Feasibility & Business Case for Civic Wind Energy Projects

Peter Robinson – Commercial Manager, ASC Renewables

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Introduction to ASC Renewables

ASC is an ethical developer of renewable energy projects in the UK, based in Manchester.

Proven track record in developing onshore wind projects, in partnership with Local Authorities and Utilities, as well as an internal portfolio:

- 20 MW Bishopthorpe Farm Wind Farm (Lincolnshire) – Consented
- 4.6 MW Newton Marsh Wind Project (Lincolnshire) – Operational
- 2.3 MW March Wind Project (Cambridgeshire) – Operational
- 500 kW Medium Wind Project (Rochdale) – Pre-planning
- 150kW Ogin Wind Project (Rochdale) – Consented
- 11 kW Small Wind Project (Rochdale) – Operational
- Borough-wide feasibility assessment (South Lanarkshire)

A 'turn-key' partner, delivering a project from initial feasibility through planning, construction and into operation.

ASC Renewables project at Newton Marsh sewage works

What is Civic Wind Energy?

A civic wind energy project is a wind turbine developed by the Council, on the Council's own land holding or third party land within the local area.

The turbines are usually 100% financed and owned by the Council so that all of the revenue goes back into public funds.

The projects work in exactly the same way as private developer turbines, feeding energy into the local grid and receiving a 'generation' and 'export' income.

Why Develop Civic Wind Energy?

ASC Renewables
Sustainable energy without compromise

New Income Streams

A Medium scale wind energy project with average wind speeds found in the UK can generate a return of **£4-6m** (post debt) over a 20 year lifetime of a project.

Protecting frontline services

The revenues generated from a civic wind energy project can directly support vital frontline services

Tackling fuel poverty

A portion of the revenue generated from a civic wind energy project can be channeled directly to combat fuel poverty amongst a Council's most at risk citizens

Improving Environmental performance

Each medium scale turbine can displace approximately **500 tonnes of Co2** each year

Protecting and Increasing local employment

A civic wind energy project may directly supply low cost renewable energy to a local employer, protecting the business from rising energy costs which helps the business remain competitive against international firms with lower energy prices

