

The Wrexham (Gas Fired Power Station) Order

6.4.6 Volume 4: Environmental Statement Appendix 11.5: Draft Bat Licence

Planning Act 2008 The Infrastructure Planning
(Applications: Prescribed Forms and Procedure) Regulations 2009

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Appendix A11.5 ♦ Draft Application for a Licence – Bats: Method Statement

BACKGROUND AND SUPPORTING INFORMATION

Executive Summary

- A11.1 Wrexham Power Limited (WPL) are promoting the proposed development of the Wrexham Energy Centre (WEC) which will comprise a new Combined Cycle Gas Turbine (CCGT) power station, gas pipeline and other infrastructure works. The proposed CCGT power station will be located at Wrexham Industrial Estate, Wrexham (centred on Ordnance Survey National Grid Reference (OS NGR): SJ39275040).
- A11.2 The Power Station Complex Site constitutes a Nationally Significant Infrastructure Project (NSIP) and, as such, an application for a Development Consent Order (DCO) is required to permit the development. The Overarching National Policy Statement for Energy (EN-1), designated in 2011, sets out the need for new electricity generating stations and, therefore, the need for the proposed development is confirmed in national policy.
- A11.3 A suite of bat surveys has been undertaken in 2013 and 2014 to inform the Scheme's Environmental Impact Assessment (EIA). One confirmed soprano pipistrelle day roost has been identified within the Power Station Complex Site and which will be affected by construction of the Scheme. This roost is considered to be of low conservation significance. However, this licence application is also based on a precautionary approach and a worst case scenario should the presence of bats and their roosts be encountered in the other trees with bat roost potential during construction of the Scheme.
- A11.4 In the absence of mitigation/compensation, the potential loss/abandonment (through disturbance) of a confirmed soprano pipistrelle day roost will have a low scale of impact at a site level and a low scale of impact on the local status of the soprano pipistrelle population. However, based on a worst-case scenario, there is also potential for construction of the Power Station Complex to have high scale of impact at a site level and a high scale of impact on the population of the bat species concerned at a local, county and regional level should hibernation roosts (of species that are less widespread in Wales) be present within the Power Station Complex Site.
- A11.5 The identified impacts will be addressed through an appropriate and proportionate capture and exclusion strategy and the provision of bat boxes to ensure that construction of the Scheme will not be detrimental to the maintenance of the local bat population at a favourable conservation status in their natural range. The mitigation strategy will comprise a Precautionary Method of Working (PMW) for felling trees

(including any facilitation pruning) which have been assessed as having bat roost potential to avoid the injury or killing of any roosting bats, sensitive working methods to avoid potential disturbance of roosting bats in trees which are to be retained and the provision of artificial roosting sites in the form of bat boxes.

A11.6 Following the proposed mitigation and compensation measures, it is not considered that construction of the Scheme will affect the long term distribution and abundance of the local bat population. Nor is it considered that construction of the Scheme will reduce the natural range of the species concerned and it is considered that there will continue to be sufficient habitat to maintain the local bat population.

Introduction

Background to activity/development

A11.7 The proposed CCGT power station will be located at Wrexham Industrial Estate, Wrexham (centred on OS NGR: SJ39275040) and will have an electrical generation capacity of up to 299 megawatts (MWe). It will require a connection from the national gas transmission network to the development and a connection to the electricity grid, both of which would be excluded from the DCO and progressed under a separate consenting strategy.

A11.8 National policy in relation to NSIPs, such as that proposed, is set out in the National Policy Statements (NPSs). Under the Planning Act 2008 the NPSs form the basis for decisions on NSIP applications, which must also take into account other matters set out in the Planning Act 2008, including any material considerations.

A11.9 The Overarching National Policy Statement for Energy (EN-1)¹, designated in 2011, sets out the need for new electricity generating stations. It should be noted that the NPSs refer to the Infrastructure Planning Commission (IPC) as the examining body for NSIPs. However, the IPC was abolished through the Localism Act 2011 with (broadly) its decision-making responsibilities transferred to the Secretary of State and its examining responsibilities transferred to PINS.

A11.10 NPS EN-1 states at paragraph 3.3.7 that 'at least 22 GW of existing electricity generating capacity will need to be replaced in the coming years, particularly to 2020. This is as a result of tightening environmental regulation and ageing power stations.'

A11.11 It continues at paragraph 3.3.15 that 'In order to secure energy supplies that enable us to meet our obligations for 2050, there is an urgent need for new (and particularly low carbon) energy NSIPs to be brought forward as soon as possible, and certainly in the next 10 to 15 years, given the crucial role of electricity as the UK decarbonises its energy sector.'

¹ Overarching National Policy Statement for Energy (EN-1), Department for Energy and Climate Change, July 2011.

A11.12 It is in this context that paragraphs 3.1.1 – 3.1.3 state:

'3.1.1 The UK needs all the types of energy infrastructure covered by this NPS in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions.

3.1.2 It is for industry to propose new energy infrastructure projects within the strategic framework set by Government. The Government does not consider it appropriate for planning policy to set targets for or limits on different technologies.

3.1.3 The IPC should therefore assess all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the Government has demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that need is as described for each of them in this Part.'

A11.13 The need for the Scheme is therefore confirmed in national policy.

Full details of proposed works on site that are to be covered by the licence

A11.14 This is a draft licence application in respect of bats that has been prepared to be submitted with the DCO application. It fully assesses the predicted impacts to the species of bat concerned and identifies an appropriate and proportionate mitigation strategy. It has been prepared for Natural Resources Wales's (NRW) consideration of the issues relating to the presence of bats and their subsequent recommendation to the Secretary of State, which will inform the decision on whether to grant or refuse a DCO for the Scheme.

A11.15 This licence application pertains to the construction of the Power Station Complex, which is anticipated to commence in 2017. This includes a preliminary works stage, which involves the clearance and preparation of contractor's areas and the installation of services including access roads within the Power Station Complex Site, utilities supplies and drainage, in order to facilitate construction. It will also include the early ecological mitigation measures, as prescribed in the Scheme Environmental Statement (ES), followed by the removal of redundant below ground structures/services associated with the Power Station Complex Site's previous use and the implementation of a contaminated land remediation strategy. It is anticipated that the preliminary works stage would have a maximum duration of ten months.

A11.16 The preliminary works stage will involve the removal of mature trees within the footprint of the Power Station Complex. As part of the Scheme's EIA, preliminary bat roost assessments of the trees within the Power Station Complex Site and a suite of bat presence/absence surveys of the trees that were likely to be affected by the Scheme have been undertaken. The preliminary works stage will also involve facilitation pruning of trees in proximity to the footprint of the Power Station Complex. This will affect a tree that has been confirmed as supporting a soprano pipistrelle day roost.

- A11.17 Furthermore, the preliminary works stage will result in the removal of one tree that possibly supports a soprano pipistrelle day roost and the removal of a further nine trees that have been assessed as having bat roost potential. Despite an appropriate and proportionate level of survey effort having been undertaken to determine the presence of summer roosts, it is known that tree roosts are used throughout the year by a variety of bat species, many of which are known to move unpredictably between roosts. As a consequence, the nomadic nature of tree-dwelling bats means that tree roosts can be particularly difficult to detect. Therefore, in addition to the presence of a confirmed soprano pipistrelle day roost, which will be affected by construction of the Power Station Complex, this licence application is also based on a precautionary approach should the presence of bats and their roosts be confirmed in the trees with bat roost potential during construction of the Power Station Complex.
- A11.18 Following the preliminary works stage, the piling and main foundation construction will commence, which is anticipated would take twelve months to complete. Erection of above ground structures and installation of the power plant would then commence. The total duration of construction of the Power Station Complex is anticipated to be thirty-six months.
- A11.19 The licence will be required for the duration of construction of the Power Station Complex. All of the proposed works, as described above, that are to be covered by the licence will be confined to the Power Station Complex Site.
- A11.20 This licence application does not pertain to the construction of the Gas Connection. The Gas Connection Route has been aligned to avoid the need to remove trees with bat roost potential. The width of the Gas Connection Route, which will generally be 40 m, has allowed for the provision of temporary works areas. These areas will provide additional space for enabling works where the 40 m width of the route cannot fit between existing trees that have been identified as supporting bat roost potential, thereby allowing the Gas Connection to be routed through narrow gaps between these trees. Wherever possible, this will ensure a minimum buffer zone of 10 m between trees with bat roost potential and construction of the Gas Connection so that potential adverse impacts to these trees, and any potential adverse effects on the conservation status of the local bat population, are avoided. This 10 m buffer zone has been agreed with NRW. As a consequence, bat surveys of the Gas Connection Route have not been undertaken.

Actions requiring licensing

- A11.21 The following construction activities during the preliminary works stage require licensing:
- facilitation pruning of a mature oak that has been confirmed as supporting a soprano pipistrelle day roost to facilitate construction, resulting in disturbance to bats (should they be present during the course of the action) and the potential damage or destruction (loss) of a roost;

- removal of a mature oak that possibly supports a soprano pipistrelle day roost and the removal of nine mature oaks that have been assessed as having bat roost potential to facilitate construction, resulting in disturbance to bats (should they be present during the course of the actions) and the loss of a possible roost/potential roosts; and
- all construction activities required to complete construction and which may result in the potential disturbance of hibernating bats (should any trees with high bat roost potential in proximity to the construction zone support hibernation roosts) and the potential loss/abandonment of a hibernation roost.

