

Barnahely Energy Storage Project



April 2018

ENGIE Developments Ireland Limited has submitted a planning application to Cork County Council for an energy storage facility adjacent to the existing Barnahely substation, sited in the 'old quarry'. The facility will provide the capacity to store up to 20 MW of electricity. This energy can be stored when electricity supply exceeds demand and then transmitted to the national grid when electricity demand exceeds supply.

Why is this Project Needed?

According to Eirgrid, day-to-day electricity usage in Ireland ranges from 3,000 MW to circa 6,300 MW. Therefore, the power generation and grid must deal with large transitions between lows and highs, not only over the course of a day or week but second-by-second.

Battery storage acts as a power reserve for the national electricity network. When electricity generation drops below demand this reserve capacity can be switched on at a moment's notice.

Other technologies can and do provide reserve services. These include gas or diesel driven engines which are coupled to generators. However the advantages of batteries include:

- ▶ Smaller, quieter and less visually intrusive;
- ▶ Negligible environmental footprint;
- ▶ No fuels are stored on site or piped in;
- ▶ Near instantaneous response;
- ▶ Can be powered directly by solar farms or wind farms in the area.

In that regard the proposed development helps to meet the Irish Government's objective of promoting the development of secure and sustainable energy systems that can meet the EU's 2020 climate targets in a cost effective manner without jeopardising the electricity system.

Why Barnahely?

There are a limited number of substations in Ireland that have the capacity to facilitate energy storage. Barnahely provides an opportunity for significant progress towards Ireland's low carbon future and can play a key role in ensuring residents and businesses have a stable electricity supply.

The Proposed Development

The proposed development will consist of eight metal containers (similar in appearance to shipping containers) which will house batteries, each with an associated inverter station and Heating Ventilation and Air Conditioning (HVAC) units.

They will be contained within a site area of approximately 0.72 hectares which will be surrounded by a boundary fence, security lighting, CCTV cameras and all associated site services. Planning permission is sought for a period of 25 years.

It is expected that the Energy Storage Project could provide grid stabilisation services to Eirgrid, and it is hoped that a contract will be awarded to ENGIE through EirGrid's grid stabilisation (DS3) programme.

Benefits of the project to the Local Area

ENGIE recognises that in areas where it operates it should contribute to the local community as much as possible. The benefits of this Energy Storage Project include:

- ▶ Sourcing all construction materials, where available, locally within County Cork.
- ▶ The use of local contractors for civil and electrical works, where available, benefiting the local economy and the development of skills in the area.
- ▶ The use of local trades for ancillary works such as landscaping and ground keeping. This is an ongoing commitment for the lifetime of the project, circa 25 years.
- ▶ €4,000 per annum (index linked) community benefit fund. This will be available for community projects within 2 km of the development once the project is commissioned.



Photograph of the typical layout of a Battery Storage Facility.

Battery Storage

Like the name suggests, battery storage is a means of storing electrical energy just like a rechargeable battery or electric car. The application is on a larger scale but the basic principle is the same: it allows power to be stored and released.

Globally, there is increasing demand for energy storage, driven in part by the expansion of intermittent energy sources such as wind and solar. There are many companies like ENGIE who deploy battery technology at large scale to better manage electricity systems.

Across the UK and Ireland there are currently about 600 MW of battery storage units in construction and over 1,000 MW with planning approved. These battery storage systems range in size from 10 MW and 100 MW.

What is a Lithium Ion Battery?

A Lithium Ion battery is a rechargeable battery that was first invented in the 1970s and has been in commercial production since early 1991. Battery storage is a well-developed technology and has been a feature in public use since the early 1990s. Common household items such as watches, laptops, telephones, cars and all other portable electronic device use the same technology.

Health and Safety

We recognise that safety is a key concern of the community in Barnahely. Safety of the community, the work force and the environment are paramount to ENGIE.

ENGIE has a significant portfolio of energy assets globally and has extensive experience in designing and operating energy systems. We have used this wealth of experience to design the system being proposed at Barnahely and to ensure it will meet all health and safety regulatory requirements relating to design, construction, operation and decommissioning.

The batteries are at the forefront of design and include safety systems which have been rigorously tested in applications globally. We need the batteries to be performance ready so they are monitored 24 hours, 365 days a year.

For safety and security the batteries are housed in sealed containers which maintain atmospheric conditions. In addition to primary and secondary control systems, a fire suppression system (along with a backup) is installed in each container.

Furthermore, the batteries are solid state i.e. do not contain liquid, and therefore there is no possibility of Lithium entering the aquatic or any other environment.

Visual Impact

The small amount of land (1 ha) and low height, plus the provision of a boundary planting scheme, will mean the visual impacts are minimised.

Environmental Assessment

ENGIE employed an independent environmental consultancy to undertake environmental appraisals of the project and identify any mitigation measures that might be required. These assessments included:

- ▶ Ecology assessment;
- ▶ Landscape and visual assessment;
- ▶ Noise, air and climate assessment;
- ▶ Archaeological and architectural heritage assessment;
- ▶ Flood risk assessment;
- ▶ Traffic assessment.

The assessments are comprehensive and undertaken by independent, highly experienced professionals.

Due to the low physical impact of the technology being proposed and the reduced need to remove vegetation, the conclusion of the environmental assessments was that the project is of low impact. Therefore minimal mitigation action is required.

