Gateway Energy Centre

UNDERGROUND GAS PIPELINE AND ASSOCIATED ABOVE GROUND INSTALLATION

ENVIRONMENTAL STATEMENT

Non-Technical Summary

Prepared by

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125 YEARS

March 2011

CONTENTS

LIST OF ABBREVIATIONS

AGI	Above Ground Installation
CCGT	Combined Cycle Gas Turbine
CECL	Coryton Energy Company Limited
CEMP	Construction Environmental Management Plan
CTMP	Construction Transport Management Plan
DCO	Development Consent Order
DECC	Department of Energy and Climate Change
EIA	Environmental Impact Assessment
ES	Environmental Statement
ESD	Emergency Shutdown Device
GEC	Gateway Energy Centre
GECL	Gateway Energy Centre Limited
ha	hectares
HDD	Horizontal Directional Drill
HGV	Heavy Goods Vehicle
HV	High Voltage
IPC	Infrastructure Planning Commission
km	kilometre
LG	London Gateway
m	metres
MWe	Megawatts Electric
NPS	National Policy Statement
NPS EN-1	Revised Draft Overarching National Policy Statement for Energy (EN-1)
NTaS	National Transmission System
NTS	Non-Technical Summary
PPS	Planning Policy Statement
SEE	Spalding Energy Expansion
SEEL	Spalding Energy Expansion Limited
TBC	Thurrock Borough Council
TTGDC	Thurrock Thames Gateway Development Corporation
UK	United Kingdom

1 INTRODUCTION

1.1 The Proposed Development of Gateway Energy Centre

1.1.1 Gateway Energy Centre Limited (GECL) proposes to construct and operate a Combined Cycle Gas Turbine (CCGT) Power Plant to be known as Gateway Energy Centre (GEC).

1.1.2 GEC will be located on land within the London Gateway Port / London Gateway Logistics and Business Park development, collectively called the LG Development, which is currently in the early stages of construction. The LG Development is being promoted by DP World.

1.1.3 The location of GEC is shown in Figure 1.

1.1.4 GEC will provide up to 900 megawatts electric (MWe) of electrical generation capacity. This will include the provision of up to 150 MWe to the LG Development, which is expected to meet its long terms electricity requirements.

1.1.5 Additionally, there is the potential for GEC to supply heat in the form of steam and / or hot water to facilities and / or customers in the vicinity of the site.

1.2 The Proposed Underground Gas Pipeline and Associated AGI

1.2.1 A new underground gas pipeline and associated Above Ground Installation (AGI) are required to deliver natural gas from the National Grid Gas National Transmission System to GEC for the purposes of generating electricity.

1.2.2 The new underground gas pipeline and associated AGI are required as the existing CECL Power Station gas pipeline and AGI do not have sufficient capacity to transport the required gas flow for the operation of both the CECL and GEC Power Stations.

1.2.3 The proposed location of the associated AGI and route of the underground gas pipeline, which runs parallel to the route for the existing CECL Power Station gas pipeline, is shown in Figure 2.

1.2.4 At the AGI, the natural gas will be taken from a connection to the existing National Grid National Transmission System and transported to GEC via the proposed underground gas pipeline.

1.2.5 During operation, the only visible feature of the development will be the AGI. As with the existing AGI for the CECL Power Station, it is assumed that several confirmed mitigation measures (which serve to address landscape and visual impacts) will be applied as follows:

a) Screening in the form of landscaping will be provided. The details of such screening shall be agreed with TTGDC (in consultation with Thurrock Council) and are likely to be similar to that implemented at the existing AGI for the CECL Power Station given such landscaping is proven to be effective. The land take requirements of the proposed AGI are approximately 0.24 ha, without considering areas for roads and landscaping and 0.44 ha with areas for roads and landscaping.

   The landscape and visual impacts noted in the Environmental Statement during operations are those which are likely to be experienced after approximately 7 to 15 years of planting, when the landscaping has matured. GECL, in consultation with TTGDC, proposes to inter-plant older with younger specimens with the aim of minimising the time taken for the screening to mature and become fully effective;

b) Further landscaping and biodiversity works are to be carried out in the vicinity of the proposed AGI. Such works may include hedgerow strengthening and the

