



**SIEMENS**

*Ingenuity for life*

# Western Link HVDC

Orestes Macchione – Business Development Manager



**westernlink**  
securing our energy network

# Western HVDC Link Project Overview



- Customer: NGET/SPT Upgrades Ltd.
- Design: HVDC Classic Transmission Link.
- Rating: 2,200 MW / 6 hours: 2,400 MW.
- Voltage: 600kV DC / 400kV AC.
- Length: 260 miles DC cable
- Key Facts:
  - Largest ever Contract awarded by NG/SP.
  - Highest ever Rating for a Cable Scheme.
  - Highest ever Voltage for a Cable Scheme.
  - First time HVDC technology is used as an integral part of the GB Transmission System.
  - More than 3,500,000 hours worked without a lost-time

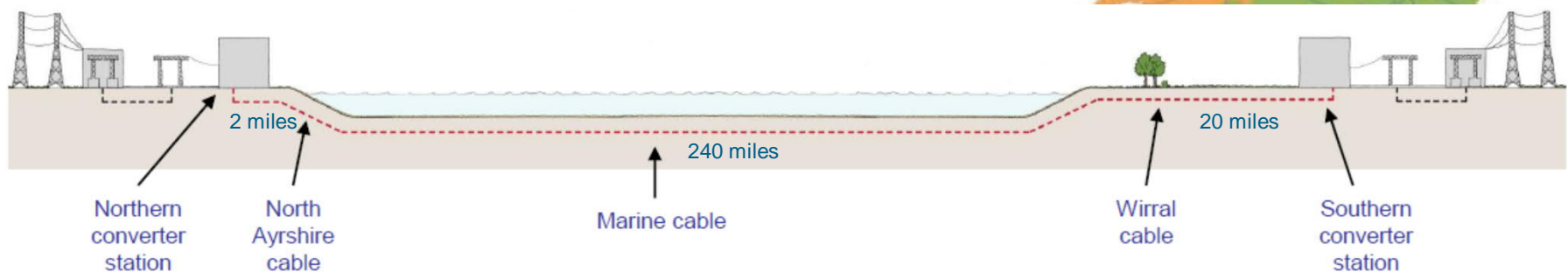
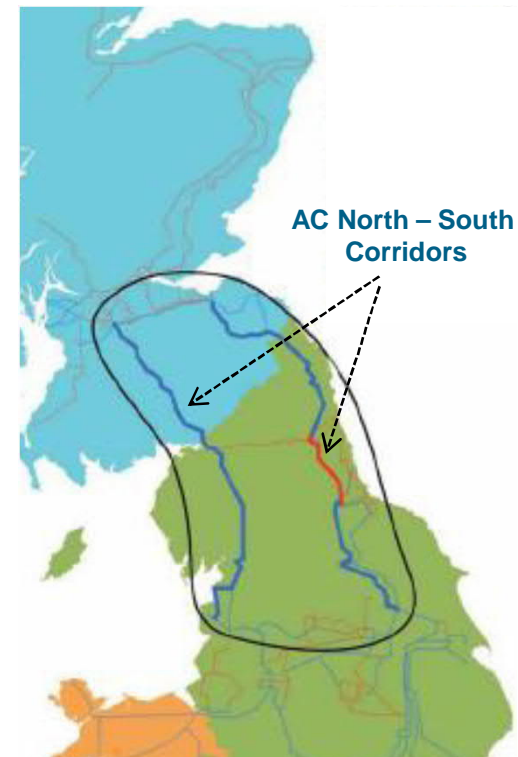




# Western HVDC Link Project Overview



- Project consistent with obtaining 30% UK Electricity from renewables by 2020 and cutting emissions 57% by 2030.
- Existing AC links close to full capacity. Already enhanced with compensation.
- Bi-directional, securing energy in Scotland.



