



About Drax Group

Drax Group is a UK-based renewable energy company engaged in renewable power generation, the production of sustainable biomass and the sale of renewable electricity to businesses. Drax operates a generation portfolio of sustainable biomass, hydro-electric and pumped storage hydro assets across four sites in England and Scotland. It is the UK's largest source of renewable electricity.

Net-Zero Energy

Drax Group is committed to enabling a zero carbon, lower cost energy future through engineering, technology and innovation such as:

- Carbon capture and storage;
- Bioenergy;
- Pumped Storage Hydro (PSH);
- Hydroelectric power; and
- Power system stability.

Cruachan 2 is a continuation of Drax Group's ambition for a net-zero energy future.

Sustainability

Drax Group is building for a sustainable future in how it sources biomass, generates energy, removes carbon dioxide and functions as a business.

Drax Group is committed to minimising environmental impact, conducting business ethically and with integrity and supporting people, culture and values.

Why Pumped Storage Hydro and Why Cruachan?

Cruachan Power Station, a pumped hydro facility capable of providing 440 megawatts (MW) of electricity, sits on the banks of Loch Awe in the Highlands, ready to deliver power in just 30 seconds.

"Here there is a minimum distance between the two water sources with a maximum drop," says Gordon Pirie, Civil Engineer at Cruachan Power Station, *"It is an ideal site for pumped storage."*

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Overview

Cruachan Power Station ('The Hollow Mountain')

Cruachan has a long and rich history as a site for hydroelectric energy generation, with Dumbarton born engineer Sir Edward McColl first conceiving of the idea for Cruachan Power Station in the 1930s. Following political support in 1947, the design stage commenced under James Williamson and by 1959 work had begun on the extensive tunnel network beneath the Hollow Mountain. Cruachan was connected to Dalmally substation via a transmission line in 1960 and was officially opened by Her Majesty The Queen on the 15th of October 1965 – becoming the first reversible pumped storage hydro system of this scale to be built in the world. By 1967, Cruachan Power Station reached its full energy generating capacity.

Drax acquired Cruachan Power Station in December 2018, one of only four pumped hydro storage stations in the UK and has a current capacity of 440 Megawatts (MW) – enough to power more than 500,000 homes.

Cruachan Expansion

The Proposed Development, seeks to provide an expansion of the power generation capacity of up to an additional 600 Megawatts (MW) at the Cruachan pumped storage hydro electric generation station. Key components of the proposed development include:

- Control works at Cruachan Reservoir and Loch Awe;
- A new underground waterway system to carry water between the upper and lower reservoir;
- A series of underground power-house caverns and chambers containing reversible pump-turbines and motor-generators;
- Above ground substation to provide a connection between the existing 275KV circuit that connects to Dalmally substation;
- Ventilation shafts;
- New quayside adjacent to the lower control works
- Above ground administration and workshop buildings for day-to-day operations;
- Access tunnels for health and safety and movement of power station personnel; and
- Upgrades to existing service roads to facilitate access by heavy machinery.



Drax & Hydro Power

Pumped hydro storage stations have never been more important to the country's decarbonisation. Drax believe that flexible and responsive power generation and storage capacity from pumped hydro projects like Cruachan are essential for delivering the Scottish Government's net zero by 2045 target.

