



# Proposed Power Plant at Great Island, Co. Wexford

Environmental Impact Statement

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November 2009  
Endesa Ireland Limited



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3 Grand Canal Plaza, 5th Floor, Grand Canal Street Upper, Dublin 4

# Issue and revision record

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# Abbreviations and Glossary

## Abbreviations

$\mu\text{g}/\text{m}^3$	micrograms per cubic metre
AADT	Annual Average Daily Traffic
AA	Appropriate Assessment (under Article 6 of the Habitats Directive, Council Directive 92/43/EEC)
ADMS	Atmospheric Dispersion Modelling System
AGI	Above Ground Installation
AOD	Above Ordnance Datum
AQS	Air Quality Standards
ARCADY	Assessment of Roundabout Capacity and Delay (Traffic assessment model used to predict traffic impact on roundabouts)
Barg	Bar Gauge
BAT	Best Available Technology
BATNEEC	Best Available Technology Not Entailing Excessive Cost
BIM	Bord Iascaigh Mhara
Bq	Becquerel's
BOD	Biological Oxygen Demand
BOG	Boil-off gas
BGE	Bord Gáis Éireann
BGN	Bord Gáis Network
BRE	Building Research Establishment
Bref	BAT reference document
Bscf	Billion standard cubic feet
Bscfd	Billion standard cubic feet per day

**Abbreviations**

CCGT	Combined Cycle Gas Turbine
CD	Chart Datum
CEC	Commission of the European Communities
CEMP	Construction Environmental Management Plan
CER	Commission for Energy Regulation
CHS	Cultural Heritage Site
CIF	Construction Industry Federation
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
COD	Chemical Oxygen Demand
CRTN	Calculation of Road Traffic Noise
CSO	Central Statistics Office
CWS	Cooling Water System
DAFF	Department of Agriculture, Fisheries and Food
DMRB	Design Manual for Roads and Bridges
DO	Dissolved Oxygen
DoEHLG	Department of the Environment, Heritage and Local Government
DTM	Digital Terrain Model
DWF	Dry Weather Flow
DWT	Dead Weight Tonnes
EC	European Community
ED	Electoral Division
EHWS	Extreme High Water Spring Tide
ELWS	Extreme Low Water Spring Tide
EIA	Environmental Impact Assessment

**Abbreviations**

EIS	Environmental Impact Statement
ELV	Emission Limit Value
EM	Electromagnetic (conductivity)
EN	Euro norm
EPA	Environment Protection Agency
ERM	Environmental Resources Management Ireland Limited
ESB	Electricity Supply Board
ESD	Emergency shutdown
ETS	Emission Trading Scheme
EU	European Union
EWP	Irish Government White Paper 2007 Delivering a Sustainable Energy Future for Ireland
ESB	Electricity Supply Board
ESD	Emergency shutdown
EC	European Community
ETS	Emissions Trading Scheme
EU	European Union
GBS	Gravity based structure
GHG	Greenhouse gases
GLC	Ground Level Concentrations
GPS	Global positioning system (satellite navigation system)
GSI	Geological Survey of Ireland
Ha	Hectares (10 000 square metres)
HCV/HGV	Heavy Commercial Vehicle / Heavy Goods Vehicle
HFO	Heavy Fuel Oil
HRSG	Heat Recovery Steam Generator

**Abbreviations**

HSA	Health and Safety Authority
HSE	Health Service Executive
ICSS	Integrated Control and Safety Systems
IPPC	Integrated Pollution Prevention and Control
ISO	International Standards Organisation
km	kilometre
kN	kilo Newton
kV	kilo Volt
LAQM	Local Air Quality Management - Technical Guidance
LCA	Landscape Character Area (sourced from county plan data)
LCP	Large Combustion Plant
LGV/LCV	Light Goods Vehicle / Light Commercial Vehicle
LLCA	Local Landscape Character Area
l/s	Litres per second
m	Metre
mbg	Metres below ground
mm	Millimetre
mOD	Metres above Ordnance Datum
m <sup>3</sup> /s	Metres cubed per second
m/s	Metres per second
MW	Mega Watts (Unit of energy)
MWh	Mega Watt hour (measure of energy delivered by power plants)
MWe	Mega Watts Electrical (measure of energy delivered by power plants)
NDP	National Development Plan
NHA	National Heritage Area