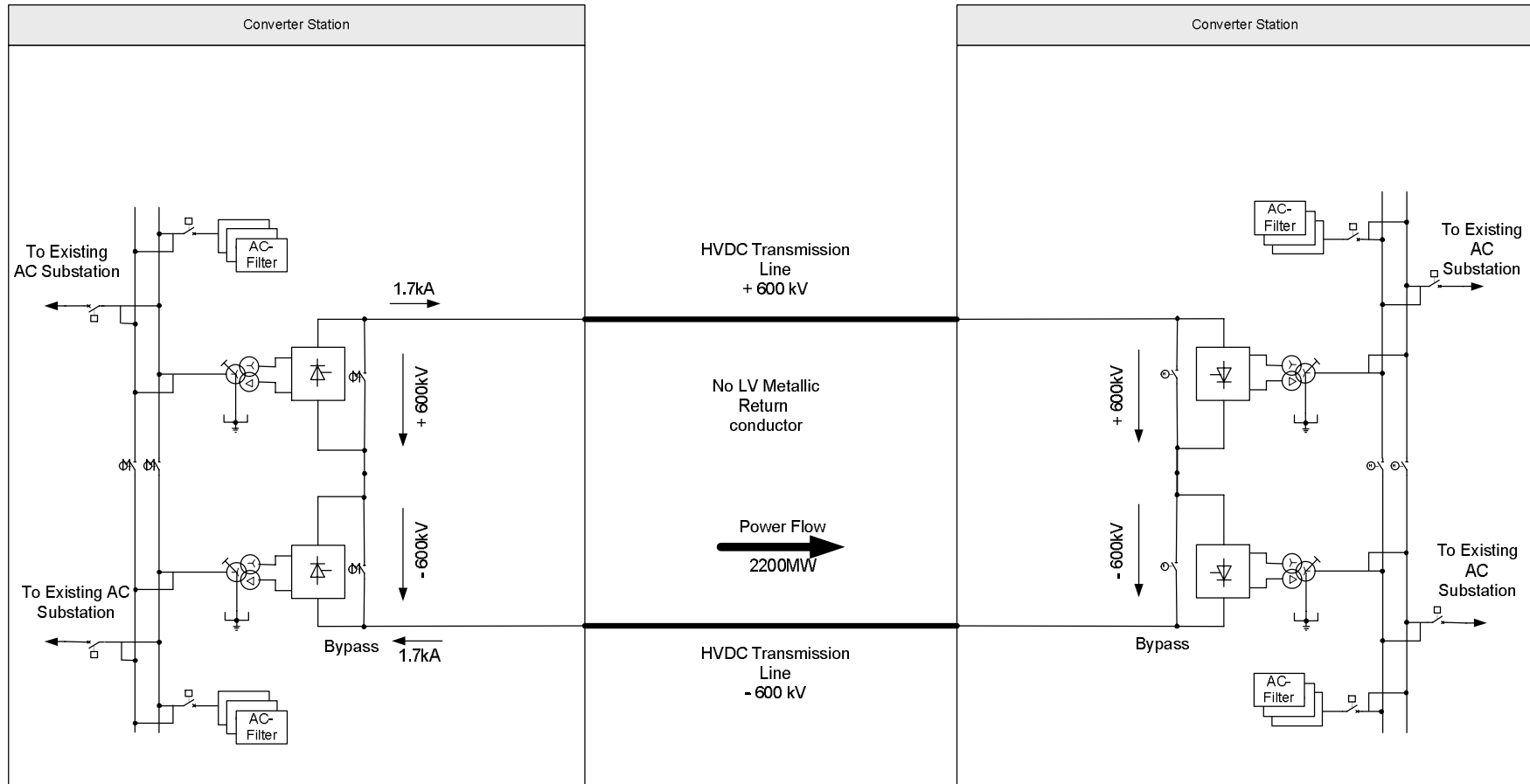
# Western HVDC Link

## Scope of Works



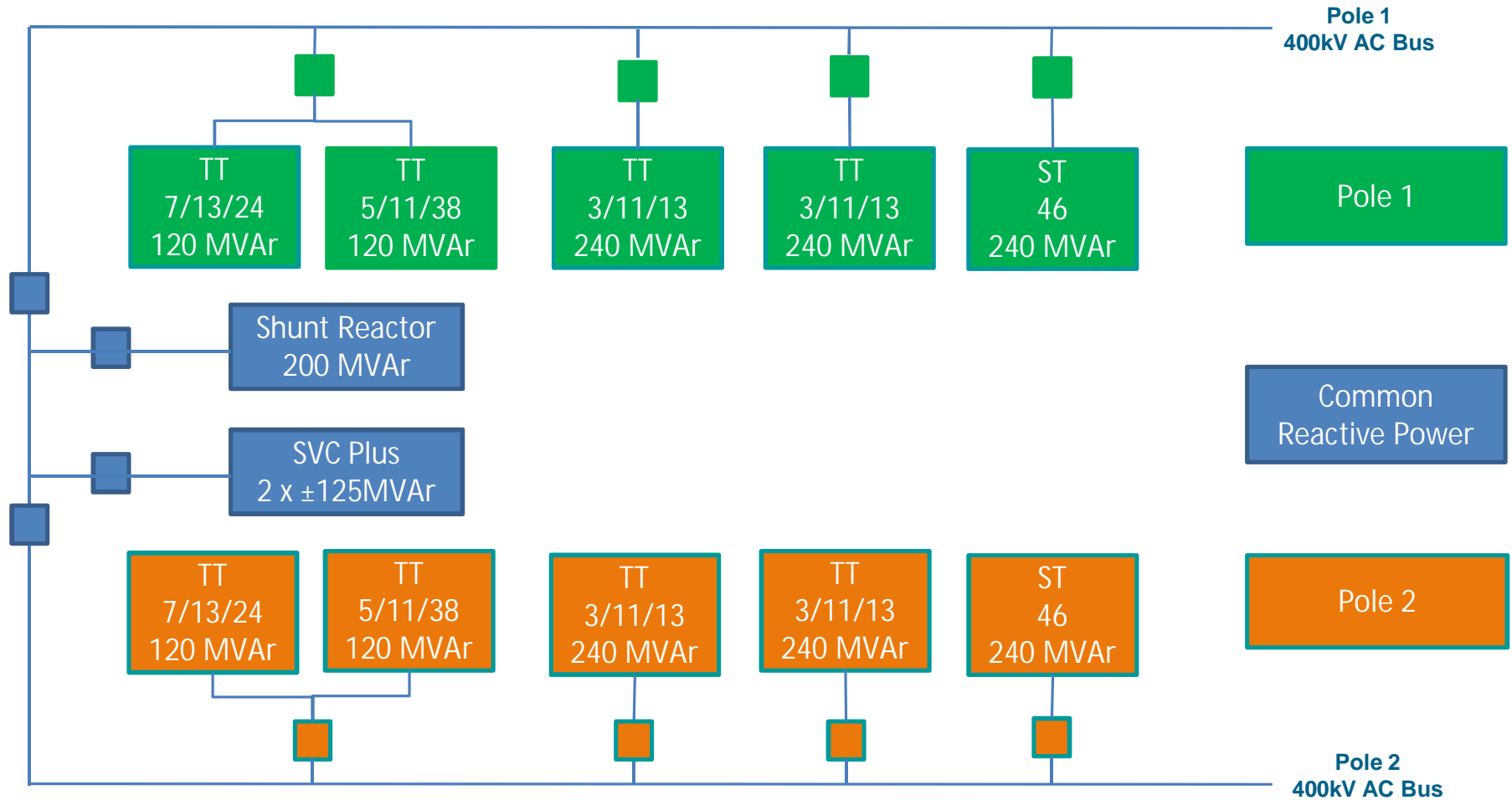
- Turnkey Solution
- Overall System Design & Studies
- Engineering, manufacturing and Supply of Converter Station components, including Transformers, Thyristor Valves, Controls, Cooling System, Smoothing Reactors, Shunt Reactors, DC switchgear and ancillary equipment.
- 400kV AC Filters, Switchgear (GIS / AIS) and Protection associated with new converter stations, including building / enclosures at Hunterston.
- 400kV AC cable between Converter and Connecting Substations.
- SVC Plus at Hunterston in the range of +/-250 Mvar.