Project Structure

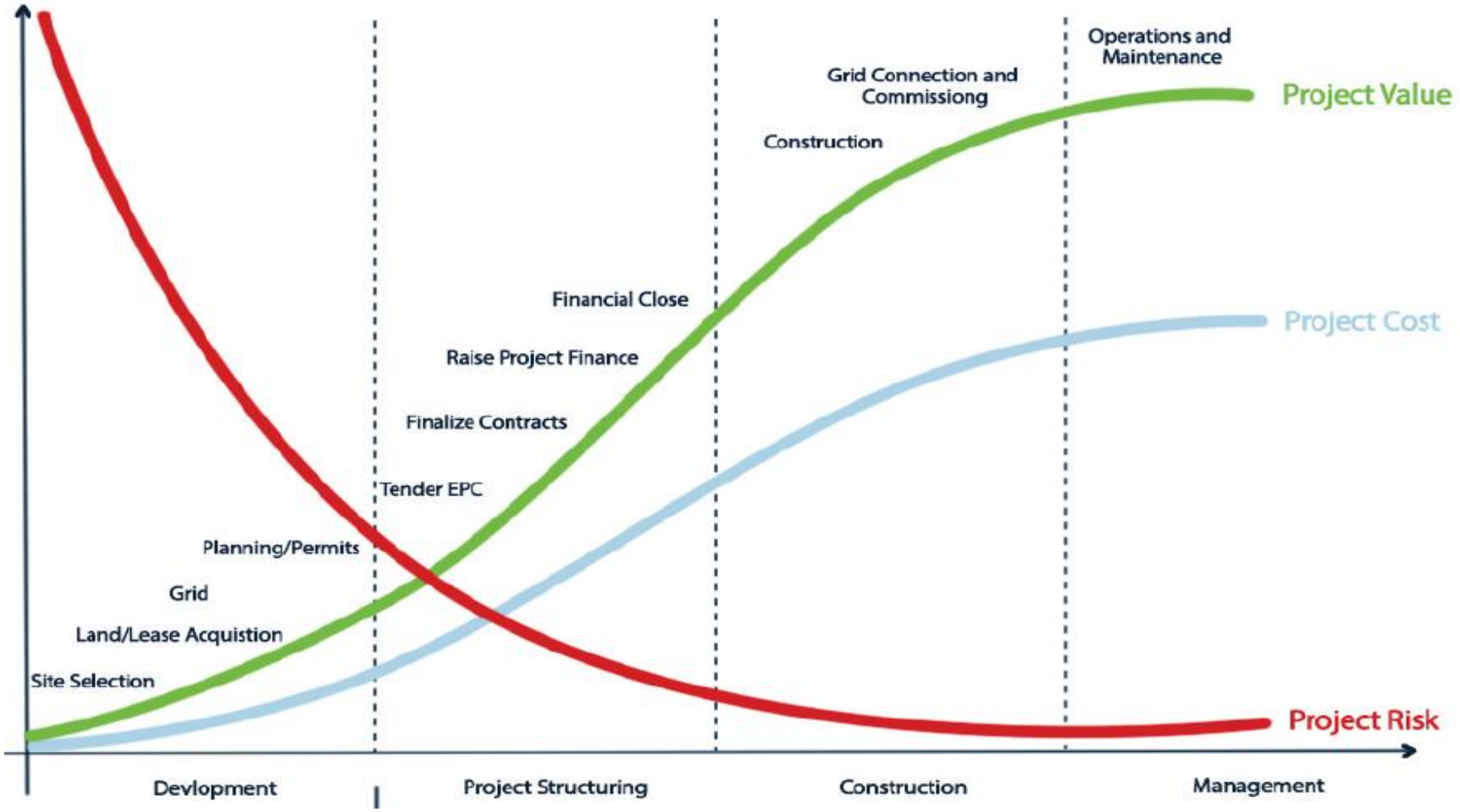
ASC is working with many UK Councils, having reviewed a number of project structures which work for Municipal Wind Energy projects:

- Full Ownership
- Part Ownership
- Joint Ventures
- Land Royalties

Project structures are flexible and the Council has greater options once planning consent is secured.

Investment Risk Profile

ASC Renewables
Sustainable energy without compromise



ASC

Small Scale Wind Turbines

Typical Features:

- 11kW - 50kW
- Height (blade tip) - 34m
- Hub Height - 15m-27m
- Blade Length - 7m
- Rotor Diameter - 14m

Gaia-Wind
GENERATING BETTER VALUE

Endurance wind power
we power the future

Financial Benefits:

Capital Investment - £70k
Financial Return - £170k
IRR – 9%
Project life – 20 to 25 years

Environmental Benefits:

CO_2 displaced – 14 tonnes
Homes powered - 8

Medium Sized Wind Turbines

Financial Benefits:

Capital Investment: £1.6 - £1.7m
IRR: 9 - 12%
Project Life: 20 - 25 years

Environmental Benefits:

CO_2 Displaced – 629 tonnes
Homes Powered - 263

EWT
Emergya Wind Technologies

ENERCON
ENERGY FOR THE WORLD

Large Scale Wind Turbines

Typical Features:

- 2.3 MW- 3.0 MW
- Height (blade tip) - 105m
- Hub Height - 60m-70m
- Blade Length - 35.5m
- Rotor Diameter - 71m

NORDEX We've got the power. ENERCON ENERGY FOR THE WORLD SIEMENS

SENVION Vestas GE Energy

Financial Benefits (5 turbines):

Funding Options Available
Capital Investment: £42m
IRR:18 - 28%
Project Life – 25 to 30 years

Environmental Benefits:

