

NON-TECHNICAL SUMMARY

Introduction

Bord Gáis Éireann (BGE) proposes to construct a gas-fired electricity generating station, the Whitegate Independent Power Plant, adjacent to the ConocoPhillips oil refinery at Whitegate, County Cork. The power station will have an electrical generation capacity of 440 megawatts.

BGE was founded in 1976, and is a commercial State body operating in the energy industry. It entered the electricity-supply market in 2001. It currently supplies electricity to over 2,500 commercial customers. To develop this market, BGE intends developing power generation capacity, to meet the growing demand.

The development will consist of a combined-cycle gas turbine power plant, an electrical switch yard, an air-cooled condenser, an above-ground gas installation, administrative and support buildings, and an access road.

The plant will be fuelled with natural gas. A small proportion of refinery off-gas (produced in the neighbouring refinery) will also be used. In accordance with regulatory requirements, the plant will be designed to operate on low sulphur distillate oil (supplied direct from the refinery).

The electricity generated will be transmitted from the electrical switch yard via an underground cable to the 220 kilovolt network, at a location to be directed by ESB Eirgrid as part of their connection offer process.

The development will involve an investment of up to €300 million, and is expected to be operational in 2009.

Environmental Impact Statement

The Environmental Impact Statement (EIS) has been prepared to provide information on the possible environmental impacts of the proposed power plant and to propose mitigation measures to reduce the residual impacts of the facility. The EIS will be submitted with the planning application for the proposed development. This EIS has been prepared in accordance with the relevant provisions set out in the Planning and Development Regulations 2001. Due regard has also been given to guidelines and advice notes for the preparation of environmental impact statements published by the Environmental Protection Agency.

Need for the Scheme

In its generation adequacy report for 2006-2012 ESB/ Eirgrid identified a need for additional power generation capacity in Ireland before the end of 2009. This conclusion (December 2005) also noted that additional capacity provision before 2009 would be prudent and was conditional upon existing generating capacity remaining in place in the interim.

Since the generation capacity report was issued, ESB announced the closure of its Tarbert generating facility (expected to close in 2010), with the loss of over 600 megawatts of generated electricity from the system. This will exacerbate the capacity limitations, and increase the need for power generation developments such as the proposed development.

The proposed development addresses two key concerns in the Irish electricity market – security of supply and price competition. The addition of 440 megawatts of conventional power generation capacity in the Cork area by winter 2009 will address the concerns raised in the 2006-2012 generation adequacy report, and will safeguard security of supply for the south west region and the wider Irish system. The development of an Independent Power Plant by BGE will ensure that BGE Energy Supply can continue to compete in the electricity retail sector and offer a viable alternative supply to Irish electricity customers.

Alternatives Considered

BGE sought a suitable power plant location in the Cork area in the light of the technical information available from ESB/ Eirgrid the electrical Transmission System Operator. BGE viewed the Whitegate refinery as the optimal site, situated in an existing industrial zoned area, located in close proximity to both the gas and electricity grids, and with ready access to refinery supply of a secondary fuel supply (distillate oil). Locating adjacent to the refinery also presented opportunities to enhance the overall environmental impact of the development, through the use of refinery off gas, and the provision of high energy efficient process steam to the refinery.

There are many alternative methods of generating electricity. Fuel options include coal, oil or gas, and also wind turbines. Alternative technologies include combined cycle gas turbine, conventional steam turbine, combined heat and power, open cycle gas turbine, and wind turbines. In order to sustain an ongoing involvement in the electricity market and to address security of supply issues a source of continuous conventional power generation was required, based on efficiency, environmental reliability and cost-effective criteria for this development, a combined cycle gas turbine configuration was identified as the optimal solution.

Site and Scheme Description

The site is located to the southwest of the ConocoPhillips oil refinery at Whitegate, County Cork. Some of the site is currently in agricultural use, some has been used in the past for disposal of debris and soil, and some is unused. The Glenagow stream crosses the site, flowing in a south westerly direction. The site area is approximately ten hectares. Refer to **Figures NTS1** and **NTS2**.

