022)
- **First Public Exhibition**
  (April 2022)
- **Further Engagement with Stakeholders**
  (Spring/Summer 2022)
- **Second Public Exhibition**
  (Expected Summer 2022)
- **Submission of the Town and Country Planning Application**
  (Summer 2022)
- **Submission of the Section 36C Application for Battery Energy Storage System**
  (Summer 2022)
- **Earliest Construction Start**
  (April 2023)
- **Earliest Operational Phase**
  (November 2023)



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ACCESS ROUTE

A key consideration in shaping this proposal has been to ensure our access routes are as efficient and safe as possible.

For the short time frame for site construction, the majority of materials would be reused within the site. The limited deliveries, which would utilise standard Heavy Goods Vehicles (HGVs), would be distributed over the duration of the construction phase. The modular components for both the Electrolyser and the Battery Energy Storage System would be transported by road going HGV's, North bound through to the North of Brora, then via the Clynelish Road road to the C6 Strathbrora road before entering the Gordonbush site entrance.

In order to service the Hydrogen Production Plant, vehicles would collect hydrogen and deliver it to customers situated within the Sutherland and wider Highland area. The short route from the Wind Farm to the A9 would use the C6 Strathbrora and Clynelish roads, avoiding the route through the village of Brora.

Click here to view a larger image

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ENVIRONMENTAL **ASSESSMENT**

The site has been subject to significant environmental surveys and assessments as part of the original Gordonbush Wind Farm and it's Extension.

The intention is to draw on much of the extensive information that has already been collected for the site and surrounding area to inform the planning and design process.

Further environmental studies and surveys will also be carried out by professionally qualified specialists to assess the potential environmental effects of the project.

LANDSCAPE AND VISUAL

As the Proposed Development would be located within the operational Wind Farm site in a relatively remote area, potential visual impacts are largely limited during operation to operational staff, estate workers and recreational users on the existing Wind Farm access tracks.

Some wider visibility of the Proposed Development, during construction activities, may be experienced from Strath Brora, including residents and visitors at a few scattered properties, a Core Path and the minor road.

NOISE

Extensive noise survey has been carried out from local residential receptors. Assessment will be carried out to ensure noise levels at the nearest noise sensitive receptors fall within guidance and Highland Council recommended levels.

NATURAL HERITAGE

The site has already undergone robust survey to identify habitats, protected species and birds. The Gordonbush Estate Combined Management Plan has also been assessing and managing the ecological interests of the estate for over 10 years. Consequently, there is considerable existing baseline ecological and bird information for the area that can be drawn upon. Nevertheless, updated habitat and otter survey work will be carried out at the site over the coming months.

WATER AND SOILS

Discrete areas of peat are present at the site. A comprehensive programme of peat depth probing has been carried out which confirms that peat beneath the hydrogen facility is <1m. Whilst peat beneath the proposed battery storage system is <3 m.

TRAFFIC AND TRANSPORT

The Proposed Development would be accessed via the existing site access junction to the Wind Farm site and existing Wind Farm tracks.

The impact of construction traffic would be temporary and would be managed through standard good site practices and the provision of a Construction Traffic Management Plan.

It is anticipated that the operational phase of the development could generate up to two trips per hour during daytime hours.

Photo of the electrolyser compound location at Gordonbush Wind Farm.

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SUPPORTING COMMUNITIES **IN EAST SUTHERLAND**

Since 2011, the SSE Renewables Gordonbush Community Fund has awarded over £2 million in grants for various initiatives across the East Sutherland area.

SSE Renewables is a proud member of the communities in East Sutherland area as a developer, constructor and operator of important assets across the region.

Through the years, the Gordonbush Community Fund and Gordonbush Extension Community Fund have supported initiatives aimed at improving skills and training opportunities, social care, and sustainable tourism.

VALUE DELIVERED ACROSS SUTHERLAND

The points below shows some of the added value we have delivered across Sutherland as a result of our projects:

- **£2.4m** allocated projects within the Gordonbush area since 2011
- **£6.7m** to be invested in East Sutherland communities over the wind farms' lifetime
- Gordonbush Apprenticeship Scheme supported **26 businesses**, **34 young people**, with **14** still actively engaging in learning.

Gordonbush Project wlecomes apprentice number 38, Emma

When Henderson Roofing, with support from the Gordonbush Apprenticeship Scheme, decided to take on an Apprentice to allow the business to grow, Emma jumped at the opportunity! Emma has recently started with a mixture of on-site work and attending college in Arbroath. Emma says "It's given me the opportunity to gain a qualification, work outdoors and be able to stay in Sutherland."

For more information about the Gordonbush Wind Farm Community Benefit fund, contact **Fiona Morrison** via email: **Fiona.morrison@sse.com** or phone: **01738 340098**

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MEET
THE TEAM

Richard Hearnden
Project Manager
SSE Renewables

I am the Project Manager for the proposed Hydrogen Production Plant at Gordonbush Wind Farm. I have over 25 years of experience in the Development, Operation and Maintenance of all types of Renewable Energy Systems.

Greig Mcintosh
Hydrogen Business Development Manager
SSE Renewables

I am the Hydrogen Business Development Manager working on developing the hydrogen economy in Brora and the wider Highland region, starting with the proposed Hydrogen Production Plant at Gordonbush Wind Farm. As well as supporting businesses in reaching their net zero carbon targets, I believe green hydrogen has the potential to lower the cost of energy in the Highlands and Islands.

Laura Fleming
Business Development Director
Siemens Gamesa Renewable Energy (SGRE)

I am currently responsible for the integration of the hybrid and hydrogen applications for existing and new wind farms, and I'm the project lead for SGRE for the collaboration between SSE Renewables and SGRE.
I have worked in the development and renewables industry for over 20 years and for the past 10 years with Siemens Gamessa Renewable Energy.

Jade O'Hara
Stakeholder Engagement Manager
SSE Renewables

I am the Stakeholder Engagement Manager for the proposed Hydrogen Production Plant at Gordonbush Wind Farm and will be the first point of contact for members of the community who would like to discuss the development. I'm here to assist with any enquiries members of the community may have about the project and also support other SSE Renewables projects across Sutherland.

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