CO_2 Displaced – 48,400 t
Homes Powered – 5,750

Identifying Suitable Locations

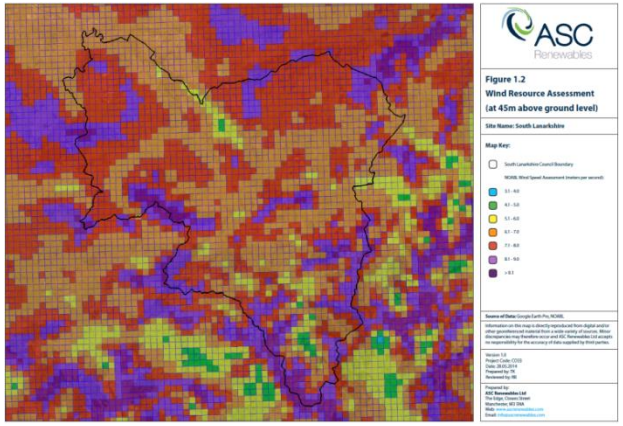
Three stage feasibility process to efficiently review an entire Council's land holding and wider region:

Stage 1 - **Initial Screening** to exclude unsuitable locations (Wind speed, proximity to houses, key designations)

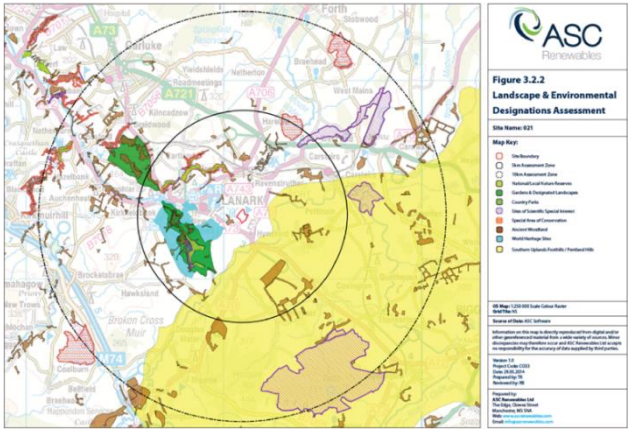
Stage 2 - **Desktop Technical Assessment** - In-depth review of remaining locations

Stage 3 - **On-Site Technical Evaluation** identifies proposed turbine locations, grid connection options, access

