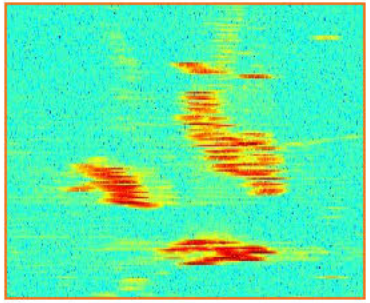
Clash Gour Wind Farm

Design Principles Focus Group

30 November 2021

Background

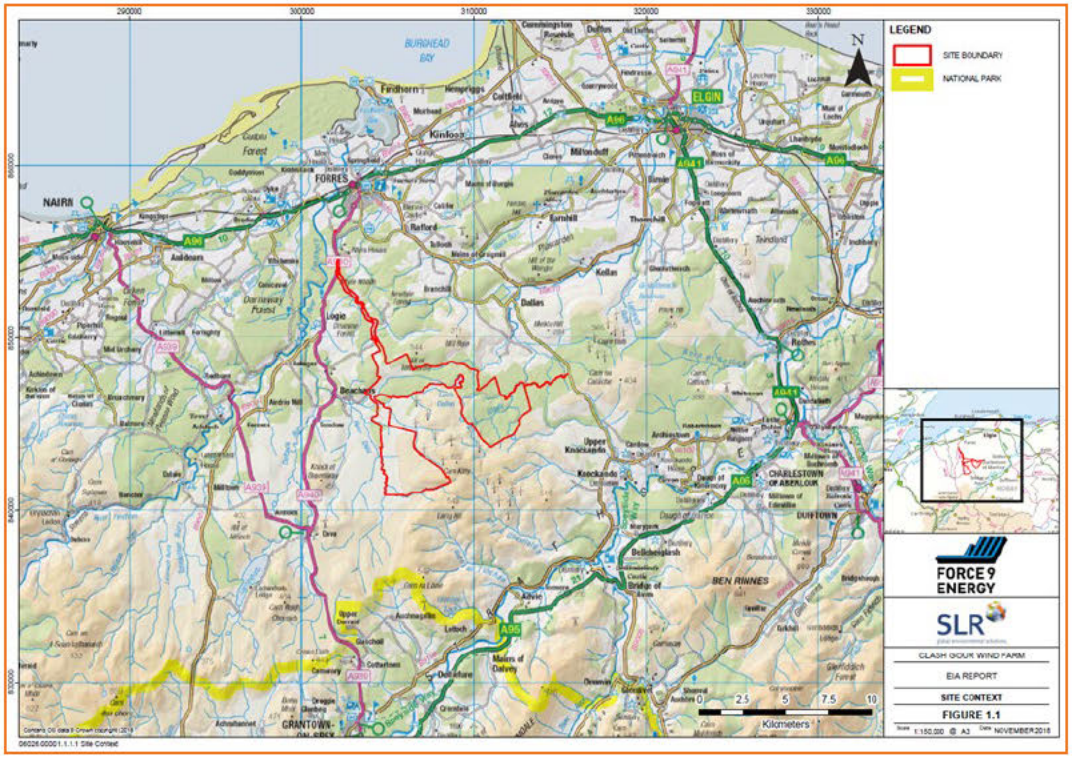
- Force9 Energy and EDF Energy Renewables (EDFER) are jointly planning to develop the Clash Gour Wind Farm.
- Clash Gour will be located approximately 13 NM southwest of RAF Lossiemouth and 15 NM southeast of Inverness Airport.
- The operational Clash Gour wind turbines will be theoretically detectable by varying degrees by the ATC primary surveillance radar systems at the two stations creating an adverse effect - mitigation is required.
- Application to the CAA under CAP 1616
- Step 1B – Stakeholder engagement on Design Principles



An example of radar clutter created by the detection of operational wind turbines