Neighbouring land uses include the oil refinery, a Calor gas depot, two individual residences, agricultural activities, and the Fort Davis fortifications to the west.

The development will consist of electricity generation plant, air cooled condenser, ancillary office and support buildings, an electricity switchyard, a gas installation, and an access road. The main exhaust stack from the plant is 60 metres in height, which will be lower than the highest existing refinery stack. The site will be landscaped in accordance with a comprehensive landscape scheme.

There is sufficient room on the site for a second 440 megawatt plant in the future. This would be subject to separate planning approval and developed on a separate commercial and security-of-supply basis.

Planning and Policy Context

Both national and local development policy support the appropriate development of energy infrastructure. In particular, the Cork County Development Plan 2003 indicates that the site is suitable for industrial development. The site is also part of designated scenic landscape, but in relation to this, the Plan notes that there is still ‘. . . a presumption in favour of development for the specific land use.’

Landscape and Visual Impact

The proposed development was assessed with regard to its visual impact, the extent to which it will be seen, and its impact on the existing landscape character. Refer to **Figures NTS3**, **NTS4** and **NTS5**.

The existing landscape character of the site is defined by the existing refinery; therefore there will be no significant alteration to the landscape. The existing site is currently in a slight depression and is not visible from any of the surrounding landscape. Therefore the impacts associated with the development will be associated with the upper levels of the buildings and the chimney stack. The top elevation of the new stack will be below the level of the highest stack in the existing refinery. There will be no impact from the roads, fences, vehicles, site services and other associated elements of the proposals at ground level.

From long distance viewpoints, i.e. Cobh, Monkstown and Ringaskiddy there will only be a slight visual impact as the proposed development will be at a distance, and partially screened by the existing refinery in the foreground.

From medium distance views at Currabinny and Weavers Point there will be moderate visual impact as the proposed development will be visible on the skyline and the existing refinery works are to the north of the proposed site and will have a cumulative impact. However the development will only affect a small proportion of the overall view and not interrupt or screen any existing views.

From close viewpoints the impact will vary. From Whitegate the impacts will be as a result of the increased massing of industrial development, the extent of the increase will be partially screened by the existing refinery and will therefore only result in slight negative visual impacts. From Roches Point, the top of the chimney will intrude into otherwise natural views, however the scale of the chimney on the skyline will be minor causing slight negative impact. Occasionally, a plume may be visible for short periods of time above the chimney. This will only occur at start-up and shutdown, events which are envisaged to be very infrequent.

Two residences immediately adjacent the site will have direct views of the site; these are limited only by existing mature hedgerows. Landscape mitigation is required to reduce the substantial visual impacts likely to be experienced by these properties.

The landscape mitigation in the form of boundary planting will consist of woodland belts of between 7.5 metres and 10 metres wide and made up of largely evergreen coniferous trees, mainly pines, holm oaks and a lesser proportion of hedgerow shrubs such as hawthorn and elder. The trees will be planted young and will over a period of 5-10 years achieve heights of up to 10 metres, with expected heights of 15 to 20 metres at full maturity, they will help reduce the impact of the massing of the existing refinery and the proposed power plant when viewed from the north. A wider belt of woodland is proposed for the north west corner of the site that will largely screen all views of the site, other than the tallest elements of the buildings and chimney, from the adjacent residences.

Roads and Traffic

A traffic impact assessment was carried out, to quantify the effects of construction vehicles on the local environment, and also the impacts on traffic during operation.