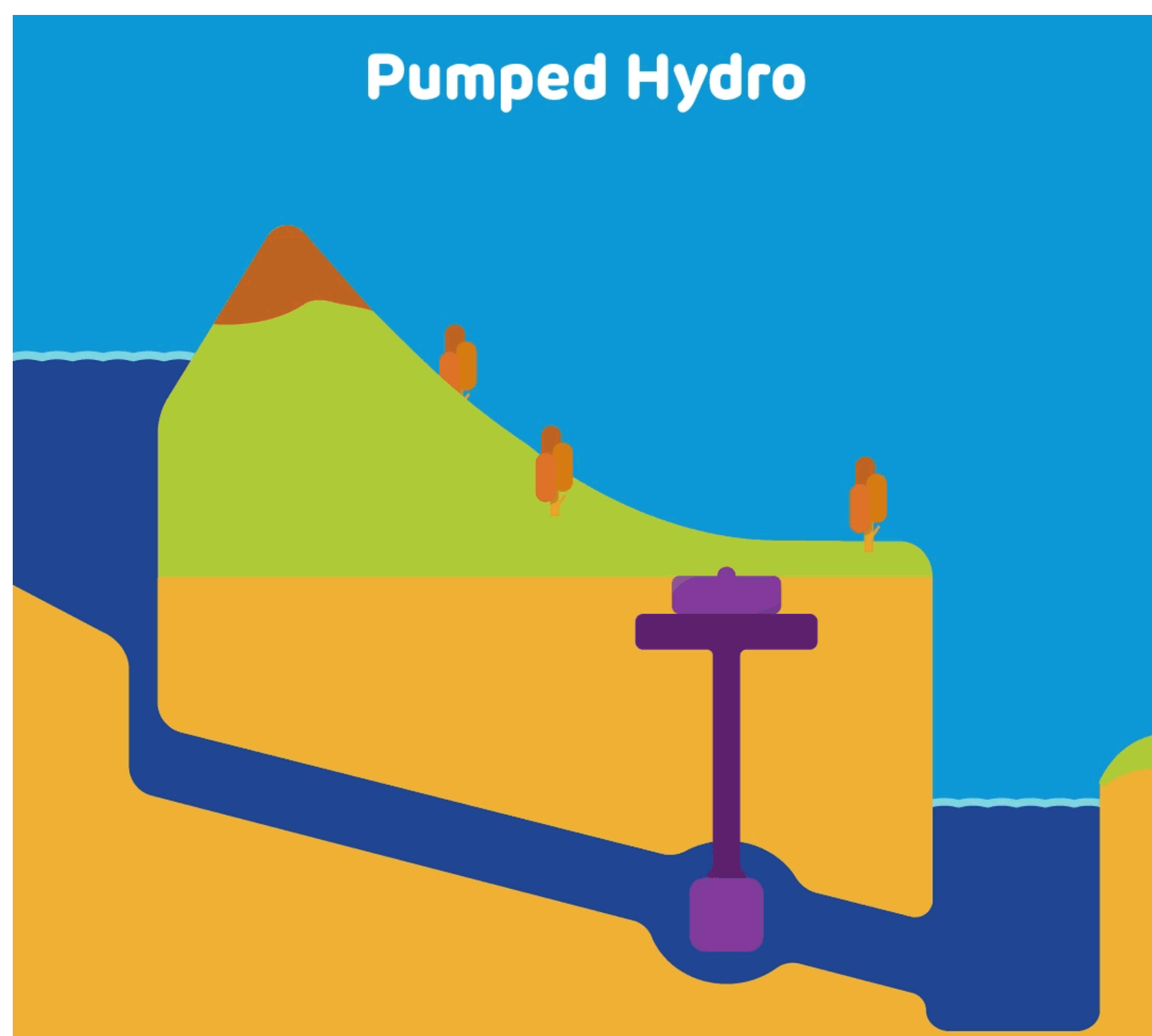
How does Pumped Storage work?

Water released from the upper reservoir (Cruachan), flows via a series of tunnels and pipes through the turbine and into the lower reservoir (Loch Awe). The flow of water rotates the turbine which in turn rotates a generator to produce electricity.

Excess electricity from the grid can then be used to drive the turbine in the opposite direction, to pump water from the lower reservoir back up into the upper reservoir.

Pumped storage provides extremely quick back-up during periods of high demand by maintaining stability on the National Grid or when other sources of generation are not available. For example, Cruachan can reach its full capacity of 440MW in 30 seconds and can maintain its maximum power production for more than 16 hours if necessary. It can also help solve intermittency issues with other forms of renewable power, that is, when the wind doesn't blow and the sun doesn't shine. It also operates to help maintain stability of the national grid.

For these reasons National Grid recently awarded Cruachan a six-year contract to keep the electricity system stable.

