

The Wrexham (Gas Fired Power Station) Order

8.1: Grid Connection Statement

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

PINS Reference Number: EN010055
Document Reference Number: 8.1
Regulation Number: 5(2) (p)
Lead Author: Wrexham Power Limited

Revision:	Date:	Description:
1	June 2016	Post-submission version

Wrexham Energy Centre

Grid Connection Statement

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

Regulations 5(2)(p) and 6(1)(a)(i)

Revision 1

CONTENTS

1. INTRODUCTION 3

2. SUMMARY OF THE ELECTRICAL CONNECTION 4

3. DESCRIPTION OF GENERATION 5

4. ELEMENTS OF THE ELECTRICAL CONNECTION 6

5. LAND RIGHTS 7

6. INSTALLATION AND CONSTRUCTION DETAILS 7

7. CONTRACTUAL AGREEMENTS 8

8. RESPONSIBILITIES FOR DESIGNING AND BUILDING THE CONNECTION 8

9. CONCLUSION 9

10. GLOSSARY 10

1. INTRODUCTION

- 1.1. This document accompanies the Application by Wrexham Power Limited (WPL) to the Secretary of State under the Planning Act 2008 (the PA 2008) for the Wrexham (Gas Fired Power Station) Order (the Order) granting powers to construct, operate and maintain the Power Station Complex Site on land at Kingmoor Park South, Wrexham Industrial Estate (WIE), Bryn Lane, Wrexham. The Power Station Complex Site and the Gas Connection (see below) are collectively referred to as the Scheme or the Wrexham Energy Centre (WEC).
- 1.2. The Power Station Complex Site is located on the north-eastern side of the WIE. It is located approximately 3.5 km east of Wrexham in the boundary of Wrexham County Borough and is situated on an area known as Kingmoor Park South, and comprises partly greenfield and partly brownfield land, the latter being an area occupied formerly by the Owens Corning fibreglass factory complex. A majority of the Power Station Complex is located on brownfield land.
- 1.3. The Power Station Complex Site constitutes a Nationally Significant Infrastructure Project (NSIP) by virtue of section 14 and section 15 of the PA 2008 which includes within the definition of an NSIP any onshore generating station in England or Wales of above 50 MW. Under section 31 of the PA 2008 a Development Consent Order (DCO) is required to develop an NSIP. Under section 37 of the PA 2008 this can only be granted if an application is made for it to the relevant Secretary of State (SoS) (the Application).
- 1.4. The Power Station Complex Site comprises:
- a combined cycle gas turbine (CCGT) power station (the "Power Station Complex") (works numbered 1A to 1G in Schedule 1 to the Order) which would be fuelled by natural gas and would have an electrical generation capacity of up to 299 megawatts (MWe);
 - the temporary and permanent Laydown Areas (works numbered 2A and 2B respectively in Schedule 1 to the Order);
 - surface water drainage works (work numbered 3 in Schedule 1 to the Order);
 - the landscaping and ecological mitigation works (work numbered 4 in Schedule 1 to the Order);
 - the alteration and use of the Kingmoor Park Access Road (work numbered 5 in Schedule 1 to the Order);
- 1.5. WPL, in parallel to the Application, has submitted a planning application under the Town and Country Planning Act 1990 to the local planning authority, Wrexham County Borough Council, for the Gas Connection. The Gas Connection comprises a 400mm nominal bore gas pipeline (Gas Pipeline) required to provide gas to the Power Station Complex Site and an Above Ground Installation (AGI).

- 1.6. A description of the Scheme is provided in chapters one and four of the Environmental Statement (ES) (document reference 6.2).
- 1.7. The Power Station Complex would be fuelled by natural gas and would have an electrical generation capacity of up to 299 megawatts (MWe). The final design and consenting route for the Electrical Connection will be determined at a later date by the Distribution Network Operator (DNO), in its role as statutory undertaker for electrical infrastructure in the Wrexham area. The DNO is SP Manweb/SP Energy Networks (SPM/SPEN). SPM/SPEN will apply for consent for any works associated with the Electrical Connection through the appropriate lawful consenting regime at the time, including undertaking any environmental assessment that may be required.
- 1.8. This document forms part of the suite of documents accompanying the Application submitted in accordance with section 37 of the PA 2008 and the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (APFP Regulations). The Application seeks the making of the Order, which would confer the powers required to construct, operate and maintain the Power Station Complex Site.

2. SUMMARY OF THE ELECTRICAL CONNECTION

- 2.1. NPS EN-1 at paragraph 4.9.2 makes clear that it is not always possible, nor the best course in terms of delivery of the project in a timely way, for a power station and its grid connection to be progressed as part of the same application for development consent. This may be because different aspects may have different lead-in times and be undertaken by different legal entities subject to different commercial and regulatory frameworks (for example grid companies operate within OFGEM controls). There are various power station projects that have been consented pursuant to the PA 2008 with their grid connections being consented separately. Examples include the Hinkley Point C nuclear power station and its separate grid connection, both of which have obtained DCOs some time apart.
- 2.2. WPL has made a connection application to SPM/SPEN for the electrical output of the Power Station Complex. SPM/SPEN has made a connection offer to WPL to export electricity into SPM/SPEN's 132 kV network via underground cables from the Power Station Complex Site to the Legacy Grid substation.
- 2.3. New and additional infrastructure is required in order to establish an embedded connection into the grid so that the Scheme can export electricity to the distribution and transmission networks. As mentioned above, the final design and consenting route for the Electrical Connection will be determined by SPM/SPEN. The overall grid connection infrastructure is likely to comprise the following elements (the below works required to make the connection are based on a commercially confidential connection offer). The anticipated works required to make the Electrical Connection are as follows:
 - 2.3.1. Works required at Legacy Grid substation (400kV/132kV - Transmission).