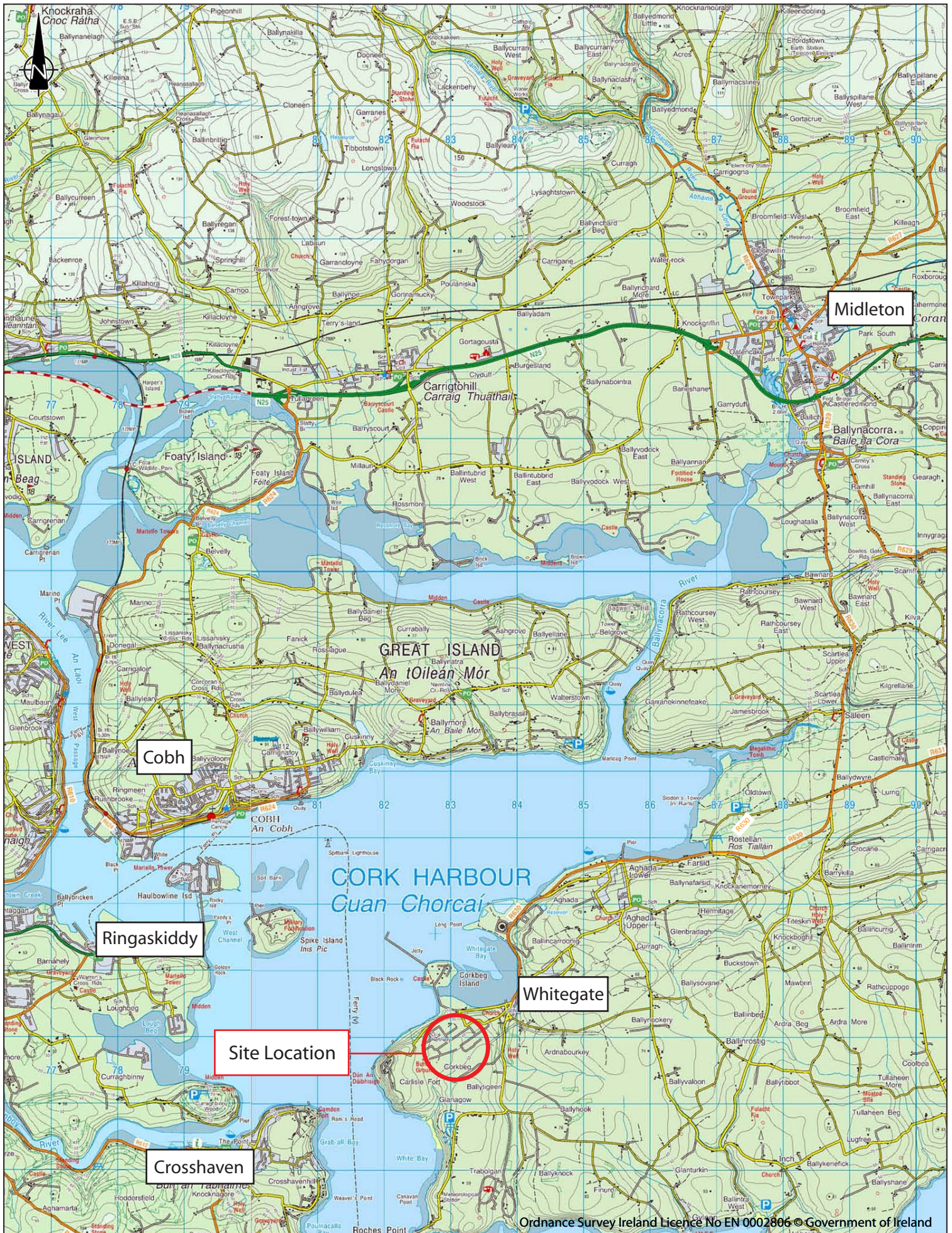
The total number of movements of heavy goods vehicles on and off the site will be approximately 4,000 over the full duration of the period of construction. For a 28-month construction period and construction restricted to week-days, the average number of daily heavy goods vehicle movements (trips in and out) will be 14.

