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| <b>Document Control</b>       | <b>Author/Reviewer</b>                                     | <b>Date</b>                        |
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| <b>Reviewed by</b>            | Paul Fingleton/Conor Skehan                                | 06 January 2023                    |
| <b>Status of this version</b> | Final                                                      |                                    |

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# List of Appendices

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- Appendix 6.1 Natura 2000 Sites, Natural Heritage Areas and proposed Natural Heritage Areas within 15km of the proposed development site
- Appendix 6.2 National Biodiversity Centre records
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### **Chapter 7 Land, Soils, Geology & Hydrogeology**

- Appendix 7.1 NRA criteria for rating the magnitude and significance of impacts at EIA stage  
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- Appendix 7.2 Site investigation report logs
- Appendix 7.3 Soil quality tables
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### **Chapter 8 Water & Hydrology**

- Appendix 8 Hydrology impact rating and assessment criteria

### **Chapter 9 Air Quality & Climate**

- Appendix 9.1 Description of the AERMOD model
- Appendix 9.2 AERMET
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- Appendix 9.4 Sensitivity analysis
- Appendix 9.5 Plume modelling report

### **Chapter 10 Noise & Vibration**

- Appendix 10.1 Glossary of acoustic terminology
- Appendix 10.2 Noise modelling details & assumptions
- Appendix 10.3 Noise model parameters

### **Chapter 11 Landscape & Visual Impact**

- Appendix 11 Photomontage Pack

### **Chapter 13 Traffic & Transportation**

- Appendix 13.1 Construction programme
- Appendix 13.2 PICADY output report

### **Chapter 14 Waste Management**

- Appendix 14 Resource Waste Management Plan

## **Volume 2**

### **Chapter 17 Interactions and Cumulative Effects**

- Appendix 17.1 List of key other projects considered for assessment of cumulative effects
- Appendix 17.2 Environmental Report for (GIS) Substation and Underground Transmission Line Connection

# 1 INTRODUCTION

## 1.1 INTRODUCTION AND TERMS OF REFERENCE

### 1.1.1 GENERAL

Environmental Impact Services has been commissioned by Kilshane Energy Ltd, (hereafter referred to as Kilshane Energy) to prepare an Environmental Impact Assessment Report (EIAR) for a proposed development of Gas Turbine Power Generation Station at Kilshane Road, Kilshane, Finglas, Dublin 11.

Kilshane Energy Ltd. is a new entrant to the Irish Energy Market. Kilshane Energy Ltd. provides Fast Start Peaking Plants to support Ireland's National transition to sustainable renewable energy sources in line with the targets set for 2030 and beyond.

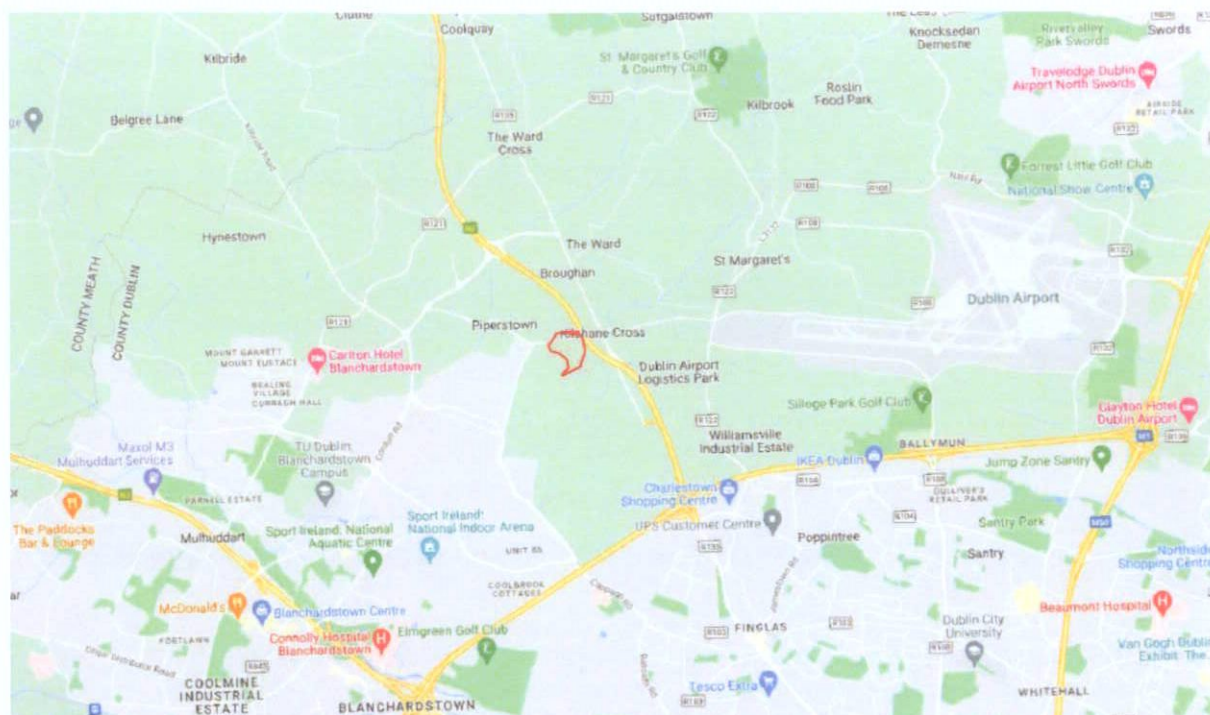
The site is 13.56 ha in area, located at Kilshane, Dublin 11, just west of the N2 Primary Road as shown in Figure 1.1 and approximately 2 km north-west of the M50 Motorway.

