

Faughan
STABILITY

Hello & Welcome

Introduction

Welcome to this information website in respect of the proposed development at Electra Road, Derry~ Londonderry. The proposal is for the development of a Synchronous Compensator facility, on site high voltage substation compound and all associated cables, plinths and equipment, site and access works.

The application has been brought forward given Northern Ireland's move towards a power system supported by high levels of renewable sources such as wind and solar generated energy. To support same, the grid system needs supplementary services such as "inertia" to ensure its continued stability.

A Synchronous Compensator provides this necessary stability to the grid on a long-term and continuous basis. The project will also produce reactive power which improves voltage stability in a region. Thus, this will enhance the strength of the national grid in the Derry~ Londonderry area, providing improved capacity for new generation and demand in the region, without needing to build new overhead lines. SONI has identified this part of the network as requiring additional reinforcement for voltage stability reasons in its 2020-2029 Transmission Development Plan (TDP).

Purpose of Consultation and Next Steps

The purpose of this webpage is to share our indicative proposals with the community and other interested parties, prior to the submission of a Full Planning Application to Derry City and Strabane District Council, later this year.

We are committed to engaging with members of the wider community and are now undertaking a period of pre-application community consultation (PACC) on our proposals.

The feedback received will be shared with the design team and will help to shape our proposals prior to the submission of a planning application. We will prepare a Pre-Application Community Consultation Report which will provide a summary of all feedback, our response and how we have incorporated any appropriate feedback into the final proposals for the scheme. This report will be submitted as part of the Full Planning Application to Derry City and Strabane District Council.

How to provide feedback & find out more

Complete a Comment Card

You can provide your comments via our electronic comment card, which can be completed on our website. If you live within the vicinity of the proposal site, you will have also received a paper comment card which can be completed and returned using the accompanying self-addressed envelope, should you prefer.

Our Website

You can provide your comments via our electronic comment card, which can be completed on www.FaughanStability.com

This website is a one stop shop for all information on our proposals. Through this website you can browse our plans, view information documents and complete an online feedback form.

Speak to Us

Should you have any queries regarding the proposals please feel free to contact our project team Monday- Friday 9am - 5pm on the details below.

Contact: MCE Public Relations Limited

Tel: 028 9026 7099

Email: comments@mcepublicrelations.com

Download more information

You can download an electronic copy of the consultation pack at www.FaughanStability.com. If you have any issues downloading the pdf then please call MCE Public Relations on **028 9026 7099** or alternatively email comments@mcepublicrelations.com.