Even with the doubling of this volume to allow for peak construction period, this represents a total of 28 truck movements each day, 14 to the site and 14 from the site. This represents 7% (28/396) of the existing heavy goods vehicles traffic volumes on the R630 south of Aghada Generating Station. However, for most of the construction period, the number of truck movements per day will be considerably less than the maximum assessed above.

Peak numbers employed during construction will be 300. Assuming, conservatively, that all these workers drive, this would result in 300 additional car movements to and from the site. This represents 28% of two way car traffic on the R630.

The figures used above are average values. Traffic generated by the construction activities will vary depending on the construction stage. Construction impacts will be short term and peaks in activity will be for short durations.

The traffic associated with the operation of the plant will arise from station personnel, maintenance personnel and servicing requirements. There will be very limited heavy goods vehicle movements associated with the power station, as it will be gas fired.



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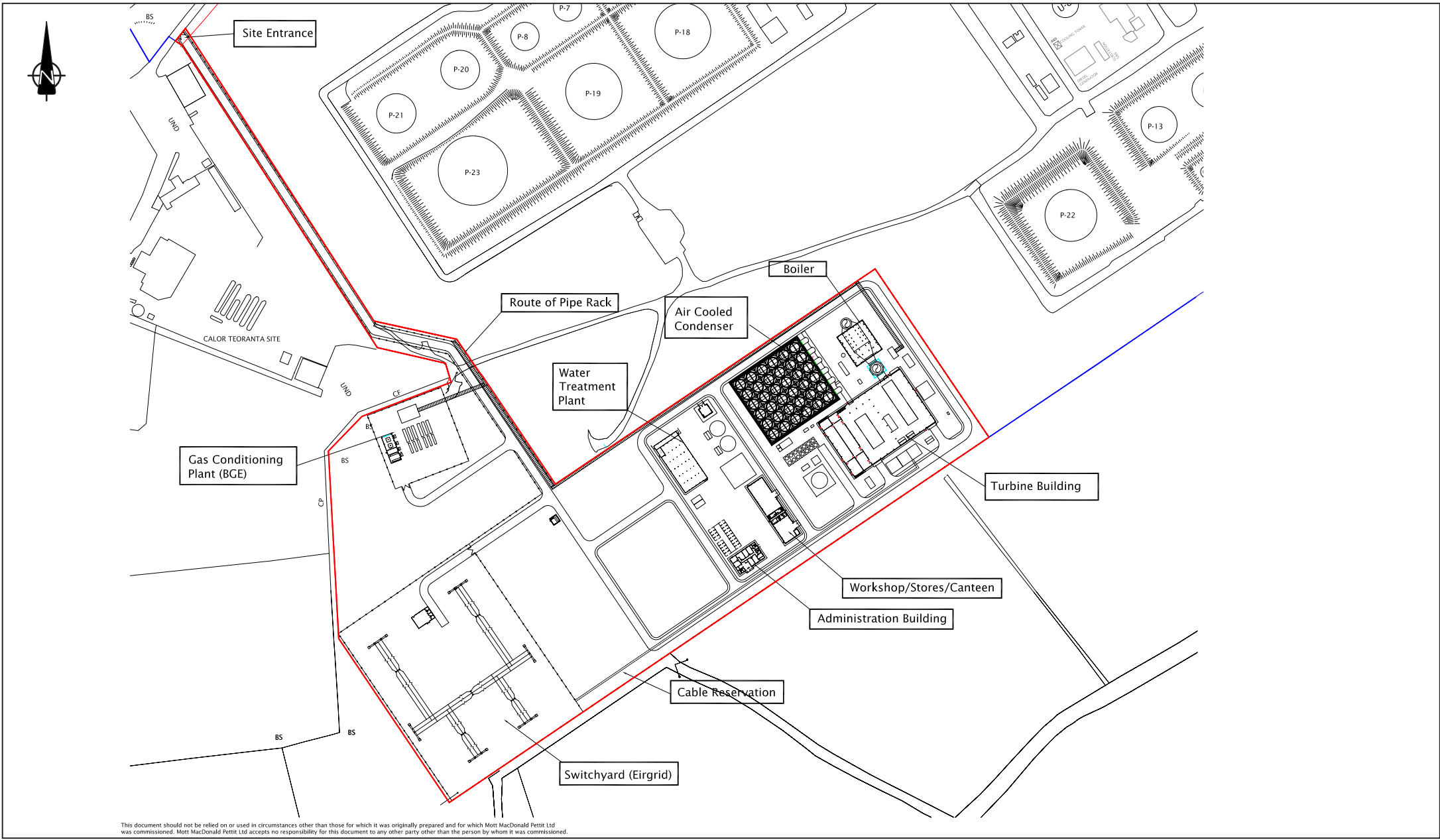