# Western HVDC Link Overall Link Design

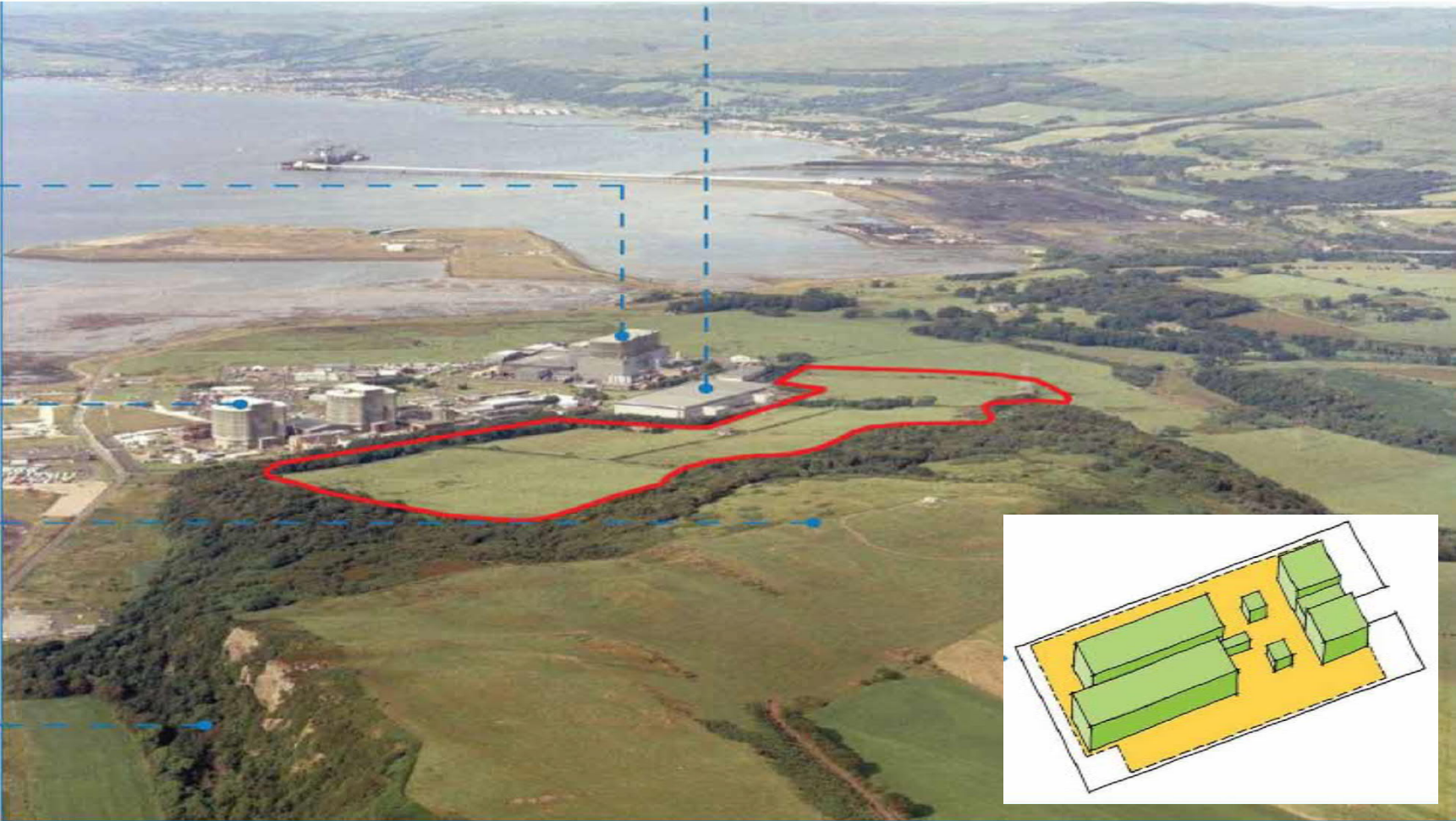


## Converter Bipole design / two dc cables

# Western HVDC Link