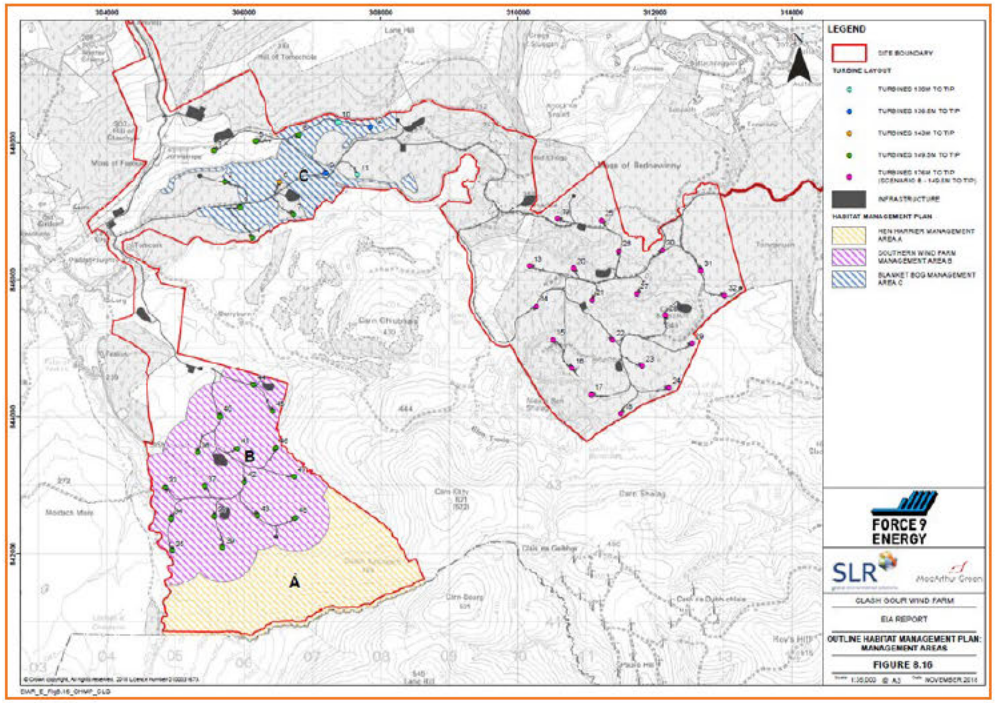
Project Overview

- 48 wind turbines up to 180 m blade tip height.
- Very good wind resource on the site, up to circa 250MW installed capacity.
- Expected to produce between 570GWhrs and 710GWhrs of electricity annually, sufficient to power up to 193,000 houses.
- It is a strategically important project in the context of Scottish national renewable targets (8GW to 12GW on new onshore capacity by 2030).
- Public Inquiry concluded 18th September 2020.