NOTE: Drawing is for diagrammatic purposes only. No measurements to be taken.

Site Location

Non Technical Summary - Whitegate IPP

C1662.40 | August 2006 | Figure NTS1



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Site Layout - Proposed

Non Technical Summary - Whitegate IPP

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Figure NTS2



Note: This graphic is for diagrammatic purposes. No measurements to be taken.

ARUP

Landscape Plan

Non Technical Summary - Whitegate IPP

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Figure NTS3



As Existing



As Proposed



Note: This graphic is for diagrammatic purposes. No measurements to be taken.



As Existing



As Proposed



Note: This graphic is for diagrammatic purposes. No measurements to be taken.

Operator numbers are estimated at 34 operating over three shifts – 20 by day and two different night shifts with 7 operators on each shift. Again assuming that all 34 operators drive to work (a conservative estimate) this would represent 2% of two way car traffic on the R630.

Short-term effects will arise during the 28 month construction period, but the effects thereafter will be minimal. In general, the increase in traffic during the operational phase will be imperceptible in comparison with existing traffic in the general area.

As part of the public consultation with local residents, BGE has committed to addressing any local sensitivities before finalising a comprehensive road traffic management plan, and will work with ConocoPhillips in observing best practice protocol for heavy goods traffic in the local area.

Construction Activities

It is anticipated that the construction works will take 28 months, commencing in September 2007, and commencing commercial operation in the last quarter of 2009.

It is likely that the construction workforce will be up to 300 people. Temporary office accommodation and other construction facilities will be provided within the site, local to the construction work. The construction site will be separated from the normal ongoing operations on the adjoining ConocoPhillips refinery by fencing.

Where possible, normal construction working hours will be observed. It is envisaged that these will be 08.00 – 20.00 Monday to Friday, and 08.00 – 16.00 on Saturday. However, it will be necessary to work at night and weekends at certain stages. Working outside normal hours may be required because of safety, weather or sub-contractor availability issues. Noisy construction activities will be avoided outside normal hours, and the amount of work outside normal hours will be strictly controlled.

To provide an appropriate level site for the development, there will be a requirement to bring soil and stone fill onto the site. The amount of this material required will depend on the quality of excavated material generated on the site. It is intended that as much existing soil as possible be reused on the site, to minimise the quantity of extra fill required.

It is anticipated that with proper construction management, there will be no long-term significant negative residual impacts arising from the construction of this development.

Noise and Vibration

ConocoPhillips carries out regular environmental noise surveys in the vicinity of the proposed development. The noise and vibration assessment considered these data, in conjunction with additional measurements taken in July 2006.

Noise emissions from the development will be restricted to the limits recommended by the Environmental Protection Agency in their guidance notes for licensable activities. These limits are set at levels which minimise annoyance and disturbance to people at work, during leisure activities, and disturbance to sleep.

The limits recommended are $L_{A_{rT}}$ of 55dB(A) by daytime, and an $L_{A_{eqT}}$ value of 45db(A) at night.

