Repowering - What should the strategic approach be?

Industry Perspective

SNH Conference, Battleby

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75 GW
project experience
(and counting)

8,965,917
equivalent (UK) homes
powered

14 MtCO₂
abated annually

330+
renewable experts

32
countries of project
experience
worldwide offices

USA
Saratoga Springs
Seattle

SCOTLAND
Castle Douglas (Global HQ)
Stirling
Inverness

ENGLAND
Newcastle
London

IRELAND
Dublin

WALES
Aberystwyth

CHILE
Valparaiso [Agency]

FRANCE
Paris
Nantes

TURKEY
Ankara [Agency]
our successes

global stats

3GW+ consents
14GW environmental services
60GW+ wind analysis services
100+ projects owners engineer
2.4GW operational services
40GW+ due diligence portfolio
what we do

our services

SECTOR

Onshore Wind
Offshore Renewables
Solar
Hydro
Renewable Heat
Grid & Infrastructure

PROJECT PHASE

Re-Powering
Feasibility
Operations
Development
Construction
Pre-Construction

SERVICE

Analysis
Engineering
Planning & Permitting
Environmental
Project Management
Due Diligence & Advisory

07/12/2016
What should the Strategic Approach be?

Comparison with other forms of development..

- Renewal, Regeneration, Redevelopment
- Waste
  - Reuse, Recycle....

Forestry
- Forest Design Plans – Restocking

Re = (+ve)
Chicken Licken thought that the sky was falling down. So he ran off to tell the King.
What should the Strategic Approach be...

Back to basics....

Survey,

Analysis,

Plan.
Survey – Understand what Repowering is?

Deciding how and when to extend the generating life of a site.

- Time extension (in perpetuity?)
- Replacement of internal parts
- Replacement of some external parts
- Might include other technologies (solar)
- On/offsite storage
- Replacement of all external parts with same or larger parts

Decision will potentially depend on;
- Consent
- Design life/turbine condition
- Site characteristics
- Grid
- Route to market.

All potentially governed by different legislation, procedures and policies.

= Not a one size fits all

Needs to be understood by policy makers and reflected in policy formulation.
→ Reached the end of the practice lap
→ Increasing reliance on renewable forms of electricity (100% by 2020).
→ Increasing reliance on (renewable) electricity for heat and transport.
= increasing social and economic reliance on renewables sector to deliver
→ carbon reduction
→ affordable power for communities
→ affordable power for industry
→ jobs (Asset Management = long term)
→ supply chain opportunities
→ training
→ community benefit
→ security of supply

Only now without support = Levelised Cost of Energy
Plan - What should the strategic approach be?

For now - **Follow the SPP**
Focus on Outcomes, Proportionate, Inclusive, Facilitate Sustainable Economic Growth, Facilitate Transition to a Low Carbon Place, Emphasis on Design......

Spatial Frameworks
**Follow the SPP**

**Development Management**

170. *Areas identified for wind farms should be suitable for use in perpetuity.* Consents may be time-limited but wind farms should nevertheless be sited and designed to ensure impacts are minimised and to protect an acceptable level of amenity for adjacent communities.

174. *Proposals to repower existing wind farms* which are already in suitable sites where environmental and other impacts have been shown to be capable of mitigation can help to maintain or enhance installed capacity, underpinning renewable energy generation targets. The current use of the site as a wind farm will be a *material consideration* in any such proposals.

**2020 ROUTE MAP FOR RENEWABLE ENERGY IN SCOTLAND – UPDATE 17 September 2015**

Emerging Scottish Energy Strategy (2017)
Reflected in next SPP/NPF
PROP EGT2: Torness Power Station

*Torness Power Station is expected to remain operational until at least 2030 and continues to be safeguarded for power generation. If power generation ceases during the lifetime of this LDP the Council will seek to facilitate necessary works associated with the site’s decommissioning and restoration.*
PROP EGT1: Land at Former Cockenzie Power Station

The site of the former Cockenzie Power Station is safeguarded as a site for future thermal power generation and Carbon Capture and Storage, consistent with ‘National Development 3’ in the Scottish Government’s National Planning Framework 3. Other forms of development within the site will not be supported during the lifetime of NPF3 to avoid prejudicing its future use for this National Development, unless and until an appropriate thermal power generation proposal is implemented and the extent of any residual land that could be used for other purposes has been confirmed.

If the NPF position is reviewed by Scottish Government during the lifetime of this Plan the Council will prepare Supplementary Guidance to guide the redevelopment of the site, if appropriate consistent with any revised NPF. If any thermal generation proposal is implemented and there is surplus land remaining, Supplementary Guidance will be prepared to guide redevelopment of this surplus land.

Any redevelopment proposal will be expected to make best use of the location’s assets and bring significant economic benefits. Proposals will be subject to a Habitats Regulations Appraisal and, if necessary, an Appropriate Assessment under the Habitats Regulations.
Policy WD1: Wind Farms

Policy WD2: Smaller Scale Wind Turbine Development

Policy WD3: All Wind Turbines

Policy WD4: Access Tracks

Policy WD5: Re-powering

Subject to compliance with Policies WD3 and WD1 or WD2 as appropriate, proposals for repowering of existing wind turbine and wind farm sites will only be supported if they use existing infrastructure where possible. If it is demonstrated that it is not possible to do so, appropriate provision must be made for restoration of relevant parts of the site to the Council’s satisfaction.

Policy WD6: Decommissioning and Site Restoration

Is this a Levelised situation?
Following review of visualisations from key viewpoints in the field and additional sensitivity assessment of a Very Large typology (turbines >150m), it is concluded that turbines towards 200m high to blade tip would be too large to accommodate in landscape and visual terms anywhere in Dumfries and Galloway apart from the Eskdalemuir unit of the Southern Uplands with Forest (19a). This is either because the receiving landscape is insufficiently extensive to minimise effects on adjacent smaller scale and/or more sensitive landscapes or because more extensive and large scale landscapes already accommodate many wind farms of varied heights and designs and cumulative effects would be a major constraint. The Eskdalemuir area of the Southern Uplands with Forest extends into adjacent Scottish Borders in the Craik Forest area (a similar character type in the Scottish Borders Landscape Character Assessment) thus increasing the extensiveness of this landscape and the distance from more sensitive landscape and visual receptors.

How can strategic guidance be prescriptive to this level without wider and site specific design considerations?

How will this affect the cost of power and viability and sustainability of projects, jobs and communities in D&G?
Impact of limiting tip heights?

⇒ One can deliver LCOE, Sustainable Economic Growth and contribute to CO2 reduction...

⇒ One can’t deliver LCOE so won’t contribute to other targets.

Capacity Factor Mapping

⇒ Same site

⇒ Different turbines
What should the strategic approach be?

Survey

➔ Understand the subject and the underlying drivers.
➔ Consider function not fiction

Analysis

➔ Pragmatic and proportionate not prejudicial and unnecessary
➔ Inclusive not exclusive

Plan

➔ ..for the future not the past
➔ Vision of what we want (outcomes) not what we don’t want
➔ Framed within the bigger picture
➔ Facilitate rather than frustrate transition to low carbon economy
➔ Language which guides rather than prescribes.
What’s that coming over the hill...is it a monster?
No, it's just a machine which helps us keep the lights on.