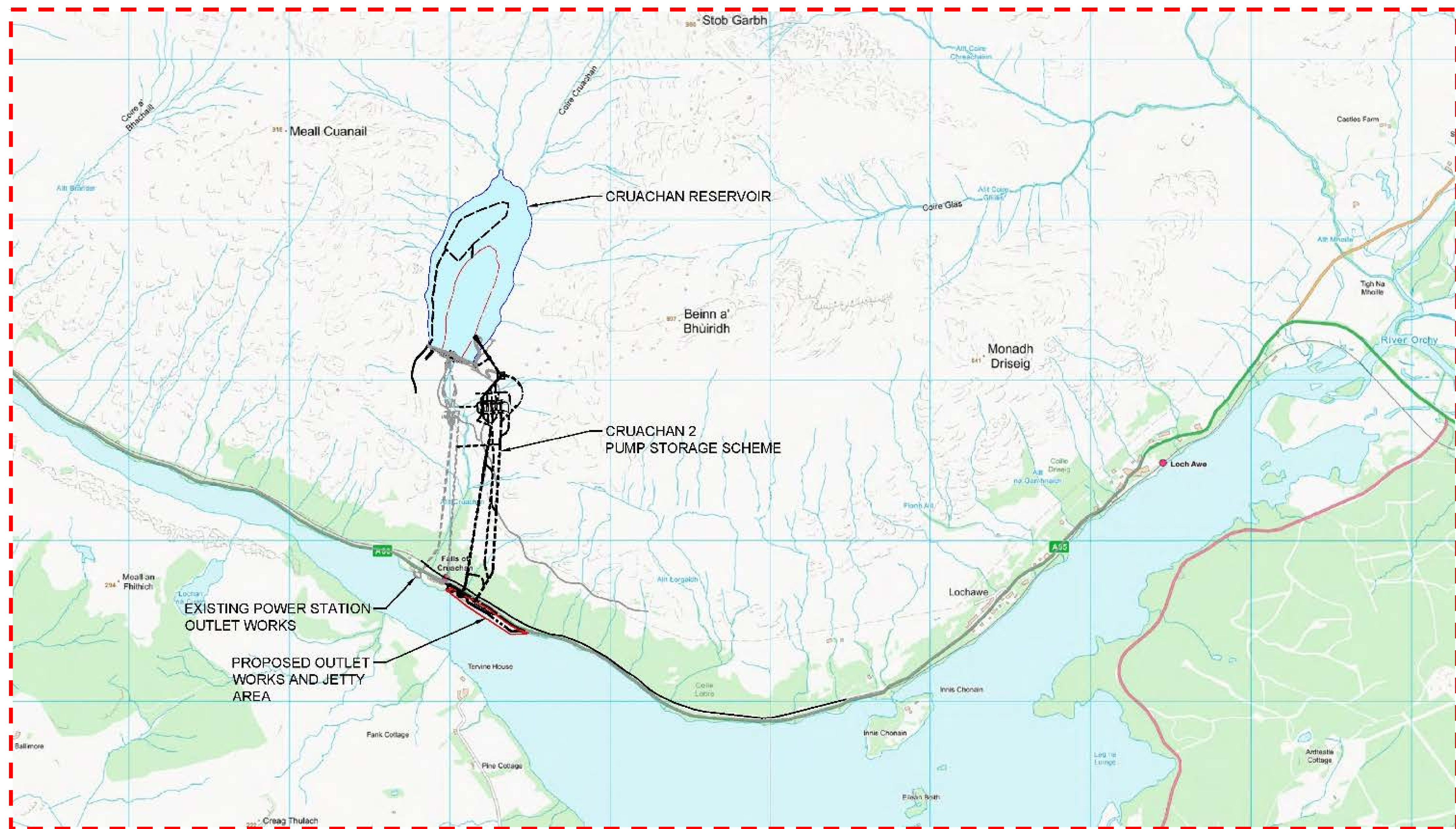


“Britain's pumped hydro storage stations have never been more important to the country's decarbonisation. They play a vital role in keeping the grid stable and enabling more wind power to come online”

“Flexible and responsive power generation and storage capacity from pumped hydro projects like Cruachan are essential for delivering the UK Government's net zero by 2050 target. With the right support framework from Government a new generation of pumped hydro storage power stations can be built, supporting new jobs and helping the country decarbonise faster.”