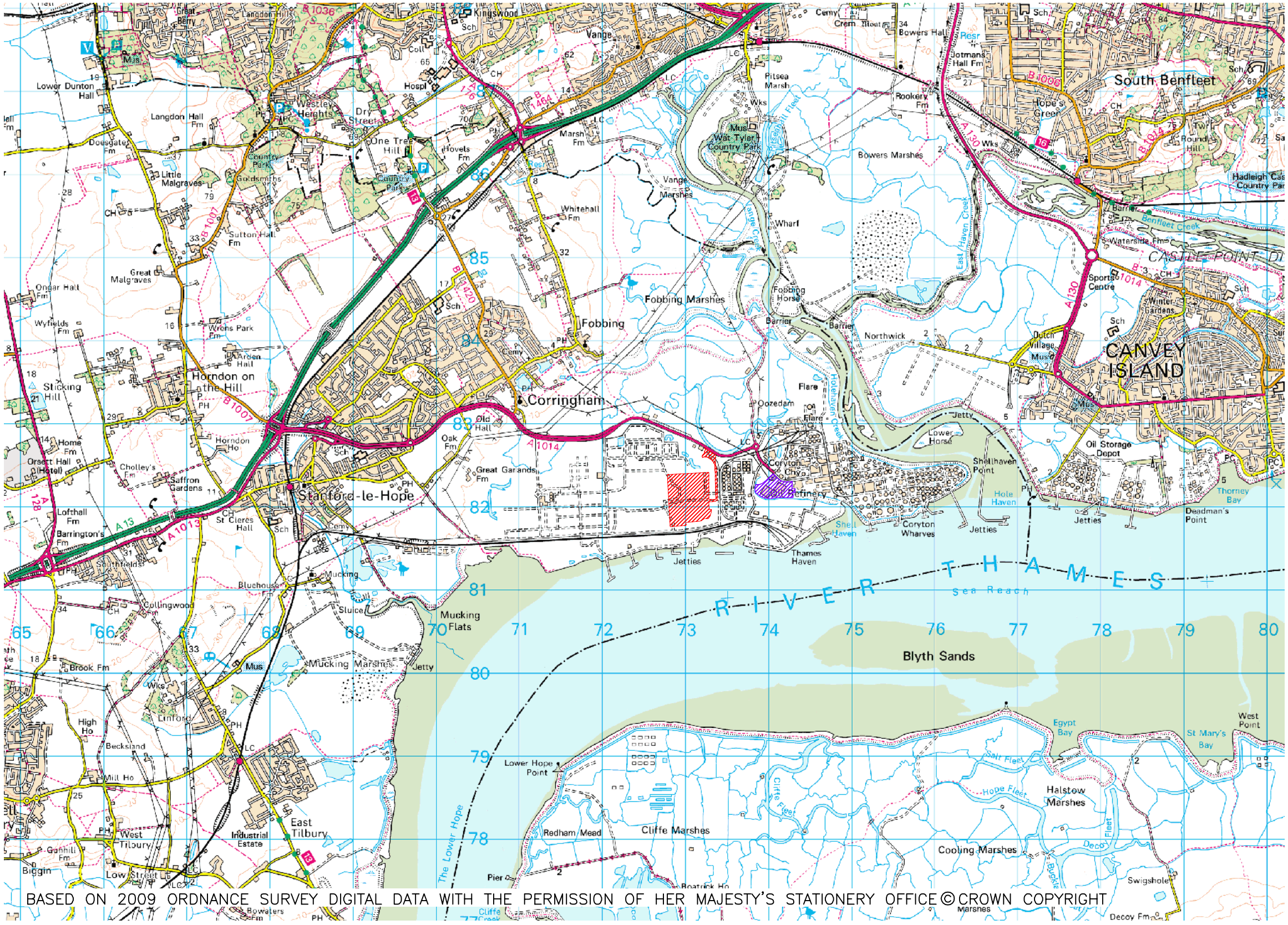
planting of deciduous native hard wood species, to be undertaken in consultation with local land owners and TTGDC (in consultation with Thurrock Council); and

c) GECL will discuss and agree an appropriate contribution with TTGDC, towards local Greengrid works. The local Greengrid, as set out in Thurrock Council's draft Core Strategy (February 2010, CSSP 5 – Sustainable Greengrid, paragraph 4.30), is intended to enable multifunctional land use of both public and private space as supported by a physical network of green links for people and wildlife. The Greengrid includes open space, biodiversity and green infrastructure (such as public rights of way).

1.3 Benefits of Development

1.3.1 GECL considers that development of GEC and the underground gas pipeline and AGI provide the following benefits:

- Up to 900 MWe of new generating capacity, enough to supply approximately one million homes, thus helping to ensure continuity of supply of electricity in the UK and the south east of England given the pending closure of old coal / oil fired and nuclear power plants;
- Minimal transmission losses given GEC's location in the UK close to the area of maximum demand (the south east of England, including London), effectively, reducing fuel usage and lowering carbon dioxide (CO_2) emissions;
- Potential to help reduce the UK's carbon emissions as GEC would emit approximately 50 per cent less CO_2 than existing coal fired power plants;
- Flexibility of power generation to enable electricity production to be increased or decreased as renewable generation fluctuates (e.g. when there is little wind);
- Creation (via the development of GEC) of up to 600 construction jobs and 40 direct long term jobs during operation, and spend with local firms and suppliers;
- Creation (via the development of the underground gas pipeline and associated AGI) of up to a further 200 construction jobs, and spend with local firms and suppliers;
- Provision of up to 150 MWe to the LG Development to meet its power requirements, further minimising transmission losses and CO_2 emissions;
- Potential for the provision of steam and / or hot water to the LG Development and local area, which could reduce the overall amount of fuel needed to meet the equivalent energy requirements of standard heat generation;
- GEC will be designed to be Carbon Capture Ready (CCR) such that it will be able to be retrofitted with Carbon Capture and Storage (CCS) if this becomes technically and economically feasible. GEC is well located for CCS given its proximity to other power stations in the south east of England and prospective off shore CO_2 storage facilities; and
- GEC, which will be built on brownfield land, will be designed to be sympathetic to the LG Development and the local area.