The projected additional noise levels are in the range 29 to 35 dB(A). These additional noise levels would not result in an exceedence of the EPA night time noise limit of 45 dB(A), and would not compromise any future noise control plans at the refinery.

The additional power plant noise at the noise sensitive locations would in all cases be below the existing steady background noise at night time. Under these conditions it will be inaudible at all locations. The noise impact relative to background noise during the daytime period would be lower, and consequently negligible.

The principal mitigation measures required for the development concern selection of equipment, noise screening, sound containment, acoustic louvres and attenuators, to achieve the required design emission limits.

Air Quality and Climate

The likely impact of the proposed development on air quality and climate has been assessed by modelling the air emissions and dispersion from the plant. Worst case scenarios in relation to weather conditions, use of oil as a combustion fuel, and operation on a non-stop basis were considered.

All impacts assessed from the worst case oil firing scenario are classified as either not significant or imperceptible. This indicates that normal operating conditions firing on natural gas (with up to 2% refinery off gas,) when emissions will be lower than oil firing, will result in lower emissions and therefore lower potential impacts.

The development will be required to have a Greenhouse Gas Emissions Permit, as part of Ireland's commitment to control the generation of greenhouse gases. The operation of the plant will not have a significant effect on the global climate, or local climate.

Flora and Fauna

An ecological impact assessment of the proposed development found that there will be no significant negative impact. The site is not subject to any environmental designation, and is not a particularly important habitat. The Glenagow stream will be diverted within the site, and will be culverted for portions of its length (typically where roads pass over it). The use of native plant species in the landscape design is recommended, to enhance the ecological value of the local area.

Soils, Geology, Surface Water and Groundwater

The bedrock under the site is expected to be sandstone and siltstone. The soils are clay, silt and gravel.

The Glenagow stream crosses the site on a south westerly course, and the centre of the site tends to be waterlogged in wet weather. There are also two drainage ditches in the western part of the site.

Groundwater flows are similar in direction to the surface water flows, that is, broadly south westerly across the site. In the centre of the site, groundwater was recorded as being between one and two metres below ground level in November 2005.

Some areas adjacent to the site have been used in the past for waste disposal. These are subject to a comprehensive programme of containment and remediation, in consultation with the Environmental Protection Agency.

During construction work, topsoil will be stripped and later reused, the site will be re-graded, and excavation for underground works such as foundations will be carried out. During operation, the plant will generate effluent arising from the boiler, water treatment, and other process activities. There will also be sanitary effluent, which will be treated on-site.

The employment of good construction management practices will serve to minimise the risk of pollution of soils, groundwater or surface water during construction.

The process effluent and treated sanitary effluent will be discharged to Cork Harbour, and will have no significant impact on designated sites within the Harbour.

Rainwater will be gathered on the site, and will discharge to the stream, via petrol and grit interceptors. This will lead to increases in stream flow during and immediately after rainy periods.

Archaeology, Architectural and Cultural Heritage

There are no recorded archaeological sites within the area of the proposed development. No features of archaeological interest were observed in field assessment of the site. However, an area of archaeological potential was identified in the zone close to the Glenagow Stream.

It is recommended that a programme of archaeological testing be undertaken, focusing on the parts of the site considered to be of archaeological potential. This testing will be carried out prior to construction, and any archaeological features or deposits identified will be preserved *in situ*, or preserved by record. Archaeological excavation will be subject to licence, and carried out in consultation with the National Monuments Section of the Department of the Environment, Heritage and Local Government and the National Museum of Ireland.

Material Assets

The plant will require supplies of gas and water to operate. It will export electricity to the 220 kilovolt grid, and will provide steam to the ConocoPhillips refinery. A new gas pipeline will be constructed to supply gas. Water will be obtained from the Cork County Council main supply, and arrangements are being made between BGE and the Council to ensure this supply will be in place prior to commissioning of the plant.