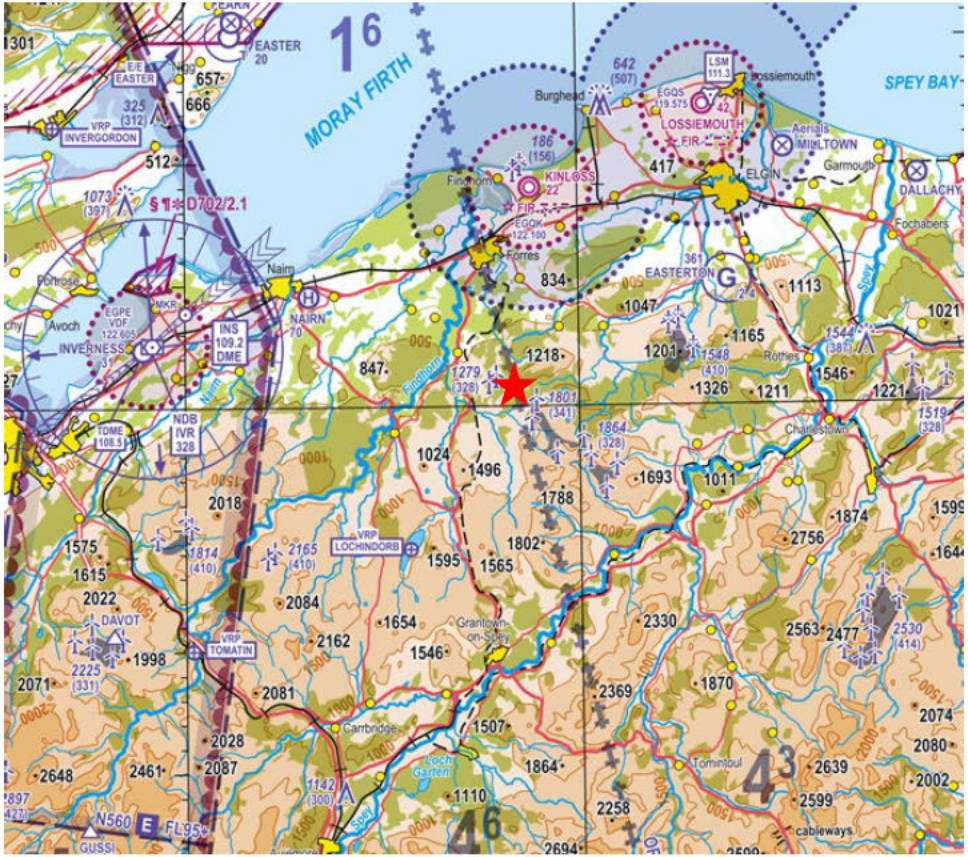
Environmental Benefits

- Comprehensive habitat and forest management.
- Recreational path network
- Located in landscape considered suitable for wind farm development.
- Expected to displace 363,000 tonnes of CO2 per annum (fossil fuel mix).
- Carbon payback period 2.4 years.



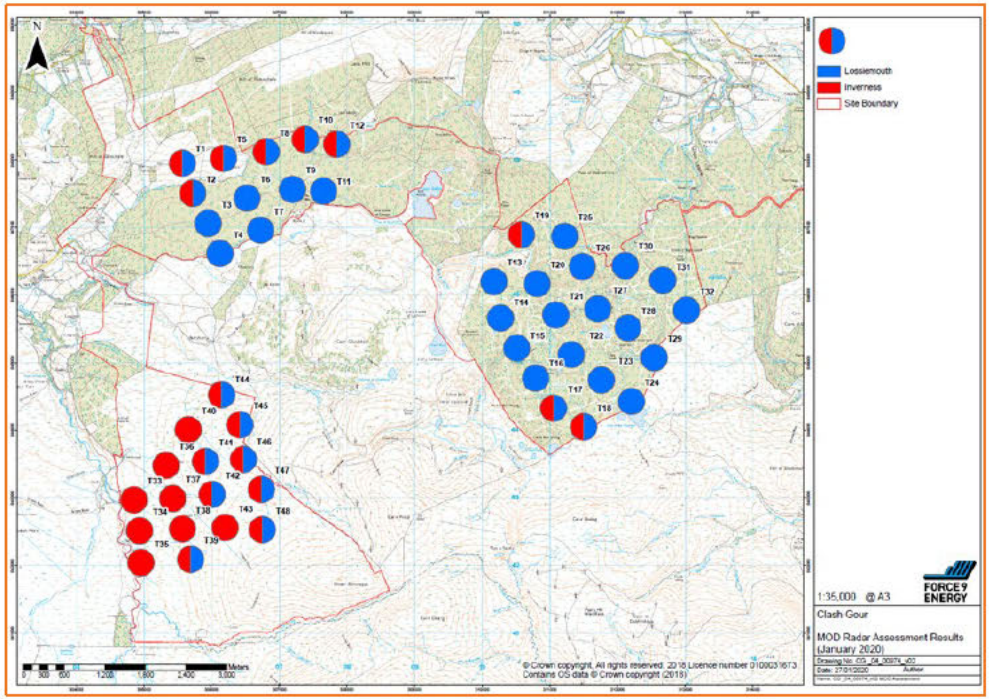
Airspace

- Class G (uncontrolled) airspace – surface to Flight Level (FL) 195.
- Class C Controlled airspace above.



Aviation Work to Date

- MOD Engagement
  - Initial objection based on PAR and ATC Primary Radar
  - Technical solution required for Primary radar
  - Objection withdrawn subject to an agreed condition
- Inverness Airport Engagement
  - Initial objection (ATC Primary Radar)
  - Technical solution required
  - Objection withdrawn subject to an agreed condition
- CAA Engagement
  - Agreed reduced lighting scheme
  - Broad range of consultees engaged in the process



Design Principles

DP1 Safety

- Maintain or enhance current levels of safety.