Will Gardiner, CEO, Drax, March 2021

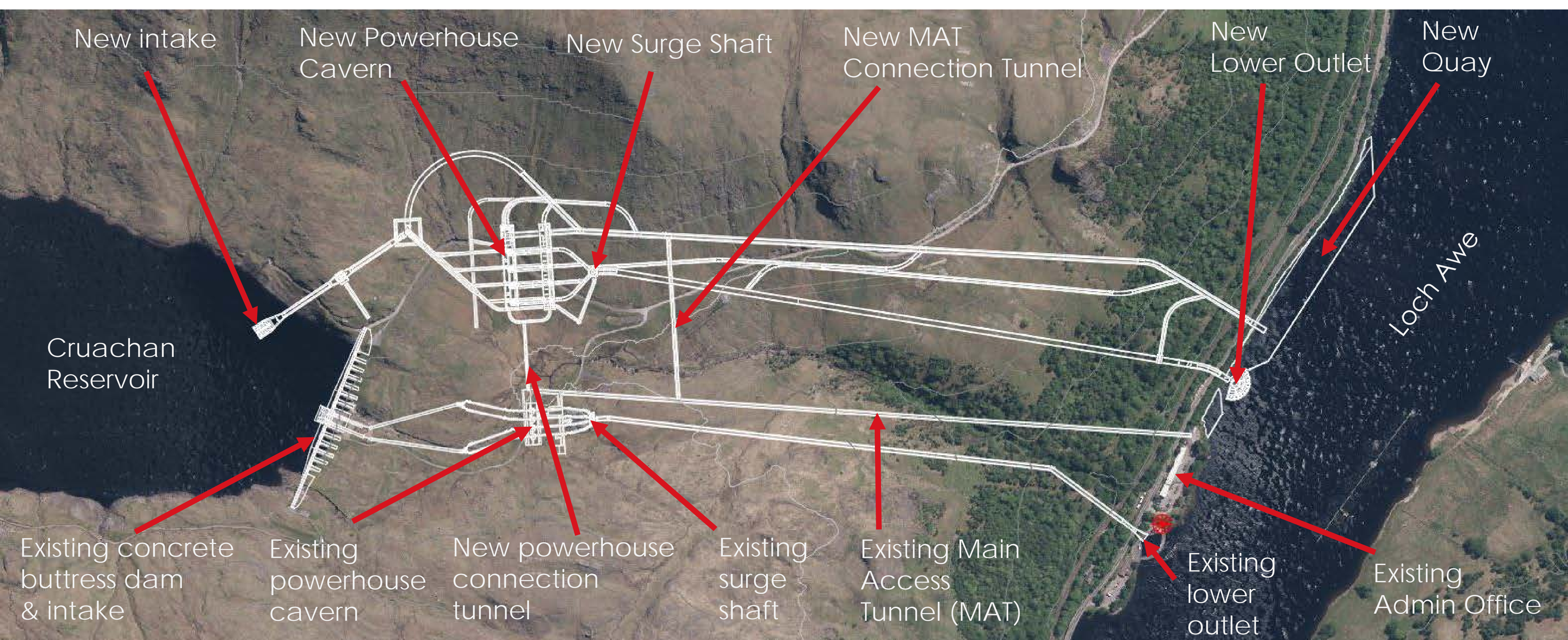
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The proposed scheme

Cruachan 2 Development Proposals

- Increase generation output by up to 600MW to complement increasing levels of inflexible renewable generation and mitigate boundary constraints between Scotland/England
- Involves the construction of a whole new underground power station located to the east of the existing Cruachan station
- Conceptual design studies (sometimes referred to as early Front End Engineering and Design works) have developed an outline design suitable to accompany the application for consent under Section 36 of the Electricity Act (the S.36 Application). This outline design is currently being refined through consultation and further technical assessments
- Recognised as a national development under Scotland's National Planning Framework
- Supports Scottish Government goals for net zero and green recovery
- Project has EU Project of Common Interest status



The proposed scheme

The component parts of the development are best thought of in two distinct phases: the construction phase and the operational phase. At this point in the process, design of both aspects is ongoing and the purpose of this consultation therefore is to highlight the elements involved and the likely methodology. The design proposals will be the subject of a subsequent consultation, prior to lodgement of the S.36 Application.