In its grid connection application to ESB Eirgrid, BGE has stated a preference for and consent to provide for underground cabling from the development to a suitable grid connection location. The connection from the proposed development to the electricity transmission network will be subject to analysis by Eirgrid during the normal course of the application process, and will require ESB to acquire the necessary planning consents before construction.

Some of the excavated material, which includes quantities of waste, will not be suitable for reuse on the site. It is likely that this will be disposed-of in a licensed landfill.

The fill material required to create a suitably level site will be sourced locally, where feasible. There are a number of suitable quarries in the vicinity of the site which could be used.

The construction of the power, water and gas supplies to the site will be subject to separate consent procedures.

Human Beings

Employment will be provided for up to 300 workers during the construction phase. There will also be associated secondary employment and economic activity associated with the supply of construction materials and services to the site. The construction of the proposed development will involve a capital investment of up to €300 million.

The proposed development will lead to the creation of approximately 34 full-time jobs. This will have a positive effect on levels of employment in the area. The operation of the plant will also generate employment in support and subcontracted services, and will boost demand for retail and leisure services in the Whitegate area.

The increased traffic generated during the construction phase is likely to be inconvenient for residents living close to the development. However, this is a short-term impact, and the traffic generated during the operational lifetime of the development will not be significant.

The residual impact of the proposed development on human beings will be positive from an overall economic and local employment perspective.

Sustainability

The Planning and Development Act 2000 requires that development must be consistent with ‘proper planning and sustainable development.’

The power plant has been evaluated with reference to the three themes of sustainable development – environment, economy and society. The project meets the sustainability requirement.

The impact on the environment from the development will be minimised through control of emissions, optimisation of energy and water consumption, use of an existing industrial site, and minimisation of waste. The landscape plan proposed for the site will include planting native species.

The economic impact of the development will be positive. The development will help to secure power capacity in Ireland into the future. Economic benefit will also arise from the creation of up to 300 construction-phase jobs, and 34 permanent jobs in the operational phase. It is expected that jobs will also be generated in the wider economy, through the use of service providers and subcontracted activities.

The impact of the development on society will also be positive. The provision of local employment will help secure the continuation of a vibrant Whitegate community, and will make it an increasingly attractive location to live and work.

Other Impact Headings, Cumulative Impacts and Interactions

The main interactions between the recorded environmental effects are assessed within the individual chapters of the EIS. For example, the recommendation to include native plant species in the landscaping plan has an effect on the visual impact of the scheme. Selecting finished site levels for the development has visual impacts, and also affects the volume of fill material required to raise the level of the lower parts of the site. This in turn will have an effect on the local stock of this material, and the traffic impacts of transporting it to site.

Potential cumulative impacts are also addressed appropriately in the individual chapters of the EIS. The air emissions, for example, have been assessed taking account of the emissions from neighbouring activities, such as the refinery, and the ESB Aghada power station.

Summary

It is BGE’s intention to reduce the adverse effects of the project on the environment to a practical minimum. Where unavoidable environmental effects have been identified during the environmental impact assessment process, measures have been proposed to mitigate these effects as much as reasonably possible. Key mitigation measures include:

- Selection of appropriate colours for the plant and building, to minimise negative visual impacts
- Provision of landscape planting to help the plant visually blend with its surroundings
- Minimising the volume of fill material required to level the site, by selecting three appropriate site levels
- Selection of a clean fuel (natural gas), and an efficient method of generation (combined cycle gas turbine)
- Selection of native plant species for the landscape planting
- Control of construction phase run-off
- Treatment of effluent to ensure that discharges comply with relevant water quality standards
- Implementation of archaeological testing, to ensure that any undiscovered artefacts are dealt with in accordance with best practice

These will be adopted, as appropriate, throughout the construction and operation of the development.

Viewing and Purchasing the Environmental Impact Statement

The full Environmental Impact Statement, of which this is a non-technical summary, can be viewed and purchased at the offices of the Planning Department, Cork County Council, County Hall, Cork.