Survey and Site Assessment

Existing information on the bat species at the survey site

A11.22 A data gathering exercise was undertaken as part of the scoping exercise and subsequent Preliminary Environmental Information Report (PEIR) that was produced for the Scheme. A data request was made to The North Wales Environmental Information Service (COFNOD) in November 2012 for records of legally protected species (including bats) within 1 km of the Scheme's Order Limits, including the Power Station Complex Site. Following the *Guidelines for Preliminary Ecological Appraisal* (CIEEM, 2013), when identifying the extent of a study area, it is considered that records for legally protected and/or notable species within 1-2 km of a site are of greatest relevance. Due to the small-scale loss of habitat within the Power Station Complex Site and the temporary impacts of habitat severance within the Gas Connection Route, a maximum zone of 1 km from the Order Limits was used to request records of legally protected and/or notable species; this was considered sufficient for the purpose of the assessment and set out in the Scoping Report.

A11.23 Following the data request to COFNOD, two records of bats were identified (one common pipistrelle and one whiskered bat) within 1 km of the Power Station Complex Site; the nearest record being the whiskered bat record located approximately 750 m to the south-west of the Power Station Complex Site. The records do not confirm whether they are roosts or not.

A11.24 Bat surveys of the Power Station Complex Site were undertaken by Witcher Wildlife Ltd in 2008 and 2010 to support a planning application for B2/B8 development on the Power Station Complex Site. The 2008 surveys identified foraging activity over the Power Station Complex Site by common pipistrelle, soprano pipistrelle, noctule and *Myotis* bats (including probable whiskered bat) but did not confirm the presence of any roosts. The 2008 surveys did not record the concentration of any one species that would indicate the presence of a roost. The pattern of activity indicated predicted foraging activity along hedgerows and over ponds within the Power Station Complex Site where concentrations of insect prey would be expected. However, it was concluded from the 2008 surveys that there is high potential for bats to roost in mature

oak trees that are present within the Power Station Complex Site. In addition, it was concluded from the 2010 survey that the level of *Myotis* bat activity may suggest the presence of a *Myotis* bat roost along the linear strip of mature broadleaved woodland immediately north of the Power Station Complex Site.

Statutory site notified for the species (SSSIs or SACs) within 10km

A11.25 Following a desk based assessment, which included a review of the Multi-Agency Geographical Information for the Countryside (MAGIC) website² (accessed in October 2014), that was undertaken to inform the Scheme's EIA, there are no SSSIs or SACs that are notified for bats within 10 km of the Power Station Complex Site.

Objectives of the survey

A11.26 'Extended Phase 1' habitat surveys of the land within the Scheme's Order Limits and immediate surrounds (land within approximately 50 m of the Order Limits, where access permitted) were undertaken in November 2012 and during February to May 2013, by Atkins, to identify potential ecological constraints to the Scheme. The surveys included preliminary assessments of potential bat roost features.

A11.27 Following the results of the initial 'Extended Phase 1' habitat surveys and a consultation and scoping exercise with NRW and Wrexham County Borough Council (WCBC), detailed protected species surveys, including bat surveys, were undertaken. Presence/absence surveys were undertaken to identify the presence of any bat roosts within the features that were assessed as having bat roost potential. Following agreement with NRW and WCBC, the presence/absence surveys were restricted to features present within the survey area of the Power Station Complex Site which were likely to be affected by the Scheme. This was an iterative process, with the number of features requiring survey (in particular trees) being reduced as the design of the Scheme evolved.

A11.28 Bat activity surveys were also undertaken to determine the usage of the Power Station Complex Site by bats (and by which species) and to assess the likely effects of the Scheme on any important foraging habitats and commuting routes that may be present within the Power Station Complex Site. The bat activity surveys were restricted to the Power Station Complex Site only.

A11.29 In summary, the objectives of the bat surveys was to gather sufficient information on roosting, foraging and commuting bats within the Power Station Complex Site in order to:

- evaluate the importance of the habitats within the Power Station Complex Site for local bat populations;

² <http://magic.defra.gov.uk/>

- identify the potential effects of the Scheme on the local bat population and determine whether the Scheme is likely to have a significant effect on the population;
- aid in the design of the Scheme to avoid potential adverse effects on the local bat population or to design appropriate mitigation and/or compensation measures for potential adverse effects; and
- provide information to support a NRW European Protected Species (EPS) 'development' licence.

Scaled plan/map of survey area

A11.30 The survey area, in relation to the Power Station Complex Site and the Scheme Order Limits, is indicated on Figure 11.3 in the ES, which illustrates the results of the 'Extended Phase 1' habitat survey. Target Notes are provided to highlight and describe specific ecological features of interest (see Appendix 11.1 of the ES).

Site/habitat description

A11.31 The Power Station Complex Site is located approximately 3.5 km to the east of Wrexham within the boundary of WCBC. The Power Station Complex Site, known as Kingmoor Park South, is situated within the eastern boundary of the large Wrexham Industrial Estate, including an area of land formerly occupied by the Owens Corning Fibreglass factory. To the south of the Power Station Complex Site there is a large logistics warehouse and distribution centre operated by Norbert Dentressangle. Immediately west of the Power Station Complex Site is a Kellogg's food processing complex. This includes a range of tall industrial structures, including chimneys. To the north and east of the Power Station Complex Site, the land predominantly comprises pastoral farmland with fields of improved grassland bound by hedgerow.

A11.32 The Power Station Complex Site comprises a parcel of mixed brownfield and greenfield land. The footprint of the Power Station Complex is located to the west of the Power Station Complex Site and comprises a level area of hard-standing, amenity grassland and semi-improved neutral grassland and a pond. There are also mature trees and patches of scattered scrub. The central and northern extents of the Power Station Complex Site predominantly comprises fields of semi-improved neutral grassland and improved grassland bound by hedgerow and dense scrub, with a pond located in a field of improved grassland. The southern extents of the Power Station Complex Site predominantly comprises a mosaic of brownfield habitat, i.e. hard-standing, ephemeral/short-perennial vegetation and spoil mounds (associated with previous industrial use by fibre-glass factory), with smaller areas of dense/scattered scrub, marshy grassland, semi-improved neutral grassland and scattered trees. There are two ponds within the southern extents of the Power Station Complex Site. The Power Station Complex Site is bound along its eastern and northern boundaries by mature

trees and hedges. The tree belt along the northern site boundary, running on an east to west alignment, contains a number of trees subject to a Tree Preservation Order.

A11.33 Eight of the mature trees that have been assessed as having bat roost potential, including the tree that has been confirmed as a roost and the tree that is possibly a roost, and which will be removed (or pruned in the case of the confirmed roost) during the preliminary works stage of construction are present as boundary trees along a track that runs through the footprint of the Power Station Complex. The remaining three trees with bat roost potential, which will be removed, are located around the perimeter of the level area of hardstanding. All of these trees are pedunculate oaks. In addition to these trees, there are other mature trees scattered across the Power Station Complex Site that have bat roost potential and the tree belt along the northern site boundary has numerous mature trees with high bat roost potential.

A11.34 The mosaic of habitats present within the Power Station Complex Site, including the presence of semi-improved neutral grassland, ponds and linear features such as hedgerow and tree boundaries, provide foraging and commuting habitat of moderate value to foraging and commuting bats, particularly as there is habitat connectivity from the Power Station Complex Site to the wider pastoral landscape.

Field survey(s)

A11.35 All surveys were undertaken by suitably experienced ecologists and were led by NRW licensed bat surveyors. Surveys in 2013 were undertaken by Atkins and surveys in 2014 were undertaken by Quants Environmental Ltd.

Preliminary Roost Assessments

A11.36 During the 'Extended Phase 1' walkover surveys, which were undertaken in November 2012 and during February to May 2013, the potential for trees and buildings to support roosting bats was assessed according to the categories provided in Tables 1 and 2 below. The categories are based on a survey effort which included an external inspection of buildings and viewing trees from the ground with the aid of binoculars. The categories were used as an initial assessment tool to aid recommendations for further survey, if necessary. The assessment was limited to visual assessments and external inspections undertaken from the ground only. Where access allowed, features were inspected with the aid of an endoscope, torch and examination mirror to determine the actual or likely presence of bats.

A11.37 With regard to trees, the following ecological features that are considered to be of value to roosting bats were recorded:

- holes/hollows/cavities;
- cracks or splits in major limbs;

- loose bark;
- dense, thick-stemmed ivy.

A11.38 With regard to buildings, the following features were afforded particular attention:

- holes in walls, pipes, and gaps behind window frames, lintels and doorways;
- cracks and crevices in stonework and brickwork;
- gaps between ridge tiles and ridge and roof tiles (e.g. where mortar has fallen out);
- gaps between lintels above doors and windows;
- broken or lifted roof tiles, and lifted lead flashing;
- gaps between the eaves, soffit boards and outside walls;
- gaps behind weatherboarding, hanging tiles and fascia boarding;
- possible entry and exit points around the eaves, soffits, fascia and barge boarding, under tiles.

