

1 INTRODUCTION

1.1 OVERVIEW

RWE npower renewables (RWE NRL) is submitting an application for development consent to the Infrastructure Planning Commission (IPC) to construct and operate the Clocaenog Forest Wind Farm.

This document is the Environmental Statement (ES) produced by ERM and a number of other consultants on behalf of RWE NRL to support the application for development consent. ERM were responsible for the following chapters:

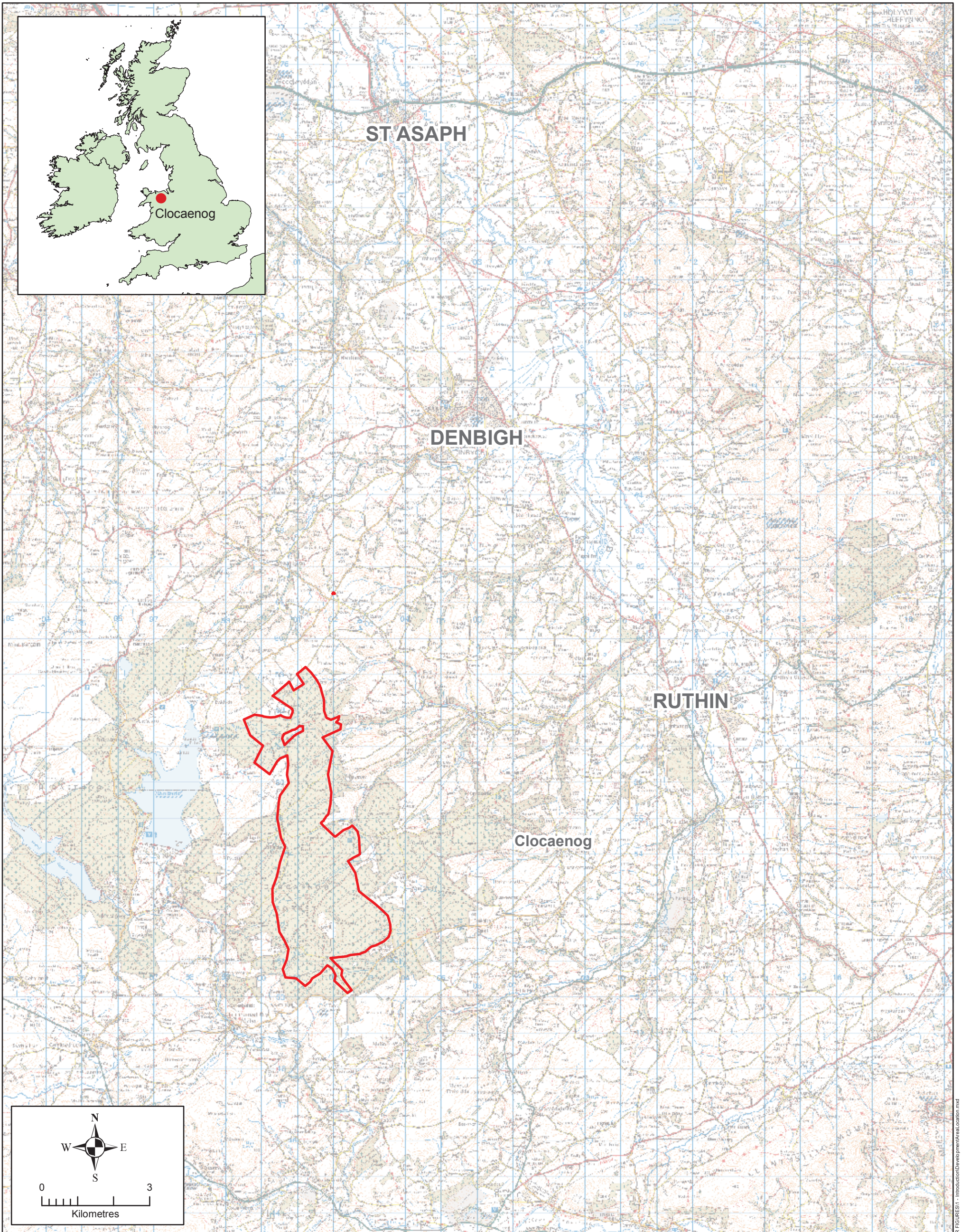
- introduction;
- scheme description;
- landuse and forestry (with forestry contribution from UPM Tilhill, see below);
- geology and hydrology;
- traffic and transport;
- telecommunications, aviation and shadow flicker;
- socio-economics and tourism;
- grid connection; and
- glossary.