**The closing date for feedback is
Tuesday 21st September 2021 at 5pm**

Site Location

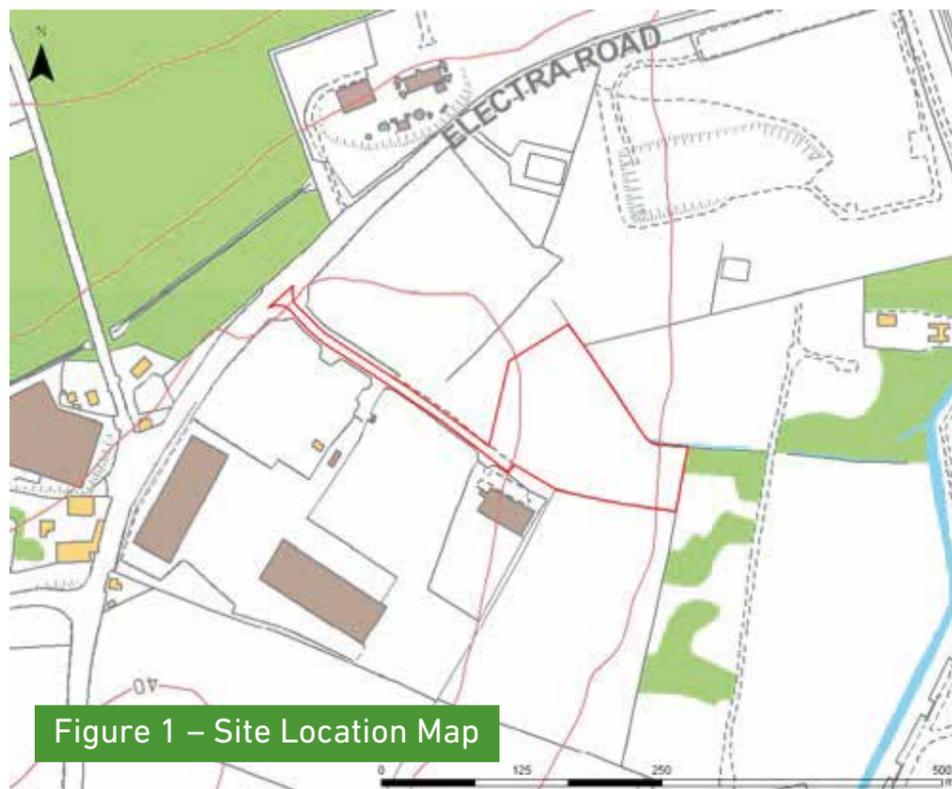


Figure 1 – Site Location Map

The site is irregular in shape and extends to 1.851 ha (4.57 acres). It is located c.190m south east of Electra Road, and north west of the Riverridge Waste Management Station at Electra Road, Londonderry as shown at **Figure 1**.