- 2.3.2. SPM/SPEN works at Legacy Grid substation in relation to NGET interface (Transmission to Distribution).
 - 2.3.3. Works at Legacy Grid substation including 132kV switchgear (Distribution).
 - 2.3.4. Install double circuit underground 132kV cable between Legacy Grid substation and Wrexham Energy Centre switchyard (Distribution)
 - 2.3.5. Interface equipment required at the Wrexham Energy Centre switchyard (Distribution/Customer).
- 2.4. No works will be required to the existing Marchwiell or Wrexham substations or to the existing overhead lines, their support structures or the underground cables that serve Marchwiell (Wrexham Industrial Estate) substation. The 132kV switchyard (part of numbered work 1D of the draft Order (Document reference 3.1)) is the responsibility of WPL and forms part of the Power Station Complex Site. The design and construction of the Electrical Connection will be the responsibility of SPM/SPEN. SPM/SPEN will obtain the necessary consents, as required, for each element of the Electrical Connection (including undertaking any environmental assessment that may be required). As the generation capacity is greater than 100MWe, NGET will need to be party to any connection agreement.
- 2.5. This document summarises how WPL proposes to deliver the Electrical Connection and the parties' progress on the necessary connection agreements in order to secure the delivery of the works referred to in paragraphs 2.3.1 to 2.3.5 above.

3. DESCRIPTION OF GENERATION

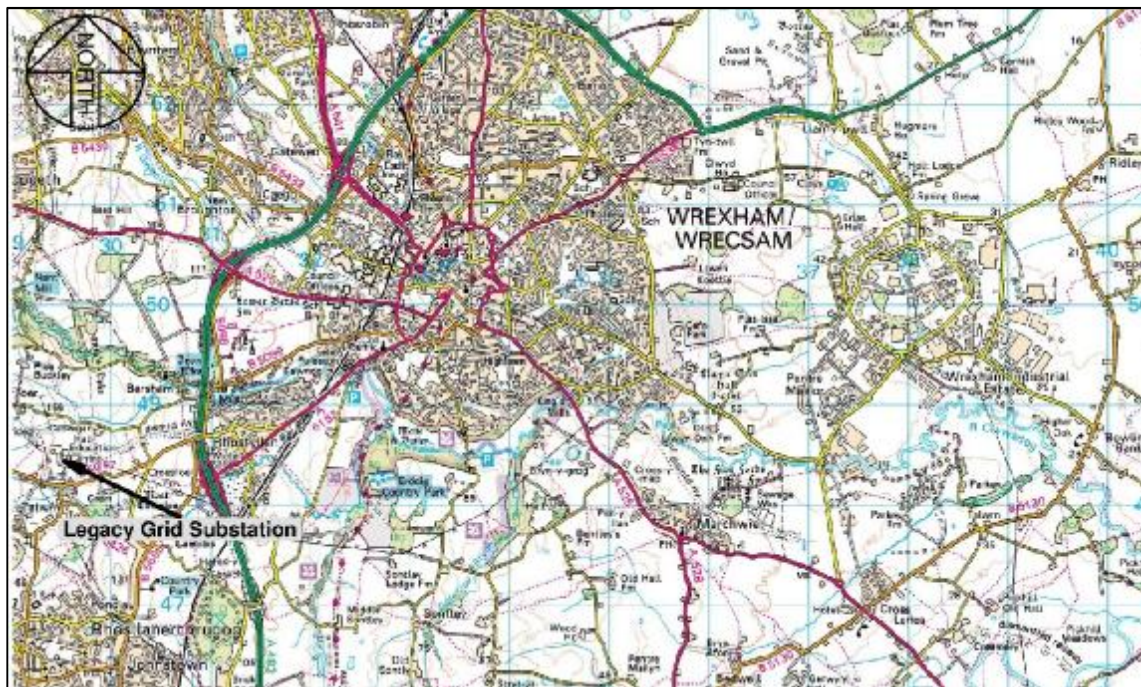
- 3.1. The Scheme is a Combined Cycle Gas Turbine power station. The Scheme will be fired on natural gas which would be obtained from National Grid Gas plc's gas network, the National Transmission System (NTS). Connection to the gas network is described in more detail in the Gas Connection Statement (Document reference 8.2)
- 3.2. The Scheme will have a maximum output of 299MWe which will be exported utilising SPM/SPEN's network (as distribution network operator) into the Legacy Grid substation. The Scheme will have three generators and a startup and shutdown sequence scheme which will ensure the voltage step change is less than 3%, so as to comply with standard Engineering Recommendation P28.
- 3.3. WPL will procure and own the electrical 132kV switchyard within the Power Station Complex Site up to the meter point. SPM/SPEN will own the equipment and interconnecting equipment, beyond the meter point, between the Wrexham Energy Centre switchyard and Legacy Grid substation. NGET will procure and own any Transmission equipment within the Legacy Grid substation (e.g. Supergrid Transformers).

4. ELEMENTS OF THE ELECTRICAL CONNECTION

4.1. WPL has engaged with SPM/SPEN (as DNO) and NGET in relation to options for the provision of a connection for the Power Station Complex. WPL submitted a connection application to SPM/SPEN who have provided a connection offer. WPL and NGET have had discussions regarding any effects that this Scheme would have on the transmission network, including reverse power flows. Although the Electrical Connection will be made into the distribution network, as the generation capacity is greater than 100MWe, NGET needs to be party to any connection.

4.2. The proposed connection point is at Legacy Grid substation (as shown on the plan below).

Location Plan of Legacy Grid Substation



4.3. New and additional infrastructure is required in order to establish an embedded connection so that the Scheme can export electricity to the distribution and transmission networks. The currently anticipated additional infrastructure is expected to comprise the following elements:

4.3.1. Works required at the Legacy Grid substation associated with the provision of 2 x Super Grid Transformers, 400/132kV feeder bays, busbars, disconnectors, SCADA, SCIS, protection, earthing, associated civils, services and communications to enable the connection (i.e. the works referred to in paragraph 2.3.1 above).

- 4.3.2. SPM/SPEN works at the Legacy Grid substation in relation to NGET interface, transmission interface cable sealing ends, Super Grid Transformer commissioning and associated landscape and environmental works (i.e. the works referred to in paragraph 2.3.2 above).
- 4.3.3. Works at the Legacy Grid substation including 132kV switchgear, 2 x 132kV Circuit Breakers, protection and control, constraint scheme, ancillary plant and equipment, LVAC, SCADA and telecommunications equipment (i.e. the works referred to in paragraph 2.3.3 above).
- 4.3.4. Installation of a double circuit underground cable of up to 13km in length between Legacy Grid substation and Wrexham Energy Centre switchyard.(i.e. the works referred to in paragraph 2.3.4 above).
- 4.3.5. Interface equipment required within the Wrexham Energy Centre switchyard being 132kV switchgear consisting of 5 x 132kV Circuit Breakers, protection and control, constraint scheme, ancillary plant and equipment, LVAC, SCADA and telecommunications equipment (i.e. the works referred to in paragraph 2.3.5 above). This interface equipment (which will be owned by SPM/SPEN) will connect into the works which WPL is seeking consent for in Work No 1D.
- 4.4. No works will be required to the existing Marchwiell or Wrexham substations or to the existing overhead lines, their support structures or the underground cables that serve Marchwiell (Wrexham Industrial Estate) substation.