The proposed development provides for a Fast Start Peaking Gas Turbine Power Generation Station with a with a maximum of 293 MW output and all necessary components and infrastructure to facilitate the development and further contribute to the area. The overall development is considered to be in compliance with its HI – *Heavy Industry* land use zoning, an objective of which is to accommodate for Utility Installations.

The proposal consists of all necessary components to operate the Gas Turbine Power Generation Station. There is a variety in height, scale and massing of buildings and components throughout the subject site. The highest components on site include the Exhaust Stack (c. 28m high), Fuel Oil Tank (c. 16.2m high), Raw and Fire Fighting Water Tank (c. 15.3m high) and a Demin Water Tank (c. 18.3m high).

The proposed development is designed to be a Fast Start Peaking Power Plant, balancing fluctuating electricity demand in the grid by operating in times of high electricity demand or electricity supply shortages. The balancing power generated by the proposed development will be crucial for avoidance of power outages and for ensuring security of electricity supply when renewable power generation capacity is limited.

Chapter 4 of this EIAR *Project Description* and the Planning Report which also accompanies the planning application contain further details of the proposal.



**Figure 1.1 Site location<sup>1</sup>**

### 1.1.2 OBJECTIVES OF THIS EIAR

The core objectives of this EIAR are to predict any significant environmental impacts that are likely to occur due to the proposed development and, where applicable, propose measures to avoid, reduce or remedy them.

It reports on the findings of the EIA process to date and informs the Planning Authority, statutory consultees, other interested parties and the public in general about the likely effects of the project on the environment.

In doing this, the EIAR has been prepared in compliance with the EU Directive on EIA and the relevant domestic regulations. Chapter 2, *Screening & Scoping* provides details of the legislation that has been followed and the guidelines that have been taken into account. It also discusses the relationship between this EIAR and separate assessments prepared under other legislation.

### 1.1.3 REVISIONS TO THIS EIAR

The original version of this EIAR was submitted to the Planning Authority, Fingal County Council (FCC), in September 2022. In November, FCC issued a request for further information on the application which included a request to make various revisions to the EIAR. The detail of the request is set out in the response document provided separately by CWPA Planning & Architecture, along with responses to each item raised. The responses generally state where relevant information was contained in the original application. Where any additional information has been provided to assist the Planning Authority in the carrying out of their EIA of the proposed development, this is also stated.

<sup>1</sup> Approximate site boundary is outlined in red

## 1.2 FORMAT

This EIAR follows what is referred to as a grouped format structure. Using this structure, the EIAR examines each specialist environmental topic in a separate chapter. The chapters generally follow this format:

**Table 1.1 Typical structure of specialist chapters**

| Section                   | Notes                                                                                                                     |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Introduction/methodology  |                                                                                                                           |
| The proposed development  | including measures incorporated in the design to avoid, prevent or reduce environmental effects (design stage mitigation) |
| The receiving environment | the likely evolution of the environmental baseline in the absence of the proposed development                             |
| Predicted impacts         | focussing on impacts that are likely and significant                                                                      |
| Mitigation measures       | measures proposed as a result of the EIA process to reduce, remedy or offset predicted impacts, where required            |
| Residual impacts          | where relevant                                                                                                            |

Interactions between issues that arise in separate chapters are assessed as they occur in each chapter. Cumulative effects are similarly assessed as appropriate in the relevant chapters. The final chapter, *Interactions & Cumulative Effects*, shows where these interactions and cumulative effects have been identified and how they have been addressed.

Separate reports prepared in accordance with other (non-EIA) requirements include:

- Appropriate Assessment (AA) Screening Report
- Traffic Impact Assessment (TIA) Report
- Preliminary Construction Environmental Management Plan (PCEMP)
- Engineering Assessment Report
- Planning Application Report

In response to the request for further information (in November), revisions have been made to some of these documents and further documents have also been prepared where requested, including:

- An Emergency Response Plan (including Standard Operation Procedures)
- Landscape architect's response document (including Green Infrastructure Plan)
- Arboricultural Impact Statement

Some of these reports are also relevant in the consideration of the prescribed EIA topics and these are referred to in the EIAR as and where appropriate. For example, the Water & Hydrology chapter refers to the Engineering Assessment Report and the Emergency Response Plan, the Traffic & Transportation chapter refers to the TIA Report, the Biodiversity chapter refers to the AA Screening report and to the Landscape architect's response document and the PCEMP is referred to in the Project Description and in most of the specialist chapters of the EIAR.