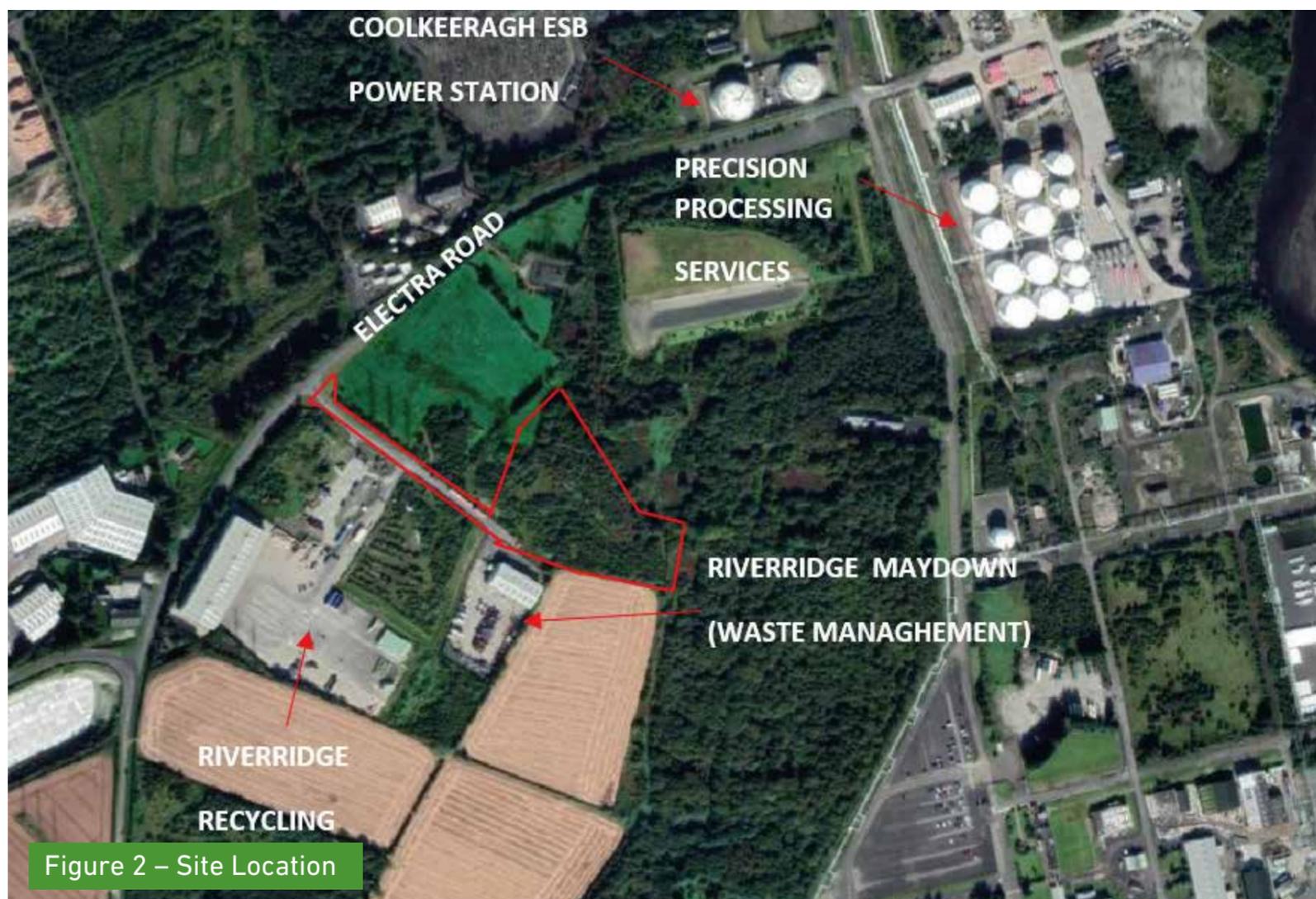


Figure 2 – Site Location

The site is situated within an predominately industrial context. This includes operators such as Coolkerragh ESB Power Station and Precision Processing Services located c. 500m to the north east, and Riverridge Waste Management and Recycling to the south and north west. Further north west of the site are existing residential properties on the Maydown Road with Strathfoyle Civic Amenity Site; DSV Global Transport and Logistics, and Evermore Energy located further west along Maydown Road, Haw Road and Temple Road respectively. The immediate area of the site can be seen at **Figure 2**.

Area Plan Context

Derry Area Plan (DAP) 2011

Section 45 of the Planning Act (NI) 2011 states that where an application is made for planning permission, the Council or, as the case may be, the Department, in dealing with the application, must have regard to the Local Development Plan, insofar as material to the application, and to any other material considerations.

The extant development plan relative to the site is the Derry Area Plan (DAP) 2011. Within the DAP, the site is located within Proposed Industrial Zoning Ref: IND 6 Maydown as shown and denoted by a red circle in the extract at **Figure 3** below.