5. LAND RIGHTS

- 5.1. WPL is not seeking compulsory acquisition powers for land or rights over land required for the Electrical Connection.
- 5.2. SPM/SPEN will obtain the necessary land or rights over land for the Electrical Connection. As is usual, SPM/SPEN will negotiate with relevant landowners and where agreement is not possible it is anticipated that it would use its existing statutory powers to secure the necessary land or rights over land if required.
- 5.3. However, it is believed that much of the potential works to the distribution (and transmission) network can be undertaken on land already in the ownership and/or control of SPM/SPEN or NGET or within public highway land.

6. INSTALLATION AND CONSTRUCTION DETAILS

Cable Installation

- 6.1. The method of cable installation would be determined by SPM/SPEN at the relevant time. However, WPL understands that cable installation would be carried out in an excavated trench with cable directly buried in the trench (open cut method). The cable bedding would

be laid typically at 1m below ground level, subject to existing conditions and the location of existing buried services. Once the cables are installed cable protection cover slabs would be placed over the cables. Finally the trench would be backfilled and final reinstatement undertaken. Where possible, the underground cable would be located in the public highway.

Substation works

- 6.2. Pursuant to their statutory duties under the Electricity Act 1989, it will be the responsibility of SPM/SPEN (as DNO) and NGET to determine the technical works that may be required within their current network and substations in order to accommodate the Electrical Connection. WPL considers that SPM/SPEN and NGET have the permitted development rights, statutory powers and/or land rights in order to undertake the majority of the potential works that may be required. Any additional planning permission or land rights that may be required would be obtained by either SPM/SPEN or NGET, through the appropriate lawful consenting regime at the time. WPL considers that any necessary works for the Electrical Connection can be carried out by SPM/SPEN and NGET within the timescale of the construction period for the Scheme.

7. CONTRACTUAL AGREEMENTS

- 7.1. WPL has applied for a Connection Agreement with SPM/SPEN and a connection offer has been obtained. This statement incorporates the content of the connection offer and the works required for the Electrical Connection.
- 7.2. Once a connection offer is accepted, WPL will apply to NGET for a Bilateral Embedded Generation Agreement (BEGA). WPL is in discussions with both SPM/SPEN and NGET and is confident that both agreements will be entered into in due course.

8. RESPONSIBILITIES FOR DESIGNING AND BUILDING THE CONNECTION

- 8.1. WPL is seeking consent within the Order for the 132kV switchyard within the Power Station Complex Site (numbered work 1 in Schedule 1 of the Order).
- 8.2. WPL is not seeking consent within the Order for the Electrical Connection or the alterations to SPM/SPEN's substations or network or to NGET's Legacy Grid substation (i.e. the works referred to at paragraphs 2.3.1 to 2.3.4 above) as these would constitute "associated development" under the PA 2008 (which cannot generally be consented as part of a DCO in Wales). From the studies undertaken, the works required to these substations in order to facilitate the Electrical Connection, would be undertaken using permitted development rights, under the Town and Country Planning (General Permitted Development) Order 1995 (as amended), of SPM/SPEN or NGET, as appropriate.
- 8.3. SPM/SPEN and NGET will be responsible for designing and constructing the works at Legacy Grid substation (the potential works referred to in paragraphs 4.3.1 to 4.3.3).

- 8.4. SPM/SPEN will be responsible for installing the underground cable between the WEC switchgear and the existing Legacy Grid substation (the potential works referred to in paragraph 4.3.4)
- 8.5. SPM/SPEN and WPL will be responsible for designing and constructing the 132kV switchyard within the Power Station Complex (numbered work 1 in Schedule 1 of the Order and the potential works referred to in paragraph 4.3.5).

9. CONCLUSION

- 9.1. WPL is required to submit a statement pursuant to regulation 6 of the APFP Regulations confirming "who will be responsible for designing and building the connection to the electricity grid".
- 9.2. WPL considers that this statement provides confirmation to the Secretary of State that:
- 9.2.1. WPL is in the process of securing the necessary connection agreements with SPM/SPEN and NGET regarding connection of its up to 299MW_e output from the Scheme to the local distribution network;
- 9.2.2. These agreements will provide that SPM/SPEN and NGET will design and build certain elements of the Electrical Connection. Where this is required, WPL considers that SPM/SPEN and NGET have the necessary permitted development rights, statutory powers and/or land rights for the majority of the works to be undertaken. Where they may require additional consents, they will apply through the appropriate lawful consenting regime at the time;
- 9.2.3. WPL has secured the necessary land and rights in order to allow it to construct the 132kV switchyard on the Power Station Complex (numbered work 1 in Schedule 1 of the Order) and is seeking development consent under the DCO for the Power Station Complex Site in this regard.

10. GLOSSARY

Full Text	Acronym	Notes
Above Ground Installation	AGI	Compound where the infrastructure (pipes, valves and kiosk) is located which is required to connect the Gas Connection to the high pressure gas National Transmission System ('NTS').
AGI Site	-	The land on which the AGI will be located.
Above Ordnance Datum	AOD	Height of land surface above sea level.
Agricultural land classification	ALC	A nationally consistent and recognised method for assessing the potential productiveness of agricultural land.
Air Cooled Condenser		A direct dry cooling system where the steam is condensed and returned condensate to the boiler without water loss. Situated within the Power Station Complex.
Area of Outstanding Natural Beauty	AONB	A landscape designation protected under the Countryside and Rights of Way Act, 2000
Air Pollution Information System	APIS	An information system that provides a comprehensive source of information on air pollution and the effects on habitats and species.
Air Quality Limit Value Regulations 2010		UK regulations to limit the levels of air borne pollutants emitted from industries.
Air Quality Management Area	AQMA	An area designated by a local authority as being at risk of not meeting air quality standards
Air Quality Management Plan	AQMP	A plan developed to improve the air quality in the air quality management area.
Air Quality Modelling and Assessment Unit	AQMAU	An Environment Agency team that targets air quality related issues.
Air Quality Modelling and Risk Assessment Team	AQMRAT	An NRW team that targets air quality related issues