Construction Phase

- Upper construction compound in the vicinity of the Cruachan Dam
- Widening works to the existing dam access road
- New quayside in Loch Awe – part temporary to facilitate construction works
- Temporary diversion of the A85 as necessary
- Establishment of lower site compound and construction workers accommodation
- Tunnelling and excavation works
- Delivery of specialist equipment and abnormal loads

Construction elements being evaluated

- Tunnelling and excavation:
 - Tunnel boring machine
 - Drill and blast
- Spoil management options:
 - Reuse on site where possible
 - Movement offsite by barge to staging area or onto rail
 - Movement by Road
- Temporary workers village for accommodation during construction period

Operational Phase

- New generating facility could be 4 x 150MW or 2 x 300MW (or other configuration) and will be independent of the existing station
- Water will pass between Loch Awe (the lower reservoir) and Cruachan Reservoir, passing through the turbines in either direction depending on the operational mode
- Access tunnels would be independent of existing station during construction; then cross connected for operation
- No changes would be made to the upper reservoir other than new intake for Cruachan 2
- The proposed new plant would operate separately from the existing station



What Happens Next?

Scoping Opinion

The Scottish Government are currently seeking responses from various statutory and non statutory consultees to the EIA Scoping Report submitted by Drax in July 2021. From this consultation, the Scottish Government will form a Scoping Opinion and this will identify the issues that should be assessed in the Environmental Impact Assessment in support of The S.36 Application to the Scottish Ministers.

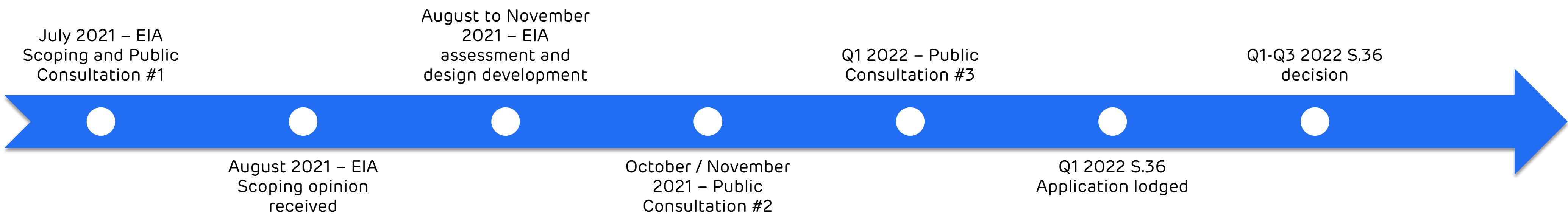
Environmental Impact Assessment (EIA)

A number of environmental surveys and impact assessments will be undertaken by professionally qualified specialists to assess the potential effects of the proposed scheme. The following topic areas are expected to be covered:

- Landscape Character and Visual Amenity;
- Terrestrial Ecology (Habitats and Animals);
- Ornithology;
- Fish and other Aquatic Ecology;
- Water Geology and Soils;
- Noise and Air Quality;
- Cultural Heritage;
- Land Use, Tourism and Recreation; and
- Traffic and Transport.

The outcome of these surveys will be detailed within an Environmental Impact Assessment Report (EIAR) which will accompany the S.36 Application to Scottish Ministers. On submission of the application, consultees and the wider public will be able to formally comment on the finalised proposals to the Scottish Ministers.

Planning Programme Timeline






Exhibition

Exhibitions such as this are an important part of the development process for us, helping us to engage with the local community and interested parties about our proposals and the work we have undertaken so far. The exhibition is a chance for us to share our plans and is an opportunity for people to raise questions, concerns, ideas or comments that can be considered as part of the development process.

Further public exhibitions are planned for later in 2021 to update you on our progress prior to lodgement of the S.36 Application. In the meantime, we will be sharing updated information on the project site: www.cruachanexpansion.com

Keeping in touch

Please take the opportunity to leave your contact details on the website in order to receive project information. Drax Group would welcome the submission of comments in respect of the proposal. If you have a few minutes, please complete the exhibition feedback form available via the link below each of the virtual exhibition stands. (Look for this symbol: )

Alternatively, please contact the Project Team at:

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