Design Criteria

Three environments

- Suburban
- Rural
- Coastal

General requirement to leave the location in a better state than it was before the infrastructure was developed.

Three overarching design criteria

Visual amenity

- Community delight
- Enhancing built environment

Sustainability

- Materials
- Methods
- Resources
- End of Life Recycling/Circular Economy

Bio Diversity

- Direct net gain
- Flora and fauna
- Soil and water quality

Aligned to UN Sustainable Development Goals

Goal 9 – Build resilient infrastructure, promote inclusive and sustainable industrialisation and foster innovation.

Goal 12 – Ensure sustainable production and consumption patterns.

Goal 13 – Take urgent action to combat climate change and its impacts

Goal 15 – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss.

Entrants to present 3D model, video or artist's impression along with a 500 word summary and supporting written science-based evidence or references to support design criteria.

Engineered Assets - IMP

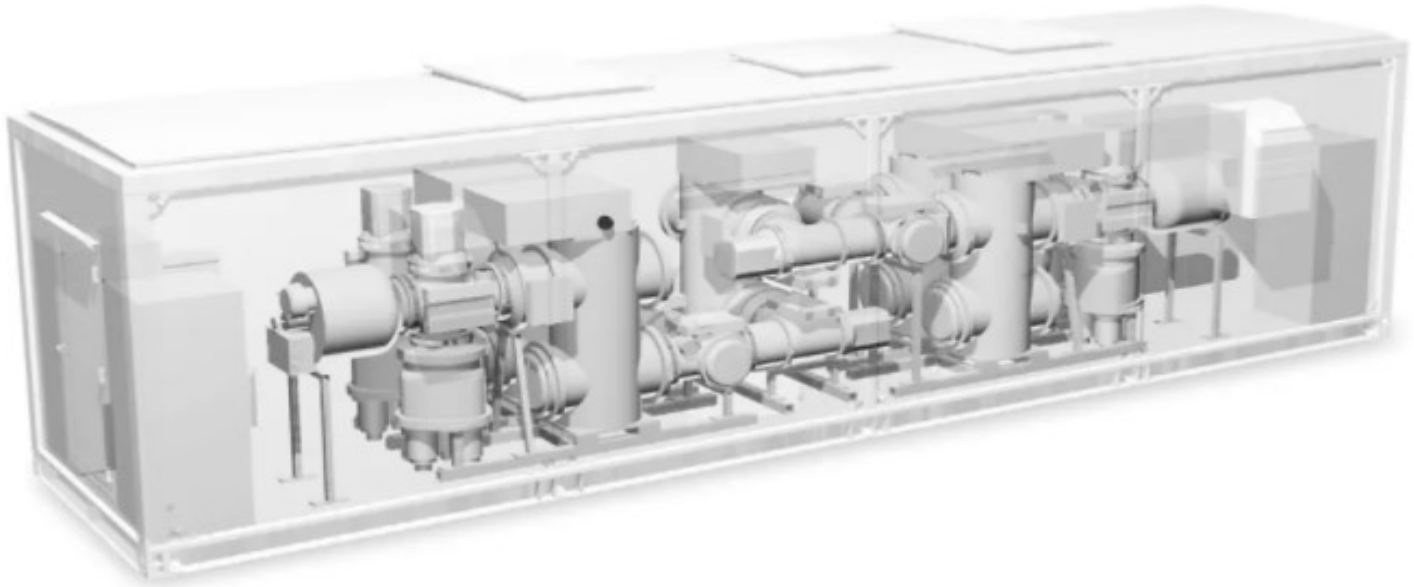
Integrated Multifunctional Product (IMP)

The engineering solution is a 10 bay GIS substation (IMP) where much of the key assets are housed in a modular shelter. This enables standardisation of design and very fast deployment on site.

The substation is fully digital and equipped with the latest technology to allow remote monitoring of the equipment and its performance.

The assets housed in the IMP shelter are our EconiQ equipment which does not contain SF6 gas and has a very low Global Warming Potential compared with “traditional” equipment.

Also the Supergrid Transformers contain synthetic ester rather than mineral oil which is also much better for the environment and carries a much reduced fire risk.