A11.39 Whilst the categories in Tables 1 and 2 below attempt a standard terminology, there will be instances where an experienced bat surveyor may categorise a tree or building as having lower potential to support roosting bats than based purely on the features of the tree or building. For example, sources of disturbance may reduce the potential of a feature to support roosting bats, such as exterior light spillage reducing the potential for light sensitive species. The potential of a tree or structure which appears to have features suitable for roosting bats but which is isolated from suitable foraging and commuting habitat may also be reduced. Conversely, good foraging and commuting habitat directly adjacent to a tree, building or other structure can enhance the potential for roosting bats.

Table 1: Assessment of Tree Potential to Support Roosting Bats

Category (Potential to Support Roosting Bats)	Description
Negligible potential	Tree contains no suitable features for roosting bats. These can include young trees without ivy and without loose bark and obvious cracks/fissures. Usually saplings, semi-mature specimens with a small girth or mature trees which do not tend to form fissures as readily such as sycamore.

Category (Potential to Support Roosting Bats)	Description
Low potential	Tree contains limited features suitable for roosting bats. Usually young (sapling or semi-mature) trees with some ivy or some loose bark ³ but no obvious cracks or fissures. No evidence of bats found (e.g. droppings/staining).
Moderate potential	Tree contains some features suitable for roosting bats. Trees with some cracks or fissures ⁴ and/or large amounts of ivy/loose bark. Usually semi-mature or mature specimens. Trees tend not to have large splits, hollow trunks or woodpecker holes. No evidence of bats found.
High potential	Tree contains features that are highly desirable for roosting bats. Trees with woodpecker holes/large cracks and/or crevices. Often with a hollow trunk. May support very dense ivy. No evidence of bats found.
Confirmed roost	Bats discovered roosting within the tree, or recorded emerging/entering a tree at dusk/dawn. Trees found to contain conclusive evidence of occupation by bats, such as bat droppings. A confirmed roost record (as supplied by an established source such as the local bat group) would also fall into this category.

Table 2: Assessment of Building Potential to Support Roosting Bats

Category (Potential to Support Roosting Bats)	Description
Negligible potential	Buildings with no features capable of supporting roosting bats. Often these buildings are of a ‘sound’ well-sealed nature, or have a single skin and no roof void. They tend to have high interior light-levels, and little or no insulation. Buildings without any roofs may also fall into this category.
Low potential	Buildings with limited features for roosting bats (e.g. shallow crevices where mortar is missing between building blocks/bricks). They may have open locations which may be subject to large temperature fluctuations and bat-access points may be constrained. No evidence of bats found (e.g. droppings/staining). Buildings may be surrounded by poor or sub-optimal bat foraging habitat. No evidence of bats found.
Moderate potential	Buildings with some features suitable for roosting bats. Buildings usually of brick or stone construction with a small number of features of potential value to roosting bats e.g. loose roof/ridge tiles, gaps in brickwork, gaps

³ In some areas loose bark can be important for species such as barbastelle and, in the right geographic location, could be a feature providing high potential for this species.

⁴ Crack or fissures should be sheltered from rain and wind to be of potential for roosting bats, for example a tree with a large crevice which is open at the top and becomes wet during rain would not be suitable for roosting bats.

Category (Potential to Support Roosting Bats)	Description
	under fascia boards, and/or warm sealed roof-spaces with under-felt. These buildings may be used as occasional or transient roosts in the summer, but are unsuitable for large colonies. No evidence of bats found.
High potential	Buildings with a large number of features or extensive areas of obvious potential for roosting bats. Generally they have sheltered locations, with a stable temperature regime and suitable bat-access points. Could be suitable for a maternity roost. No evidence of bats found.
Confirmed roost	Bats discovered roosting within the building, or recorded emerging/entering the building at dusk/dawn. Building found to contain conclusive evidence of occupation by bats, such as bat droppings. A confirmed record (as supplied by an established source such as the local bat group) would also apply to this category.

Presence/Absence Surveys

- A11.40 Following preliminary roost assessments of ecological features for their potential to support roosting bats, presence/absence surveys were undertaken to identify the presence of any roosts within the features that were assessed as having bat roost potential. The presence/absence surveys were restricted to features present within the survey area of the Power Station Complex Site which were likely to be affected by the Scheme.
- A11.41 Following *Bat Surveys: Good Practice Guidelines, 2nd Edition* (Hundt, L, 2012), the presence/absence surveys comprised a suite of dusk emergence surveys and pre-dawn re-entry surveys to record bats emerging from or re-entering the features that were assessed as having bat roost potential and which may be affected by the Scheme.
- A11.42 A total of twenty-nine trees and one building within the survey area of the Power Station Complex Site were subject to presence/absence surveys. The locations of the trees that were surveyed are indicated on Figure 11.5 in the ES (Trees with Bat Roost Potential) and the location of the building that was surveyed is indicated on Figure 11.3 (Phase 1 Habitat Survey Plan, see TN 10). Features assessed as having high bat roost potential were subject to two dusk emergence surveys and a pre-dawn re-entry survey; features assessed as having moderate bat roost potential were subject to one dusk emergence survey and a pre-dawn re-entry survey; features assessed as having low bat roost potential were subject to one dusk emergence survey. Subject to suitable weather conditions, dusk emergence surveys were undertaken from thirty minutes before sunset and continued for up to two hours after sunset. Pre-dawn re-entry surveys were undertaken from ninety minutes before sunrise and continued until sunrise. All presence/absence surveys were undertaken with the aid of bat detectors (*Batbox Duet, Wildlife Acoustics Echo Meter EM3 and Pettersson D-200*).

A11.43 Table 3 below summarises the bat roost potential of the features within the survey area of the Power Station Complex that were subject to presence/absence surveys.

Table 3: Bat Roost Potential of Features Subject to Presence/Absence Surveys

Category (Potential to Support Roosting Bats)	Features
Low potential	Trees – TNs 33, 59, 62
Moderate potential	Building – TN 10; Trees – TNs 19, 36, 63
High potential	Trees – TNs 18, 20, 21, 22, 23, 25, 26, 29, 30, 31, 32, 35, 37, 38, 52, 53, 54, 55, 56, 57, 58, 60, 61

A11.44 The survey effort, the dates of the surveys and the weather conditions recorded during the presence/absence surveys are provided in Table 4 below. It should be noted that, as the Scheme design evolved, the survey effort for some trees was not completed as they would no longer be impacted by the Scheme. This was particularly relevant to the mature trees located along the tree belt along the northern site boundary.

Table 4: Survey Dates and Weather Conditions for Presence/Absence Surveys

Date	Survey Type	Sunset/Sunrise	Survey Times	Weather Conditions
22 nd May 2013	Dusk emergence survey: trees (TNs 37, 38)	21:16	20:45 – 22:45	Dry (light shower), 7-5°C, gentle breeze
5 th June 2013	Dusk emergence survey: building (TN 10)	21:33	20:57 – 23:00	Dry, 18-9°C, light breeze, clear
13 th June 2013	Dusk emergence survey: trees (TNs 18,25)	21:39	21:09-23:09	Dry (spell of drizzle), 14-10°C, cloudy
17 th June 2013	Dusk emergence survey: trees (TNs 29, 30, 31, 33)	21:41	21:11 – 23:25	Dry, 19-15°C; partly cloudy
18 th June 2013	Dusk emergence survey: trees (TNs 19, 20, 21, 22, 23)	21:41	21:11-23:15	Dry, 19-15°C; light air, cloudy
8 th July 2013	Dusk emergence survey: trees (TNs 26, 61, 62, 63)	21:37	21:20-23:15	Dry, 20-14°C, partly cloudy, light breeze
9 th July 2013	Dusk emergence	21:37	21:20-23: 5	Dry, 22-14°C,

Date	Survey Type	Sunset/Sunrise	Survey Times	Weather Conditions
	survey: trees (TNs 30, 31, 32)			clear, light breeze
10 th July 2013	Dusk emergence survey: trees (TNs 56, 57, 58, 59, 60)	21:36	21:11-23:00	Dry, 20-19°C, cloudy, light breeze
11 th July 2013	Pre-dawn re-entry survey: trees (TNs 37, 38)	05:00	03:30-05:00	Dry, cloudy, calm
16 th July 2013	Dusk emergence survey: trees (TNs 35, 36)	21:30	21:00-23:00	Dry, 20-17°C, partly cloudy, light breeze
17 th July 2013	Pre-dawn re-entry survey: building (TN 10)	05:06	03:36-05:06	Dry, 14°C, cloudy, calm
29 th July 2013	Dusk emergence survey: trees (TNs 52, 54, 55)	21:13	20:43 – 22:20	Dry, 22-17°C, partly cloudy, gentle to moderate breeze
30 th July 2013	Pre-dawn re-entry survey: trees (TNs 18, 25)	05:26	03:26 – 05:26	Dry, 13°C, partly cloudy, light breeze
1 st August 2013	Dusk emergence survey: trees (TNs 52, 53, 60)	21:05	08:35 – 23:05	Dry, 20°C, light breeze, clear
2 nd August 2013	Pre-dawn re-entry survey: trees (TNs 19, 20, 21)	05:29	03:59 – 05:29	Dry, 17°C, partly cloudy, calm
5 th August 2013	Dusk emergence survey: trees (TNs 26, 61)	20:59	20.30-22.00	Dry, 15-13°C, partly cloudy, calm
6 th August 2013	Pre-dawn re-entry survey: trees (TNs 22, 23)	05:37	04:00-05:37	Dry, 14-15°C, partly cloudy, light breeze
11 th August 2014	Dusk emergence survey: trees (TNs 37, 38)	20:30	20:00 – 22:00	Dry, 16°C, partly cloudy, light breeze
12 th August 2014	Pre-dawn re-entry survey:	05:30	04:00 – 06:00	Dry, 13°C, partly cloudy, light