Reactive Power / AC Filter Design



# Western HVDC Link Hunterston - Site Location



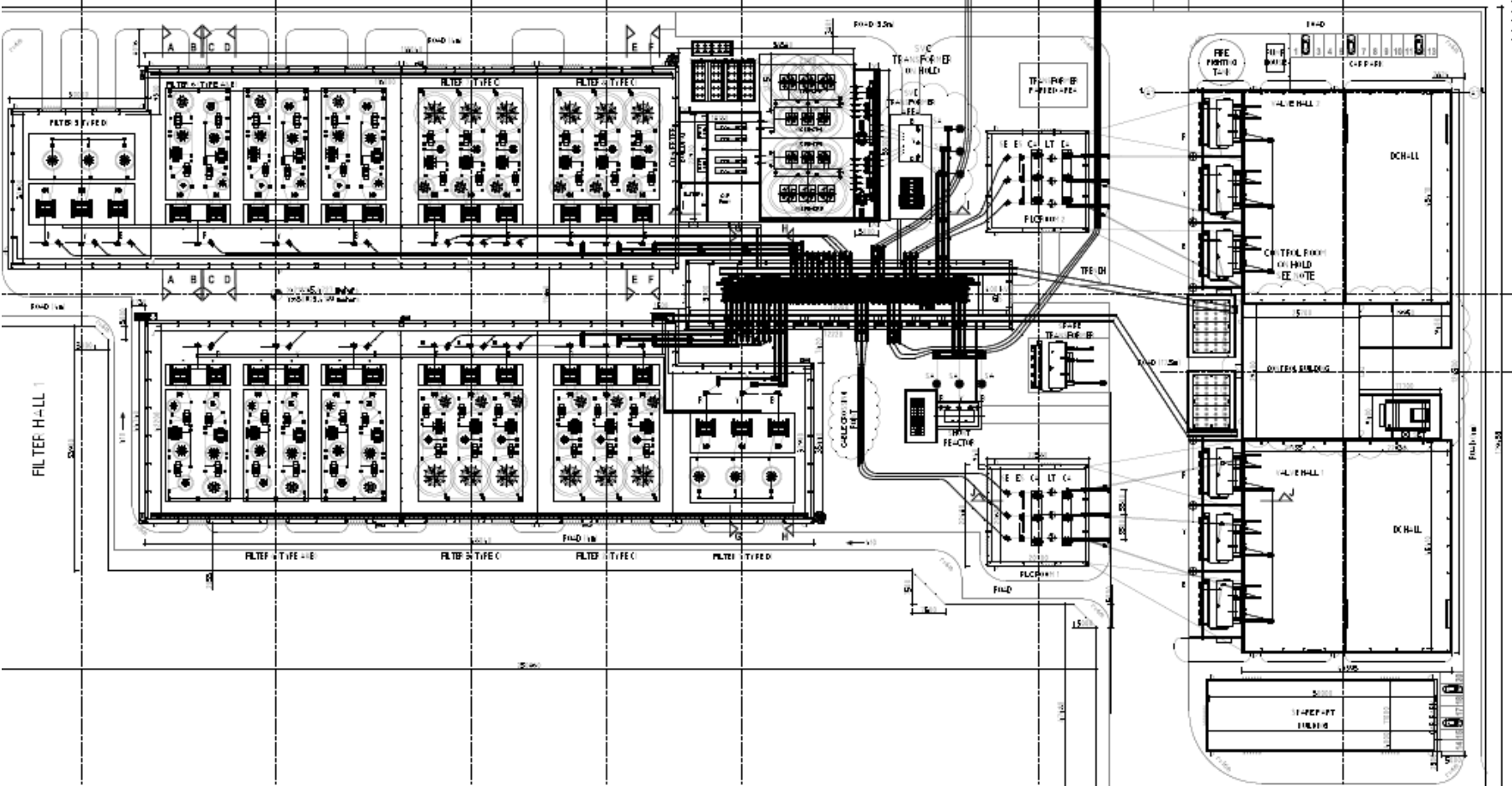


# Western HVDC Link