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LEGEND

GEC SITE LOCATION

CECL POWER STATION LOCATION

0 1000m 2000m 3000m

BAR SCALE 1:50,000

Rev	Date	Description	By	Chk	App

Notes:

PB PARSONS BRINCKERHOFF

Amber Court
William Armstrong Drive
Newcastle upon Tyne NE4 7YQ

Tel: 44-(0)191-226-2000
Fax: 44-(0)191-226-2104

Client: INTERGEN

Project: GATEWAY ENERGY CENTRE GAS PIPELINE AND AGI

Title: GEC SITE LOCATION

Drawn: ALM	Checked: GC
Designed: EA	Approved: EA
Date: 19/01/2011	Scale: 1:50,000 | A3 | Sheet:

Project Number:	Drawing Number:	Revision:
63958	FIGURE 1	

Project Number: 63958 | Drawing Number: FIGURE 1 | Revision:

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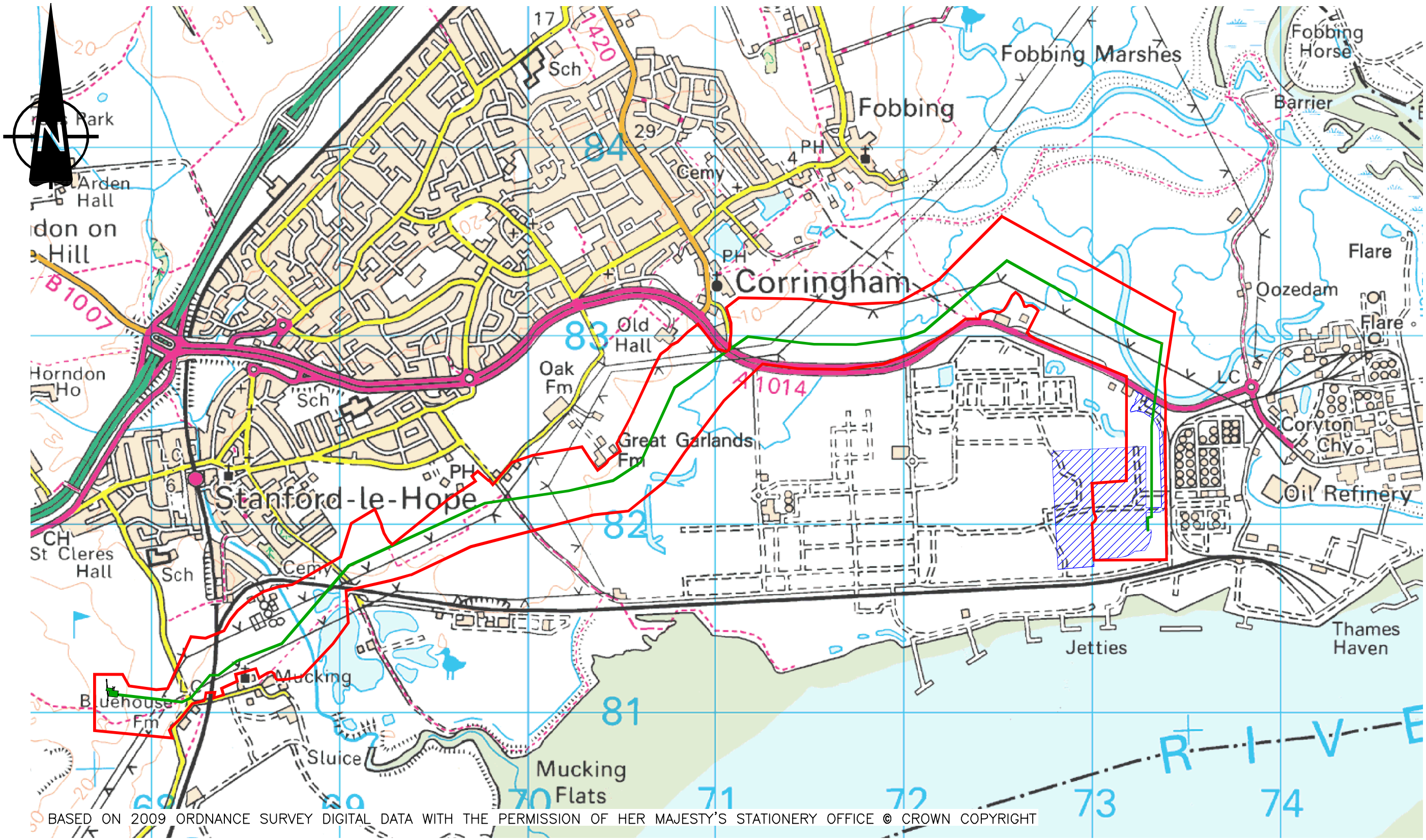

0 100m 200m 400m 600m

BAR SCALE 1:10000

Rev	Date	Description	By	Chk	App

Notes:

LEGEND

- GEC SITE BOUNDARY
- INDICATIVE PIPELINE ROUTE
- INDICATIVE PIPELINE CORRIDOR

PARSONS BRINCKERHOFF
Amber Court
William Armstrong Drive
Newcastle upon Tyne NE4 7YQ
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Client: INTERGEN

Project: GATEWAY ENERGY CENTRE GAS PIPELINE AND AGI

Title: PROPOSED INDICATIVE PIPELINE ROUTE AND AGI LOCATION

Drawn:	ALM	Checked:	GC
Designed:	EA	Approved:	EA
Date:	10/02/2011	Scale: 1:50,000	A3 Sheet:
Project Number:	Drawing Number:		Revision:
63958	FIGURE 2		

Project Number: 63958 | Drawing Number: FIGURE 2 | Revision:

File Name: K:\Projects\Coryton - Thames Power\Current\G.E.C GAS PIPELINE AND AGI REPORT\DAS\Figure 2.dwg

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Plot Date: 18/03/2011 15:02:42

1.4 The Developer

1.4.1 GEC will be owned and operated by GECL, which is part of the InterGen group of companies. InterGen, formed in 1995, is a global power generation company.