Air Quality Strategy	AQS	The AQS for England, Scotland, Wales and Northern Ireland provides details of national air quality standards and objectives for a number of local air pollutants.
Air Quality Technical Advisory Group	AQTAG	The joint Environment Agency, Natural England and Natural Resource Wales group. AQTAG was established in 2000 by the agency's Habitats Directive Project to provide technical guidance on the assessment of air emissions from IPC/IPPC processes.
Ancient Woodland	-	A woodland that has existed continuously since 1600 or before.
Annual Average Daily Traffic	AADT	Measurement unit for the total volume of vehicle traffic to indicate how busy the road is.
Annual mean (Air Quality)	-	The average of concentrations measured for a pollutant for one year (usually a calendar year, from January to December). Sometimes it may be reported for a pollution year (April to March) which avoids splitting a winter season, useful for pollutants with higher concentrations during the winter months.
Application	-	The DCO application for the Power Station Complex Site made to the Secretary of State under the Planning Act 2008.
Applications: Prescribed Forms and Procedure Regulations	APFP	The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 which prescribe various matters in connection with the making of an application for development consent under the Planning Act 2008.
Asbestos Containing Material	ACM	Any material containing more than 1% asbestos.
Automatic Traffic Count	ATC	Means of determining traffic levels in the vicinity.
Automatic Urban and Rural Network	AURN	Air quality monitoring site.
Baseline	-	The conditions that exist without a proposed development at the time an assessment or survey is undertaken.

Bat Conservation Trust	BCT	Voluntary organisation which provides advice and guidance relating to bats.
Below Ground Level	Bgl	A measure unit of distance below ground.
Best Available Technique	BAT	The most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole.
Best and most versatile	BMV	Land in grades 1, 2 and 3a of the Agricultural Land Classification
Biodiversity Action Plan	BAP	Plan concerned with the protection of identified species and habitats.
Best Practical Means	BPM	Reasonably applied means that balance best practice against practical constraints.
British Geological Survey	BGS	The UK public body responsible for all aspects of geoscience.
British Society of Soil Science	BSSS	A professional society that aims to advance the study of soil.
BS 4142	-	Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas (2014).
BS 8233	-	Guidance on sound insulation and noise reduction for buildings (2014).
BS 5228	-	Code of Practice for Noise and Vibration Control on Construction and Open Sites 2009 (2009).
Cadw		The Welsh Government's historic environment service. Cadw is a Welsh word meaning 'to keep' or 'to protect'.
CAoL Guidance	-	Department of Communities and Local Government guidance 'Planning Act 2008: Guidance related to procedures for the compulsory acquisition of land' (September 2013).

Calculation of Road Traffic Noise	CRTN	Department for Transport Memorandum, Calculation of Road Traffic Noise 1988
Carbon Dioxide	CO ₂	A primary greenhouse gas emitted through human activities as well as natural sources.
Carbon Monoxide	CO	One of the combustion products discharged by CCGT power stations.
Chamber of Commerce	CoC	A network of businesses to represent local business interests.
Civil Aviation Authority	CAA	A statutory corporation that oversees and regulates civil aviation in the UK.
Classified Turning Counts	CTC	Measurement of vehicle traffic in particular at junctions.
Coal Authority	-	A non-governmental body that manages coal mining operations and coal reserves throughout the UK.
Construction Industry Research and Information Association	CIRIA	A member-based research and information organisation serving the construction industry
Code of Construction Practices	CoCP	A guidance document that sets out standards and procedures for managing environmental impact of constructing major schemes.
Combined Cycle Gas Turbine	CCGT	A form of power station that uses an efficient combination of gas and steam turbines to generate electricity.
Combined Heat and Power	CHP	A means of using waste heat generated by power station e.g. through a local heat distribution network.
Chartered Institute of Ecology and Environmental Management	CIEEM	Professional body governing ecology/ecologists prior to chartership in 2013 the body was known as IEEM and publications refer to this.
Chartered Institution of Highways and Transportation	CIHT	IHT is a professional body for transport professionals.
Commercial and	C&I	Both commercial waste and industrial waste are

Industrial waste		defined by s75 of the Environmental Protection Act 1990. Commercial waste means "waste from premises ... used wholly or mainly for the purposes of a trade or business or the purposes of sport, recreation or entertainment excluding ... household waste; ...industrial waste and [waste prescribed as being excluded by the Secretary of State]". Industrial waste means "waste from any of the following premises - ... any factory... any premises used for the purposes of, or in connection with, the provision to the public of transport services by land, water or air ...any premises used for the purposes of, or in connection with, the supply to the public of gas, water or electricity or the provision of sewerage services... any premises used for the purposes of, or in connection with, the provision to the public of postal or telecommunications services; or ... any mine or quarry or any premises used for agriculture within the meaning of the Agriculture Act 1947".
Common Bird Census	CBC	A standardised methodology to map breeding bird territories.
Construction, demolition and excavation waste	CDEW	A type of construction waste as identified by the Natural Resource Wales
Committee on the Medical Effects of Air Pollutants	COMEAP	An advisory body that advises the UK government on all matters concerning the health effects of air pollutants.
Conceptual Site Model	CSM	A model that identifies the possible pathways by which a contaminant from a particular source can affect a particular receptor.
Conservation Areas	CA	An area of special architectural and historic interest designated by the local planning authority pursuant to the Planning (Listed Building and Conservation Areas) Act 1990.
Construction Stage	-	The construction stage of the Scheme begins with enabling works, which will include site set-up and groundworks. Following this, construction of the Power Station Complex Site, and Gas Connection will be undertaken, followed by commissioning.

Construction and Demolition Waste	C&D	A type of construction waste.
Construction Environmental Management Plan	CEMP	A plan describing how the environmental impacts of the construction activities of a project will be minimised and mitigated that is submitted to the relevant planning authority for approval.
Construction Traffic Management Plan	CTMP	A plan for managing construction traffic that is submitted to the relevant Highway Authority for approval
dB(A)	-	A-weighted decibel – a correction applied to each frequency between 20 Hz and 20 kHz that effectively represents the way the human ear works.
Decibel	dB	Logarithmic scale for measuring sound levels.
Decommissioning Stage	-	Following the end of its operational life, the Power Station Complex would be decommissioned and will revert to open bare ground. The Gas Connection will be purged of gas and is likely to be left in-situ in order to avoid the adverse environmental effects associated with its removal.
Dee Valley Water		A water supply company that covers North East Wales and the North West of England.
Department for Education and Skills	DfES	Government department responsible for education and children's services.
Department of Energy and Climate Change	DECC	Government department responsible for energy policy
Department for Environment, Food and Rural Affairs	DEFRA	Government department responsible for environmental protection, food production and standards, agriculture, fisheries and rural communities.
Department for Transport	DfT	Government department with responsibility for certain areas of transport policy in Wales that have not been devolved.
Deposition	-	The main pathway for removing pollutants from the atmosphere, by settling on land.