The remaining chapters were written by external consultants as detailed below:

- planning and energy policies - RWE NRL;
- landscape and visual - Land Use Consultants (LUC);
- noise - Hayes Mckenzie Partnership;
- forestry - UPM Tilhill;
- terrestrial and avian ecology - WYG Group;
- archaeology and cultural heritage - Andrew Pearson Associates;
- siting and design - RWE NRL;
- carbon balance - WYG Group; and
- abnormal loads transport study and swept-paths of internal access tracks - ARUP.

The Clocaenog Forest Wind Farm will include 32 wind turbines with external transformer units, a substation which includes a control building with welfare facility, two permanent anemometry masts (to provide ongoing measurement of the wind speed at the site over the lifetime of the scheme), access tracks, borrow pits and temporary works. The Clocaenog Forest Wind Farm application does not include associated works such as the grid connection link, highway modifications for site access, or offsite quarrying. The Clocaenog Forest Wind Farm will have an operational lifespan of 25 years.

The proposed Clocaenog Forest Wind Farm is located approximately 13km south of Denbigh and approximately 10 km west of Ruthin, Denbighshire. The proposed scheme stretches from approximately 1km south of the B4501 in the north down to approximately 1.5km beyond Craig Bron-Banog in the south, from just west of the River Clwyd in the east to just east of the Llyn Brenig Reservoir in the west. It covers an area of approximately 1584.5ha. The majority of the land within the potential development area (the area made available by Forestry Commission Wales (FCW) during the tender process, essentially the whole of the FCW managed land east of Llyn Brenig) is currently predominantly coniferous forest with some open areas of heather moorland. The development area (the red-line consent boundary which encompasses the wind turbines and infrastructure including the access tracks) is shown in *Figure 1.1* below.



KEY:
 Development area

CLIENT: **RWE**
 npower renewables

SIZE: A3

TITLE: Figure 1.1
 Development Area Location

ERM
 Llandarcy House
 11A The Courtyard
 Llandarcy
 Swansea Bay, SA10 6EJ
 Tel: 01792 814907
 Fax: 01792 817396



DATE: 22/06/2010	CHECKED: CC	PROJECT: 0088650
DRAWN: MTC	APPROVED: SD	SCALE: As Scale Bar

SOURCE: Reproduced from Ordnance Survey digital map data. © Crown copyright. All rights reserved. 2009 License number 0100031673.
 PROJECTION: British National Grid

DRAWING: DevelopmentAreaLocation.mxd
 REV: 0

1.3

SCHEME OVERVIEW

The main components of the scheme include the following:

- 32 wind turbines (maximum rated capacity of 3MW and maximum tip height of 145m);
- two anemometry masts (maximum height of 100m);
- a permanent access route to the site and between wind turbines (approximately 6.11 km of new spur track and 20.15 km of upgraded track);
- underground cabling between turbines and to the substation;
- a substation including a control building and external compound; and
- four borrow pits.

Further details on the scheme are provided in *Chapter 2 Scheme Description*.

1.4

REGULATORY REQUIREMENTS

The Infrastructure Planning Commission (IPC) was established by the Planning Act 2008 ('the Planning Act') and provides the consenting regime applicable to Nationally Significant Infrastructure Projects (NSIPs). Section 15(2) of the Act states that generating stations (which includes renewable energy schemes) are deemed an NSIP where they have an (installed) capacity of more than 50 megawatts (MW). The maximum installed capacity of the Clocaenog Forest Proposal would be 96MW [32 x 3MW] and therefore Development Consent Order for the Clocaenog Forest Wind Farm is being sought from the IPC under the Planning Act 2008.

The EIA process commenced before the Planning Act was passed and the IPC established. Prior to the Planning Act, consent for generating stations of more than 50 MW was sought from Department of Energy and Climate Change (DECC) under the Electricity Act 1989. RWE NRL sought and obtained a scoping opinion from the Department of Energy and Climate Change (DECC), under Section 7 of The Electricity Works (Environmental Impact Assessment) (England & Wales) Regulations 2000, for the purposes of an intended application under section 36 of the Electricity Act 1989. Following the establishment of the IPC under the Planning Act, a scoping opinion was also sought from the IPC, under Section 8 of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.