1.4.2 InterGen has 12 power plants totalling 6 254 MWe of production capacity. Historically, InterGen has developed more than 20 power generation facilities in ten countries across six continents, with a combined generating capacity of over 16 000 MWe.

1.4.3 InterGen is the UK's largest independent gas-fired power producer, with three plants in the UK that provide approximately 6 per cent of the country's average demand. The three plants include InterGen's 800 MWe CECL Power Station, situated 700 m to the east of the proposed GEC site. These power plants are among the cleanest and most technologically advanced in the world.

1.4.4 In addition to the above, InterGen has significant experience constructing and operating underground gas pipelines and AGIs and has an excellent health and safety record.

1.5 The Purpose of this Document

1.5.1 This document is a Non-Technical Summary (NTS) of the Environmental Statement (ES) for GEC's proposed underground gas pipeline and associated AGI.

1.5.2 It accompanies an application for planning permission under the Town and Country Planning Act 1990 by GECL. The application for planning permission, to be made to TTGDC, is to construct a 7.7 kilometre (km) underground gas pipeline and associated AGI required for the development of GEC.

1.5.3 The application for planning permission is accompanied by the following documents:

- Environmental Statement
    - Volume 1 – Main Text
    - Volume 2 – Appendices
    - Volume 3 – Figures
- Non-Technical Summary of the Environmental Statement
- Design and Access Statement
- Planning Statement
- Statement of Community Involvement

1.5.4 The ES provides extensive details of the Environmental Impact Assessment (EIA) which was undertaken in full accordance with the requirements of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (the 1999 EIA Regulations).

1.5.5 This NTS summaries the information contained within Volume 1 of the ES to enable stakeholders to understand the potential environmental effects which may be encountered during construction and operation of the proposed underground gas pipeline and associated AGI.

1.5.6 Key undertakings in the EIA process for the underground gas pipeline and associated AGI have included:

- In depth consultation with stakeholders, including public exhibitions (Residents Information Days) and meetings;

- Dialogue with stakeholders to confirm matters to be considered in the EIA and reported in the ES;
- Undertaking of the EIA; and
- Establishment of mitigation measures to avoid or reduce any adverse environmental impacts identified.

1.6 Viewing the Application

1.6.1 Copies of the application for planning permission for the underground gas pipeline and associated AGI, ES (explaining GECL's proposals in more detail and presenting full details of the EIA) and NTS of the ES may be inspected during normal office hours at the following addresses:

Thurrock Thames Gateway Development Corporation
2nd Floor, Civic Offices (CO1)
New Road
Grays
Essex
RM17 6SL

Opening Hours:	Monday to Friday:	9 am to 5 pm

Thurrock Council
Civic Offices
New Road
Grays
Essex
RM17 6SL

Opening hours:	Monday to Thursday:	8:45 am to 5:15 pm
	Friday:	8:45 am to 4:45 pm

Stanford-Le-Hope Library
High Street
Stanford-Le-Hope
Essex
SS17 0HG

Opening hours:	Monday:	10 am to 1pm / 2 pm to 6 pm
	Tuesday:	10 am to 1pm / 2 pm to 5 pm
	Wednesday:	Closed
	Thursday:	10 am to 1pm / 2 pm to 6 pm
	Friday:	10 am to 1pm / 2 pm to 5 pm
	Saturday:	10 am to 1pm / 2 pm to 5 pm

Corringham Library
Communities, Libraries and Cultural Services
St John's Way
Corringham
Essex
RM17 7LJ

Opening hours:	Monday:	9 am to 7 pm
	Tuesday:	9 am to 5 pm
	Wednesday:	9 am to 1 pm
	Thursday:	9 am to 7 pm
	Friday and Saturday:	9 am to 5 pm

1.6.2 Alternatively, paper copies of this ES (including Volumes 2 and 3 and the stand alone documents) can be purchased for a fee of £250 for each copy by writing to:

Chris Brake
Dalton Warner Davis LLP
21 Garlick Hill
London
EC4V 2AU

1.6.3 CD copies of this ES (including Volumes 2 and 3 and the stand-alone documents) can be purchased for a fee of £5 each.

1.6.4 Copies of the NTS are available free of charge.

1.6.5 An electronic version of the application for planning permission and associated documents, including the ES, can be downloaded free of charge at the GEC website:

http://www.gatewayenergycentre.co.uk

1.7 Commenting on the Application

1.7.1 Should you wish to make a representation regarding the application for planning permission for the gas pipeline and associated AGI, then it should be forwarded to:

Matthew Gallagher
Planning Development Officer
Thurrock Thames Gateway Development Corporation (TTGDC)
2nd Floor, Civic Offices (CO1)
New Road
Grays
Essex
RM17 6SL

2 THE CONSENTS PROCESS

2.1 Consents Required – Underground Gas Pipeline and Associated AGI

2.1.1 GECL has submitted an application for planning permission for the underground gas pipeline and associated AGI under the Town and Country Planning Act 1990 to TTGDC.

2.1.2 The application for planning permission is accompanied by an ES, which has been prepared in accordance with the requirements of the 1999 EIA Regulations.