DP2 Operational (Resilience)

- Minimise negative impact on other airspace users (i.e. General Aviation (GA)).

DP3 Operational

- Airspace change will maintain or enhance operational resilience of the Air Traffic Control (ATC) network.

DP4 Operational

- Airspace change will have minimal impact on operations/capacity of airport operators and ANSPs.

DP5 Environmental

- Minimise environmental impacts to stakeholders on the ground.

DP6 Economic

Minimise economic impact on aircraft operators and to ensure costs and resources are proportionate.

DP7 Technical

- Base the airspace change on the latest technology available.
- This technology could relate to navigation, radar enhancements or radar data processing etc.
- The volume of airspace affected should be the minimum necessary to deliver requirements, whilst providing optimal safety buffer.
- Seek to create simple, easily definable solution.

CAP 1616 Process

CAP 1616 – Airspace Design

- New process introduced in Jan 2018
  - Developed by CAA and independent third party
  - Endorsed by DfT:
    - Secretary of State
- Replaced CAP 725
- Stated Aim of CAP 1616:
  - More transparency
  - Greater engagement with stakeholders
- Available on CAA Website

CAP 1616 – Change Level

- Assessment Meeting 28 September 2021 - marked the end of Step 1A.
- Assessment Meeting minutes available on CAA portal.
- CAA anticipated this ACP is an indicative **Level 1** change. Level 1 is not however confirmed until the end of Step 2B at the Develop and Assess Gateway

Level 1: High impact* changes to notified airspace design **A change that does have the potential to alter traffic patterns below 7,000 feet over an inhabited area[1]**	**Level 2: Medium to low impact* changes to notified airspace design** **A change that does not have the potential to alter traffic patterns below 7,000 feet over an inhabited area[1]**
The Government's Air Navigation Guidance states that below 7,000 feet is the maximum height at which noise is a priority for consideration	
Level 1: Typically a large-scale change which alters lateral aircraft tracks or dispersion, or changes aircraft height, below 7,000 feet (above mean sea level) over an inhabited area[1], such as: • changes to departure and arrival routes at airports • changes which have a significant impact on other aviation stakeholders	**Level 2A:** Typically a change which alters aircraft tracks, or changes aircraft height, below 20,000 feet (above mean sea level) but at or above 7,000 feet (above mean sea level), such as: • changes to Air Traffic Service (ATS) routes • establishment of new controlled airspace below 20,000 feet (above mean sea level). **Level 2B:** Typically a change: • to controlled airspace that occurs over the sea or at 20,000 feet (above mean sea level) and above, or • outside controlled airspace at or above 7,000 feet (above mean sea level) **Level 2C:** Typically a change which reflects: • the current use of the airspace concerned, such as a DCT*** to ATS Route, or • the removal of established airspace structure (such as Standard Instrument Departure truncation) and which does not alter traffic patterns below 7,000 feet (above mean sea level)
Level 0: Changes to nomenclature or qualifying remarks of the notified airspace design** **A change that will not alter traffic patterns** **Also applicable to the establishment of, or changes to, Visual Reference Points**	**Level M: Changes to notified airspace design by Ministry of Defence** **Level M1:** a proposed change where an anticipated consequence is an alteration of civil aviation traffic patterns below 7,000 feet over an inhabited area[1] **Level M2:** a proposed change where the anticipated consequences are either (a) an alteration of civil aviation traffic patterns at 7,000 feet or above, or (b) no impact on civil traffic

CAP 1616 – Change Level

Level 1: High impact* changes to notified airspace design	Level 2: Medium to low impact* changes to notified airspace design
A change that <u>does</u> have the potential to alter traffic patterns below 7,000 feet over an inhabited area[§]	A change that <u>does not</u> have the potential to alter traffic patterns below 7,000 feet over an inhabited area[§]

The Government's Air Navigation Guidance states that below 7,000 feet is the maximum height at which noise is a priority for consideration

CAA anticipated this as a **Level 1** change

Level 1 is not however confirmed until the end of Step 2B at the Develop and Assess Gateway.

Any specific comment on Level and scaling?

