

# **Site Description for P MEC Facility**

**John Griffiths**  
**(Technical Director, EMEC)**

Commercial in Confidence

Whilst the utmost care has been taken with the preparation of this report EMEC neither warrants nor accepts liability for the accuracy of the contents. Further, EMEC emphasises that this is not a design report and should not be used directly to specify or purchase equipment and materials.

## **EMEC Ltd**

### **PMEC Site Description**

#### **Introduction**

A generalised conceptual layout was devised that seems suitable for PMEC. A level of flexibility exists in terms of changing the positions of the main elements, depending on the exact site and orientation that is finalised upon. Ideally the substation will be located as close to the beach as possible, this is to reduce costs of having long expensive cabling onshore. The Visitor Centre does not need to be located on the beach and can be found on more structurally stable land that can be some distance from the substation if required.

A total area of 93m x 61m (102yds x 67yds approx) is deemed sufficient to contain the substation and a lay-down area for developers to use, the Visitors Centre and adequate space for parking and a turning space for large articulated vehicles.

#### **Substation**

The substation houses the switchgear and power control units for 5 berths. The grid incomer-cables also enter through underground cable ducts into the substation. The main substation room must be large enough to allow safe access for installation, maintenance & removal of the switchgear and control cabinets. Power conversion equipment may also be located on the concrete lay-down pad. As access to the switchgear rooms there are full height roll-up doors. For the design of PMEC's substation, 1 room containing 5 switchgears has been included with two additional rooms with the separate SCADA controls and two offices. It is necessary for SCADA and control/communications areas to be kept separate from switch gear.

For health and safety purposes, the substation is to be regarded as a restricted area – only competent authorised persons are to be admitted. Visitors must be accompanied and any activity within the substation must be ensured safe for visitor access.

In the instance of the substation being located separately from the visitor centre the additional facilities would need to be incorporated into the substation building. These additions include: a small shared mess facility and welfare facilities (toilets, washroom). If there was any concern over stability of the grid and/or prolonged loss of grid connection then a standby generator (c .25kVA) could be required and this would need to be housed in a separate adjoining room with an external bunded diesel tank (not shown in diagrams).

## **Visitor Centre**

The Visitor Centre houses the Interpretation Centre for interfacing with the public (EMEC has between 600 and 1000 visits from the public per year. These visits can include parties of various sizes and levels of interest. For example, clients could regularly to use the four developer offices which are equipped with access to the SCADA system for developer's own data and common items only. There is also internet access which is suitable for remote monitoring and control.

## **External areas**

### *Laydown Area*

This consists of a suitably designed concrete pad with drainage, cable trenches to access switchgear/controls and an earthing system laid around it connected to the substation earth. It is also accessible by a 6m wide road.

This area is for technology developer's power conditioning equipment (this depends upon what type of generation is carried out by their devices). These should all be containerised and lockable.

### *Roadway & Turning Area*

It has been assumed that 6m wide metalled roadways are required, a turning area need not be metalled but must have suitable foundation strength for large articulated vehicles. Any cable trench crossing the roadway must be suitably reinforced to carry articulated vehicles. The turning area has some flexibility as to where it can be located. It may be located next to the lay-down area if this is preferred and this really depends on precise site details and orientation and space required.

There is a designated parking area for about 12-15 cars normally. The turning area can be used as larger car park for visitors except when heavy goods vehicle deliveries expected. The parking area is concrete.

### *Cable Pit and Trenches*

Concrete cable trenches are to be built into the site with flexibility to carry any likely future cables. These need to have turning dimensions compatible with cable specification and also reinforcement at any vehicle crossing points.