## 1.3 STUDY TEAM

**Table 1.2 Study team for EIAR**

| Role                                                                                                                     | Personnel <sup>2</sup> | Company                          |                                          |
|--------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------|------------------------------------------|
| Study Manager                                                                                                            | Paul Fingleton         | Environmental Impact Services    |                                          |
| Study Coordinator                                                                                                        | Andrew Reynolds        | Environmental Impact Services    |                                          |
| <b>Specialist Topics<br/>(Chapter 2 <i>Screening &amp; Scoping</i> sets out the basis for selection of these topics)</b> |                        |                                  |                                          |
| Chapter                                                                                                                  | Part(s)                | Personnel                        | Company                                  |
| Population & Human Health                                                                                                | Main Author(s)         | Joe Corr & Mark Whelan           | CWPA                                     |
| Biodiversity                                                                                                             | Main Author(s)         | Karen Dylan Shevlin              | Environmental Impact Services            |
| Land, Soils, Geology & Hydrogeology                                                                                      | Main Author(s)         | Marcello Allende                 | AWN Consulting                           |
| Water & Hydrology                                                                                                        | Main Author(s)         | Marcello Allende                 | AWN Consulting                           |
| Air Quality & Climate                                                                                                    | Main Author(s)         | Dr. Jovanna Arndt                | AWN Consulting                           |
| Noise and Vibration                                                                                                      | Main Author(s)         | Mike Simms                       | AWN Consulting                           |
| Landscape & Visual Impact                                                                                                | Main Author(s)         | Conor Skehan                     | Environmental Impact Services            |
|                                                                                                                          | Photomontages          | John Healy                       | Digital Dimensions                       |
| Material Assets                                                                                                          | Main Author(s)         | Paul Fingleton & Andrew Reynolds | Environmental Impact Services            |
| Traffic & Transportation                                                                                                 | Main Author(s)         | Luke Byrne                       | Waterman Moylan Engineering Consultants  |
| Waste Management                                                                                                         | Main Author(s)         | Chonail Bradley                  | AWN Consulting                           |
| Archaeology & Cultural Heritage                                                                                          | Main Author(s)         | Donald Murphy                    | Archaeological Consultancy Services Unit |
| Accident & Disaster Risks                                                                                                | Main Author(s)         | Paul Fingleton & Andrew Reynolds | Environmental Impact Services            |
| Interactions & Cumulative Effects                                                                                        | Main Author(s)         | Paul Fingleton & Andrew Reynolds | Environmental Impact Services            |

<sup>2</sup> The personnel named for each chapter / environmental factor have been the lead assessors for their chapters. They have each been responsible for the whole chapter which they prepared. Where other personnel made significant contributions, these are generally as described within the EIAR (including the Appendices).

**Study Manager, Paul Fingleton** has an MSc in Rural and Regional Resources Planning (with specialisation in EIA), University of Aberdeen, 1990. Paul is a member of the International Association for Impact Assessment as well as the Institute of Environmental Management and Assessment. Paul has over twenty years' experience working in the area of Environmental Assessment. Paul has been involved in a diverse range of projects including contributions to, and co-ordination of, numerous complex EIARs, NISs and / or IPPCL Applications for projects.

**Study Coordinator - Andrew Reynolds** has a BSc in Environmental Planning and Management, Dublin Institute of Technology, 2015. Andrew has contributed to a number of complex Environmental Impact Statements, planning applications and environmental reports. He has over 5 years' experience working as part of team projects and in the preparation of EIA documents on behalf of multi-nationals and infrastructural providers for a diverse range of projects.

**Population & Human Health – Joe Corr** has 15 years' professional experience of town and spatial planning in Ireland, is a Corporate Member of the Irish Planning Institute and holds a MSc in Spatial Planning from TU Dublin.

**Population & Human Health – Mark Whelan** has 6 years' professional experience in planning in private consultancy in Ireland, he holds a MRUP – Masters in Regional & Urban Planning and is a Corporate Member of the Irish Planning Institute.

**Biodiversity - Karen Dylan Shevlin** is an ecologist with over 7 years' experience working in a variety of capacities in Ireland and as part of international research projects. Her experience ranges from academic research looking at trophic structures, multi-species interaction dynamics etc. to consultancy work undertaking and reviewing assessments for government agencies and private sector clients. Karen has undertaken stage 2 AAs and prepared NISs for a number of projects. As part of her work Karen has developed a strong set of field ecology skills, from complex habitat assessments to detailed invertebrate and mammal surveys. Karen has a wealth of experience gathering, interpreting and presenting complex data to ensure a clear understanding of the ecological integrity of sites is demonstrable. This work provides the backbone of the assessment process and is fundamental to successful project deliver. Karen has strong insights into ecological theory and the practical implication and impacts/effects to altering natural dynamics. These skills ensure that all of the baseline and detailed data gathered in the field is interpreted in a manner that is grounded in best scientific knowledge. This is a crucial element of ecological work that is often overlooked.

**Land, Soils, Geology & Hydrogeology & Water & Hydrology – Marcello Allende** is a Senior Environmental Consultant (Hydrologist) at AWN with over 15 years of experience in Environmental Consulting and water resources. Marcelo holds a degree in Water Resource Civil Engineering from the University of Chile. He has worked on a wide of range of projects including multi-aspect environmental investigations, geo-environmental impact assessments, groundwater resource management, hydrological and hydrogeological conceptual and numerical modelling, strategic and site specific flood risk assessments, Due Diligence reporting, baselines studies, soils, surface water and groundwater monitoring and field sampling programmes on a variety of brownfield and greenfield sites throughout Ireland as well as overseas in Chile, Argentina, Peru and Panama. He also has detailed knowledge of environmental guidance, legislation, regulations & standards and expertise in GIS (expert level) and MATTE studies at COMAH establishments. He is currently a member of the International Association of Hydrogeologists (Irish Group) and a member of Engineers Ireland (MIEI).