Design Principles

DP1 Safety
- Maintain or enhance current levels of safety.

DP2 Operational (Resilience)
- Minimise negative impact on other airspace users (i.e. General Aviation (GA)).

DP3 Operational
- Airspace change will maintain or enhance operational resilience of the Air Traffic Control (ATC) network.

DP4 Operational
- Airspace change will have minimal impact on operations/capacity of airport operators and ANSPs.

DP5 Environmental
- Minimise environmental impacts to stakeholders on the ground.

DP6 Economic

Minimise economic impact on aircraft operators and to ensure costs and resources are proportionate.

DP7 Technical
- Base the airspace change on the latest technology available.
- This technology could relate to navigation, radar enhancements or radar data processing etc.
- The volume of airspace affected should be the minimum necessary to deliver requirements, whilst providing optimal safety buffer.
- Seek to create simple, easily definable solution.

Clash Gour will strike a balance between an acceptable form of ACP and maximising release of MWs

Design Principles Development Process

- Force9 Energy and EDFER are keen to ensure Design Principles and Options are developed through a two-way engagement with local communities.
- Questionnaires sent to the following:
  - Local Authorities
  - General Aviation Community
  - Helicopter Operators
  - Airport Operators
  - Engagement with National Air Traffic Management Advisory Committee (NATMAC)

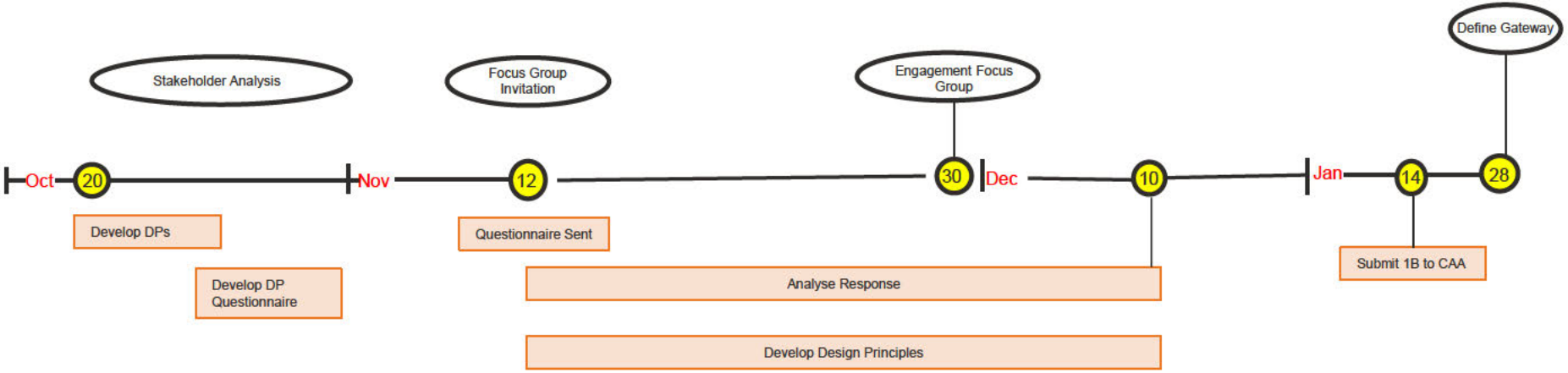
Focus Group – Please Tell Us Your Views

Example Questions

What design considerations are important to you?
How should the Design Principles be prioritised?
Should there be fewer or more Design Principles?
What additional Design Principles be included?
Do you think there will be a change to flight traffic patterns below 7000ft due to the ACP?

ACP Timelines

Stage 1 Step 1B Stakeholder Engagement Plan



Design Principles (Step 1B) – Next Steps

- Complete Focus Groups
- Collate all questionnaire responses
- Analyse all Focus Group comments and questionnaire responses
- Identify long list of Design Principles
- Develop short list of Design Principles
- Submit to CAA for publication on CAA Portal
- CAA will then conduct Define Gateway Assessment
- Proceed to Stage 2, Step 2A Options Development

Further Questions

FORCE 9 ENERGY

OSPREY CONSULTING SERVICES a tpgroup company

Contact Us:

[redacted]