Date	Survey Type	Sunset/Sunrise	Survey Times	Weather Conditions
	tree (TN 31, 32)			air/light breeze
12 th August 2014	Dusk emergence survey: trees (TNs 25, 35)	20:42	20:30 – 22:00	Dry, 16°C, cloudy, light air/light breeze
13 th August 2014	Dusk emergence survey: trees (TN 32, 21)	20:45	20:15 – 23:00	Dry, 15°C, partly cloudy, light air/light breeze
14 th August 2014	Pre-dawn re-entry survey: trees (TN 30, 35, 36, 61)	05:30	04:00 – 06:30	Dry, 11°C, partly cloudy, calm/light air
14 th August 2014	Dusk emergence survey: trees (TNs 22, 23)	20:45	20:00 – 22:00	Dry, 10°C, partly cloudy, light air/light breeze
18 th August	Dusk emergence survey: trees (TNs 18, 20)	20:31	20:00 – 22:00	Dry, 11°C, partly cloudy, light air/light breeze
20 th August 2014	Pre-dawn re-entry survey: trees (TNs 26, 60)	05:52	04:02 – 06:30	Dry, 9°C, partly cloudy, light air/light breeze
8 th September 2014	Pre-dawn re-entry survey: tree (TN 29)	06:34	05:04 – 06:34	Dry, 10°C, partly cloudy, light air/light breeze
9 th September 2014	Pre-dawn re-entry survey: tree (TN 63)	06:36	05:06 – 06:36	Dry, 10°C, partly cloudy, light air/light breeze
10 th September 2014	Dusk emergence survey: tree (TN 29)	19:39	19:09 – 21:09	Dry, 14°C, partly cloudy, light air/light breeze

Activity Surveys

A11.45 Following *Bat Surveys: Good Practice Guidelines, 2nd Edition* (Hundt, L, 2012), the bat activity surveys comprised a suite of acoustic transect surveys and acoustic automated surveys to determine the levels of bat activity across the Power Station Complex Site.

A11.46 The transect surveys, which were walked at a constant speed, comprised dusk surveys that were undertaken from approximately fifteen minutes before sunset and continued for at least two hours, subject to suitable weather conditions. The transect route was designed to incorporate habitat features present within the Power Station Complex Site with potential for use by foraging and commuting bats and ensured that the Power Station Complex Site was adequately sampled within the recommended survey time. Listening points were included in the transect route to ensure sampling across the

different habitats present within the Power Station Complex Site was evenly distributed; the surveyor stopped to observe and record bat activity for three minutes at each listening point. The transect route is indicated on Figure 11.6 in the ES (Bat Activity Survey – Transect Route and Locations of Automated Surveys). In 2013, one transect survey was undertaken per month during May to July inclusive. In 2014, one transect survey was undertaken per month during August to September inclusive.

A11.47 The survey effort, the dates of the surveys and the weather conditions recorded during the transect surveys are provided in Table 5 below.

Table 5: Survey Dates and Weather Conditions for Transect Surveys

Date	Survey Type	Sunset/Sunrise	Survey Times	Weather Conditions
28 th May 2013	Dusk transect survey	21:23	21:23 – 22:00 (survey abandoned at 22:00 due to heavy rain)	Heavy rain, 10-8°C, cloudy, light breeze
10 th June 2013	Dusk transect survey	21:37	21:37 – 23:37	Dry, 14-11°C, light breeze, partly cloudy
24 th July 2013	Dusk transect survey	21:19	21:04 – 23:30	Dry (spell of light drizzle), 24-21°C, calm, cloudy
12 th August 2014	Dusk transect survey	20:45	20:25 – 23:00	Light rain to start and then dry, 15-12°C, light air/light breeze, cloudy
9 th September 2014	Dusk transect survey	19:42	19:30 – 21:42	Dry (rain at 21:00), 14-12°C, light breeze, partly cloudy

A11.48 The automated surveys, which were used to increase the activity survey effort and sampling time, comprised the use of an automated detector system across the Power Station Complex Site. The automated detector system was programmed to collect data for three consecutive nights and to record from thirty minutes before sunset until two hours after sunset and from two hours before sunrise until sunrise. The survey effort allowed for automated surveys to be undertaken at two locations per month. In 2013, the automated surveys were undertaken in May, June and July. In 2014, automated surveys were undertaken in August and September. The locations of the automated detector systems are indicated on Figure 11.6 (Bat Activity Survey – Transect Route and Locations of Automated Surveys).

A11.49 The survey effort, the dates of the surveys and the locations of the automated detector systems are provided in Table 6 below.

Table 6: Survey Dates and Locations of Automated Surveys

Dates	Survey Type	Location of Automated Detector System (OS NGR)
28 th -31 st May 2013	Automated survey	SJ393506
24 th -27 th June 2013	Automated survey	SJ391503
10 th -13 th July 2013	Automated survey	SJ394503
24 th -27 th July 2013	Automated survey	SJ394505
12 th -15 th August 2014	Automated survey	SJ391503
15 th -18 th August 2014	Automated survey	SJ392502
8 th -11 th September 2014	Automated survey	SJ395502
8 th -11 th September 2014	Automated survey	SJ394503

A11.50 The transect surveys in 2013 were undertaken using the *Wildlife Acoustics Echo Meter EM3* (which records bat ultrasound using full spectrum sampling) and the transect surveys in 2014 were undertaken using the Batbox Duet with a *Zoom H1* digital recorder. All automated surveys were undertaken using the *Wildlife Acoustics Song Meter SM2+* (which records bat ultrasound using full spectrum sampling). Subsequent analysis and identification of bats from their echolocation calls was undertaken using a combination of *Pettersson Batsound (version 4.2)* and *AnalookW* software.

Survey constraints

A11.51 With regard to the presence of trees within the Power Station Complex Site, the preliminary roost assessments were undertaken from the ground only. In the absence of elevated surveys, there may have been cracks and crevices with bat roost potential that would not have been identified from the ground. However, following on from the fact that preliminary roost assessments have been undertaken from the ground only, comprehensive elevated roost assessments will be undertaken as part of the early mitigation measures during construction of the Power Station Complex.

A11.52 The survey effort for the bat presence/absence surveys and bat activity surveys within the Power Station Complex Site has been undertaken over the course of two survey seasons, i.e. 2013 and 2014, due to programming issues. With regard to the presence/absence surveys, this has meant that some trees were not subject to the minimum number of survey visits required to provide confidence in negative survey results in the same season. With regard to the activity surveys, although they only provide a snapshot of activity, information has not been collected for a complete bat activity season within the same year. However, NRW are aware of the programming issues and the bat survey effort and its timings were agreed with NRW (see notes of meeting no. 3 in Appendix 11.4 of the ES). During the bat activity surveys, only one automated survey was undertaken in May 2013 due to programming issues and only one automated survey was undertaken in June 2013 due to cattle damaging the

automated detector system. In 2014, the automated detector system failed at one location in September. In addition, the presence of cattle affected the transect surveys during June 2013 and August 2014; the surveyors had to shorten the section of transect within the field present in the north-east corner of the Power Station Complex Site.

A11.53 However, for the purpose of identifying bat roosts within the Power Station Complex Site, it is considered that the combination of preliminary roost assessments and presence/absence surveys is an appropriate and proportionate level of survey effort for identifying bat roosts that are occupied during the summer months. In particular, it is expected that the presence of maternity roosts would have been identified from the reasonable survey effort that has been undertaken.

Survey results

Preliminary Roost Assessments

A11.54 There are thirty-three trees within or on the boundary of the Power Station Complex Site which have been assessed by Atkins in 2013 as having bat roost potential according to the categories provided in Table 1 above. The locations of these trees are indicated on Figure 11.5 (Trees with Bat Roost Potential) with the references to Target Notes provided in Appendix 11.1 of the ES.

Presence/Absence Surveys

A11.55 In 2013, a soprano pipistrelle was recorded emerging from a mature oak within the Power Station Complex Site (see TN 61 on Figure 11.5 in the ES). This tree is located outside the footprint of the Power Station Complex. A soprano pipistrelle was recorded possibly emerging from another mature oak within the Power Station Complex Site (see TN 26 on Figure 11.5 in the ES). This tree is located within the footprint of the Power Station Complex.

