2002-2010

Putting in place the building blocks for the growth in renewables

Government policy and enabling legislation
Essential regulatory and industry reforms

Key Dates

2002  Renewables Obligation (Scotland) comes into affect
2002  Renewable Energy Transmission Studies (RETS)
2004  Transmission Investment for Renewable Generation (TIRG) funding mechanism
2008  Climate Change Act to reduce emissions by 80% by 2050
2010  Transmission Access Reform: “Connect and Manage” implemented
2010  Planning consent granted for Beauly Denny overhead line project
2010  Feed-in tariffs paid for sub-5MW renewables
Onshore Renewables 2010/2012

Challenges:
- To deliver £1.2bn of CAPEX over 30 months
- Limited internal construction capability
- Main already contractor placed
- Civil contractor selection
- Relationships across contractor interfaces
- NATS Radar issues
Onshore Renewables

[Images of wind farm construction and installation]
Transmission – My Challenges

• Grow the business by >200%
• Planned spend £3bn to £5bn in RIIO-T1
• £670m Beauly Denny overhead line challenges
• Limited construction capability
• 120 staff but we needed 400
• Politically (external) pressure
• ‘Limited’ operational team
• Outage management
• ‘Old’ 1950s assets
• RIIO-T1
Transmission - Focus

• Leadership and trust
• Chaotic approach to projects
• SSEN Staff and Contractor Capability
• SSEN/Contractor relationships
• Impact of remote site locations
• AC Operational Safety Rules
Transmission – Key Projects

A £2.8bn track record of delivery capability, on time and under budget

1. Beauly Denny
2. Kintyre Hunterston
3. Beauly-Blackhillock-Kintore
4. Beauly Mossford
5. Foyers Knockknagael
6. Fort Augustus
7. Stronelaig
8. Caithness Moray
Beauly Denny Transmission Line

1. Increasing B4 boundary transfer capacity
2. 220km line 400kV/275kV line
3. Altitudes over 2500 feet
4. £670m budget
Caithness Moray - Project overview

1. Purpose to increase the B0 and B1 boundary transfer capacities to over 1000MW.

2. Onshore AC substations and overhead lines. Onshore HVDC convertor stations cable and offshore HVDC cable

Caithness Moray - Key stats

- Unlocks **1200MW** of renewable generation from across the north of Scotland
- **£1.1bn** project, largest ever single investment undertaken by SSE Group
- **First HVDC** system solely in Scotland
- Over **6 million** hours worked
- Largest substation in UK, equivalent to **24 football pitches**
- Energised **end of 2018**
Thurso 275kV Substation
Mybster AC 132/33kV Substation
Loch Buidhe AC 132/275kV Substation
Blackhillock AC 275/400kV Substation
Spittal 800MW HVDC Converter Station

IGBT Valve installation at Spittal
Purpose built specialist cable laying vessel

CLV Victoria underway from Ulsteinvik, Norway
Subsea: Scar Plough – Trenching mode
CAITHNESS-MORAY OVERVIEW 1

£643.5m spent with UK-based suppliers

10,971 years of employment supported in the UK

4,975 years of employment supported in Scotland

£265.5m Gross Value Added to Scotland’s economy
SSEN TRANSMISSION

PERFORMANCE OVERVIEW

Over 300% growth of SHE Transmission driven by renewable generation

Expenditure forecast £3.4 billion, of this c.70% through uncertainty mechanisms

System reliability maintained at 99.999%

Connection offers made on time and delivered at customers’ timescales

Customer satisfaction at 80%

Leadership in sustainability

Use of new technology and ways of working to achieve efficiency in operation
In the north of Scotland...
83% of connected generation is renewable technologies
Peak demand is around one third of peak generation
Under prevailing conditions, there is a net export to the south
All GB energy users benefit...
Our strategic investment appraisal determines the costs (infrastructure, subsidy) are outweighed by the benefits (carbon, wholesale energy)
Take-Aways Messages for Successful SHE

• Decisive Leadership
• Collaborative Teamwork
• Good Contractor Relationships
• Detailed Planning
• Early Design Freeze
• Rigorous Quality Control
• Risk Management (Schedule and Cost)
• Early Engagement with Operations Unit
• Rigour in SHE
• Skilled People
Questions?