Design Solution Requirements

Substation Compound:

1. Must have a physical barrier at the boundary to prevent easy public access to the Substation Compound.

2. Must not have climbable trees within 3m of the fixed engineering assets (IMP, transformers or overhead equipment)

3. Must have access to the IMP shelter to allow both routine and emergency work – consideration must be given to allowing access even during fauna breeding seasons.

4. The IMP shelter can be buried but access must be available, as point 3.

5. The Substation Compound design solution must be easily maintainable, requiring no more than 2 visits per annum, ideally less.

6. Additions to the IMP shelter surfaces are acceptable, such as cladding, living walls etc, but consideration to the above points should be given.

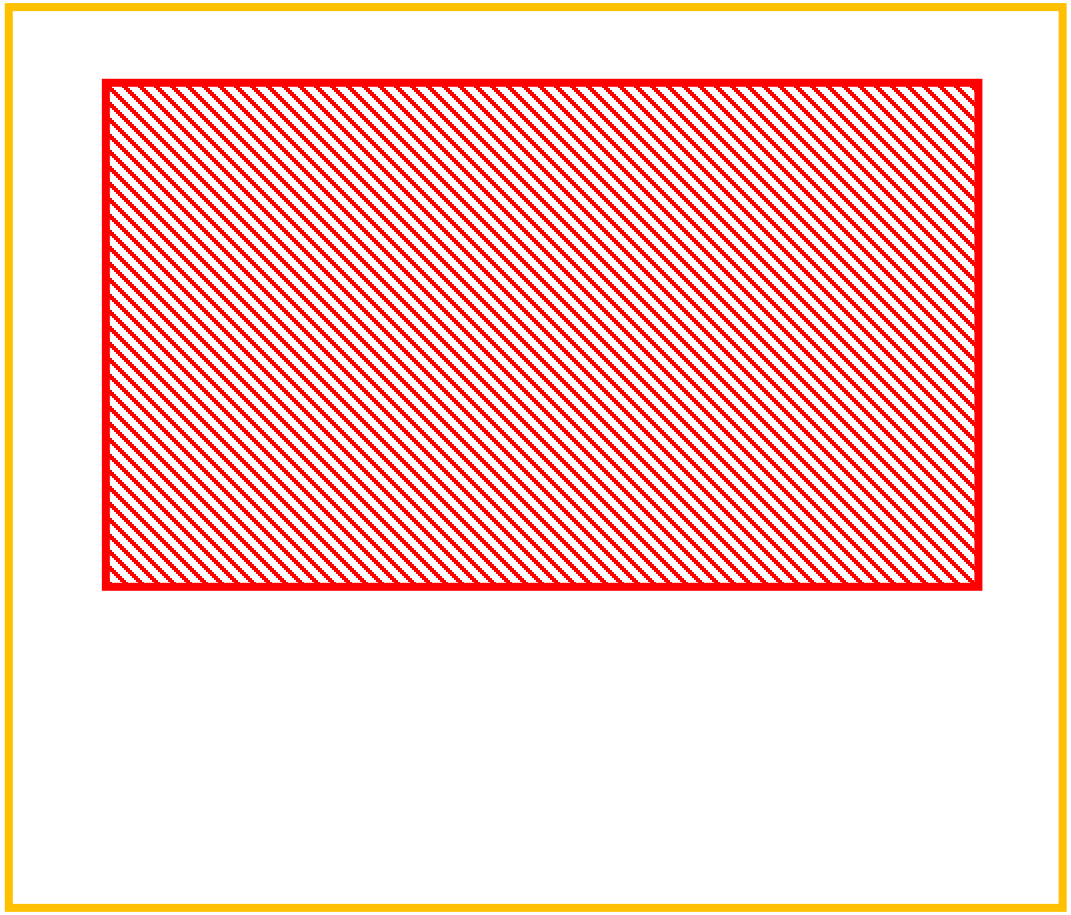
7. No alterations to the fixed engineering assets are permitted, other than in point 6.

Coastal Location - Scotland

Rural Location – East of England

Suburban Location - London

General Substation Design



Main Equipment Compound: 120m x 90m

Secure Perimeter: 130m x 130m

Land ownership: 150m x 290m