A11.56 No other trees were confirmed as bat roosts during the 2013 and 2014 surveys. However, the nomadic nature of tree-dwelling bats means that tree roosts can be particularly difficult to detect and, therefore, it is considered that all the trees assessed as having bat roost potential retain a likelihood of supporting bats and their roosts.

A11.57 No bats were recorded emerging from or re-entering the single corrugated container building present within the Power Station Complex Site (see TN 10 on Figure 11.3 in the ES).

Activity Surveys

A11.58 The bat activity survey results in 2013 and 2014 have confirmed the presence of common pipistrelle, soprano pipistrelle, noctule and *Myotis* bats (including probable Daubenton's bat and whiskered bat) foraging and commuting within the Power Station Complex Site. Soprano pipistrelle was most frequently recorded throughout the

surveys, with almost twice the number of soprano pipistrelles being recorded than any other species.

A11.59 No roosts were identified during the activity surveys.

A11.60 A summary of the bat activity transect surveys is provided in Table 7 below.

Table 7: Summary of Bat Activity Transect Surveys

Date	Species and Number of Bat Passes				
	Common pipistrelle	Soprano pipistrelle	Pipistrelle sp. (50 kHz)	Noctule	Myotis sp.
28 th May 2013	Survey affected by heavy rain and eventually abandoned – no bats recorded during survey				
10 th June 2013	10	9	0	2	6
24 th July 2013	4	15	2	19	5
12 th August 2014	1	11	0	1	0
9 th September 2014	2	194	0	0	2

A11.61 A summary of the bat automated surveys is provided in Table 8 below.

Table 8: Summary of Bat Activity Automated Surveys

Date	Location of Automated Detector System (OS NGR)	Species and Number of Bat Passes				
		Common pipistrelle	Soprano pipistrelle	Pipistrelle sp. (50 kHz)	Noctule	Myotis sp.
28 th -31 st May 2013	SJ393506	421	180	23	808	2
24 th -27 th June 2013	SJ391503	126	341	17	11	14
10 th -13 th July 2013	SJ394503	241	377	337	51	0
24 th -27 th July 2013	SJ394505	103	211	35	11	0
12th-15th August 2014	SJ391503	2	194	0	0	2
15th-18th August 2014	SJ392502	0	124	0	0	0
8th-11th September 2014	SJ395502	2	8	0	0	0
8th-11th September	SJ394503	SM2 malfunctioned				

Date	Location of Automated Detector System (OS NGR)	Species and Number of Bat Passes				
		Common pipistrelle	Soprano pipistrelle	Pipistrelle sp. (50 kHz)	Noctule	Myotis sp.
2014						

Interpretation/evaluation of survey results

A11.62 The presence/absence surveys have identified the presence of a bat roost in a mature oak tree within the Power Station Complex Site (see TN 61 on Figure 11.5 in the ES). One soprano pipistrelle was confirmed emerging from this tree in 2013. It is considered that this tree is a day roost based on the emergence of a single soprano pipistrelle and it is considered that it could be utilised as a day roost throughout the bat activity season. The emergence of a single bat does not indicate the presence of a maternity roost.

A11.63 Following a review of the Wrexham Biodiversity Action Plan (BAP), there is no information regarding the local conservation status and trends for soprano pipistrelle⁵. However, soprano pipistrelles are widely distributed throughout Wales and the most recent population status in Great Britain is 720,000⁶ with a 10 year trend to 2007 showing the UK population being stable⁷. The overall current conservation status for this species in the UK is considered to be 'favourable'⁸. Therefore, it is considered that the confirmed soprano pipistrelle day roost is of low conservation significance⁹.

A11.64 The presence/absence surveys identified the presence of a possible bat roost in a mature oak tree within the Power Complex Site (see TN 26 on Figure 11.5 in the ES). One soprano pipistrelle was recorded as possibly emerging from this tree in 2013. In addition, it is also considered that the other trees within the Power Station Complex Site that have been assessed as having bat roost potential retain a likelihood of supporting roosting bats. This is supported by the high levels of bat activity recorded across the Power Station Complex Site, particularly soprano pipistrelle activity. It is considered that these trees could be utilised as day roosts and night roosts throughout the bat activity season by small numbers of bats, such as soprano pipistrelles, and would be of low conservation significance⁹.

A11.65 It is not considered that the trees with low and moderate bat roost potential provide the thermal mass and well-insulated, draught-free environmental conditions with stable temperature regimes to support hibernating bats. However, it is considered

⁵ http://tna.europarchive.org/20110303145238/http://ukbars.defra.gov.uk/plans/lbap_species_habitat.asp?LBAP=%7B0B430293%2D990B%2D415D%2D9488%2DB5C21266E30D%7D&CO= (accessed 17/07/15)

⁶ JNCC/Tracking Mammals Partnership (2005). *UK Mammals: Species Status and Population Trends*. JNCC, Peterborough.

⁷ Tracking Mammals Partnership (2009). *UK Mammals Update 2009*. Tracking Mammals Partnership.

⁸ JNCC (2013). *Third Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2007 to December 2012*. JNCC, Peterborough.

⁹ English Nature (2004). *Bat Mitigation Guidelines* (p. 39, Fig.4). English Nature, Peterborough

reasonable to assume that a tree with high bat roost potential may support features capable of being used by small numbers of hibernating bats and would be considered to be important to the local bat population. Therefore, in the absence of surveys to establish the presence of hibernacula and following a precautionary approach and worst case scenario, any hibernacula subsequently identified would be considered to be of medium conservation significance⁹ based on the species that have been recorded utilising the Power Station Complex Site.

Impact Assessment

A11.66 One confirmed soprano pipistrelle day roost has been identified within the Power Station Complex Site and which will be affected by the Scheme. However, this licence application is also based on a precautionary approach and a worst case scenario should the presence of bats and their roosts be encountered in the other trees with bat roost potential, including the tree where a soprano pipistrelle was recorded possibly emerging, during construction of the Power Station Complex.

Short-term impacts: disturbance

A11.67 The total duration of construction of the Power Station Complex is anticipated to be thirty-six months. The preliminary works stage for construction of the Power Station Complex (anticipated to have a ten month duration) includes the clearance and preparation of contractor's areas and the installation of services including access roads within the Power Station Complex Site, utilities supplies and drainage. Following this, piling and main foundation construction will commence and then erection of above ground structures and installation of the power plant would commence. These activities have potential to disturb tree roosting bats (should they be present during construction) through an increase in human presence and traffic, noise and vibration, and through affecting the specific environmental conditions required by roosting bats, e.g. vegetation clearance in proximity to a roost may alter the micro-climate of the roost in addition to affecting roost access flight paths.

A11.68 Actual tree clearance and pruning works undertaken during the preliminary works stage also have potential to expose bats whilst in their roosts and present a risk of killing and injuring individual roosting bats (should they be present during the preliminary works stage) if such works are not undertaken taking reasonable avoidance measures (e.g. pre-construction inspections and soft-felling) under the supervision of an ecologist.

A11.69 It should be noted that following the removal of a tree that possibly supports a soprano pipistrelle day roost and the removal of a further nine trees with bat roost potential during the preliminary works stage (see Long-term impacts: roost loss), there remains potential to disturb roosting bats that may be present in trees, which will be retained, throughout the remainder of the construction period. In particular, the confirmed soprano pipistrelle day roost (see TN 61 on Figure 11.5 in the ES) is located in a mature

oak immediately adjacent to the footprint of the Power Station Complex. The assessment for noise, which has been undertaken as part of the Scheme's EIA, has shown that construction noise levels in the vicinity of this receptor will be higher than the baseline ambient noise level. In addition, construction activities in such proximity to this roost, such as the erection and installation of power plant may affect bats accessing the roost.

- A11.70 The programme for construction has not been provided at this stage of the DCO application. However, based on the anticipated thirty-six month duration, construction will take place during the bat activity season. As a consequence, following the results of the presence/absence surveys, there is potential to disturb day roosting bats (should they be present) during construction.
- A11.71 Following the reasonable assumption that trees with high bat roost potential may support features capable of being used by small numbers of hibernating bats, construction activities taking place during the hibernation season, e.g. October to April, have potential to disturb hibernating bats (should they be present).
- A11.72 Following the results of the presence/absence surveys, it is not anticipated that construction activities will disturb any maternity colonies.

Long-term impacts: roost modification

- A11.73 The presence/absence surveys have identified the presence of a soprano pipistrelle day roost in a mature oak tree within the Power Station Complex Site (see TN 61 on Figure 11.5 of the ES). Although this tree will not be removed, following the results of the Scheme's Arboricultural Impact Assessment, facilitation pruning of this tree may be required to enable construction given its proximity to the footprint of the Power Station Complex. Pruning of this tree, and other vegetation clearance in proximity to the tree, may alter the micro-climate and other properties of the roost in addition to affecting roost access flight paths. Similarly, the final positioning of power plant in proximity to this roost may alter the external environment of the roost and affect bats accessing the roost.