Design Manual for Roads and Bridges	DMRB	A suite of technical documents produced by the Highways Agency (as was) that include guidance for environmental appraisal that are also used for non-highways schemes and as such are commonly used in EIA.
Determinand	-	A substance or parameter that is determined analytically, e.g. arsenic concentration in soil, pH of water, concentration of a particular gas in air quality modelling.
Development Consent Order	DCO	An Order made under the Planning Act 2008 granting development consent for a Nationally Significant Infrastructure Project
Electrical Connection	-	<p>The Electrical Connection is not part of the Application for the Scheme, but will be required for the export of electricity. A number of realistic assumptions have been made regarding the electrical connection works as set out below:</p> <ul style="list-style-type: none"> • The Electrical Connection is likely to consist of underground cabling between the Scheme’s electrical switchgear located within the Power Station Complex and the existing Marchwiell substation, located on Abbey Road on the Wrexham Industrial Estate. • The wider existing electrical distribution network will also need upgrading to accommodate the new generation. This is likely to consist of works to the existing Marchwiell substation, re-stringing of existing pylons between Legacy and Wrexham substations, replacement of the existing portal frame towers between Legacy and Marchwiell substations, and laying of underground cables. Once completed the electrical network which currently serves the Wrexham Industrial Estate will have increased capacity and resilience from that which exists presently.
Electricity Market Reform	EMR	UK government's policy to reform the electricity market. The policy aims to deliver low carbon energy and reliable supplies for the UK, while minimising costs to consumers.
Electric and Magnetic Fields	EMF	EMFs comprise electric and magnetic fields. Electric fields are the result of voltages applied to electrical

		conductors and equipment. Magnetic fields are produced by the flow of electric current.
Emission	-	The direct or indirect release of substances, vibrations, heat or noise from individual or diffuse sources into air, water or onto land, e.g. pollution may be discharged into the atmosphere from a stack or vent.
Emission Limit Value	ELV	Legal enforcement limit on the physical, chemical or biological characteristics of a point source of emission to water or air.
Energy Efficiency Directive 2012	-	Directive 2012/27/EU establishes a framework of measures for the promotion of energy efficiency within the European Union.
Environmental Health Officer	EHO	A local authority health professional responsible for carrying out measures for protecting public health.
Environmental Impact Assessment	EIA	The process of assessing the likely significant environmental impacts of a proposed project as part of gaining planning consent.
Environmental Permit	EP	A permit required in accordance with the Environmental Permitting Regulations.
Environmental Permitting Regulations	EPR	The Environmental Permitting (England and Wales) Regulations 2010 regulate practices that have pollution potential through a permitting system.
Environmental Protection Act 1990	EPA	The Act that covers, amongst other things, the regulation of contaminated land in the UK.
Environmental Protection UK	EPUK	UK environmental Non-Governmental Organization (NGO) working to improve the quality of the local environment
Environmental Quality Standards	EQS	The concentration of a particular pollutant or group of pollutants in water, sediment or biota which should not be exceeded in order to protect human health and the environment.
Environmental Statement	ES	The document which reports the process, findings and recommendations of the EIA.
Environmentally	ESA	A designation for agricultural areas needing special

Sensitive Area		protection by virtue of their landscape, wildlife or historical value.
Flood Defence Consent	FDC	A consent required by Natural Resources Wales, for construction or maintenance work on over, under or near a main river (usually within 8-10 metres).
Flood Risk Assessment or Flood Consequence Assessment	FRA or FCA	An assessment that determines the risk of flooding to a proposed project.
Full Time Equivalents	FTE	The equivalent number of full time jobs provided by a project - e.g. two half-time jobs equates to one FTE.
Gas Connection	-	This element comprises all the equipment required to connect the Power Station Complex to the National Transmission System, including the Gas Pipeline and the Above Ground Installation. This is being separately consented under the TCPA 1990 though it forms part of the Scheme that has been environmentally assessed through the EIA. The Gas Connection forms part of the Order Land.
Gas Connection Route		The route within which the Gas Connection is situated together with the temporary construction working areas.
Gas Pipeline	-	A continuously welded underground steel pipe with a nominal bore of up to 400mm.
Gas Turbine	GT	A turbine driven by hot combustion gases at high temperature.
Great Crested Newt	GCN	A species of newt protected by European Legislation.
Greenhouse Gas	GHG	An atmospheric gas such as carbon dioxide, methane, chlorofluorocarbon, nitrous oxide, ozone, or water vapour that slows the passage of re-radiated heat through the Earth's atmosphere.
Gross Value Added	GVA	A measure of added value to the overall economy of each additional job created.
Ground Investigation	GI	An intrusive or non-intrusive investigation, and subsequent testing, of surface and subsurface soil and conditions. This is undertaken to

		obtain information on the physical and chemical properties of the soil, rock, groundwater and gas regimes at and in the vicinity of a site.
Groundwater Protection: Principles and Practice	GP3	A guidance published by the Environment Agency on Groundwater protection.
Groundwater Source Protection Zone	GSPZ	Areas around groundwater abstraction sources that are defined in order to help protect drinking water from contamination.
Guidance for the Environmental Assessment of Road Traffic	GEART	The IEMA guidance on the environmental assessment of road traffic.
Guidance on Transport Assessment	GTA	Department for Transport guidance dated March 2007 on the preparation of Transport Assessments as archived 22 October 2014 and replaced by NPPG “Transport evidence bases in plan making”
Guidelines for Landscape and Visual Impact Assessment, 3rd Edition	GLVIA	Guidance produced by the Landscape Institute and the Institute for Environmental Management and Assessment dated 17 April 2013
Habitat	-	A place where an organism (e.g. human, animal, plant, micro-organism) or population of organisms live, characterised by its surroundings.
Habitat Regulations Assessment	HRA	An assessment required under the European Directive 92/43/EEC.
Habitat Suitability Index	HSI	A method for assessing the suitability of ponds for their potential to support Great Crested Newts.
Health and Safety Executive	HSE	The non-departmental government body responsible for workplace safety in the UK.
Heat Recovery Steam Generator	HRSG	A means of recovering heat energy from hot exhaust gases in order to produce steam for driving a turbine.
Heavy Duty Vehicle	HDV	HGVs, buses and coaches.
Heavy Goods Vehicle	HGV	A truck that when laden has a total weight of more than 3500 kg.