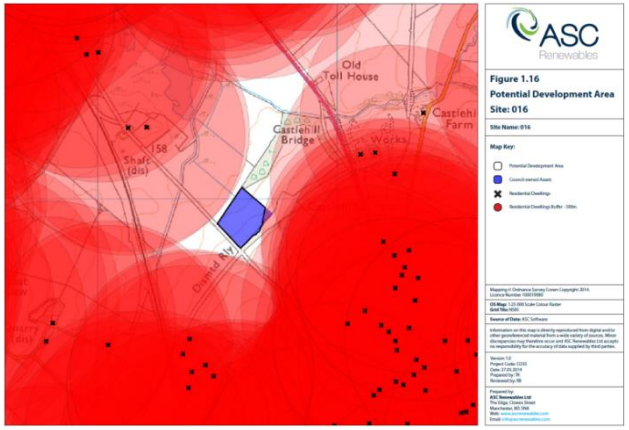
Stage 1 Assessment



Wind Resource



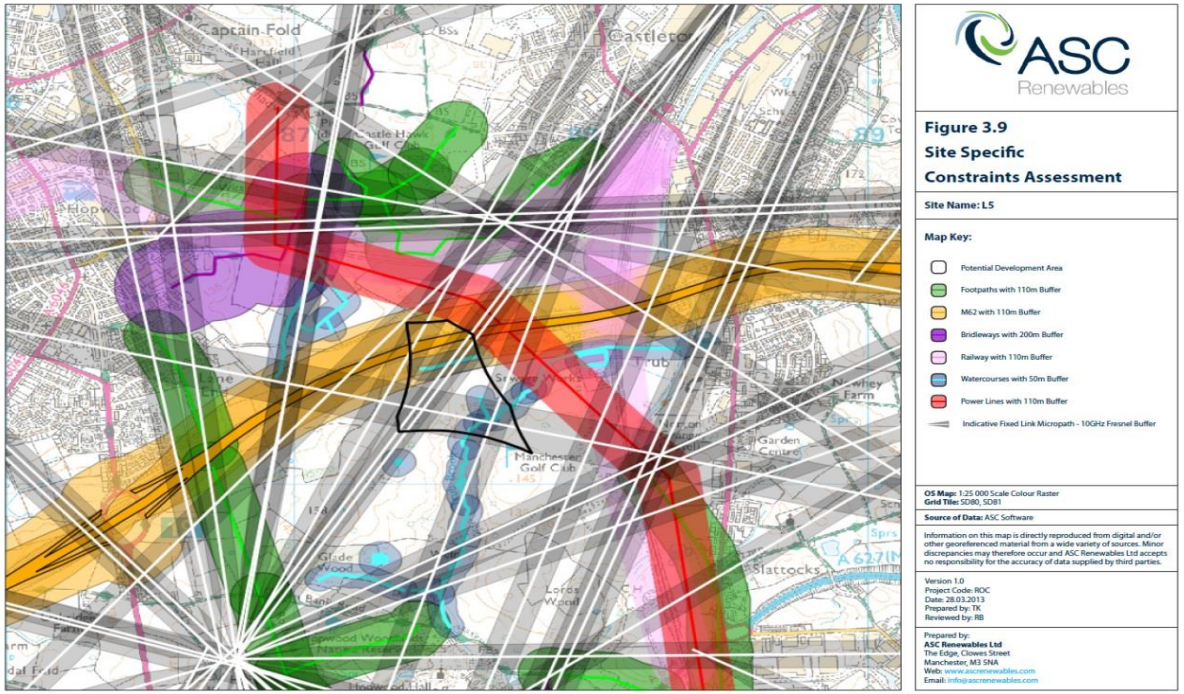
Key Environmental & Landscape Designations



Proximity of Residential Dwellings

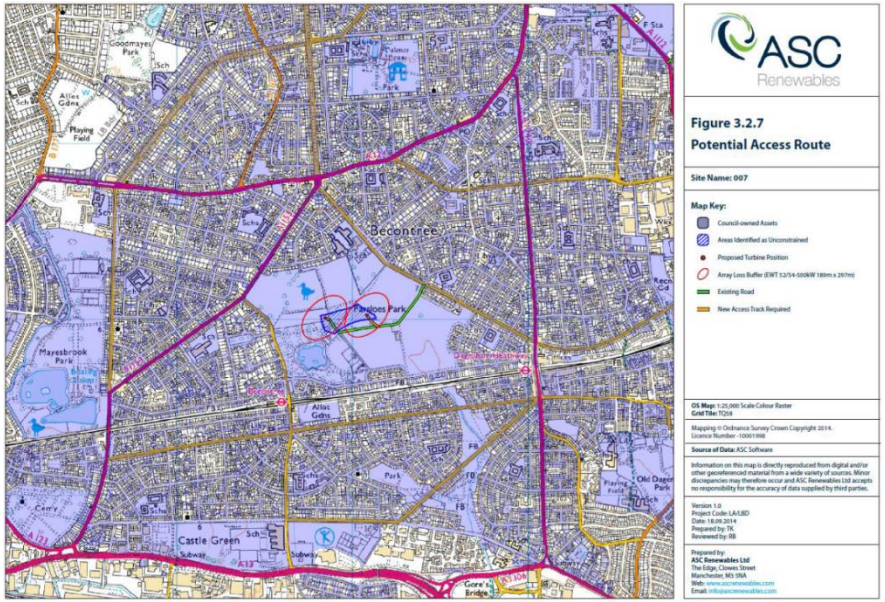
Stage 2 Review

- Proximity of Roads;
- PRoW, Bridle paths;
- Waterbodies;
- Topography;
- Civil Aviation Interests;
- Military Aviation Interests;
- Seismic Monitoring Stations;
- AONB, SPA, SAC, RAMSAR;
- National Parks, NNR, SSSI's;
- World Heritage Sites (WHS);
- Registered Parks & Gardens;
- SAM's and Listed Buildings.