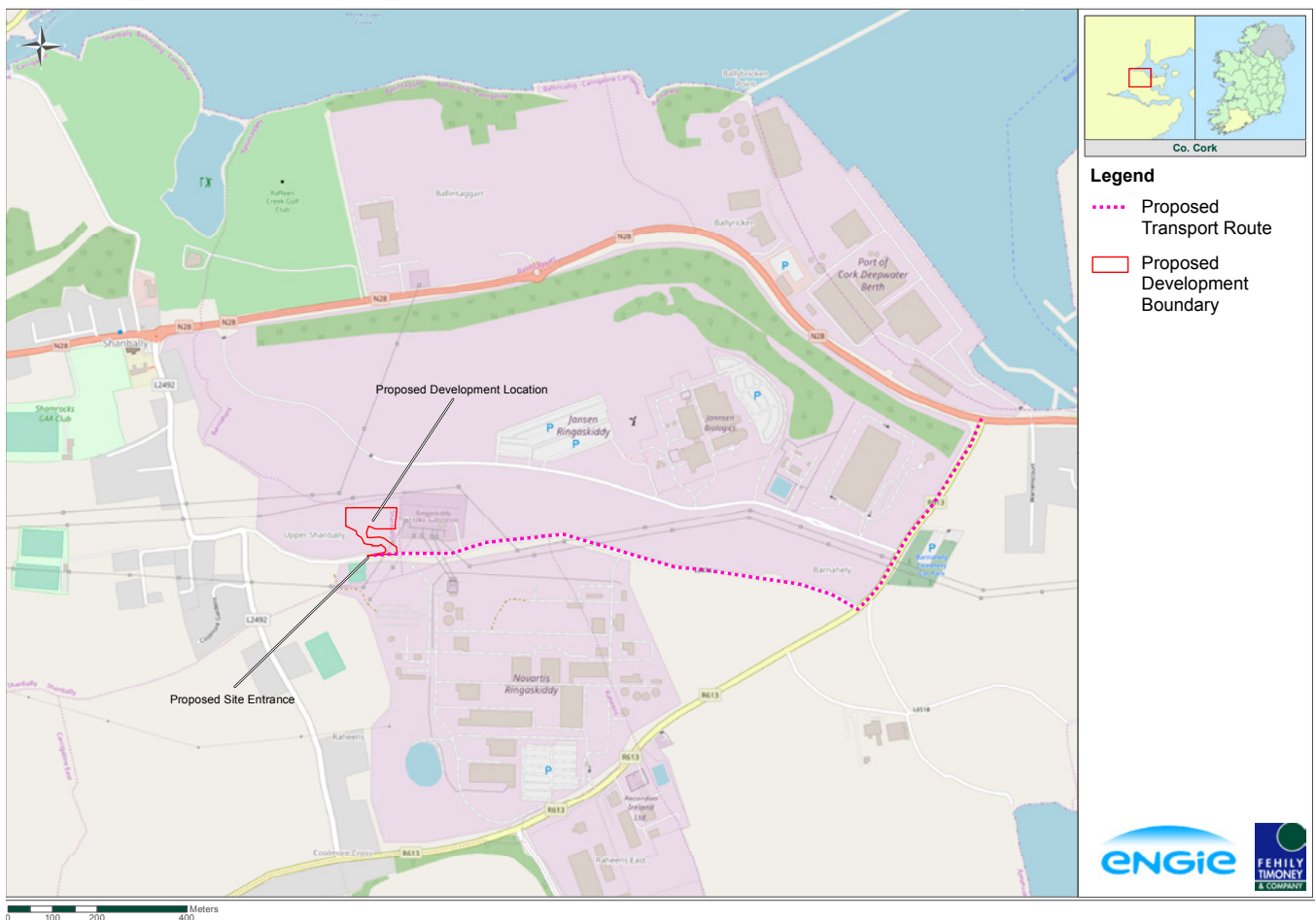
Mitigation Measures

The site currently provides little in the way of natural habitat. To promote sustainability, ENGIE has therefore implemented 'ecological corridors' into the design of the project which will allow the site to be better 'connected' for local wildlife such as badgers.

The inclusion of environmental improvement measures such as these and including onsite habitat will result in net biodiversity enhancements.

In addition, ENGIE has sought to produce further documents which demonstrate how impacts during construction will be managed - for example construction timing, transportation of equipment etc. The route for construction traffic is highlighted below. This will further ensure that impacts to the local community are managed and reduced.

Finally, ENGIE can confirm that a full hydrological survey has been undertaken and there are no watercourses which would be impacted by the project.



Site location and access route.

About ENGIE

ENGIE is a global energy business and an expert operator in electricity, natural gas and energy services. The Group develops its businesses around a model based on responsible growth to tackle the major challenges of energy's transition to a low-carbon economy: access to sustainable energy, climate-change mitigation and adaptation, security of supply and the rational use of resources. ENGIE is currently developing several renewable energy sites in Ireland, as well as battery storage sites which are low/zero carbon projects to help the environment by the reduction of greenhouse gases and the production of clean, renewable energy.

Engaging With the Community

If you are interested in the proposed Barnehely development we hope that this courtesy information guide will give you an overview of the development, its rationale and components, and will help you understand the proposal and its merits.

The proposal is currently being considered by the local planning authority, Cork County Council. The planning process allows for people to make observations on the project.

ENGIE wants to be a good corporate neighbour in the locality and welcomes contact and engagement with the local community in relation to our proposal.

Contact details for the project team are outlined below, and we encourage you to make contact to discuss the project and seek clarification on any aspect of the proposal.



Proposed site location on Google Maps

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