2.2 Consents Required – GEC

2.2.1 In February 2010, GECL submitted an application for consent under Section 36 of the Electricity Act 1989 to the Department of Energy and Climate Change (DECC) in respect of the proposed GEC.

2.2.2 The Section 36 Consent application was accompanied by an Environmental Statement (ES) prepared in accordance with the requirements of the Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2000 (as amended).

2.2.3 GECL will apply separately to the Environment Agency for an Environmental Permit under the Environmental Permitting (England and Wales) Regulations 2007. The Environmental Permit will regulate the manner in which GEC is operated on a day-to-day basis.

2.3 Consents Required / Electrical Connection and Other

2.3.1 The electricity generated at GEC will be dispatched to the High Voltage (HV) National Grid Electricity Transmission System via a connection to a new substation.

2.3.2 The substation, including its connection to the existing Rayleigh – Tilbury 400 kV overhead line, is to be consented and constructed by National Grid. The electrical connection from the substation to GEC is to be consented and constructed by GECL. As such, these developments will be subject to separate planning applications.

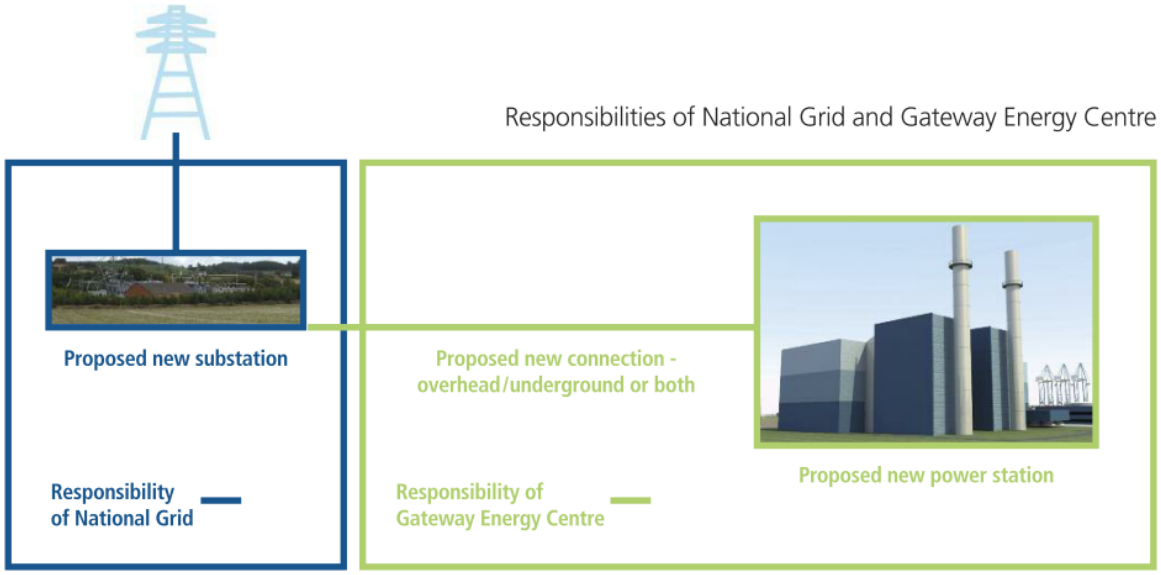
2.3.3 The responsibilities of National Grid and GECL are shown at Insert 1.

2.3.4 National Grid's application for consent for the substation and connection to the existing Rayleigh – Tilbury 400 kV overhead line is likely to be made to the Infrastructure Planning Commission (IPC) (or to the Major Infrastructure Planning Unit which will replace the IPC) for a Development Consent Order (DCO) under the Planning Act 2008.

2.3.5 GECL's application for consent for the electrical connection from GEC to National Grid's proposed new substation will be for an overhead line or underground cable, or a combination of both. The application(s) will be to the IPC (or to the Major Infrastructure Planning Unit which will replace the IPC) if it is for an overhead line or to Thurrock Borough Council (TBC) / TTGDC under the Town and Country Planning Act 1990 if it is an underground cable. A combination of an overhead line and underground cable connection will require an application to the IPC or to the IPC and TBC / TTGDC.

2.3.6 Other miscellaneous consents and permits will be sought as necessary throughout the course of development.

INSERT 1 – CONSENTING RESPONSIBILITIES OF NATIONAL GRID AND GECL



3 PROJECT NEED / RATIONALE

3.1.1 Information on the rationale for the development of GEC is provided in Section 3 of the ES which accompanied the Section 36 Consent application. The Section 36 Consent application can be downloaded at:

http://www.gatewayenergycentre.co.uk/

3.1.2 In October 2010, the UK Government published the Revised Draft National Policy Statements (NPSs). These are used as the primary basis for decisions made by the Infrastructure Planning Commission (IPC) (and the Major Infrastructure Planning Unit which will replace the IPC) on applications for energy infrastructure under the Planning Act 2008.

3.1.3 Although the underground gas pipeline and associated AGI do not fall under the remit of the Planning Act 2008, Revised Draft Overarching National Policy Statement for Energy (EN-1) (NPS EN-1) states (at Paragraph 1.2.1) that:

"*In England and Wales this NPS is likely to be a material consideration in decision making on applications that fall under the Town and Country Planning Act 1990 (as amended). Whether, and to what extent, this NPS is a material consideration will be judged on a case by case basis*".