**Air Quality & Climate – Dr. Jovanna Arndt** is an Environmental Consultant in the Air Quality section of AWN Consulting. She holds a BSc (Hons) in Environmental Science from University College Cork and completed a PhD in Atmospheric Chemistry at University College Cork in 2016. She is a Member of the Institute of Air Quality Management and specialises in assessing transportation impacts and industrial emissions on air quality using dispersion modelling, source apportionment of particulate matter, and EIA. Jovanna has been involved in assessing air quality impacts from major Highways England road schemes, Clean Air Zones and major rail infrastructure in the form of HS2. She has also provided Air

**Noise & Vibration – Mike Simms** BE MEngSc MIOA MIET, Senior Acoustic Consultant at AWN, who has worked in the field of acoustics for 20 years and has been a consultant since 1998. He has extensive experience in all aspects of environmental surveying, noise modelling and impact assessment for various sectors including, energy, industrial, commercial and residential.

**Landscape and Visual Assessment – Conor Skehan** (BSc), (MLArch) Master of Landscape Architecture, University of Pennsylvania, 1983. Conor has been chartered by a number of professional Institutes including the International Association for Impact Assessment; the Irish Landscape Institute; the Royal Institute of the Architects of Ireland; and the Irish Planning Institute. He co-founded and served as President of the Irish Landscape Institute from 1993 to 1994. Environmental Impact Services is a Registered Assessor member of the Institute of Environmental Assessment (UK). Conor is an Architect, Landscape Architect, Strategic Planner, Impact Analyst, academic and writer. He has worked for over 30 years in many countries providing strategic and spatial planning and environmental consultancy to a wide range of government, public and private clients on assignments varying in scale from very large-scale infrastructural and industrial projects to large urban renewal and tourism projects. He has made significant contributions to a wide range of complex Environmental Impact Statements, planning applications and environmental reports for Industry (ICT, Bio-pharma), Infrastructure (road, rail, airport, port, power, energy waste, drainage and water supply), Institutions (hospital, prison projects) as well as major urban renewal and extension projects

**Photomontages – John Healy.** Digital Dimensions was established in 2000 by John Healy and Jim Manning. It is one of Ireland's leading architectural visualisation companies with 20+ years of experience covering a wide range of solutions in the areas of architectural visualisation, environmental design and digital media.

**Traffic & Transportation – Luke Byrne** has a MSc in Civil Engineering with Business and BSc in Structural Engineering with Architecture, University College Dublin, 2020. Luke is a member of Engineers Ireland. Luke has over two years' experience in Traffic Engineering including use of programme such as PICADY, ARCADY and TRANSYT. Luke has been involved a several diverse planning applications ranging from residential development, schools and places of employment.

**Waste Management – Chonail Bradley** BSc Environmental Science and is a Graduate Member of the Institute of Waste Management (GradCIWM). He is a Senior Environmental Consultant in AWN and has over 5 years' experience in environmental consultancy experience with 3+ years in waste management. He has helped coordinate and prepare multiple specialist inputs and EIAR chapters including the Waste Management Chapters, Operational and C&D Waste Management Plans for numerous EISs/EIARs.

**Archaeology & Cultural Heritage - Donald Murphy** MSC from University College Dublin has over 20 years' experience in professional archaeology having founded Archaeological Consultancy Services Unit. Having carried out some large-scale excavations between 1992 and 1997 for various clients including local authorities and state agencies, he then acted as archaeological advisor and consultant on some of the largest infrastructural projects between 1996 and 2009. Since 2009 he has focused on the publication of some of the major excavations and also acted as archaeological consultant on some Windfarm projects which were successfully seen through the process from inception to planning and construction. He continues to provide a full range of archaeological services through the firm originally founded in 1992 and which continues in operation today.



## 1.4 IMPACT PREDICTIONS

Rating of potential environmental impacts in the specialist chapters generally follows the Glossary of Impacts contained in the EPA Guidelines<sup>3</sup> as shown in Table 1.3 below. This takes account of the quality, significance, duration and type of impact characteristic identified.