The information contained in this ES, and further environmental information which emerges during the determination process in the form of comments from consultees and other parties and responses by the applicant, will be

taken into account by the IPC in determining whether to grant development consent for the scheme.

1.5 *EIA APPROACH*

1.5.1 *Overview*

The objectives of the ES are:

- to identify and describe the likely significant environmental impacts of construction, operation and decommissioning of the Clocaenog Forest Wind Farm taking into account the characteristics of the scheme, the sensitivity of the local environment and the concerns of interested parties;
- to identify and describe measures that will be taken to mitigate any significant adverse impacts identified by the EIA and maximise environmental benefits from the scheme; and
- to evaluate the significance of any residual impacts taking into account proposed mitigation.

1.5.2 *Scoping*

An early stage in the EIA process is to scope the issues which should be addressed in the ES. Key issues to be addressed in the ES were set out in the Scoping Report issued by RWE NRL in June 2008 and are listed below:

- impacts on the landscape and visual effects;
- impacts on archaeology and the visual setting of historical features;
- land use and forestry impacts;
- impacts on geology and hydrogeology;
- impacts on ecology (including impacts on birds);
- noise impacts;
- impacts on traffic and transport;
- impacts on infrastructure, telecommunications and air safeguarding issues; and
- socio-economic and tourism impacts.

1.5.3 *Methodology*

While there is no statutory definition of what constitutes a likely significant impact, it is clear that the primary purpose of identifying the likely significant impacts of a scheme is to inform the regulating authority and all interested stakeholders, in order that an informed and robust consent decision can be reached.

It is important to note that the purpose of an ES is to identify the *likely significant* environmental impacts of proposed development. It is not to

identify each and every environmental receptor which might theoretically be subject to some degree of impact, however slight. The fact that an environmental receptor (such as, for example, a species of animal or bird) is not referred to in this ES should not be taken to mean that the authors of this document have failed to consider whether a significant impact might arise in respect of it. The assessments in this ES have been undertaken following extensive consultation, and environmental surveys, designed to identify those receptors which might be subject to *significant* impacts.

A significant impact has been defined for the purposes of this scheme, as an impact that either in isolation or combination with others, should – in the opinion of the EIA team – be taken into account in the decision-making process. This definition of significance is consistent with what has been adopted for EIAs of other development schemes in the UK. There are five stages required to enable the significance of impacts to be identified, as follows:

1. identification of the baseline environmental conditions and the sensitivity and importance of the receptors;
2. identification of the magnitude of change which is likely to be caused by any impacts arising from the construction or operation of the proposed development upon the receptors;
3. identification of the magnitude, and therefore likely *significance*, of any impacts - being the product of the sensitivity of the receptor, and the magnitude of change upon it;
4. identification of any measures that will be taken to mitigate any significant adverse environmental impacts and maximise any environmental benefits of the scheme; and
5. evaluation of significance of residual impacts taking into account the proposed mitigation.

In assessing whether an impact is significant, and the degree of significance, reference is made to criteria that establish thresholds between significant and non-significant impacts and between different levels of significance. These may be derived from legal standards, policy objectives and targets, or accepted practice. Where there is no accepted basis for evaluation they may be established based on the judgement of the relevant specialists, taking into account the circumstances of the case and the views of statutory consultees, and other interested parties. Evaluation criteria are particular to each specialist discipline, but some general principles designed to provide consistency in evaluation of significance across all specialist topics are set out below:

- the significance of an impact on people is considered to result from an interaction between three factors: the magnitude of the impact or change,

the number of people affected, and the sensitivity of those people to the change;

- the significance of an impact on an environmental resource is dependent upon two factors: the nature and magnitude of the impact or change to the resource and the sensitivity of that resource;
- the magnitude of an impact has a number of different components, for example, the extent of physical or other change, its spatial extent, duration and frequency; and
- the sensitivity of resources will depend on their value and the extent to which they are able to accommodate the change without loss of value.