Stage 3 Analysis

- Residential Amenity
- Noise
- Shadow Flicker
- Infrastructure
- Hydrology
- Ground Conditions
- Communication Infrastructure
- Recommended Site Design
- Landscape
- Environmental Assessment
- Archaeology
- Aviation Assessment
- Grid Connection Options
- Transport & Site Access

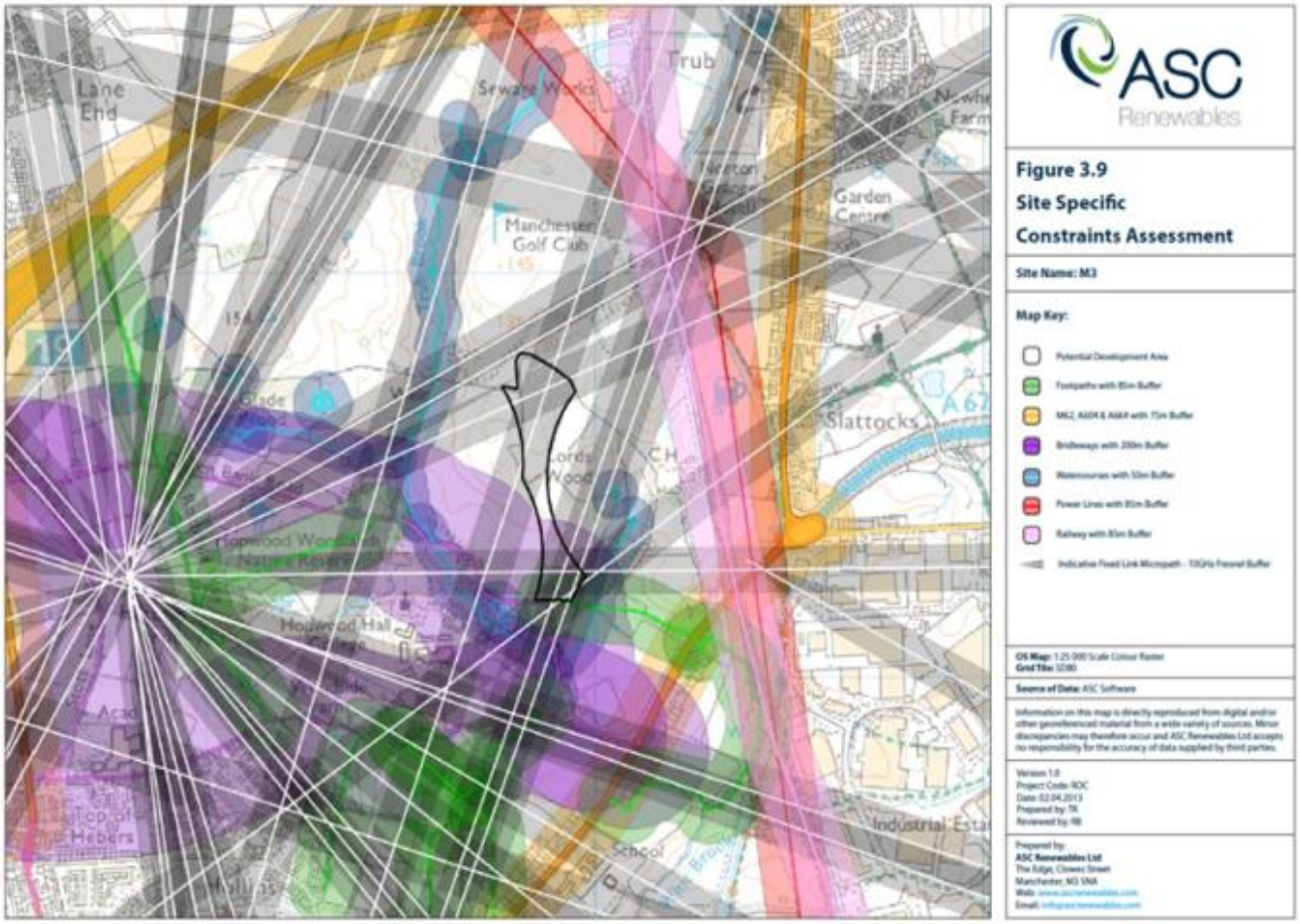


Rochdale Site Example

20 Acre Site owned by Rochdale

Constraints restricting development

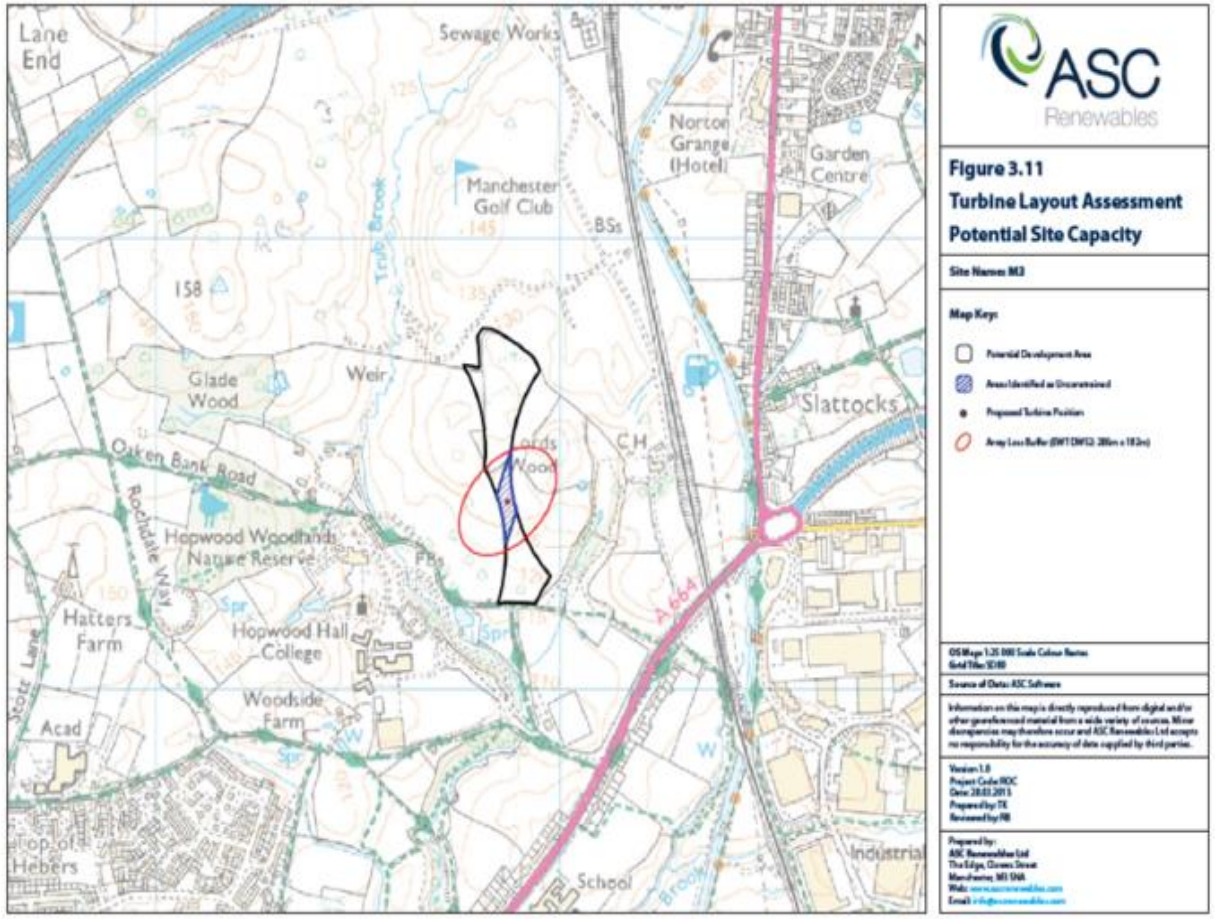
1 Acre suitable for development



Rochdale Site Example

1 Acre is suitable for developing a single, 500 kW wind turbine

This project has been approved and is currently being developed by Rochdale



Case Study – Rochdale Council

ROCHDALE METROPOLITAN BOROUGH COUNCIL

"Rochdale has the ambition to become the greenest Borough in the Country"

Cllr Colin Lambert (Former Leader of the Council)

Since February 2013, Rochdale Council in partnership with ASC Renewables has:

- Undertaken a wind energy feasibility assessment
- Developed a municipal wind energy business case
- Secured Cabinet approval
- Commissioned a pilot wind energy project
- Appointed ASC following an OJEU tender to develop wind portfolio
- Secured planning consent for first Ogin turbine in the UK
- Submitting planning application for first two Medium scale projects

Rochdale Council – Small Wind Pilot Project