**Table 1.3 Impact predictions<sup>1</sup>**

| Impact Characteristic | Term           | Description                                                                                                       |
|-----------------------|----------------|-------------------------------------------------------------------------------------------------------------------|
| Quality               | Positive       | A change which improves the quality of the environment                                                            |
|                       | Neutral        | A change which does not affect the quality of the environment                                                     |
|                       | Negative       | A change which reduces the quality of the environment                                                             |
| Significance          | Imperceptible  | An impact capable of measurement but without noticeable consequences                                              |
|                       | Slight         | An impact which causes noticeable changes in the character of the environment without affecting its sensitivities |
|                       | Moderate       | An impact that alters the character of the environment in a manner consistent with existing and emerging trends   |
|                       | Significant    | An impact, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment  |
|                       | Profound       | An impact which obliterates sensitive characteristics                                                             |
| Duration              | Short-term     | Impact lasting one to seven years                                                                                 |
|                       | Medium-term    | Impact lasting seven to fifteen years                                                                             |
|                       | Long-term      | Impact lasting fifteen to sixty years                                                                             |
|                       | Permanent      | Impact lasting over sixty years                                                                                   |
|                       | Temporary      | Impact lasting for one year or less                                                                               |
| Type                  | Cumulative     | The addition of many small impacts to create one larger, more significant impact                                  |
|                       | 'Do Nothing'   | The environment as it would be in the future should no development of any kind be carried out                     |
|                       | Indeterminable | When the full consequences of a change in the environment cannot be described                                     |
|                       | Irreversible   | When the character, distinctiveness, diversity, or reproductive capacity of an environment is permanently lost    |
|                       | Residual       | Degree of environmental change that will occur after the proposed mitigation measures have taken effect           |
|                       | Synergistic    | Where the resultant impact is of greater significance than the sum of its constituents                            |
|                       | 'Worst Case'   | The impacts arising from a development in the case where the mitigation measures may substantially fail           |

<sup>3</sup> Guidelines on the information to be contained in Environmental Impact Statements, EPA, 2022 (Section 3.7.3 *Descriptions of Effects*). The 1992 Environmental Protection Agency Act (Section 72) provides for the preparation by the Environmental Protection Agency of guidelines on the information to be contained in an Environmental Impact Assessment Report. The Act further provides that those preparing and evaluating Environmental Impact Statements shall have regard to such guidelines.

## 1.5 DIFFICULTIES ENCOUNTERED

The EIA Regulations require that difficulties such as technical deficiencies, lack of information or knowledge encountered in compiling any specified information for the EIAR be described. In general, there were no significant difficulties encountered in the production of this EIAR. Any issues encountered during assessment of individual factors are noted within the specialist chapters.

## 1.6 LEVEL OF DETAIL IN PROJECT DESCRIPTION

Some of the information provided in Chapter 4 *Project Description* will be subject to slight changes for these reasons:

- All descriptions of proposed developments are approximations compared to the finished development. The nature of the construction process limits the amount of detail that is available at this planning consent stage to documentation that may be described as 'General Arrangement Illustrations'.
- A Preliminary Construction Environmental Management Plan (PCEMP) is provided as a separate report. Some of the construction details will be a matter for the construction contractor(s) who will be engaged following a competitive tendering process. A more detailed description of the project's construction plan will be prepared prior to commencement of the works.
- The detail required for later more specific consents – such as an IED licence from the EPA – will be within the ranges and tolerances referred to herein or as otherwise agreed.

The project description details provided in Chapter 4 and in the specialist Chapters 5 to 16 are generally the outermost ('not to exceed') characteristics of the proposed development, that is maximum dimensions and emissions that could arise from the range of technologies and processes that could be employed. These are the characteristics that have potential to cause the biggest environmental effects. This facilitates an evaluation of 'worst case' environmental effects which is in keeping with the Guidelines and with best practice. Actual effects will not exceed the predicted effects.

## 1.7 A NOTE ON QUOTATIONS

By their nature, EIARs contain statements about the proposed development, some of which are positive, and some less than positive. Selective quotation or quotations out of context can give a misleading impression of the findings of the study. Therefore, the study team urge that quotations should, where reasonably possible, be taken from the conclusions of specialists' chapters or from the non-technical summary and not taken selectively or out of context.

## 2 SCREENING & SCOPING

### 2.1 LEGISLATION AND GUIDANCE

EIAs are carried out in response to the requirements of the European Directive on the assessment of the effects of certain public and private projects on the environment, particularly as codified in Directive 2011/92/EU and amended by Directive 2014/52/EU.

The enabling statutory instruments (S.I.s) which transpose the Directive into law in Ireland are the European Communities (Environmental Impact Assessment) Regulations, 1989, as updated by the Planning and Development Acts 2000 to 2006 (the EIA Regulations), with the key legislation being the Planning and Development Regulations 2001 (S.I. 600/2001), as amended. These regulations prescribe the classes of projects subject to Environmental Impact Assessment (EIA).

Amendments introduced by Directive 2014/52/EU were transposed into Irish planning law by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (SI 296/18). These set out the statutory format and content for an EIAR.

This EIAR has been prepared in accordance with the above and has due regard to other relevant regulations and guidance including *Guidelines on information to be contained in Environmental Impact Statements*, EPA, 2022, *Advice Notes on Current Practice in preparation of Environmental Impact Statements*, EPA, 2003 and relevant European Commission guidance documents<sup>2</sup>, as relevant.

### 2.2 SCREENING

The legislation<sup>4</sup> specifies classes of development and thresholds for determining which projects should be subject to EIA. Projects that fall into any of the specified classes or exceed the thresholds automatically require EIA. The legislation also sets out criteria for deciding whether 'sub-threshold' projects should be subject to EIA.

Part 1 of Schedule 5 to the Regulations include this project class:-

*2. (a) A thermal power station or other combustion installation with a heat output of 300 megawatts or more.*

The proposed development will involve the production of electricity through a gas turbine powered generation station with an output of 293 MW.