The way in which these principles are applied to different impacts is described in the later chapters of the ES as each impact is discussed.

1.5.4 *Cumulative Impacts*

The EIA Regulations require the ES to describe the direct and indirect impacts of development, short, medium and long term impacts, permanent and temporary impacts, positive and negative impacts, and cumulative impacts.

Cumulative impacts include similar impacts occurring at different locations over a wider area, and impacts occurring at the same location but due to different projects or proposals. Both types of cumulative impacts are considered in the ES.

This assessment has addressed all these types of impacts, specifically the cumulative impacts of the Clocaenog Forest Wind Farm in combination with other operational, consented and proposed wind farms in the vicinity. There are a number of other wind farms proposed, consented or operational and *Table 1.1* lists those that are within 60km of the Clocaenog Forest Wind Farm together with their planning status as at May 2010 (a more detailed table of wind farms within 60km can be found in *Chapter 5, Landscape and Visual*).

Table 1.1 *Wind Farms, both Existing and in Various Stages of the Planning Process Within 60 km of the Proposed Clocaenog Forest Wind Farm in 2010*

Wind Farm	Planning Status
Brenig	Approved
Tir Mostyn and Foel Goch	Operational
Derwydd Bach	Approved
Nant Bach	Approved
Wern Ddu	Under construction
Braich Ddu Farm	Operational
Hafoty Ucha	Operational
Moel Maelogen	Operational
Mawla (Moel Maelogen)	Operational
Moel Maelogen Extension	Operational
Rhyl Flats	Operational
Llys Dymper	In planning
North Hoyle	Operational
Gwynt y Mor	Approved
Carnedd Wen	In planning
Cemmaes 3	In planning
Burbo Bank	Operational
Llanbrynmair	In planning
Mynydd Waun Fawr	In planning
Cemmaes	Operational
Port of Liverpool/Mersey Docks	Operational
Royal Seaforth Dock	Operational
Tirgwynt	In planning
Mynydd Clogau	Operational
Mynydd Clogau Extension:	In planning
CAT Repowering	Operational
Carno 'A' and 'B':	Operational
Carno Extension	Operational
BDCR 1	Operational
BDCR 2	Under construction
Polenko	Operational
Waun Garno	In planning

The search distance of 60km has been chosen based on recommendations for cumulative landscape and visual impact assessments (see *Chapter 5, Landscape and Visual*). Although there is no definitive guidance on how to conduct these assessments, various methods have been developed by established landscape architects with experience in this field.

The 60 km radius for the base plan is informed by the University of Newcastle '*Visual Assessment of Wind Farms Best Practice* ⁽¹⁾' where a 30km radius is recommended for Zones of Visual Impacts in the landscape and visual impact assessment of turbines with tip heights of 100m and above. A 60km radius will enable the consideration of the scenario where, for example, an exceptionally important receptor is located midway between two sites and is approximately 30km from each.

(1) University of Newcastle '*Visual Assessment of Wind Farms Best Practice*' Scottish Natural Heritage Commissioned Report F01AA303A

Wind farms at pre-planning stages have not been included in the cumulative assessment as detailed planning applications have not been submitted and full details are not available; indeed it is possible that planning applications may never be submitted for some or all such schemes.

1.5.5 *Alternatives*

The EIA Regulations require that where a developer has considered alternatives to the application proposal, the ES should outline the main alternatives considered by the developer in planning the scheme and explain the main reasons why the proposed scheme has been selected. This should include any environmental considerations affecting the decision.

A brief discussion of the rationale for the current proposals is provided in *Chapter 3 Siting and Design*.

1.5.6 *Mitigation*

A key purpose of EIA is to identify measures that can be taken to prevent, reduce, remedy or compensate for adverse environmental impacts or to provide environmental benefits. Schedule 4 of the EIA Regulations requires that where significant impacts are identified,

“a description of the measures envisaged to prevent, reduce and where possible remedy any significant adverse effects on the environment”

should be included in the ES.