Hectare	ha	10,000m ² or 2.471 acres
Highway Authority	HA	The relevant highway authority responsible for the non-core road network (i.e. roads other than trunk roads and motorways).
Historic Environmental Record	HER	The record held by the local planning authority of known archaeological sites, buildings and landscapes of relevance to the historic environment.
Hover	-	An otter's day nest or resting site.
Indices of Multiple Deprivation	IMD	An index to measure deprived areas in local councils.
Industrial Emissions Directive	IED	EU Directive on industrial emissions that came into force in January 2011.
Industrial Estate Road (N)		The new road which connects Wrexham Industrial Estate to the A534.
Infrastructure Planning Commission	IPC	The public body that previously examined applications for development consent to build Nationally Significant Infrastructure Projects, abolished through the Localism Act 2011 with the role replaced by the Planning Inspectorate and decisions on whether or not to grant a DCO being made by the Secretary of State.
Institute of Acoustics	IOA	Professional body for Acoustics, Noise and Vibration professionals.
Institute of Air Quality Management	IAQM	IAQM is a professional body for air quality professionals.
Institute of Environmental Management and Assessment	IEMA	IEMA is a professional body for environmental professionals that provide industry guidance on many topics including EIA.
Institute of Gas Engineers and Managers	IGEM	IGEM is a chartered professional body, licensed by the Engineering Council.
Integrated Pollution Prevention and Control Directive	IPPC	The EU Directive (2008/1/EC) incorporated into UK law by the Environmental Permitting Regulations on prevention and control of industrial emissions. The

		Directive aims to achieve a high level protection of the environment through measures to prevent or, where that is not practicable, to reduce emissions to air, water and land from activities listed in Annex I of the Directive (e.g. energy industries, production and processing of metals, mineral industry, chemical industry, intensive pig and poultry farming, waste management, some food and drink industries etc.).
ISO 9613-2	-	Acoustics- Attenuation of sound during propagation outdoors – Part 2: General method of calculation.
Joint Nature Conservation Committee	JNCC	The public body that advises the UK government and devolved administrations on UK-wide and international nature conservation.
Kilovolt	kV	A measure of electrical potential.
Kingmoor Park Access Road	-	The road leading from Bryn Lane to the Power Station Complex Site numbered Work 5 on the Works Plan and in Schedule 1 to the Order
LA ₁₀	-	A-weighted noise level exceeded for 10% of the measurement period.
LA ₉₀	-	A-weighted noise level exceeded for 90% of the measurement period.
LA _{eq}	-	A-weighted equivalent continuous sound level.
LA _{max}	-	A-weighted maximum sound pressure level recorded over a given period.
Local Air Quality Management	LAQM	The mechanism by which the Government's air quality objectives are to be achieved.
Landscape Character Area	LCA	A area of defined landscape character in Wales.
Land Plans	-	The plans showing the land over which it is proposed to exercise powers of compulsory acquisition or a right to use land; land in relation to which it is proposed to extinguish or suspend existing easements, servitudes and other private rights and/or impose restrictive covenants (submitted with the Application Document Reference 2.2).

LANDMAP	-	A landscape characterisation and assessment system used across Wales.
Large Combustion Plant Directive	LCPD	European legislation to reduce acidification, ground level ozone and particles throughout Europe by controlling emissions of sulphur dioxide, nitrogen oxides and from large combustion plants in power stations.
Laydown Areas	-	<p>The temporary (Work numbered 2A on the Works Plan) and temporary/permanent (Work numbered 2B on the Works Plans) laydown areas required for the Scheme.</p> <p>The Laydown Area shown on the Works Plan and numbered Work 2A in Schedule 1 to the Order is located on the eastern side of the Power Station Complex and will be up to 3.6 ha in size. It will be used during construction of the Scheme only.</p> <p>The Laydown Area shown on the Works Plan and numbered Work 2B in Schedule 1 to the Order is located adjacent to the south eastern corner of the Power Station Complex and will be up to 0.25 ha in size. It will be used during construction of the Scheme and for maintenance activities during operation.</p>
Lead Local Flood Authority	LLFA	The authority responsible for developing, maintaining and applying a strategy for local flood risk management in their areas and maintaining a register of flood risk assets.
Light Duty Vehicles	LDV	Vehicles with a weight less than 3.5 tonnes (gross weight).
Listed Building		A building that has been placed on the statutory list of buildings of Special Architectural or Historic Interest and protected by the Planning (Listed Building and Conservation Areas) Act 1990.
Local Nature Reserve	LNR	Statutory designation for places with wildlife or geological features that are of special interest locally.
Local Wildlife Site	LWS	Wildlife rich sites selected for their local nature conservation value.
Made Ground	-	Man-made deposits artificially placed comprising a wide variety of material e.g. concrete, brick etc -

		typical of previously developed sites.
Maelor Gas Works	-	An existing above ground installation which takes gas from the NTS and distributes it via existing infrastructure.
Maelor Gas Works Access Road	-	The existing road and track between the B5130 and the Maelor Gas Works, which will be used to access the Gas Connection.
Maintenance or Maintain	-	Includes to the extent assessed in the Environmental Statement, inspect, repair, adjust, alter, remove, refurbish, reconstruct, replace and improve any part, but not the whole, of the authorised development and “maintaining” is to be construed accordingly
Manual for Streets	MfS	The guidance produced by the Department for Transport and Department for Communities and Local Government on road layout and balancing the needs of different road users, with a focus on residential roads, dated 29 March 2007.
Megawatts of electrical power	MWe	Measurement of electrical power.
Megawatts of thermal power	MWth	Measurement of thermal power.
Milligrams per normal cubic metre	mg/ Nm ³	Unit of concentration of emission limit values.
Multi Agency Geographical Information for the Countryside	MAGIC	A web-based mapping browser showing various geographical designations e.g. nature conservation sites, heritage sites.
Municipal Solid Waste	MSW	Household waste.
National Cycle Network	NCN	A network of signed and promoted cycle routes across the UK.
National Grid Company	NGC	National Grid's principal operations are the ownership and operation of regulated electricity and gas infrastructure networks.
National Nature	NNR	Statutory designations, where places with wildlife or