There will be heat output, mainly in the stack emissions. The heat output is unquantified. Because the proposal will generate a heat output, albeit unquantified, it corresponds to project type 2(a). Because it is not known if the heat output is above or below the 300 MW threshold, it is not clear if EIA is mandatory for it or not. If it is above 300 MW heat output it would be considered to correspond to the project class and EIA would be mandatory. If it is below 300 MW heat output then the project would be considered to correspond to the project type but be sub-threshold. Review against specified criteria set out in Schedule 7 of the Regulations would then need to be carried out to determine if EIA is required or not.

Questions regarding EIA screening were raised in a number of submissions and in the Fingal County Council Planners' Report on the previous application by Kilshane Energy for a Power Station on the

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<sup>4</sup> ref. s2.1

same site which was refused permission (FCC planning ref FW21A/0250). The grounds of the refusal included lack of information on environmental effects.

Given the nature and scale of the development, the fact that it falls into the prescribed type 2(a) and taking account of the planning history, the applicant, Kilshane Energy, has decided to prepare an EIAR to support this application.

## 2.3 SCOPING

### 2.3.1 BASIS OF SCOPING FOR THIS EIAR

Scoping is the process of identifying potential concerns that need to be examined in an EIAR. The determination of potential concerns to be addressed in this case was based on:

- the requirements of the EIA Regulations;
- the requirements of the EIA Directive;
- the Environmental Protection Agency's *Guidelines on the information to be contained in Environmental Impact Statements* (EPA, 2022) and *Advice Notes on Current Practice (in the preparation of EISs)* (EPA, 2003);
- the EIA team's experience of preparing and submitting previous EIARs.

The scoping process included circulation of a pre-planning cover letter setting out the topics to be addressed in this EIAR to and discussion same with the Planning Authority.

### 2.3.2 RELATED PROJECTS

The realignment of the Kilshane Road, while not a core part of the power station development, is included within the same planning application. It is thus part of the subject development and its environmental effects form part of the scope of this EIAR.

There are two closely related projects that are not part of the subject proposal but are integral to its operation. These are an Above Ground Installation (AGI) gas supply project and a Gas Insulated Switchgear (GIS) project. Although these are both subject to separate consent processes, they are both integral to the operation of the power station.

Neither of these projects is subject to EIA requirements nor is likely to give rise to significant environmental effects. Notwithstanding, for the purposes of consideration of the whole (power station) development, they are considered in this EIAR where relevant.

An environmental report on the GIS project, including its underground cable connection to the national electrical grid is included as Appendix 17.2 to this EIAR. This environmental report has been included in an application by Kilshane Energy to An Bord Pleanála for planning consent for that project (a Strategic Infrastructure Development). Any environmental reporting required for the AGI will be provided by Gas Networks Ireland to support its separate consent process, as regulated by the Commission for Regulation of Utilities (CRU)

### 2.3.3 RELATIONSHIP BETWEEN THE EIAR AND ASSESSMENTS UNDER OTHER EU DIRECTIVES AND LEGISLATION

This EIAR takes account of available results from other relevant assessments while avoiding duplication of those assessments, particularly the following:

### **2.3.3.1 The Industrial Emissions Directive (2010/75/EU)<sup>5</sup>**

The development will be subject to an Industrial Emissions (IE) licence from the EPA. The licence will be applied for after the planning application stage and in time for the licensing process to be completed prior to commencement of the proposed process operations.

Chapters 11 to 14 of this EIAR (*Land, Soils, Geology & Hydrogeology, Water & Hydrology, Air Quality & Climate, Noise & Vibration and Waste Management*) refer to those aspects that will be covered in more detail in the IE licence application.

### **2.3.3.2 The Greenhouse Gas Emissions Directive (2003/87/EC)<sup>5</sup>**

The development will be subject to a Greenhouse Gas Emission permit where appropriate. Chapter 9 of this EIAR considers the relevant aspects under the heading of Air Quality & Climate.

### **2.3.3.3 The Habitats and Birds Directives (92/43/EEC and 79/409/EEC)<sup>5</sup>**

The proposal to affect the integrity of the Natura 2000 network, as required under these Directives, is referred to as Appropriate Assessment (AA). A Stage 1 AA (AA Screening) has been carried out to screen the proposal and has determined that a Natura Impact Statement (NIS) (a.k.a. a Stage 2 Appropriate Assessment (AA)) is not required.

The AA Screening report is included as a separately bound document within the planning application document set. It is referred to in the biodiversity chapter of this EIAR as relevant while avoiding duplication of its contents.

### **2.3.3.4 The Waste Framework Directive (2009/98/EC)<sup>5</sup>**

Chapter 14, *Waste Management*, considers aspects which fall under this Directive, as appropriate.

### **2.3.3.5 The Floods and Water Framework Directives (2007/60/EC and 2000/60/EC)<sup>5</sup>**

A Flood Risk Assessment (Stage One) screening report and an Engineering assessment report are included as part of the planning permission application documents. The former follows the specific requirements of *The Planning System and Flood Risk Management - Guidelines for Planning Authorities* (OPW and the Department of the Environment and Local Government, 2009). Chapter 8, *Water & Hydrology*, has regard to requirements arising from these Directives as relevant.