The EIA team has identified the potential for mitigation and enhancement and agreed with RWE NRL those measures which are considered to be practicable in the context of this scheme. Mitigation measures are described under the following categories:

- *Embedded Mitigation Measures:* These include features inherent in the design of the project and any changes made to the siting and layout of turbines, access roads, and other infrastructure during the final design layout. Embedded mitigation measures are taken into account when describing potential significant impacts.
- *Measures to Mitigate Significant Impacts:* These are additional measures, committed to by RWE NRL, that have been identified to prevent, reduce and where possible remedy any significant adverse impacts.
- *Mitigation of Non-Significant Impacts:* These are committed mitigation measures that have been identified to mitigate or reduce non-significant impacts. These are often “good practice” or “good site management” measures that would be implemented by a responsible developer.

All mitigation measures are described in their relevant chapters.

1.5.7 *Enhancement Measures*

These are committed measures that will be implemented to enhance the local environment.

All enhancement measures are described in their relevant chapters.

1.5.8 *Consultation*

In accordance with good practice in EIA, individuals and organisations whose interests (where known) might be affected by the proposed development were consulted during the EIA process for their views and to obtain any information relevant to the assessment. These consultations identified key issues, opportunities and constraints and helped to define the scope of the EIA. A list of individuals and organisations consulted during the EIA process, with a summary of their responses is provided in *Annex B, Consultation Diary* and referred to in the relevant chapters. Key and statutory consultees included amongst others:

- Department of Energy and Climate Change (DECC)
- Countryside Council for Wales (CCW);
- Environment Agency Wales (EAW);
- Denbighshire County Council (DCC);
- Conwy County Borough Council (CCBC);
- Ministry of Defence (MOD);
- Civil Aviation Authority (CAA); and
- National Air Traffic Services (NATS).

In addition to the consultation undertaken to directly inform the EIA, public and stakeholder engagement has also been undertaken which included the following:

- in November 2008, RWE NRL wrote to and invited comments from a broad selection of politicians, and stakeholders;
- newsletters were sent to 4,500 local residential addresses and 300 copies of the newsletter were made available at the planning offices in Denbigh and Ruthin;
- also in November 2008, information on Clocaenog Forest was added to RWE NRL website: <http://www.rwe.com/web/cms/en/306196/rwe-npower-renewables/sites/projects-in-development/wind/clocaenog-forest>;
- a Community Liaison Group (CLG) was established in March 2009 comprising representatives of the local communities. The CLG has meet regularly every 4 months throughout the development of the scheme and has its own website: <http://www.clocaenogclg.org.uk/en/index.asp>;

- a second newsletter was sent out to 6,500 local residential addresses in September 2009. In addition copies of the newsletter were made available in the public libraries in Denbigh, Ruthin and Cerrigydrudion; and
- a series of public exhibitions were held over 5 days during October 2009.

Further details on this public engagement and a summary of the issues raised are included within *Annex B*.

1.6 ES STRUCTURE

The remainder of the ES is structured as follows:

- *Chapter 2* Scheme Description;
- *Chapter 3* Siting & Design;
- *Chapter 4* Planning & Energy Policies;
- *Chapter 5* Landscape & Visual;
- *Chapter 6* Cultural Heritage & Archaeology;
- *Chapter 7* Landuse and Forestry;
- *Chapter 8* Geology & Hydrology;
- *Chapter 9* Terrestrial Ecology and Habitat;
- *Chapter 10* Avian Ecology;
- *Chapter 11* Noise and Vibration;
- *Chapter 12* Traffic and Transport;
- *Chapter 13* Telecommunications, Aviation & Shadow Flicker;
- *Chapter 14* Socio-economics and Tourism; and
- *Chapter 15* Grid Connection.

Impacts after decommissioning are dealt with alongside individual topics in the relevant sections.

Supporting information is provided in the following annexes:

- *Annex A* Scoping Report;
- *Annex B* Consultation Diary;
- *Annex C* Carbon Balance Assessment;
- *Annex D* Archaeology and Cultural Heritage;
- *Annex E* Felling Plan;
- *Annex F* Geology and Hydrology;
- *Annex G* Ecology;
- *Annex H* Noise;
- *Annex I* Traffic and Transport;
- *Annex J* Shadow Flicker; and
- *Annex K* Visual Amenity Study
- *Annex L* Construction Method Statement

The ES is illustrated with a number of figures which are reproduced in an accompanying A3 report (Supplementary Volume: Illustrations).

A summary of the findings of the assessment is presented in the *Non Technical Summary* (NTS), which is available as a separate document.