Reserve		geological features that are significant at a national level.
Natura 2000 sites	-	A network of European designated sites including Special Protection Areas (designated under Directive 2009/147/EC) and Special Conservation Areas as listed in Annex I and II of the EU Directive 92/43/EEC (“Habitats Directive”)
Natural Resources Wales	NRW	NRW is a Welsh Government Sponsored Body, created in 2013, which took over the work of Countryside Council for Wales, Environment Agency Wales and Forestry Commission Wales.
National Policy Statements	NPS	Statement of planning policy concerning the consenting of NSIPs in the UK – designated under the Planning Act 2008. The Secretary of State must make his or her decision on an application for a DCO in accordance with a relevant NPS unless other considerations apply.
National Transmission System	NTS	The strategic natural gas pipeline serving the UK.
Nationally Significant Infrastructure Project	NSIP	As defined by the Planning Act 2008, which includes within the definition of an NSIP any onshore generating station in England and Wales of more than 50 MW.
National Air Traffic Control Services	NATS	The main air traffic control service provider within the UK.
Nitrate Vulnerable Zone	NVZ	A designated area where land drains into and contributes to nitrate found in nitrate-polluted waters.
Nitric Oxide	NO	Combustion product discharged by CCGT power station
Nitrogen dioxide	NO ₂	Combustion product discharged by CCGT power station
Oxides of nitrogen	NO _x	Comprises mainly NO and NO ₂ , combustion products discharged by CCGT power stations.
Noise Sensitive Receptor	NSR	Receptors principally residential dwellings (existing or for which planning consent is being sought/ has been

		given) and any building used for long term residential purposes (such as a nursing home).
Non-Road Mobile machinery	NRMM	Construction vehicles or plant which are transported to site on low loaders as they are not suitable for driving on roads.
Non-Technical summary	NTS	The non-technical summary of the Environmental Statement.
North & Mid Wales Trunk Road Agent	NMWTRA	NMWTRA is responsible on behalf of Welsh Government for managing the strategic road network in North and Mid Wales
Okta	-	A unit used in expressing the extent of cloud cover, equal to one eighth of the sky.
Operation	-	The routine day to day functioning of the Scheme, including Maintenance activities.
Order	-	The Wrexham (Gas Fired Power Station) Order, being the Development Consent Order which has been applied to be made by the Secretary of State authorising the Power Station Complex Site, a draft of which is submitted with the Application (Document Reference 3.1)
Order Land	-	The land as shown on the Land Plans (Document Reference 2.2) within which the Scheme may be carried out.
Order Limits	-	The limits shown on the Works Plans (Document Reference 2.3) within which the Power Station Complex Site may be carried out.
Ordnance Survey	OS	National mapping agency for Great Britain
Overhead Line	OHL	Network of overhead electricity distribution and transmission lines
Part II A	-	The section of EPA 1990 that deals with contaminated land.
Annual Average Flow Rate for surface water runoff	Q_{BAR}	-

Particulate Matter	PM	Very small solid or liquid particles.
Pathway	-	The route by which contamination moves from a source to a given receptor.
Peak Particle Velocity	PPV	A term used to measure vibration through a solid surface. When a vibration is measured, the point at which the measurement takes place can be considered to have a particle velocity.
Percentage Heavy Goods Vehicles	%HGV	Percentage of traffic that is classified as Heavy Goods Vehicles over a given period.
Percentile	-	A value below which that percentage of data will either fall or equal. For instance, the 98th percentile of values for a year is the value below which 98% of all of the data in the year will fall, or equal.
Permitted Development	-	Development that is deemed under legislation to have planning consent without the need to obtain planning permission.
Personal Protective Equipment	PPE	Equipment a person may wear to protect themselves from risks e.g. high-visibility jackets, gloves, steel toe capped boots.
Pipeline Inspection Gauge	PIG	Pipeline inspection and cleaning device.
Planning Act 2008	PA 2008	England and Wales legislation which established the legal framework to apply for, examine and determine applications for Nationally Significant Infrastructure Projects.
Planning Inspectorate	PINS	Executive agency supported by the Department for Communities and Local Government which deals with planning appeals, national infrastructure, planning applications, examinations of local plans and other planning related and specialist casework in England and Wales.
Planning Policy Wales	PPW	Overarching land use planning policy for Wales, produced by the Welsh Government (edition 8, January 2016).
Pollution Prevention	PPG	Environment Agency published guidance on pollution

Guidance		prevention and best practice
Potential Contaminant Linkages	PCL	The existence of a contamination source and a receptor where a pathway is also present linking the two.
Power Station Complex	-	The power generating element of the Scheme including gas turbine building, Stack(s), HRSG(s), transformers, steam turbine building, admin/control building, heat interface building, pressure regulation installation, water tanks, car parking, internal site roads, workshop, water treatment plant, switchyard, switchgear room and surface and foul water drainage (please refer to Works numbered 1A to 1G in Schedule 1 to the Order).
Power Station Complex Site		The Power Station Complex, Laydown Areas, surface water drainage, landscaping and ecological mitigation, (Works numbered 1, 2, 3, 4 and 5 in Schedule 1 to the Order and as shown on the Works Plan).
Preliminary Environmental Information Report	PEIR	A report describing the preliminary environmental assessment during the pre-application process of an NSIP.
Pressure Regulating Installation	PRI	Part of the Power Station Complex where the gas is received from the Gas Connection. The PRI conditions the gas before use in the gas turbine(s)
Previous Scheme		The scheme proposed by WPL in 2011, for a power station with a generating capacity of up to 1,200 MW _e detailed in the Previous Scoping Report and which has been superseded by the Scheme which is the subject of the Application.
Previous Scoping Opinion		The Scoping Opinion issued by the Secretary of State in January 2013.
Previous Scoping Report		The Scoping Report submitted by WPL to the Secretary of State in November 2012.
Public Right of Way	PRoW	Paths on which the public have legally protected rights to pass.