Long-term impacts: roost loss

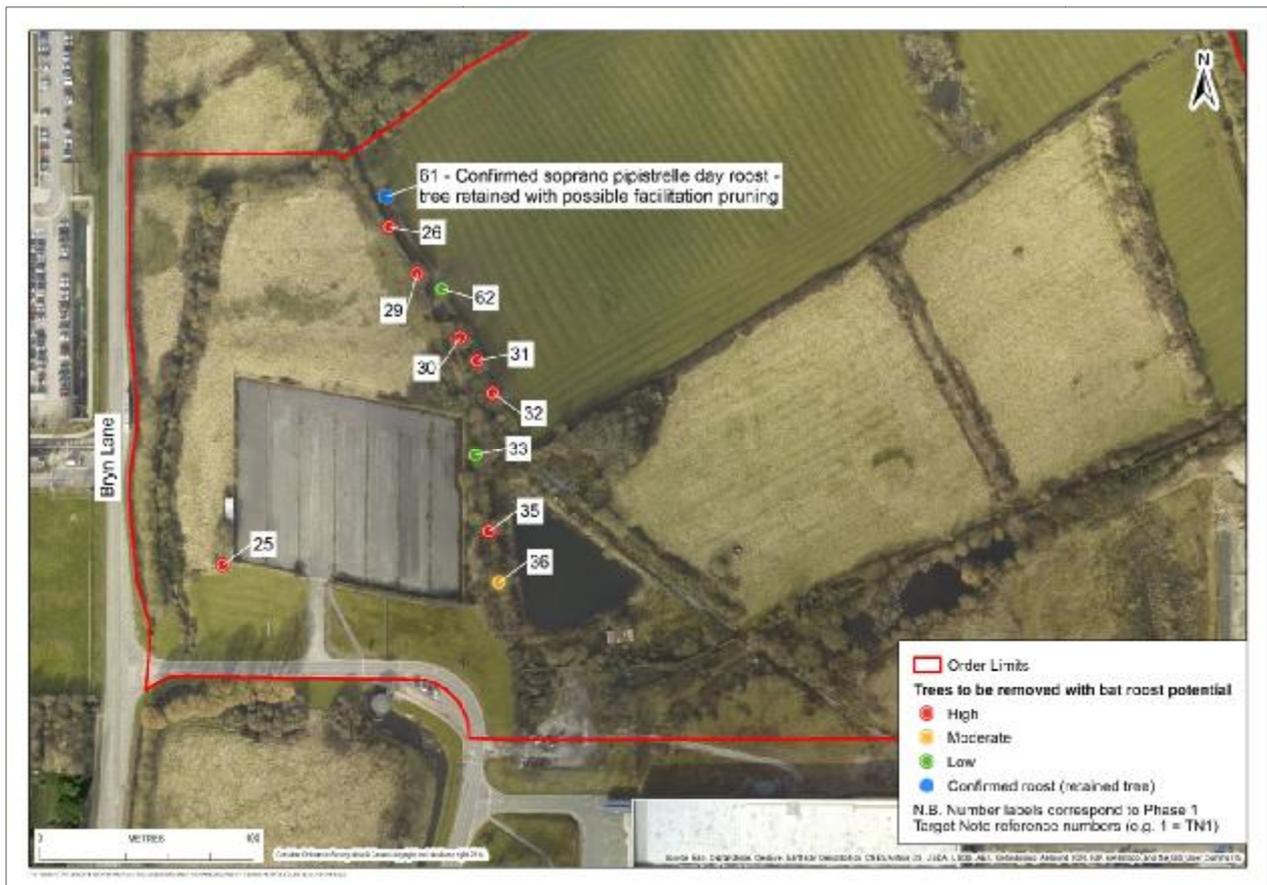
- A11.74 Construction of the Power Station Complex will not result in the loss of the tree that has been confirmed as supporting a soprano pipistrelle roost (see TN 61 on Figure 11.5 of the ES). However, following the results of the Arboricultural Impact Assessment, facilitation pruning of this tree may be required to enable construction given its proximity to the footprint of the Power Station Complex. Facilitation pruning may damage or destroy the roost or, as described above (Short-term impacts: disturbance), construction activities may lead to potential disturbance of bats and possible abandonment of the roost for the duration of construction.

A11.75 Following the review of the status of soprano pipistrelles (see 'Interpretation/evaluation of survey results' section above), it is considered that the potential loss of a confirmed roost would have a low scale of impact at a site level. Although the Wrexham BAP does not provide any information regarding the local conservation status and trends for soprano pipistrelle, due to the fact that it is listed in the BAP it is considered to be a species of conservation importance across WCBC. Therefore, it is considered that the loss of this roost would also have a low scale of impact to the soprano pipistrelle population at a local level. However, it is considered that a single incidence (i.e. not continuous attrition) of a loss of a roost of low conservation significance, in particular of a species that is widely distributed throughout Wales and whose conservation status is considered to be 'favourable', would have a negligible impact at a county, regional and national level.

The possible soprano pipistrelle day roost (see TN 26 on Figure 11.5 of the ES) and a further nine trees with bat roost potential (see Figure 11.5: TNs 25, 29, 30, 31, 32 and 35 with high bat roost potential; TN 36 with moderate bat roost potential and TNs 33 and 62 with low bat roost potential) will be lost to the construction of the Power Station Complex. These are shown in

A11.76 Figure 1 below. Following the results of the presence/absence surveys, it is not anticipated that construction will result in the loss of any maternity roosts. However, following the precautionary approach, the removal of these trees may result in the loss of day roosts and night roosts that are occupied by small numbers of bats during the bat activity season. In addition, following the assumption that trees with high bat roost potential may support features capable of being used by small numbers of hibernating bats, the removal of trees with high bat roost potential (i.e. six trees) and construction in proximity to retained trees with high bat roost potential, including the confirmed soprano pipistrelle day roost (see TN 61 on Figure 11.5 of the ES) may result in the loss (including loss through abandonment) of hibernation roosts. Should any of these trees be confirmed as roosts, the impact on the species population will depend on the number of identified roosts, the status of the roosts and the species and numbers of individuals involved. For example, the nomadic behaviour exhibited by tree-dwelling bats means that they move roost frequently and they are less dependent on a single specific roost; therefore the loss of a single roost may not have a significant impact on the species population. Conversely, the simultaneous loss of multiple roosts may have a significant impact on the species population.

Figure 1: Loss of confirmed and potential bat roosts



Long-term impacts: fragmentation and isolation

A11.77 Construction of the Power Station Complex will result in the total loss of vegetation and green infrastructure within the footprint of the Power Station Complex, including the loss of a possible soprano pipistrelle day roost within a mature oak tree (see TN 26 on Figure 11.5 of the ES) and the loss of a further nine trees with bat roost potential. In addition to these trees providing bat roost potential they also provide foraging habitat and commuting habitat, the loss of which is considered would fragment valuable bat habitat within the Power Station Complex. In particular, the boundary trees present along the track that runs through the footprint of the Power Station Complex Site. Construction will also result in the temporary loss of green infrastructure through the

provision of a construction laydown area, including the temporary loss of a section of hedgerow that also provides a valuable linear feature through the Power Station Complex Site. With regard to the presence of the confirmed soprano pipistrelle day roost in a tree that will be retained, the loss of linear green infrastructure in proximity to the roost and the wider Power Station Complex Site may potentially isolate the roost.

A11.78 In a wider landscape scale context, construction of the Power Station Complex will add to the existing infrastructure of Wrexham Industrial Estate, which may result in fragmentation of the landscape that is important to the local bat population, affecting dispersal of bats, and may increase isolation of surrounding potential roosting, commuting and foraging opportunities.

Post-development interference impacts

A11.79 Dispersion modelling studies undertaken as part of the air quality assessment in Chapter 8 of the ES have shown that the predicted contributions to nitrogen and acid deposition, as a result of stack emissions, are insignificant and will therefore not pose a risk to bats. The assessment of operational noise (Chapter 9 of the ES) has shown that – for the nearest ecological features considered to be sensitive to noise (i.e. trees with bat roosts/bat roost potential) – the differences between existing ambient noise levels and predicted operation noise levels are negligible with regard to disturbance of disturbance of bats.

A11.80 External lighting will be required around the Power Station Complex and its access roads. Due to the proximity of the confirmed soprano pipistrelle day roost, which is located in a tree that will be retained (see TN 61 on Figure 11.5 of the ES), to the Power Station Complex, the provision of external lighting may disturb bats occupying the roost and affect their emergence behaviour.

Predicted scale of impact

A11.81 The potential loss/abandonment (through disturbance) of a confirmed soprano pipistrelle day roost would have a low scale of impact at a site level. Due to the conservation status of this species, it is considered that the potential loss of this roost would also have a low scale of impact to the soprano pipistrelle population at a local level. The potential disturbance of day roosting bats (should they be present during construction) would similarly have a low scale of impact at a site level and would also have a low scale of impact to the soprano pipistrelle population at a local level. It is considered that these impacts would be negligible at a county, regional and national level.

A11.82 Following the precautionary approach, it is considered that the loss of a possible soprano pipistrelle day roost and the loss of trees with bat roost potential, which may support day roosts and night roosts throughout the bat activity season, would have a

low scale of impact at a site level. It is also considered that the loss of these potential roosts would also have a low scale of impact to the species population at a local level.