3.1.4 Based on the above, it is considered that the NPSs form a material consideration for the development of the underground gas pipeline and associated AGI.

3.1.5 NPS EN-1 states (in Section 2.1):

"*Energy is vital to economic prosperity and social well-being and so it is important to ensure that we have secure and affordable energy. Producing the energy the UK requires and getting it to where it is needed necessitates a significant amount of infrastructure, both large and small*".

3.1.6 Furthermore, NPS EN-1 states (at Paragraphs 3.1.1 to 3.1.4):

"*The UK needs a mix of all types of energy infrastructure in order to achieve energy security at the same time as dramatically reducing greenhouse gas emissions.*

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

The IPC should therefore assess all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the need for those types of infrastructure has been demonstrated by the government and that this need is urgent.

The IPC should give substantial weight to the contribution which projects would make towards satisfying this urgent need when considering applications for development consent under the Planning Act 2008".

3.1.7 Therefore, as the gas pipeline and associated AGI form part of wider development of energy infrastructure (i.e. the development of GEC, including all its associated benefits) it is considered that the need (rationale) for the development of the gas pipeline and associated AGI has been demonstrated and the need for this development is urgent.

3.1.8 Further details are provided in Volume 1 of the ES.

4 SUMMARY OF THE UNDERGROUND GAS PIPELINE AND ASSOCIATED AGI

4.1 Alternatives and Route / Location Selected

4.1.1 The Local Planning Authority, in this case TTGDC, must be satisfied that the application site cannot be located on an alternative site with less or no impact. The EIA process has determined that GECL's proposals for the underground gas pipeline and associated AGI are unlikely to result in significant long term harm to local biodiversity or geological interests.

4.1.2 The ES includes an outline of the main alternatives that have been considered by GECL and an indication of the main reasons for their selection of application site. The main alternatives that have been considered are:

- Alternative transport options;
- Alternative gas pipeline routes; and
- Alternative AGI locations.

4.1.3 Experience within the gas industry has consistency demonstrated that transporting large volumes of gas over long distances within pipelines is the most practical, cost-effective, safest and least environmentally harmful option.

4.1.4 In terms of alternative gas pipeline routes and AGI locations, based on an evaluation of the alternatives (including consideration of technical, planning, environmental and commercial factors) the location for the associated AGI and the proposed route for the underground gas pipeline was selected.

4.1.5 Further details of this evaluation are provided in Volume 1 of the ES.

4.2 The Above Ground Installation Site

4.2.1 The location for the Butts Lane AGI is shown in Figure 2. The Butts Lane AGI, west of Mucking and south of Stanford-le-Hope, will be unmanned. It will be constructed adjacent to the existing AGI for the CECL Power Station.

4.2.2 Inserts 2 to 5 show photographs of the existing AGI for the CECL Power Station taken from the private access track (views from the south) and St Clere's Golf Course (views from the north).

4.2.3 Inserts 6 and 7 show photographs of the existing AGI for the CECL Power Station taken from two locations along Footpath 41 (to the south of the existing and proposed AGIs). These photographs illustrate the setting of the existing and proposed AGIs.

4.2.4 The application for planning permission to which this NTS relates is for the overall Butts Lane AGI. The Butts Lane AGI will comprise two separate AGIs, one to be owned and operated by National Grid and the other to be owned and operated by GECL. The two AGIs will be located adjacent to each other, but will be separated by a fence.

4.2.5 The overall Butts Lane AGI facility will comprise the following:

- National Grid Infrastructure
  - National Grid MOF connection;
  - National Grid and GECL instrument kiosk;
  - National Grid and GECL emergency shutdown device (a key safety feature);
  - National Grid instrumentation; and

- Isolation joint to electrically isolate the GEC gas pipework from the National Grid pipework.

- GECL Infrastructure
  - PIG launcher (which runs through the gas pipeline to inspect it);
  - Standby generator (to ensure the AGI can work during the likes of blackouts);
  - Vents;
  - Above ground pipework;
  - Fencing for security purposes;
  - Security Lighting and CCTV;
  - Landscaping and Biodiversity (to be undertaken in consultation with TTGDC) to ensure the AGI blends in; and
  - An appropriate contribution to Greengrid infrastructure.

4.2.6 The Butts Lane AGI will likely be surrounded by a steel palisade security fence approximately 2.7 m high with two double-gated entrances (one for the NG AGI and one for the GEC AGI). The equipment within the AGI, with the exception of lighting columns discussed below, will be lower than 2.7 m. There will be emergency personnel exit gates for both AGIs.

4.2.7 Three 4.5 m high lighting columns (one for the NG AGI and two for the GEC AGI) will be erected to provide illumination should maintenance works be necessary in the hours of darkness. These will also provide support for the CCTV cameras.

4.2.8 A car parking area will be installed outside the gated entrance.

4.2.9 Landscaping will be planted in order to screen the AGI. This will be similar to the successful landscaping at the existing AGI for the CECL Power Station. This will be agreed with TTGDC, and will aim to provide biodiversity enhancement and supplement the landscaping already present at the existing AGI site.

4.2.10 The land take requirement of the proposed AGI is approximately 0.24 hectares (ha) (some 2 400 m^2) and 0.44 ha (some 4 400 m^2) in total including areas for roads and landscaping.