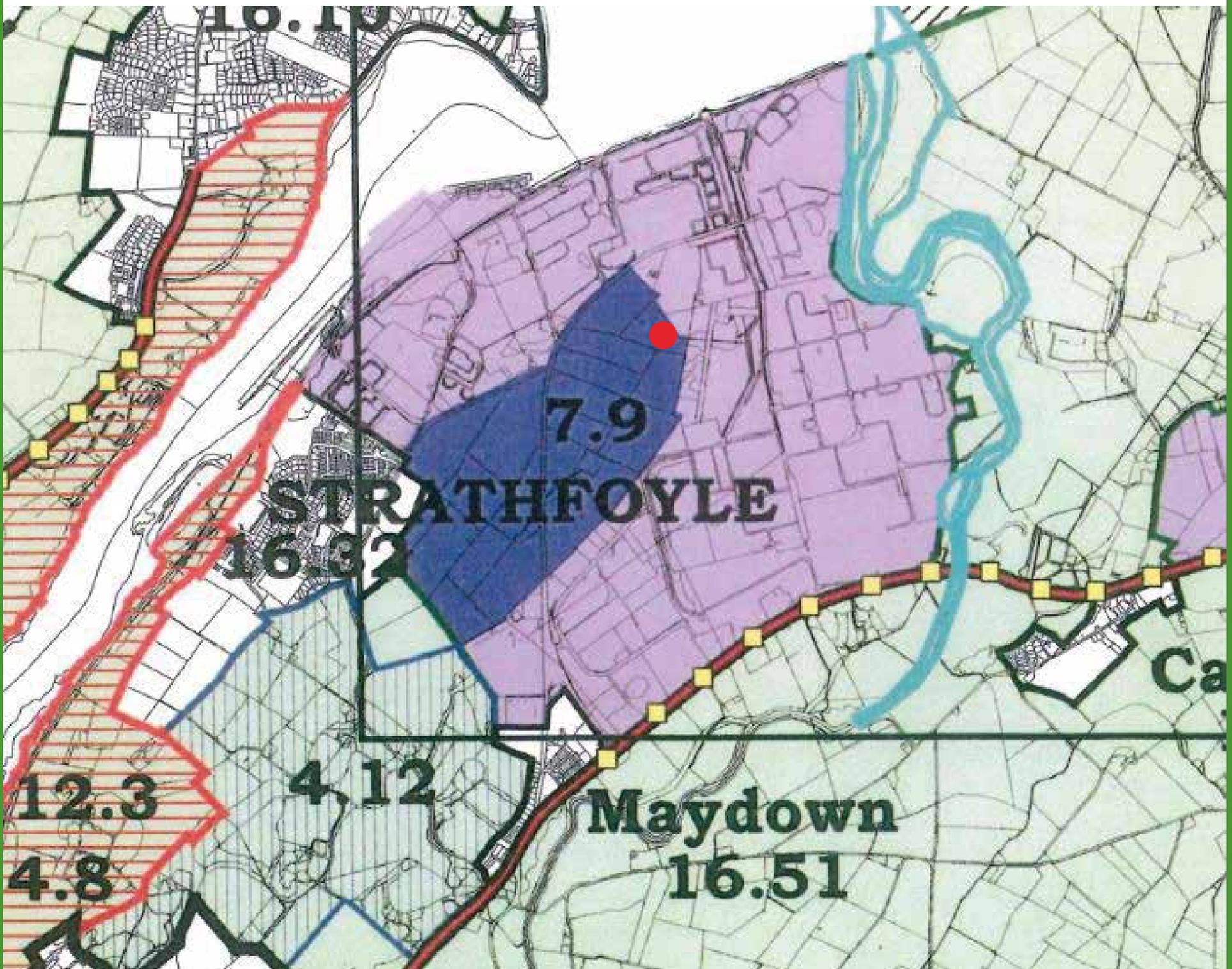


Figure 3 – Extract from DAP (2011)

How our electricity system is managed to keep it stable?

Electricity has traditionally been generated and transmitted from fossil fuel power stations to homes and businesses. As it is transmitted the levels of generation have to be managed so they are exactly equal to levels being used, and properties like voltage and frequency are minutely regulated across the whole network to ensure power generated at scale in industrial power stations could be used by domestic appliances plugged into wall sockets. These voltage and frequency regulating properties are known as grid ancillary services and include services called inertia and reactive power. Traditionally, these services have also been provided by fossil fuel power stations.

However, as renewable energy levels increase on the grid and the level of fossil fuel power decreases an alternative, zero-carbon, source of these grid ancillary services must be deployed. A Synchronous Compensator is a zero-carbon solution to provide ancillary services to the grid such as inertia and reactive power.

What is active and reactive power?

The electricity you use in your home to turn on the lights is called active power. However, getting active power to go around the country efficiently, economically and safely requires something called 'reactive power' which is a by-product of our mainly alternating current (AC) electricity transmission system.

Power stations aren't the only source of reactive power. Household appliances also produce and feed small amounts of reactive power back into the grid. This can increase the amount of reactive power on the grid, so power stations must absorb the excess.

That's because, although reactive power is essential, it is more important to have the right amount on the grid. Too much or too little reactive power in a given location and the voltage level in that area of the grid becomes unstable for the equipment connected to the grid.

Managing reactive power ensures active power is delivered to the places it needs to be. But it also means controlling voltage across the grid.

As our energy system decarbonises, the traditional sources of this reactive power voltage regulation- fossil fuel power stations- are running less often. This creates a greater need for machines such as the synchronous compensator proposed in this scheme to generate or absorb reactive power from the system to avoid voltage instability.

What is inertia?

Inertia is an object's natural tendency to keep doing what it is currently doing.

The inertia of the synchronous compensator can be used to act as a damper on the whole system to slow down and smooth out sudden changes in system frequency across the network – much like a car's suspension it helps maintain stability.

