Network Innovation

Presented by Euan Norris
Senior Project Manager, Future Networks
Tel: +44 (0)141 614 1964
Email: euan.norris@scottishpower.com
Project VISOR

Visualisation of Real Time System Dynamics using Wide Area Monitoring

**Aim:** Reduce costs to UK consumers through increased system efficiency and lower network investment.

**Cost:** £7.44m  
**Timeframe:** Dec 2013 – Mar 2017  
**Savings:** £50m per 100MW investment and £4m per annum operational savings.

**Background:**  
International consensus is the Transmission network is changing and a new generation of monitoring and controlling is required - SPEN intends to bring this field forward.

**Solution VISOR:**  
“SPEN will develop a system which is capable of monitoring and modelling the behaviour of the transmission system at a level of detail and sophistication never achieved before. The outputs will be used to better inform transmission investment decisions and to reduce network constraints”
Dumfries & Galloway Load Management Scheme

- 9 measuring points at 4 locations
- One IED per location
- Up to four three-phase measurements per IED
- Measuring points on 33kV, 132kV and 275kV networks
- 7 windfarms to connect to 33kV networks at two substations
- Existing Hadyard Hill Load Management Scheme incorporated into the new scheme
Project ARC
Accelerating Renewable Connections

Integration with Transmission Network to ensure that local & national systems are balanced

Development of Commercial agreements to manage generation export onto the distribution system

New monitoring & control equipment to actively manage the distribution network around constraints

Establishment of new commercial/technical arrangements to allow local demand to match local generation

FLOW CHART
1. POWER STATION
   Transmitted around the country at 275,000 or 400,000 volts
2. Grid Supply Point
   Converts to 132,000 volts
3. Large Sub-Station
   Converts to 33,000 volts
4. Primary Sub-Station
   Converts to 11,000 volts
5. Secondary Sub-Station
   Converts to 415 / 230 volts
6. Electricity Meter
7. SUPPLY
   Our Customers 230 volts