**Abbreviations**

NIAH	National Inventory of Architectural Heritage
NMI	National Museum of Ireland
NML	Noise Monitoring Locations
NMS	National Monuments Service of the Department of Environment, Heritage and Local Government
NSS	National Spatial Strategy
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Oxides of Nitrogen
NPWS	National Parks and Wildlife Service - Department of Environment, Heritage and Local Government
NRA	National Roads Authority
NSR	Noise Sensitive Receptors
NSS	National Spatial Strategy
NTS	Non-Technical Summary
OPW	Office of Public Works
OS	Ordnance Survey
OSI	Ordnance Survey Ireland
pH	Potential of Hydrogen, measure of acidity or alkalinity
PICADY	Priority Intersection Capacity and Delay (Traffic assessment model used to predict traffic impact on junctions)
pNHA	Proposed Natural Heritage Area
PM <sub>2.5</sub>	Particles that are less than or equal to ( $\leq$ ) 2.5 $\mu\text{m}$ in diameter
PM <sub>10</sub>	Particles that are less than or equal to ( $\leq$ ) 10 $\mu\text{m}$ in diameter
ppm	Parts per million
QRA	Quantitative Risk Assessment
RMP	Record of Monuments and Places
RPG	Regional Planning Guidelines

## **Abbreviations**

RPS	Record of Protected Structures
SAC	Special Area of Conservation
S.I.	Statutory Instrument
SMR	Sites and Monuments Record
SO <sub>2</sub>	Sulphur Dioxide
SPA	Special Protection Area
SUDS	Sustainable Urban Drainage System
TIA	Traffic Impact Assessment
TTA	Traffic and Transport Assessment
TSO	Transmission System Operator
TWh	Terra Watt hour (measure of energy delivered by power plants)
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds
WFD	Water Framework Directive
WHO	World Health Organisation
ZAP	Zone of Archaeological Potential
ZTV	Zone of Theoretical Visibility
ZVI	Zone of Visual Impact

## **Glossary**

### **Above Ground Installation (AGI)**

Refers to the section of plant where the gas network will connect to the site.

### **Air Cooled Condenser (ACC)**

ACC's condense low pressure exhaust steam from a steam turbine through finned condenser tubes over which air is passed via forced air fans. Heat is transferred from the low-pressure steam to the air by forced convection, condensing the steam to water (condensate). The condensate is then returned to the boiler.

**Aquifer**

A geological unit that stores and transmits significant quantities of groundwater under normal hydraulic conditions.

**Assimilative Capacity**

A measure of the contaminant load that can be discharged to a water body without exceeding water quality standards appropriate to that water body.

**Base Load**

An electric power plant or generating unit within a power plant that is normally operated continuously to meet the base load requirement of the System Operator.

**Biotype**

Well-defined geographical area, characterised by specific ecological conditions (soil, climate, etc.), which physically supports the organisms that live there.

**Bund**

A structure surrounding chemical/hydrocarbon storage tanks which is designed to contain spillages or leaks.

**Capacity Credit**

An estimate of the contribution that wind power, as a variable and intermittent source of electricity generation, makes to generation adequacy, expressed as a percentage of its installed capacity. Generation adequacy is defined below.

**Combined Cycle Gas Turbine (CCGT)**

A power plant that uses two different thermal cycles for producing electricity. The first cycle burns a fuel inside a gas turbine, and the gas turbine drives an electric generator. The hot air coming out of the gas turbine is used to turn water into steam, and the steam turns a second electric generator.

**dB (A) Decibel(s) (A-weighted)**

A unit used to measure noise levels that are adjusted by an electronic filter to approximate the response of a human ear.

**Distillate**

A general classification for one of the petroleum fractions produced in conventional distillation operations.

**Diadromous fish**

Species of fish that migrate from fresh water to the sea, or vice-versa, to feed or breed.

**Distillate**

A general classification for one of the petroleum fractions produced in conventional distillation operations.

**Elver**

Young stage of an eel's lifecycle.

**Epifauna**

Animals that live on the surface of the seabed.

**Façade Noise Level**

A noise level measured or predicted at the façade of a building, typically at distance of 1m, containing a contribution made up of reflections from the façade itself.

**Fauna**

A collective term for animal life of any particular region.

**Fill**

Material used for raising the level of the ground.

**Flora**

Plant life occurring in an area.

**Free-field**

Noise measurements made away from reflecting surfaces (apart from the ground) are termed free-field measurements. Measurements at the façade of the building are typically 3 dB higher, due to reflection from the façade. All data in this report are free-field.

**Gas Turbine**

A turbine which generates electricity through the process of burning natural gas and using the generated hot gases to turn the turbine blades generating mechanical energy which is converted to electrical energy in an electrical generator.

**Generation Adequacy**

The ability of all the generation units connected to the electrical power system to meet the total demand imposed on them at all times. Greenhouse Gas A gas in Earth's atmosphere that traps heat and can contribute to global warming. Carbon dioxide and nitrous dioxide are two of the most important.

**Glass eel**

Post larval stage of an eel's lifecycle.

**Greenhouse Gas**

A gas in Earth's atmosphere that traps heat and can contribute to global warming.



### **Groundwater**

Water located beneath the ground surface.

### **Habitat**

The dwelling place of a species or a community which provides a particular set of environmental conditions.

### **Hardstanding**

A paved or stabilised area where vehicles are parked.

### **Heat Recovery Steam Generator**

The CCGT unit will utilise a heat recovery steam generator (HRSG) to recover heat from the hot gases steam produced by a gas turbine. The heat is used to generate steam which will drive the steam turbine to generate further electricity.