What is a Synchronous Compensator?

The proposed synchronous compensator is simply a large deliberately heavy motor synchronised onto the grid frequency, and it replaces the missing inertia on a grid with high levels of renewables, thus smoothing the grid frequency against any external fluctuations. The synchronous compensator can also produce or consume reactive power, which is valuable for stabilising the grid voltage. This machine produces no active power (the power which we all use to run our homes and businesses) and only consumes active power in order to maintain its' rotation synchronised to the grid frequency.

The electricity grid doesn't just move power around, it does so using alternating current which is a fixed 50Hz sine wave, completing 50 cycles per second. That grid frequency is experienced by all generators and motors and users of the grid. It's important that it is stable. If there's a discrepancy between generation and demand on the grid at any point in time, then the frequency will deviate from 50Hz.

Any spinning machines connected (synchronously) to the grid will then have to speed up or slow down to match. The weight or inertia of those machines is useful, in that it dampens down sudden movements, allowing time for other generators to pick up the slack (or ease off as appropriate). The problem is that wind, solar and interconnectors etc. don't offer any such inertia to the grid. There is a danger that the more of these devices we have, the lighter (lower inertia) the grid will become, and the inevitable disturbances are not sufficiently damped down.

Traditionally the only source of inertia and reactive power was fossil fuel plant, but now there are other options. The synchronous compensator means that we don't need to keep turning on old fossil fuel power stations just to provide these services. Each year the grid wastes millions of pounds and nearly a million tonnes of CO₂ a year in running fossil fuel power stations just to secure inertia, reactive power and other grid ancillary services, even though those power stations are not needed for electricity because there is plenty of renewable generation to meet demand.

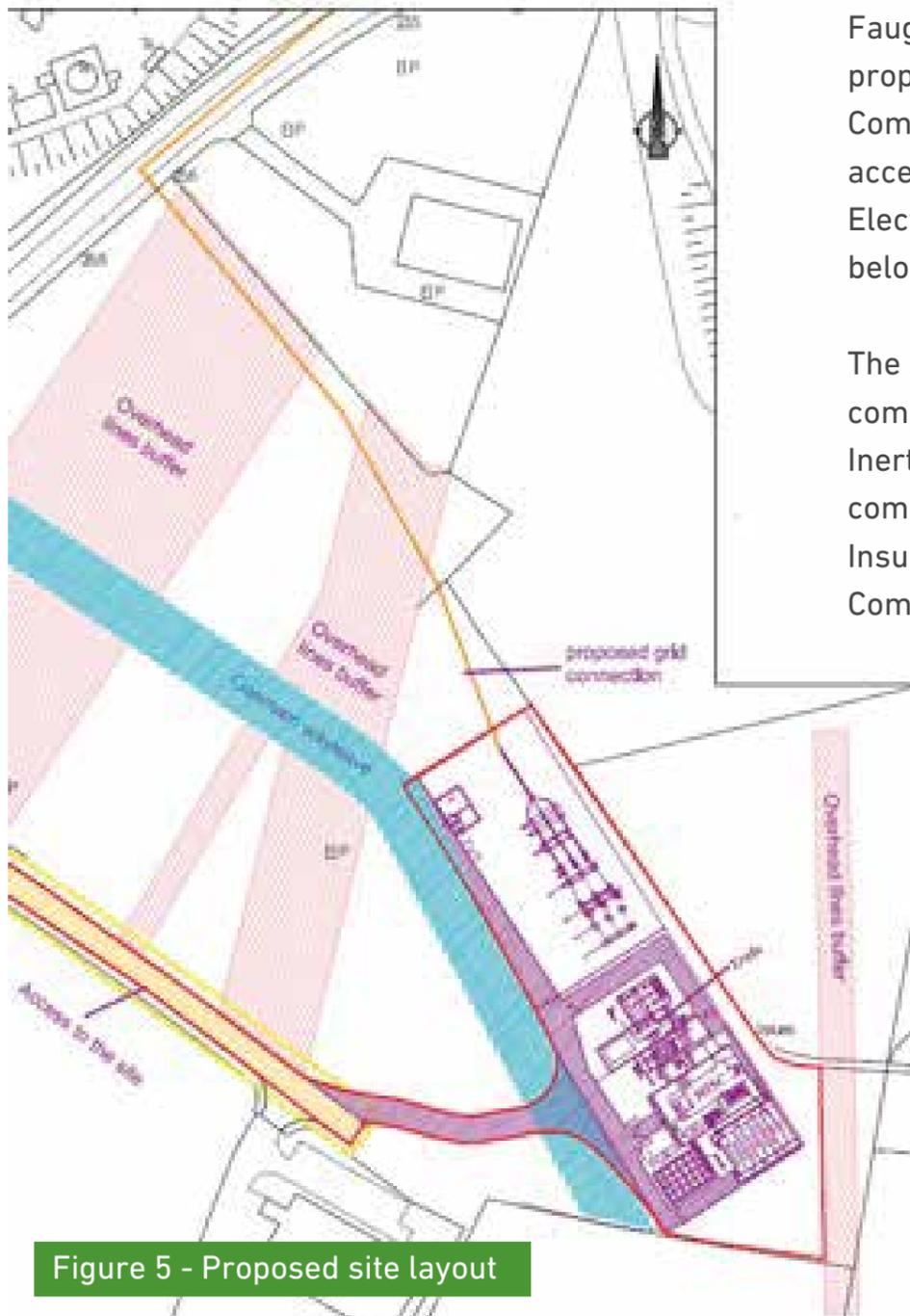
This proposed synchronous compensator, along with other new technologies such as utility scale batteries, will reduce and ultimately eliminate this wastage entirely.