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<sup>5</sup> as amended

## 3 ALTERNATIVES

### 3.1 INTRODUCTION

Before looking at the impacts of any development on the environment, the 2018 regulations<sup>3</sup> require an EIA to include:

*A description of the reasonable alternatives studied by the person or persons who prepared the EIA, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the proposed development on the environment.*

#### 3.1.1 GUIDELINES

The EPA Guidelines<sup>4</sup> give considerable coverage to alternatives, partly because the consultation about The EPA Guidelines<sup>5</sup> give considerable coverage to alternatives, partly because the consultation about the effectiveness of EIA practice found that "the acceptability and credibility of EIA findings can be significantly affected by the extent to which this issue is addressed."

The Guidelines deal with the issue of alternatives under three key headings.

*The consideration of alternative routes, sites, alignments, layouts, processes, designs or strategies, is the single most effective means of avoiding environmental impacts. The acceptability and credibility of EIA findings can be significantly affected by the extent to which this issue is addressed.*

*However, it is important, from the outset, to acknowledge the existence of difficulties and limitations when considering alternatives. These include:*

- *Hierarchy*
- *Non Environmental Factors*
- *Site Specific Issues*

##### **Hierarchy**

*Many projects, especially in the area of public infrastructure, arise on account of plans, strategies and policies which have previously been decided upon. It is important to acknowledge that in some instances neither the applicant nor the competent authority can be realistically expected to examine options which have already been previously determined by a higher authority (such as a national plan or regional programme for infrastructure or a spatial plan).*

##### **Non-environmental Issues**

*EIA is confined to the environmental effects which influence the consideration of alternatives. It is important to acknowledge that other non-environmental factors may have equal or overriding importance to the developer, e.g., project economics, land availability, engineering feasibility, planning considerations.*

##### **Site Specific Issues**

*The consideration of alternatives also needs to be set within the parameters of the availability of land (it may be the only suitable land available to the developer) or the need for the project to accommodate demands or opportunities which are site specific. Such considerations should be on the basis of alternatives within a site e.g., design, layout.*

*For the purposes of the Regulations, alternatives may be described at three levels:*

1. *Alternative Locations*
2. *Alternative Designs*
3. *Alternative Processes*

## **3.2 THE DESIGN HYPOTHESIS**

The applicant proposes to develop a 293MW Open Cycle Gas Turbine (OCGT) facility. The Original Equipment Manufacturer (OEM) has confirmed that 293MW is the maximum, technically possible electrical output of the OCGT and it has a typical design life of 15 to 20 years.

## **3.3 ALTERNATIVE LOCATIONS**

### **3.3.1 ALTERNATIVE SITES**

An extensive desktop feasibility analysis was carried out on the preferred site location for the power station. The first criterion was identifying where in Ireland was the need greatest for new electricity generation. Within the Dublin constrained area was chosen as the preferred geographic location for the project due to the forecasted demand growth in the area identified by EirGrid, the System Operator in their annual reporting.

For a project of this scale, the main criteria were proximity to both the gas and electrical transmission connection points. This is important commercially and environmentally as it both reduces capital expenditure for the project and reduces the amount of disturbance to the local environment. Typically connecting to the gas network and electricity network involves burying cable and pipes underground between the power station and the connection point.

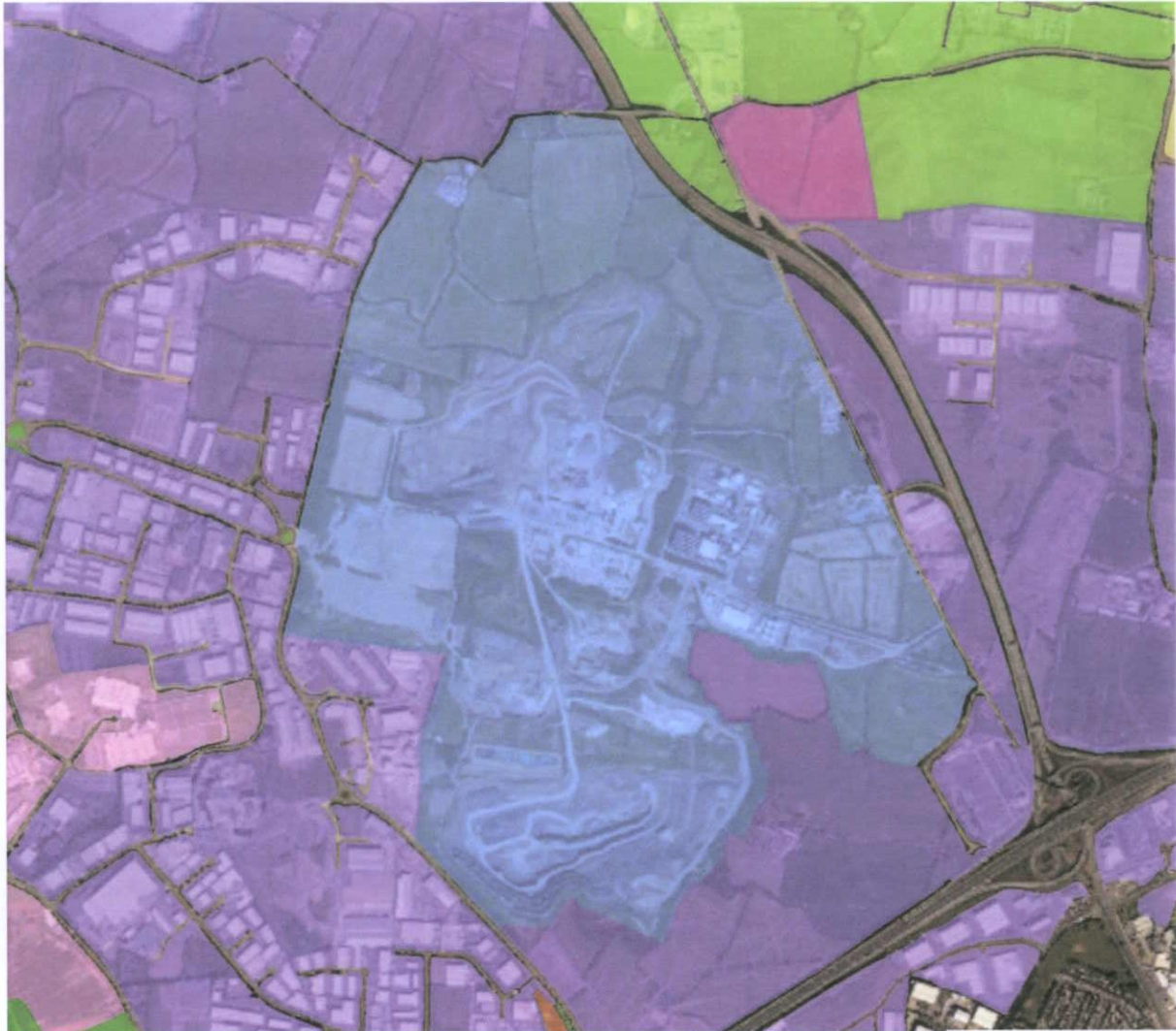
Once locations within Dublin were identified close to both connection points, the next layer of criteria revolved around the surrounding area and zoning of the potential sites.