INSERT 2 – VIEW OF EXISTING AGI FROM THE SOUTH EAST

INSERT 3 – VIEW OF EXISTING AGI FROM THE SOUTH WEST

INSERT 4 – VIEW OF EXISTING AGI FROM THE NORTH EAST

INSERT 5 – VIEW OF EXISTING AGI FROM THE NORTH WEST

INSERT 6 – VIEW OF EXISTING AGI FROM FOOTPATH 41 (WEST)

INSERT 7 – VIEW OF EXISTING AGI FROM FOOTPATH 41 (EAST)

4.3 The Underground Gas Pipeline

4.3.1 The proposed route of the underground gas pipeline is approximately 7.7 km long as shown in Figure 2 and parallels the route for the CECL Power Station gas pipeline.

4.3.2 From the proposed AGI, the route corridor heads east, crossing Butts Lane and the Passenger Railway Line that runs from Shoeburyness to London Fenchurch Street. The route corridor then heads north east following the route of the existing over ground electric lines. The route corridor will continue to the south east of the sewage works and towards the North Shell Angling Lakes, crossing the Thames Haven Branch Line and Wharf Road. It is highly probably that a Horizontal Directional Drill (HDD) section will be required for the gas pipeline from the sewage works to the Wharf Road crossing, underneath the northern most Shell Angling Lake.

4.3.3 After this section, the route corridor will closely follow the existing CECL Power Station gas pipeline to cross Rainbow Lane and go past the south east of Great Garlands Farm, before crossing the A1014 (The Manorway). The route corridor then continues in a generally eastern direction, before diverting south to cross the A1014 (The Manorway) to the GEC site.

4.3.4 The underground gas pipeline will be constructed from high-grade welded steel pipe. It will have an outside diameter of up to 457 mm, a design pressure of 79.5 bar g and a Maximum Allowable Operating Pressure of 75 bar g. The gas pipeline will be not less than 1.2 m underground for its entire length.

4.3.5 After the gas pipeline is fully commissioned, it will be operated and maintained in such a manner as to keep it safe and in good condition.

4.3.6 Helicopter fly-overs will be required to inspect the gas pipeline route. These fly-overs will be infrequent events (approximately one every two weeks) and will take place at the same time as the existing fly-overs for the existing CECL Power Station gas pipeline.

4.3.7 The helicopter fly-overs would be aided by the presence of pipeline markers along the ground. It is currently envisaged that there will be approximately 10 pipeline markers along the proposed gas pipeline route. The pipeline markers are approximately 2 m high. In addition, there may also be around 15 cathodic protection posts (approximately 1 m high) and 30 M4 mark posts (approximately 0.6 m high) at the special crossings.

4.4 Further Route Refinement and Area Covered by the EIA

4.4.1 Further refinement of the proposed gas pipeline route / crossing techniques within the route corridor is likely to occur at the detailed design stage as a result of stakeholder consultation, archaeology, landowner negotiations, utility information and ground investigations.

4.4.2 Any such refinement would be limited and would take place within the survey area covered by the EIA.

4.4.3 During construction of the gas pipeline, the working width will be between 26 to 30 m depending on location. Where special crossing techniques are required, the working width may need to be increased. However, during construction the maximum land take is expected to be approximately 23 ha. Following completion of construction, the gas pipeline will be fully underground and the surface will recover within around one growing season.

4.4.4 During operation, the largest land take will be associated with the AGI, and is expected to be approximately 0.44 ha, including areas for roads and landscaping.

5 THE ENVIRONMENTAL IMPACT ASSESSMENT

5.1 Consultation

In undertaking the EIA, GECL and its consultants have undertaken consultations with a variety of stakeholders. Details of these consultations are included below.

Scoping

5.1.1 Formal consultation was undertaken through a scoping process. During the scoping process, a Scoping Study was submitted to TTGDC in November 2010. The Scoping Study set out the proposed content, methodologies and key issues to be included in the EIA and the resulting ES for the application for planning permission

5.1.2 In addition to TTGDC, the Scoping Study was also forwarded to a number of other organisations, including: DECC; East of England Development Agency; East of England Regional Assembly; English Heritage; the Environment Agency; Essex Wildlife Trust; Government Office for the East of England; Highways Agency; and, Natural England.

Community Involvement / Residents Information Days

5.1.3 Informal consultation was undertaken through a series of meetings; public exhibitions (Residents Information Days); newsletters; website and e-mail; free-phone and freepost; advertisements; and press releases.

5.1.4 Residents Information Days detailing the proposals for the development of the underground gas pipeline and associated AGI were held on 1 December 2010 at East Thurrock Community Association and 2 December 2010 at the Pegasus Club (Corringham) from 14:00 to 20:00.

5.1.5 Additionally, and in part reflecting the lower than expected turn-out due to the adverse weather conditions experienced on 1 and 2 December 2010, a further set of Residents Information Days were held on 24 February 2011 at East Thurrock Community Association and 25 February 2011 at the Corringham Village Hall from 14:00 to 20:00.

5.1.6 Further details can be found in the Statement of Community Involvement.

5.2 Potential Environmental Impacts

5.2.1 The potential environmental impacts of the proposed underground gas pipeline and associated AGI during construction and operation have been assessed in relation to the following aspects of the environment:

- Air Quality;
- Noise and Vibration;
- Landscape and Visual;
- Ecology;
- Land Use / Geology, Hydrology and Hydrogeology;
- Traffic and Infrastructure;
- Cultural Heritage, and
- Socio-Economics.