Ramsar site		A designation for wetlands of International importance.
Receptor	-	An identified aspect of the environment - e.g. a resident, protected species, heritage asset, controlled water etc - that may be affected by the Scheme and, as such, has been assessed as part of the EIA undertaken.
Registered Parks and Gardens		Gardens and designed landscapes of special architectural and historic importance, placed on a register by Cadw.
Remediation	-	The clean-up of contaminated soil to make it suitable and safe for future use.
River Basin Management Plan	RBMP	A management tool created by Natural Resources Wales to use for integrated water resources management.
Rochdale Envelope	-	The Rochdale cases provide the basis upon which a project can be described by a series of maximum extents – the ‘worst case’ scenario - allowing the detailed design of the scheme to vary within this ‘envelope’ without invalidating the corresponding EIA. This envelope has been assessed in the EIA for the Scheme.
Scheduled Monument	SM	A "nationally important" archaeological site or historic building, protected under the Ancient Monuments and Archaeological Areas Act 1979.
Scheme (also referred to as the "WEC")	-	The construction, operation, maintenance and eventual decommissioning of the Power Station Complex Site (Work numbered 1-5 in Schedule 1 to the Order) and the Gas Connection.
Scoping Opinion	-	The Scoping Opinion provided by the Secretary of State in May 2014 and included in the Appendices to the Environmental Statement (Document Reference 6.4, Appendix 5.1).
ScottishPower Electricity Networks or SP Manweb plc	SPEN	Company which operates the electrical distribution network in the North Wales and Cheshire area.

Secretary of State	SoS	The decision maker for a NSIP application and head of the relevant government department. In the context of the Application the decision maker is the Secretary of State for Energy and Climate Change.
Site (also referred to as the "WEC Site")	-	The area in which the Scheme will be constructed, operated and decommissioned as defined by the Order Land.
Site of Nature Conservation Interest	SNCI	Non-statutory areas of local importance for nature conservation.
Site of Special Scientific Interest	SSSI	A geological or biological conservation designation denoting a protected area in the UK.
Site Waste Management Plan	SWMP	The strategic document dealing with the effective management of materials used for the construction and the operation of the Scheme ensuring that waste is considered at all stages of the Scheme. The SWMP will form part of the CEMP for the Scheme.
Spraint	-	Otter Faeces
Soil Framework Directive 2006	SFD	Proposed Directive (proposal withdrawn in 2014) to promote the sustainable use of soil and protect soil as a natural resource.
Sound Power Level	SWL	The Sound Energy flow per unit of time.
Sound Pressure Level	SPL	Logarithmic measure of the sound pressure of a sound relative to a reference value, the threshold of hearing.
Special Area of Conservation	SAC	Area of protected habitats and species as defined in the European Union's Habitat Directive (92/43/EEC).
Special Landscape Areas	SLA	Local designation to provide protection for locally significant and attractive landscapes.
Special Protection Area	SPA	A designated area for birds under the European Union Directive on the Conservation of Wild Birds (2009/147/EC)
Stack(s)	-	The structure by which the exhaust gases and waste heat from the Power Station Complex will be emitted to the atmosphere during Operation.

Statement of Community Consultation	SoCC	A statement describing how an applicant proposes to consult the local community about a project.
SuDs Approval Body	SAB	-
Sulphur Oxides	SOx	One of the combustion products discharged by CCGT power stations.
Sustainable Drainage Systems	SuDS	Water management practices and facilities that drain surface water more sustainably than the conventional practice of routing run-off through a pipe to a watercourse.
Switchgear	-	The combination of switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Can be air-insulated or gas-insulated.
Technical Advice Notes	TAN	Technical Advice Notes produced by the Welsh Government which provide detailed planning guidance on technical issues.
Tonnes per annum	tpa	Unit for measuring waste produced.
Town and Country Planning Act 1990	TCPA 1990	The Act which consolidates certain enactments relating to town and country planning (excluding special controls in respect of buildings and areas of special architectural or historic interest and in respect of hazardous substances)
Transport Analysis Guidance	TAG	Guidance from the Department for Transport on how to assess transportation schemes first published on 29 October 2013 and last updated on 10 November 2014.
Tree Preservation Order	TPO	A written order made by the local authority which makes it an offence to intentionally damage or remove a tree protected by that order without the authority's permission.
Urban Wastewater Treatment Directive	-	A European Directive to protect the environment from the adverse effects of urban waste water.
Waste (England & Wales) Regulations 2011	-	Legislation for waste prevention, management and introduction of waste hierarchy.

Waste Framework Directive	WaFD	The Waste Framework Directive is a European Union Directive which requires all EU states to take the necessary measures to ensure waste is recovered or disposed of without endangering human health or causing harm to the environment. It has been transposed to the Waste (England & Waste) Regulations in 2011.
Water Framework Directive	WFD	The Water Framework Directive is a European Union directive which commits EU member states to achieve good qualitative and quantitative status of all water bodies by 2015.
Water Resources Act 1991	WRA	Legislation to prevent and minimise pollution of water.
Welsh Government	-	Welsh Government is the devolved Government for Wales with responsibility for the economy, education, health, planning, and other policy areas.
Welsh Water		Supplies wastewater services within the Scheme area.
Weighted Sound Reduction Index	R _w	Single-number quantity which characterises the airborne sound insulation of a material or building element over a range of frequencies when tested in a laboratory.
Wildlife and Countryside Act 1981		Legislation which protects animals, plants and certain habitats in the UK.
Wrexham Energy Centre (also referred to as the "Scheme")	WEC	The construction, operation, maintenance and eventual decommissioning of the Power Station Complex Site (Work numbered 1-5 in Schedule 1 to the Order) and the Gas Connection.
WEC Site (also referred to as the "Site")	-	The area in which the Scheme will be constructed, operated and decommissioned as defined by the Order Land.
Wrexham County Borough Council	WCBC	The unitary authority area within which the Scheme is located
Wrexham Industrial Estate	WIE	The substantial industrial estate to the east of Wrexham within which the Power Station Complex Site will be located.

Wrexham Power Limited	WPL	The applicant and developer of the Scheme.
World Health Organisation	WHO	A United Nations agency concerned with public health.
Works Plan	-	The plan showing the Power Station Complex Site and the limits (and limits of deviations) within which the Power Station Complex Site may be carried out (Document Reference 2.3).
Zone of Theoretical Visibility	ZTV	A computer generated plan showing a maximum area of the surroundings within which a project could theoretically be viewed.