Hunterston Site

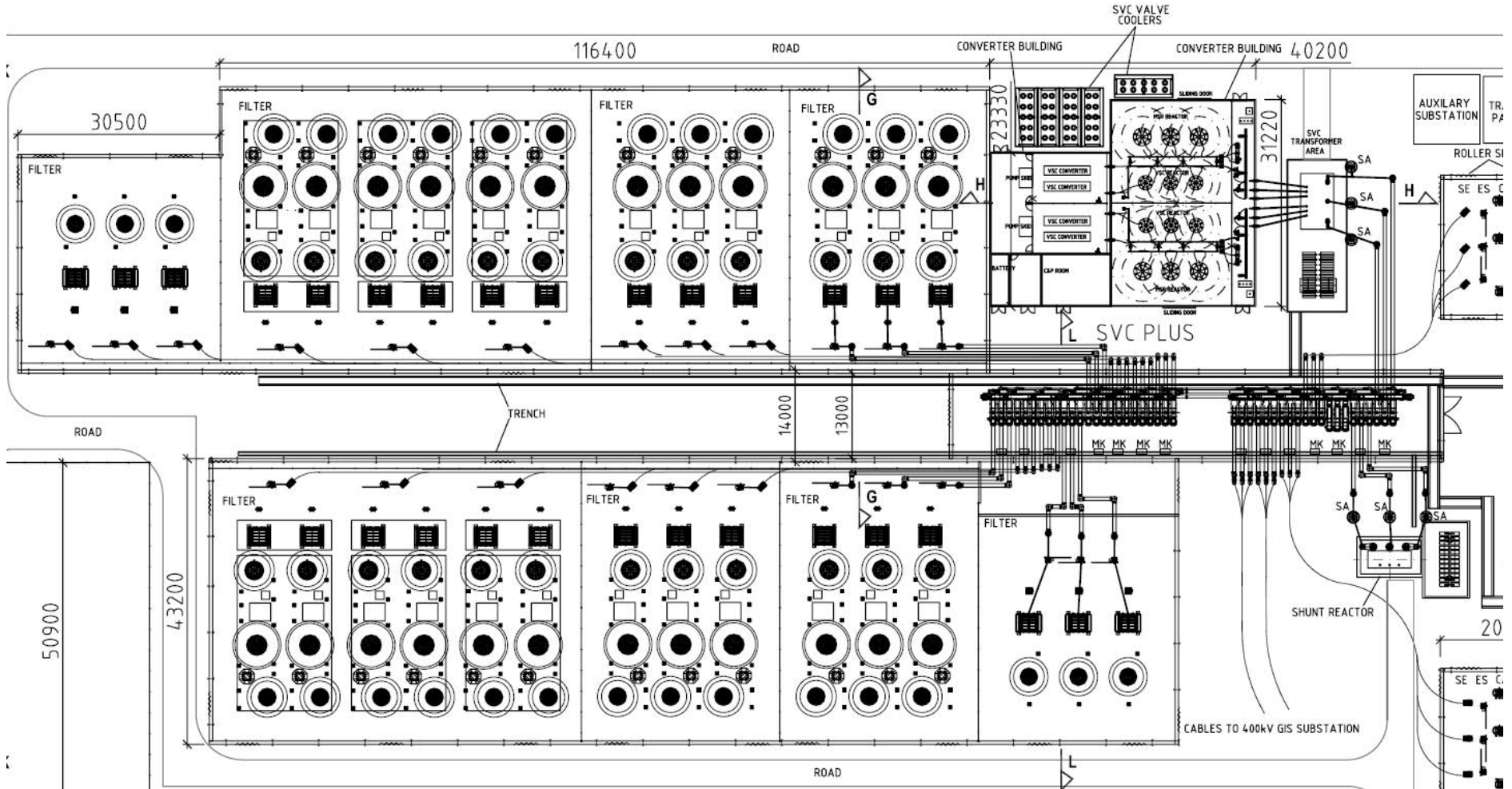




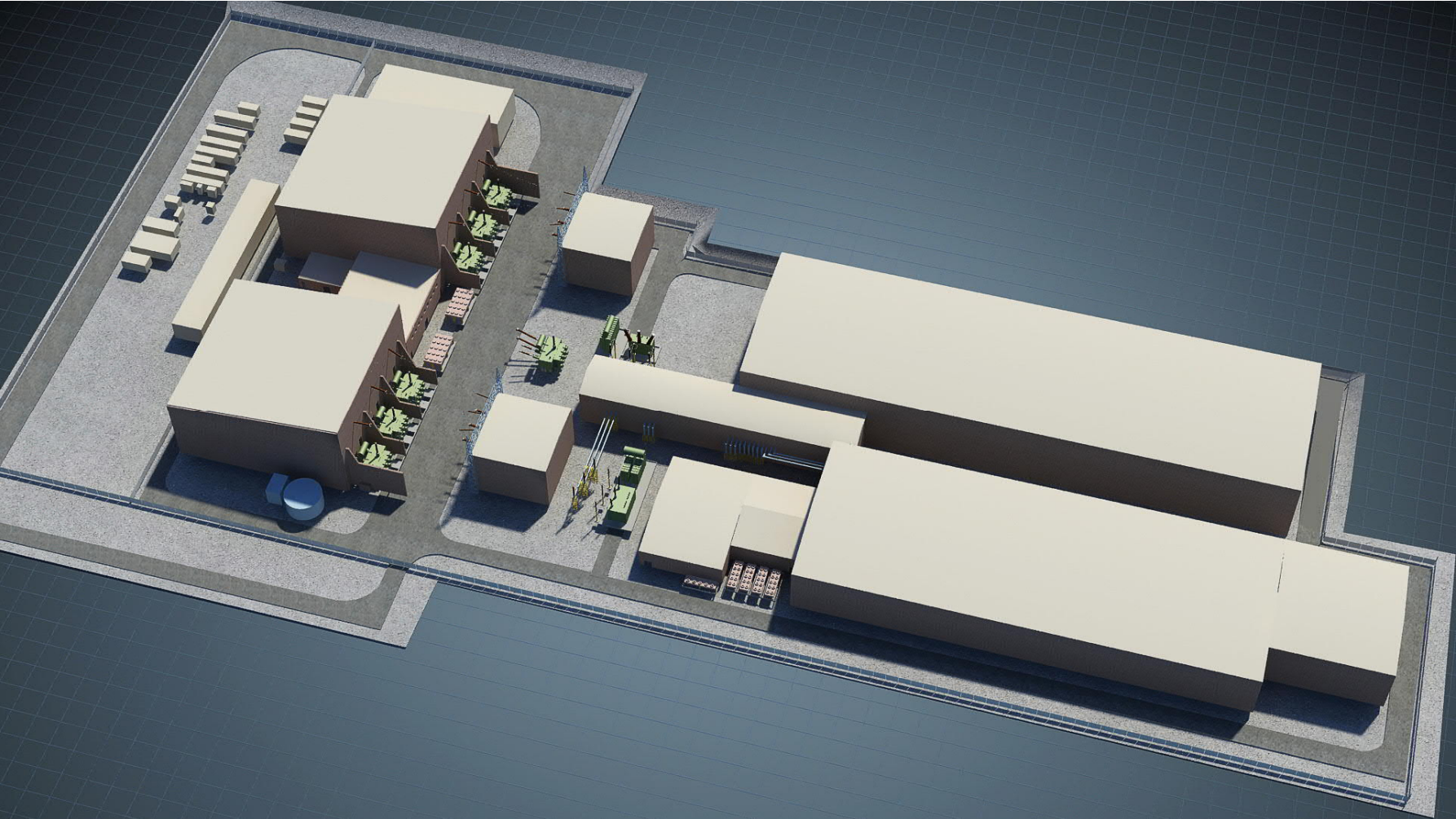
# Western HVDC Link Layout – Plan View Hunterston