A11.83 Following the results of the presence/absence surveys, it is not anticipated that construction will result in the loss of any maternity roosts. However, following the precautionary approach and a worst case scenario, the removal of six trees with high bat roost potential may result in the disturbance of hibernation roosts (should the trees be removed during the hibernation season, e.g. October to April, and should bats be present) and the loss of hibernation roosts. Construction may also result in the potential disturbance and loss (e.g. abandonment through disturbance) of hibernation roosts that may be present in trees that will not be removed but that remain in proximity to the construction zone. Although the presence of hibernation roosts has not been confirmed, for the purpose of this assessment, the loss of a hibernation roost and disturbance of a hibernation colony during the hibernation period would have a high scale of impact at a site level. The relative impact of disturbance would be considered to be high because the repetition of the disturbing event/action would be frequent throughout the duration of construction. Based on the species that have been recorded during the activity surveys of the Power Station Complex Site and the fact that they are all listed on the Wrexham BAP, it is considered that the potential loss of a hibernation roost and potential disturbance of a hibernation colony during the hibernation period would also have a high scale of impact at least at a local and county level. Based on the less widespread species that have been identified during activity surveys, e.g. noctule, *Myotis* bats (including probable Daubenton's bat and whiskered bat), the potential loss of a hibernation roost supporting these species and the potential disturbance of a hibernation colony supporting these species may have a high scale of impact at a regional level.

A11.84 Overall, in the absence of mitigation/compensation, the potential loss/abandonment (through disturbance) of a confirmed soprano pipistrelle day roost will have a low scale of impact at a site level and a low scale of impact on the local status of the soprano pipistrelle population. Based on a worst-case scenario, there is also potential for construction of the Power Station Complex to have high scale of impact at a site level and a high scale of impact on the population of the bat species concerned at a local, county and regional level should hibernation roosts be present within the Power Station Complex Site.

DELIVERY INFORMATION – MITIGATION, COMPENSATION AND MONITORING

Works to be undertaken

Capture and exclusion

A11.85 Following the confirmation of a soprano pipistrelle day roost in a tree that will be subject to facilitation pruning, the presence of a possible soprano pipistrelle day roost

in a tree that will be removed and the presence of an additional nine trees with bat roost, there is a risk of bats being present during the tree works.

A11.86 A toolbox talk will be presented by the named ecologist or an accredited agent to all personnel involved in the construction of the Power Station Complex, in particular personnel involved in the tree works and site clearance during the preliminary works stage. This will ensure that all personnel are aware of the presence of the confirmed soprano pipistrelle day roost and the presence of the possible soprano pipistrelle day roost and other trees with bat roost potential. It will also ensure that personnel are aware of the legislation afforded to bats and their roosts, the mitigation strategy that will be implemented during the tree works and construction of the Power Station Complex and the appropriate action to take if a bat is encountered during the tree works and construction.

A11.87 To avoid the killing or injuring of individual bats and to minimise the disturbance to any bats that may be present, a Precautionary Method of Working (PMW) will be employed throughout the duration of construction.

A11.88 The confirmed soprano pipistrelle day roost (see TN 61 on Figure 11.5 of the ES), which requires facilitation pruning, and all trees that have been assessed as having bat roost potential which require felling, including the possible soprano pipistrelle day roost (see TN 26 on Figure 11.5 of the ES), will be subject to comprehensive, elevated external and internal inspections in order to establish the presence of, or evidence of, bats immediately prior to the tree works.

A11.89 All ecological features that are considered to be of value to roosting bats will be inspected for the following signs of evidence of bat occupancy:

- actual presence of bats;
- bat droppings in/around/below entrances to suitable roosting features;
- scratch marks in/around/below entrances to suitable roosting features;
- staining and/or smooth surfaces in/around/below entrances to suitable roosting features.

A11.90 The inspections will be undertaken by the named ecologist or an accredited agent (inspections requiring tree climbing will be undertaken by a suitably qualified and experienced person under the supervision of the named ecologist or an accredited agent). With regard to trees that will be felled, if it is not possible to inspect all features of value to roosting bats whilst the trees are in-situ, e.g. if it is deemed too dangerous to inspect a particular feature, the section of tree supporting the particular feature requiring inspection will be cut and carefully lowered to the ground using soft-fell techniques (i.e. lowering the section of tree carefully to the ground using ropes) whereupon the feature will be inspected on the ground. In discussion with the contractor responsible for undertaking the tree works, the named ecologist or an

accredited agent will decide on where to cut above or below the feature in order to avoid the risk of killing or injuring any bats that may be present. In addition, any cracks or splits that require section-felling will be cut in such a way that the crack or split does not close under stress and crush any bats that may be present. Similar precautions will be undertaken when pruning the tree that supports the confirmed soprano pipistrelle day roost.

- A11.91 Any individual bats found during the course of the inspections will be carefully removed from the section of tree supporting the roost and temporarily placed in a cloth holding bag prior to being placed in a pre-erected Schwegler 1FF bat box by the named ecologist or an accredited agent. To minimise disturbance, the bats would be moved immediately and handling would be kept to a minimum. The entrance to the bat box will be blocked with cloth until dusk, at which time the cloth will be removed. This will allow the bat to settle and conserve its energy during the day and allow it to disperse of its own accord during the night.
- A11.92 Only after the inspections have been undertaken and it has been confirmed that bats are not present (or if they are present that they have been carefully removed) will the tree (or remnant of tree and any lowered sections) will be pruned/removed.
- A11.93 Although the detailed programme for construction is not known at this stage, the tree works will be undertaken during either spring or autumn to ensure that any potential disturbance to bats (should they be present during the tree works) will not affect their ability to breed or hibernate. The careful capture of any individual bats that are found during the course of the tree works and their removal to pre-erected bat boxes will ensure their survival and protect them from further disturbance during construction of the Power Station Complex.
- A11.94 As described above, tree works will be undertaken during spring or autumn to avoid potential disturbance during the sensitive maternity and hibernation periods. However, due to the scale of the Scheme and its construction, it will not be possible to avoid undertaking the remainder of the construction activities during those sensitive periods. Therefore, there is a risk that bats, which may be present in trees in proximity to the construction zone and which will be retained, may be disturbed (should they be present) during those sensitive periods. In particular, following the survey results, there is a risk of disturbing hibernating bats. In order to minimise any detrimental effects and reduce the potential high scale of impact, the following measures to minimise disturbance will be implemented:
- the use of appropriate sound barriers and other noise management measures (especially in proximity to the confirmed soprano pipistrelle day roost that will be retained (see TN 61 on Figure 11.5 of the ES));
 - locating site compounds, storage areas and other temporary construction facilities away from the confirmed roost and other trees with high bat roost potential;
 - best practicable means to minimise noise produced by construction activities;

- acoustic dampening to minimise vibration levels of static machinery or plant;
- shutting down or throttling back to a minimum any machinery or plant when not in use;
- the restriction of construction working hours to daylight hours, i.e. between sunrise and sunset;
- lighting to be used during construction will be directed away from potential bat roost/foraging/commuting features (in particular the mature trees that are being retained and habitat within the Ecological Mitigation Area).

Bat roosts and habitat

In-situ retention of roost(s)

A11.95 The tree supporting the confirmed soprano pipistrelle day roost (see TN 61 on Figure 11.5 of the ES), which requires facilitation pruning, will be retained. The facilitation pruning will be supervised by the named ecologist or an accredited agent as described above (Capture and exclusion) to ensure that, where possible, the roost will not be directly impacted.

A11.96 The possible soprano pipistrelle day roost (see TN 26 on Figure 11.5 of the ES) and a further nine trees with bat roost potential will be removed during construction of the Power Station Complex.

Modification of existing roost(s)

A11.97 Where possible, significant bat roost features within the trees with bat roost potential, which will be removed (including the tree that supports a possible soprano pipistrelle day roost (see TN 26 on Figure 11.5 of the ES)), will be carefully section-cut and strapped to existing trees within the Power Station Complex Site. As these trees and potential roost features cannot be retained in-situ, it is considered that efforts to undertake this mitigation will retain the Continued Ecological Functionality (CEF) of any such features in order to minimise any detrimental effects.

A11.98 Similarly, should the facilitation pruning of the confirmed soprano pipistrelle day roost directly impact the roost feature, the roost feature will be carefully section-cut and strapped to an existing tree within the Power Station Complex Site.

New roost creation (including bat houses and bat boxes)

A11.99 There is potential for construction of the Power Station Complex to result in the loss of a confirmed soprano pipistrelle day roost. Following a precautionary approach, there is also potential for construction to result in the loss of other day/night roosts and, based on a worst case scenario, the loss of hibernation roosts through either direct loss or via disturbance and abandonment. In addition to the mitigation measures that have been

described above, a suitable array of Schwegler bat boxes will be erected to minimise any detrimental effects, to reduce the potential high scale of impact and to ensure that there is no net loss of suitable roosting opportunities during construction.