The image below at **Figure 4** shows an example of how a Synchronous Compensator will look once erected on the site.



Figure 4 – Example of typical Synchronous Compensator – for indicative purposes only

What is proposed?



Faughan Stability Ltd plan on development proposal for a new Synchronous Compensator and all associated site and access works at lands c.190m south east of Electra Road, Derry as shown in the extract below at **Figure 5**.

The site layout consists of two main compounds. We will firstly discuss the High Inertia Synchronous Compensator (HISC) compound and then the High Voltage Air Insulated Switchgear (AIS) Substation Compound to SONI Specification.

Figure 5 - Proposed site layout

1. HISC Compound

The HISC Compound includes an electrical motor, which will comprise of a Synchronous Compensator which is housed within a building. There will be ancillary equipment in a steel-clad enclosure which will include control systems, switchgear, protection and lubrication systems. There will also be a ground mounted cooling system, and immediately adjacent to the Synchronous Compensator building will be a High Voltage Compound (HV Compound). The HV Compound will consist of a main transformer, auxiliary transformer and start up transformer, a circuit breaker and a small backup diesel generator.

2. AIS Substation

To the North of the HISC compound proposed will be the AIS Substation. The AIS substation compound will house all control and HV equipment This will be constructed to the required SONI specification following consultation with SONI. The facility imports power it needs during operation. So, there is no fuel storage, hence no combustion and hence zero air emissions are created from the facility

Benefitting the Community



The development proposals will deliver a number of community and economic benefits as outlined below:

- Will help Northern Ireland transition to net carbon zero by 2050 by reducing reliance on fossil fuel power plants.
- Thus, this will enhance the strength of the national grid in the Derry~ Londonderry area, providing improved capacity for new generation and demand in the region, without needing to build new overhead lines.
- The development of the site will help support 50 jobs during the construction phase.



Have Your Say

Get in Touch

Give Us a Call

If you would like a member of the team to discuss our proposals over the phone with you, you can call MCE Public Relations on 028 9026 7099.

Write to Us

If you wish to make comments on the proposals, you can also do so in writing by sending a letter to:

**MCE Public Relations Limited,
83/85 Victoria Street,
Belfast,
BT1 4PB.**

Or by emailing: comments@mcepublicrelations.com

Complete a Comment Card

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