ASC Renewables has successfully delivered an 11kW wind project for Rochdale Council at one of the sites identified as part of the feasibility assessment.

The site was selected to act as a demonstrator project in order to familiarise the Council with the process of developing a wind energy project and to deliver a staged approach to the wider wind programme.

Project Statistics

Project Size	11 kW
Turbine Used	Gaia - Wind 133 - 11 kW
Project Cost	£70k
Project Return	£170k
Project Lifetime	20 to 25 years
CO^2 Displaced	14 tonnes
Project Delivery Time	12 months

Rochdale Council - Timeline

- **February 2013** – ASC commissioned by RMBC to carry out borough wide site selection and feasibility assessment
- **April 2013** – ASC delivers comprehensive feasibility report and advises best sites to take forward to formal planning process
- **July 2013** – RMBC secures cabinet approval to progress with wind programme based on business case created by ASC
- **September 2013** – ASC commissioned by RMBC to develop 11kW demonstrator project at Hill Top site identified during ASC's feasibility assessment
- **March 2014** – ASC successfully delivers the 11kW demonstrator project on budget and two months ahead of schedule
- **April 2014** – ASC wins the OJEU tender to provide technical advisory services for the public sector wind programme to RMBC and the wider Manchester region (AGMA) framework
- **April 2015** – ASC secures planning consent on behalf of RMBC for Ogin site
- **Q3 2015** – Submitting planning application for first Medium Scale projects

Rochdale Council - Procurement

1) Feasibility Study was procured on a 'single supplier exemption'

2) Pilot Project was also procured on a 'single supplier exemption'

3) Wider Wind Program was procured as full OJEU:

- 62 companies at PQQ stage
- 8 companies at ITT
- 4 companies on framework
- ASC selected from framework

Rochdale Council - Financing

- Rochdale are funding the 'Wider Wind Program' through prudential borrowing (blended rate of 4.63%)
- ASC created financial model and business case for each project
- Debt term of 15 years so the Council will see return from year 1 (which can be used in 2016/2017 budgets)

Rochdale Council – Contract Structure

The OJEU contract for technical advisory covers the following steps:

Building the business case

- Wind resource modeling
- Legal (tenant farmers etc)
- Site specific financial model

Planning Application

- Securing access
- Ecology/heritage assessments

Grid Application

- Contestable & non-contestable elements

Rochdale Council – Contract Structure

Not included in the initial contract but can be added on as additional steps:

Procurement of Turbine and Balance of Plant

- Fully wrapped contract that includes turbine supply, electrical works, civil works, foundations