#### *Environmental Considerations*

Taking account of environmental considerations especially noise and visual impacts - there were very few places amenable to build such an installation.

This quickly ruled out other sites that were close to large residential areas or not appropriately zoned for example, for a large power station installation.

Below shows a map of the Heavy Industry zoned lands (coloured blue) within Fingal County Council area that was identified as a good location for such an installation and both to close to connection points.



**Figure 3.1 Heavy Industry zoned lands (coloured blue) within Fingal County Council**

### **3.4 SITE SELECTION PROCESS**

Property consultants were engaged to enquire on the commercial availability of lands within this zoned area. One area was identified that was willing to engage in the timelines we required.

### **3.5 ALTERNATIVE SITE LAYOUTS**

Within the selected site alternatives were prepared and considered, having regard to the following factors;

#### **3.5.1 GENERAL CONSIDERATIONS**

- DAA restrictions on stack height dictates location of stack.
- As stack location is fixed, the main power island (including all auxiliary equipment) flows from it. The other two main pieces of infrastructure are the substation and the AGI.
- Rationale for substation is that EirGrid like to have the GIS adjacent to the generator transformer compound
- Rationale for the AGI;
  - GNI advised capex for pipe from transmission line to AGI is more expensive than pipe from AGI to turbine
  - GNI advised that having a longer pipeline between AGI and turbine can be advantageous as it can act as a buffer in the event of short term disruption.



A number of alternative layouts were examined and gradually refined until an agreed final layout was selected – as shown on Figure 3.2.

At no stage was there a straightforward comparison between alternatives. Instead, a process of design refinement led to a gradual modification and improvement of layout until a Final Layout emerged that satisfied as many criteria as fully as possible.

These alternative layouts attempted to reconcile a range of technical, economic and environmental considerations

#### *Environmental Considerations*

Environmental considerations when considering alternative layouts included, but were not limited to the following:

- To maximise the location of potentially noise-producing plant from nearby sensitive residential receptors by moving closer to the N2
- To reduce amount of disturbance to the local environment, the site footprint was kept as compact as possible.
- To maximise the retention of mature screening vegetation at site boundaries
- To reduce exposure of nearby residential properties the layout were gradually altered to maximise space for screening mounds and associated vegetation
- To ensure sustainable and orderly development by employing a compact layout to maximise the potential future utilisation of zoned and serviced lands



**Figure 3.2 Alternative Layout options 1, 2 compared to the Final Layout**

See Figures 3.3 to 3.5 for full page versions of these layouts



Figure 3.3 Alternative layout option 1





**PROPOSED SITE PLAN**

**Figure 3.5 Final layout**

FINGAL COUNTY COUNCIL  
PLANNING DEPARTMENT  
*Fuzza/004/AI*  
11 JAN 2023  
ADDITIONAL INFORMATION  
REGISTRY

### 3.6 ALTERNATIVE PROCESS & TECHNOLOGIES

During the desktop feasibility stage, when determining the chosen technology, the applicant considered several other technologies including reciprocating engines and aero derivative OCGTs. The criteria used in this decision included;

- Environmental impact
- Grid Code compliance
- Emissions compliance
- Dual fuel capability
- Required site footprint
- €/MW installed cost

Regardless of the technology, any large-scale thermal generation project will have common infrastructure, such as substation and grid route for electrical connection, an Above Ground Installation (AGI) for gas connection and secondary fuel storage.

#### *Environmental Considerations*

The proposed OCGT was chosen as it is compliant with all necessary regulations, minimises the environmental impact and offered the best chance of success in the capacity market auctions