### **Interconnector**

The tie line, facilities and equipment that connect the electricity transmission system of one independently supplied transmission network to that of another.

### **Infauna**

Animals that live within the sediment of the seabed.

### **LA90**

The noise level exceeded for 90% of the time. It is generally taken as being representative of the steady background noise at a location. It tends to exclude short events such as cars passing, dogs barking, aircraft flyovers, etc

### **LA10**

The noise level exceeded for 10% of the time. It is a measure of the higher noise levels present in the ambient noise. The LA10 parameter is generally used to describe traffic noise.

### **LAE**

Sound exposure level. It represents the total integrated energy in a sound event.

### **LAeq**

Equivalent sound pressure level.

### **LAr,T**

Equivalent to LAeq,T below with the addition of a penalty for tonal and impulsive elements in the noise spectrum. Used as a measurement for noise levels during the nighttime.

**LAeq,T**

The equivalent continuous A-weighted sound pressure level having the same energy as a fluctuating sound over a specified time period T. Used as a measurement for noise levels during the nighttime.

**LAFmax**

Maximum sound level.

**Landscape Character Area**

Area of landscape as defined in the development plans.

**Licence to Generate**

A licence required of all electricity generators by the Electricity Regulation Act, 1999, issued by the Commission for Energy Regulation (CER).

**Limit Value**

Highest acceptable concentrations of a substance.

**LWA**

The total sound power emitted by a source (in dB re 1 pW)

**Made Ground**

An area of land which has been modified by man.

**Methodology**

An organised, documented set of procedures.

**Mid Merit**

A generic term used to describe generators which typically operate during the day and evening, and are off at night, or for longer periods at weekends. A 'Mid Merit' plant will have an annual load factor in the range of 20% - 70%.

**Mitigation Measures**

To mitigate means to ease or soothe the effect of. Mitigation measures suggest ways to avoid or lessen the negative effects of a project on the environment.

**Open Cycle Gas Turbine (OCGT)**

A power plant that uses one thermal cycle for producing electricity. The single cycle burns a fuel inside a gas turbine, and the gas turbine drives an electric generator.

## **Pollution**

The direct or indirect alteration of the physical, chemical, thermal, biological, or radioactive properties of any part of the environment in such a way as to create a hazard or potential hazard to the health, safety or welfare of living species.

## **Renewables**

Relating to or being a commodity or resource, such as solar energy, that is inexhaustible or replaceable by new growth.

## **Renewable Energy**

A generic term which describes an energy source which can be deemed to be sustainable and/or replaceable within a timeframe of human lifecycles. The term covers sources such as wind, wave, tidal, biomass, hydroelectric, geo-thermal and solar energy.

## **Residual Noise Level**

The component of the total noise that exists in the absence of the specific noise.

## **Road Capacity**

The ability of a road to accommodate traffic. It is expressed in passenger car units per hour.

## **Road Network**

Description (often in diagrammatic form) of a system of roadways.

## **Run-off**

The gravity-flow of water in open channels.

## **Secondary Fuel Obligation**

A condition of a generator's Licence to Generate, issued by the Commission for Energy Regulation, (CER) which requires certain generators to maintain a minimum quantity of their primary, or an alternative fuel, on their site, to mitigate the effects of a significant interruption of gas supply to the country on the electricity system.

## **Specific Noise Level**

A component of the ambient noise level that can be attributed to a specific source, e.g. industrial source.

## **Steam Turbine**

A turbine which generates electricity by using hot steam to turn the turbine blades generating mechanical energy which is converted to electrical energy in an electrical generator.

### **Substrate**

"Supporting surface" on which an organism grows. The substrate may simply provide structural support, or may provide water and nutrients. A substrate may be inorganic, such as rock or soil, or it may be organic, such as wood.

### **Thermodynamic Cycle**

A thermodynamic cycle is a representation of a continuous process by which thermal energy is converted to mechanical energy. Such a cycle requires the addition of thermal energy to a working fluid at a high temperature and pressure, the generation of mechanical energy through the expansion of the high pressure fluid, and the rejection of heat from the low pressure fluid to a heat sink.

### **Toponyms**

Place names.

### **Total Noise Level**

The total noise level due to all noise sources (also called ambient noise).

### **Transformer**

An item of equipment connecting connection points at different nominal voltages.

### **Transitional Waters**

Bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows.

### **Transmission Losses**

A collective term for the loss of electrical energy through the transmission and distribution electricity networks from the point of generation to the point of consumption. These losses occur due to inherent small levels of resistance in all electrical circuits which convert electrical energy into heat.

### **Wind Penetration**

A term referencing the relative quantity of electricity generated by wind turbine generators.

### **Zone of Theoretical Visibility**

Geographic area from which views of all or a part of the proposals will be gained. The ZTV is calculated based on bare ground and therefore does not take into account the screening afforded by vegetation, buildings and minor cuttings.