Construction Project Management

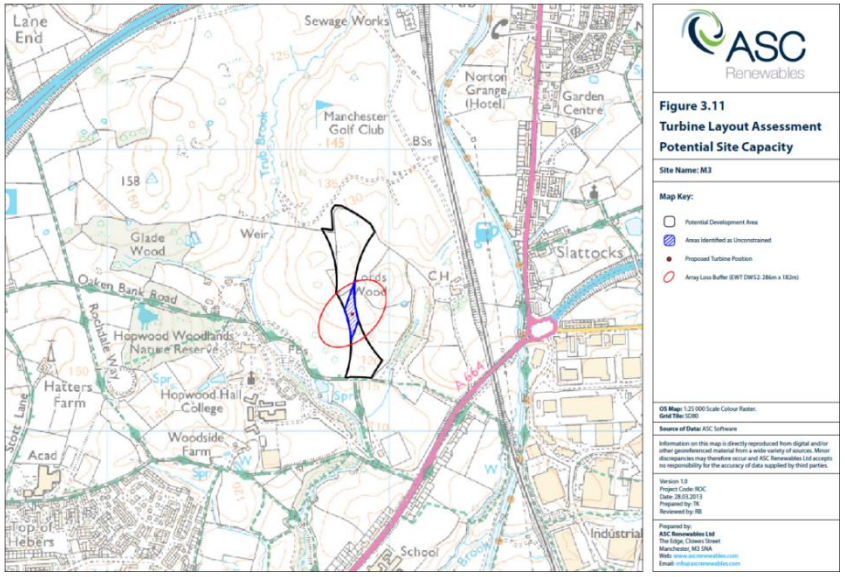
- Manage Balance of Plant

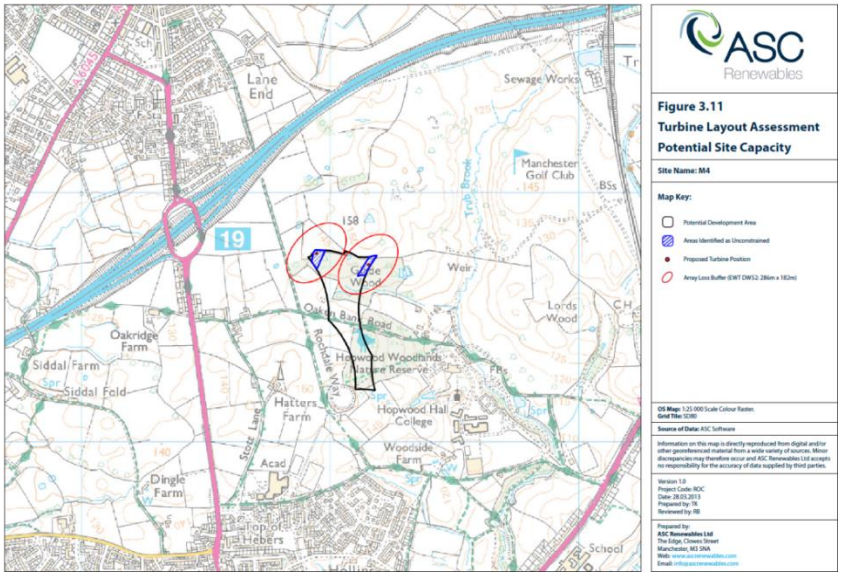
Asset Management

- O&M contract management and optimization of turbine performance

Rochdale Council – Next Steps

ASC is currently submitting the planning application for two medium scale projects at sites originally identified in the feasibility assessment





Civic Wind Contract Structure Issues

The need for a Council to bring on a technical advisor and the restraints of procurement regulations can cause issues with a civic wind project:

- Private project run turbine procurement in parallel with planning application but this does not fit with the staged process to fit procurement rules and Council risk profile

- Private sector turbine procurement negotiations may not fit directly with public sector procurement regulations

Solution: Closer working between developer and Council

Question: How can a Council allow a private developer to act on their behalf?

Any Questions?

Peter Robinson – Commercial Manager, ASC Renewables

peter.robinson@ascrenewables.com

0161 817 5261