# Western HVDC Link Layout – Plan View Hunterston

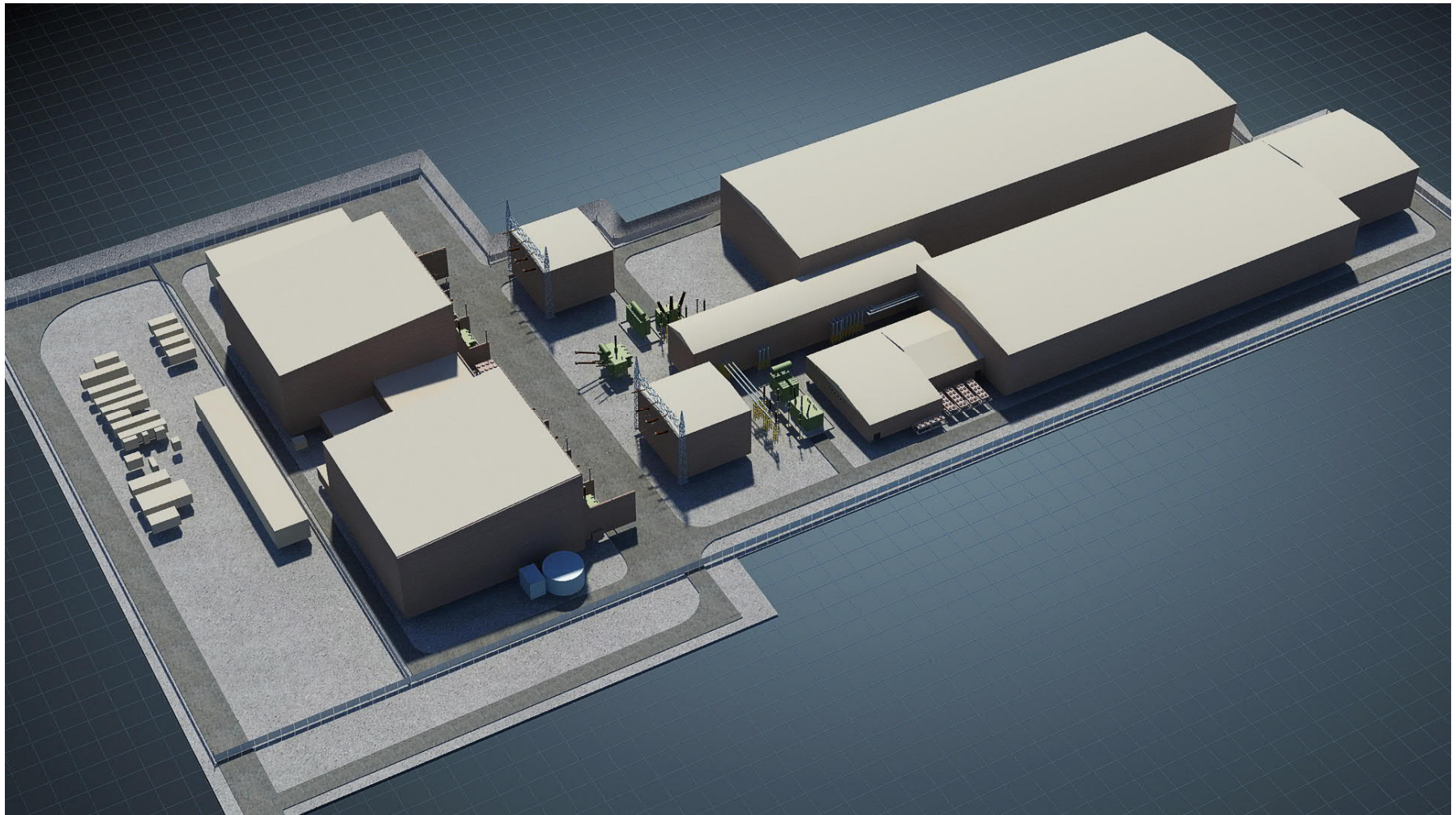


# Western HVDC Link Layout – 3D View Hunterston





# Western HVDC Link Layout – 3D View Hunterston



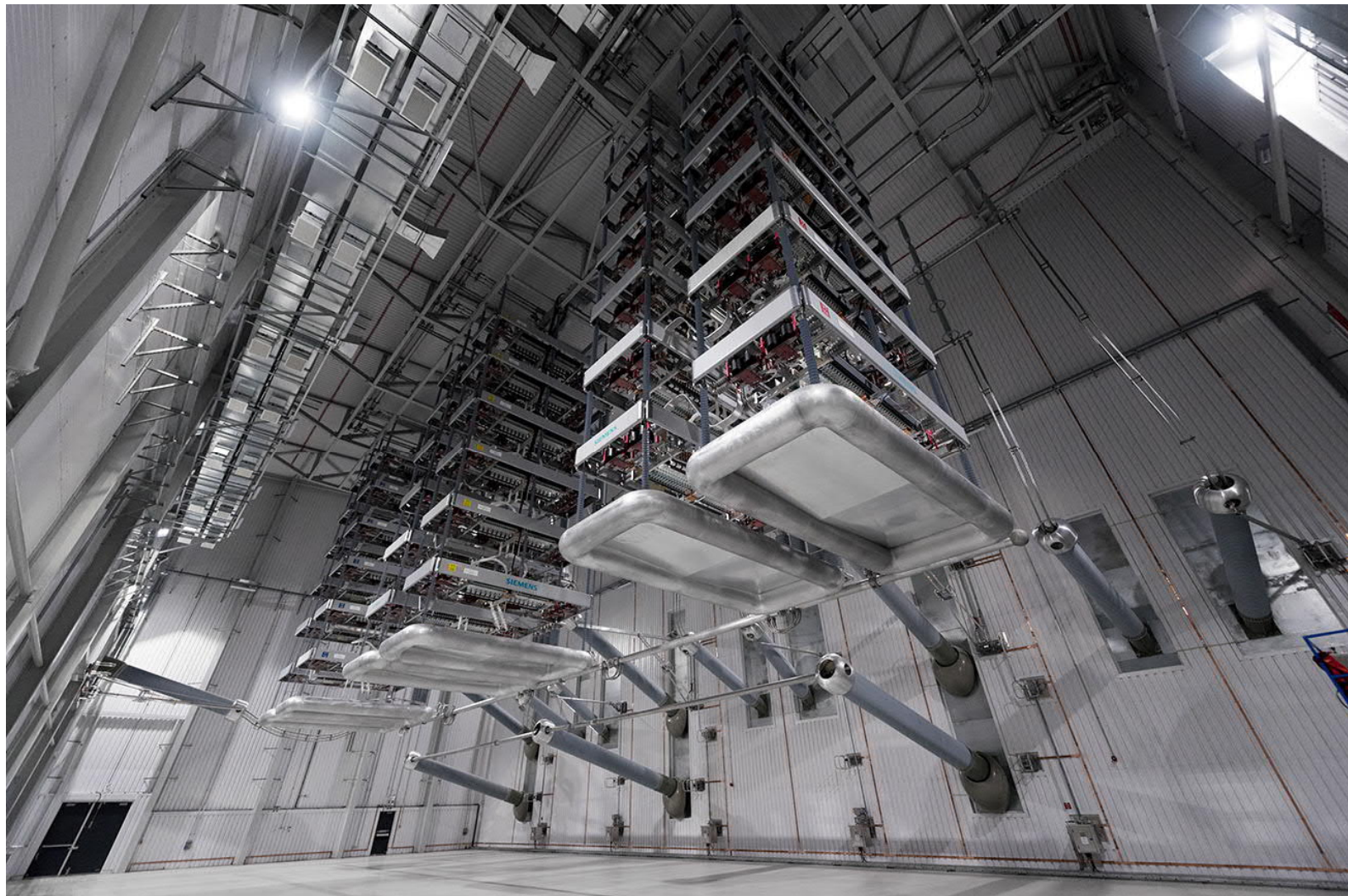
# Western HVDC Link Hunterston - Site Views



## Hunterston Converter Station



# Western HVDC Link Converter Hall - Hunterston





# Western HVDC Link Converter Hall - Hunterston





# Western HVDC Link Filter Hall - Hunterston





# Western HVDC Link Flintshire Site





Thank You



**Orestes Macchione**  
Business Development Manager

4601 Six Forks Rd  
Raleigh, NC 27609

Mobile: +1 (919) 793 8685

E-mail: [orestes.macchione@siemens.com](mailto:orestes.macchione@siemens.com)

▪ [siemens.com/answers](http://siemens.com/answers)