A11.100 A total of three bat boxes will be provided for each of the ten trees with bat roost potential that will be removed during construction. The following Schwegler bat boxes will be erected, prior to the preliminary works stage of construction commencing, on suitable mature trees across the Power Station Complex Site:

- 7 x 1FW bat boxes (to compensate for the loss of 7 trees with high bat roost potential) – these have been designed to provide excellent insulation properties, which are ideal for winter hibernation, these properties are also suitable for encouraging large summer colonies;
- 13 x 2F bat boxes – these have been designed as a general purpose bat box, which also provide summer roosting opportunities;
- 10 x 1FF bat boxes – these have been designed to provide both summer roost and nursery roost opportunities but also compensate for temperature fluctuations in spring and autumn.

A11.101 The bat boxes will be erected at a height of four to six metres above ground level and will be positioned in different orientations to provide a range of internal microclimatic regimes that are suitable for roosting bats depending on their thermoregulatory requirements. The bat boxes will be erected by the construction contractor's appointed by WPL and under the supervision of the named ecologist or an accredited agent. The bat boxes will be fixed to the trees with 'tree friendly' aluminium nails with the head of the nail left proud by 1-2 cm.

A11.102 The provision of this suitable array of bat boxes will ensure that there is no overall loss of roosting opportunities for the local bat population and will ensure that there is no adverse effect on the species favourable conservation status. The bat boxes will also ensure that there is a secure and undisturbed area for roosting at all times during construction of the Power Station Complex.

Maintenance and/or modification of new and existing habitat

A11.103 The Scheme includes inherent ecological mitigation that is considered to be integral to the design and development of the Scheme. The inherent mitigation to avoid adverse effects on ecological features, including features of value to bats, has been agreed with WPL, NRW and WCBC.

A11.104 The Landscape Masterplan (reference 2.9.1 to 2.9.7) illustrates the inherent mitigation that has been incorporated into the landscape design of the Power Station Complex Site, notably the provision of an Ecological Mitigation Area. The Ecological Mitigation Area will be located along the northern boundary of the Power Station Complex Site. The sensitive siting of the Power Station Complex and the provision of the Ecological

Mitigation Area will ensure that habitat of value to bats within the Power Station Complex Site is retained and will maintain habitat connectivity to support bat dispersal between the Power Station Complex Site and the wider environment.

A11.105 The Ecological Mitigation Area will include a new hedgerow and there will be landscape planting across the Power Station Complex Site, including the provision of linear woodland strips along the western and eastern boundaries of the Power Station Complex Site. In total, 24 individual trees and proposed woodland planting equalling 11,462 m² will be planted as part of the landscape design. This planting will compensate for the loss of valuable bat foraging and commuting features within the Power Station Complex Site and will ensure that the Power Station Complex Site is not isolated from other important features to bats in the wider landscape. The provision of three new ponds, a drainage attenuation area and ditch, and the appropriate ecological management of the Ecological Mitigation Area will encourage a diverse array of invertebrate prey species for foraging bats.

A11.106 Construction will also follow good practice, as recommended in British Standard (BS) 5837:2012, to ensure appropriate management and protection of the trees with bat roost potential, which will be retained during construction. Following the results of the Arboricultural Impact Assessment, tree protective barriers will be required to define a construction exclusion zone between trees and the works.

Scaled maps/plans

A11.107 The Illustrative Landscape Masterplan, which illustrates the inherent mitigation and Ecological Mitigation Area as described above, is provided in ES document reference 2.9.1.

Mechanisms for ensuring delivery of mitigation and compensation measures

A11.108 This draft method statement to support a licence application will be submitted with the DCO application. The prescribed mitigation and compensation measures will be implemented through the Scheme's Construction Environmental Management Plan (CEMP), which will be secured by DCO requirement.

A11.109 A Licence Compliance Audit will be undertaken to ensure that full and proper implementation of the mitigation and compensation strategy is carried out in accordance with the details of submitted plans and method statements, and to demonstrate that the strategy has been implemented appropriately.

Mitigation contingencies

A11.110 In the unlikely event that a bat is discovered when the named ecologist or accredited agent is not present, the construction activities will cease immediately and the named ecologist will be contacted for advice. This advice will include leaving the bat to disperse of its own accord (if the bat appears active and weather conditions are

suitable) or waiting for the named ecologist or an accredited agent to arrive on site and move the bat to a pre-erected bat box (if the bat appears torpid and the weather conditions are not conducive to the bat dispersing of its own accord). Any injured bats will be immediately taken into care (as directed in the Bat Workers Manual, s.7.3, pp.64-66 (JNCC, 2004) and the Bat Conservation Trust 'Bat Helpline' (Telephone: 0845 1300228) will be contacted for advice. In the unlikely event that a rare species or a maternity roost is encountered during construction, NRW will be consulted and, if appropriate, a licence amendment will be requested.

Biosecurity risk assessment

A11.111 A biosecurity risk assessment has been produced to identify and manage biosecurity risks associated with the Scheme (Appendix 11.7 of the ES). In line with the biosecurity risk assessment, the named ecologist or an accredited agent will follow Bat Conservation Trust guidance regarding white-nose syndrome when/if undertaking any bat handling that may be required.

Post-Development Site Safeguard

Habitat/site management and maintenance

A11.112 Adequate management and maintenance of the Ecological Mitigation Area, including habitat features of value to bats, and the Power Station Complex Site in general will be implemented through an Ecological Management and Monitoring Plan. Adherence to the Ecological Management and Monitoring Plan will ensure effective post-development site safeguard. The Ecological Management and Monitoring Plan will be in effect for the duration of the Scheme being in operation, i.e. 25-35 years.

A11.113 The bat boxes will be erected within the Power Station Complex Site, in locations that will be free from post-development interference impacts.

A11.114 Due to the fact that the majority of bat species show a preference for avoiding well-lit areas, external lighting will be limited to the Power Station Complex and access roads only and will be of a specification that minimises light pollution. This will ensure that the Ecological Mitigation Area and other areas within the Power Station Complex Site remain dark at night.

Population monitoring, roost usage etc.

A11.115 To determine the success of the mitigation and compensation measures, annual monitoring of the Schwegler bat boxes will be undertaken during the construction phase of the Scheme and the first year of operation of the Scheme.

A11.116 The monitoring will comprise inspections of the bat boxes and will record the presence or evidence of bats. The inspections will be undertaken in autumn to avoid potentially disturbing nursery colonies and hibernating bats should they be present. The monitoring will not require bats to be taken. It is considered that the prescribed monitoring is proportionate to the type and size of the impact to the local bat population. The inspections will be undertaken by the named ecologist (or an accredited agent) or another suitably experienced and licensed ecologist appointed by WPL.

Post-development mitigation contingencies

A11.117 The Schwegler bat boxes that will be erected prior to the commencement of the preliminary works stage of construction are designed to last for 20-25 years. Therefore, with the exception of a routine check during the population and usage monitoring inspections, there will be no specific site maintenance of the bat boxes. However, should any bat boxes have fallen into disrepair or have fallen off the tree that they were erected on during the monitoring period, they will be repaired, re-erected or replaced as appropriate. This maintenance will be funded by WPL and any maintenance work required will be subsequently undertaken following consultation with the named ecologist or other suitably experienced and licensed ecologist appointed by WPL.

Mechanism for ensuring delivery of post-development works

A11.118 This draft method statement to support a licence application will be submitted with the DCO application. The prescribed post-development site safeguard will be implemented through the Scheme's Ecological Monitoring and Management Plan, which will be secured by DCO requirement.

A11.119 A Licence Compliance Audit will be undertaken to ensure that full and proper implementation of the mitigation and compensation strategy is carried out in accordance with the details of submitted plans and method statements, and to demonstrate that the strategy has been implemented appropriately.

Timetable of Works

A11.120 This is a draft licence application in respect of bats that has been prepared to be submitted with the DCO application. As such, a specific, realistic and time-limited timetable of works cannot yet be provided.

Land Ownership – Mitigation Site

Mitigation site/compensation site ownership

A11.121 The mitigation site/compensation site is wholly within the Scheme Order Limits and is the subject of an option agreement between the relevant landowner and WLL/WPL.

Mitigation site/compensation ownership post construction

A11.122 The mitigation site/compensation site post-construction is wholly within the Scheme Order Limits and is the subject of an option agreement between the relevant landowner and WLL/WPL .

References

A11.123 The following sources of information have been used to prepare this method statement:

- English Nature (2004). *Bat Mitigation Guidelines*. English Nature, Peterborough;
- Hundt, L (2012). *Bat Surveys: Good Practice Guidelines, 2nd Edition*. Bat Conservation Trust, London;
- JNCC (2004). *Bat Worker's Manual, 3rd Edition*. JNCC, Peterborough;
- JNCC (2013). Third Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2007 to December 2012. JNCC, Peterborough;
- JNCC/Tracking Mammals Partnership (2005). *UK Mammals: Species Status and Population Trends*. JNCC, Peterborough;
- Tracking Mammals Partnership (2009). *UK Mammals Update 2009*. Tracking Mammals Partnership.
- Wrexham Biodiversity Action Plan
(http://tna.europarchive.org/20110303145238/http://www.ukbap-reporting.org.uk/plans/map_county.asp?X=%7B233A4FD7%2DA909%2D4243%2D8387%2D16066CB658D8%7D&CTRY=%7B9CA4F477%2D9A4C%2D4B79%2DAB03%2D8A7D796C07C5%7D&WES=)