5.2.2 The following Table contains a summary of the key potential environmental impacts during construction and operation, and the design measures included as part of the proposed gas pipeline and associated AGI in order to avoid and reduce the limited environmental impacts. Further information is contained in the ES (Volumes 1 to 3).

Aspect	*Description of Potential Impact*	*Design Measures and Mitigation*
Air Quality	During construction, there is the potential for dust emissions to arise.	Impacts will be managed and controlled through the implementation of a Construction Environmental Management Plan (CEMP). This will include dust suppression / monitoring. It is anticipated there will be no significant adverse impacts.
	During operation, no impacts have been identified.	N / A
Noise and Vibration	During construction, noise generating plant will be used.	Impacts will be managed and controlled through the implementation of a CEMP. This will include the switching off of machinery when not in use and guidance on the timing of deliveries and work. It is anticipated there will be no significant adverse impacts.
	During operation, there is the potential for low level noise associated with the AGI.	High specification, low noise plant will be installed. Regular maintenance checks will be carried out to ensure plant is working efficiently. Broken or faulty plant will be replaced. It is anticipated that there will be no significant adverse impacts.
Landscape and Visual	During construction: • Landscape impacts may arise on Local Landscape Character; and • Visual impacts will arise from the presence of construction equipment / undertaking of construction activities (e.g. machinery / excavations / temporary structures).	Impacts will be managed and controlled through the implementation of a CEMP. This will include the screening of construction works by hoarding (wherever practical) to mitigate impacts near sensitive receptors. It is anticipated there will be no significant adverse impacts.
	During operation, it is likely that there will be landscape and visual impacts associated with the AGI.	The AGI will be screened by planting to reduce the landscape and visual impacts, similar to the existing AGI for the CECL Power Station. In line with Paragraph 1.2.5: • Screening in the form of landscaping will be provided, the details of such shall be agreed with TTGDC; • Further landscaping and biodiversity works are to be carried out in the vicinity of the proposed AGI; and • GECL will discuss and agree an appropriate contribution with TTGDC, towards Greengrid. It is anticipated there will be no significant adverse impacts.

Aspect	Description of Potential Impact	Design Measures and Mitigation
Ecology	During construction, there is the potential for impacts on ecology to arise.	A Phase 1 Habitat Survey and Phase 2 Protected Species Surveys have been undertaken. Areas where Protected Species are known to occur or areas with the potential to support Ecological Habitat will be avoided wherever possible and removal of habitat will not occur during the breeding season. It is anticipated there will be no significant adverse impacts.
	During operation, no impacts have been identified.	N / A
Land Use / Geology, Hydrology and Hydrogeology	During construction, in relation to land use, there would be a temporary loss of agricultural land.	The land used temporarily for laydown / occupation will be subject to protection measures during construction and re-instated after. Productive agricultural land required will be minimized during final pipeline route selection. Appropriate compensation agreements will also be reached with land owners for the use of such land. It is anticipated there will be no significant adverse impacts.
	During construction, in relation to geology, hydrology and hydrogeology, contaminants (such as fuels and concrete) will be used on site. There is the potential for land contamination to occur as a result of spillages.	Impacts will be managed and controlled through the implementation of a CEMP. Procedures will be put in place to deal with any pollution spills. It is anticipated there will be no significant adverse impacts.
	During operation, in relation to land use, there would be the permanent loss of agricultural land utilised by the AGI.	Productive agricultural land required will be minimized. The expected total maximum loss of land is 0.44 ha. An appropriate contribution to Greengrid infrastructure will be made in consultation with TTGDC.
	During operation, no impacts have been identified in relation to geology, hydrology and hydrogeology.	N / A

Aspect	*Description of Potential Impact*	*Design Measures and Mitigation*
Traffic and Infrastructure	During construction, there will be additional traffic in the form of HGVs / low-loaders / construction personnel vehicles. There may be some crossings of local transport links.	All vehicle movements will operate under a Construction Transport Management Plan (CTMP). The purpose of the CTMP is to provide a framework for the active management of the increased demand on the local transport infrastructure to ensure that all impacts are minimised or eliminated.
	During operation, no impacts have been identified.	N / A
Cultural Heritage	The cultural heritage in the area is well understood from the work undertaken for GEC and the LG Development. As such, the existence and whereabouts of any existing cultural heritage features which have the potential to be impacted upon are already well understood. It is unlikely that there will be impacts on archaeological remains of significance during construction.	An assessment of the likelihood of archaeological remains of significance along the proposed pipeline route will be undertaken and prior to construction, a plan of archaeological works will be developed in conjunction with the Essex County Archaeologist. If it is discovered that archaeological remains are present, the construction works will avoid such an area if possible. In addition, an archaeological watching brief will be used.
	During operation, no impacts have been identified.	N / A
Socio-Economics	During construction, there will be short term employment opportunities.	The socio-economic impacts are deemed to be positive, therefore no mitigation is required.
	During operation, no impacts have been identified.	N / A

5.3 Cumulative Impacts

5.3.1 The impacts that are described above relate only to the proposed gas pipeline and associated AGI. However, it is recognised that there is the potential for other environmental impacts to arise as a result of cumulative impacts associated with GEC, the electrical connection, CHP from GEC and the LG Development.

5.3.2 The following Table provides a summary of the likely cumulative impacts of the above developments.

Aspect	*Construction*	*Operation*
Air Quality	Following implementation of mitigation measures, cumulative impacts are likely to be insignificant.	Following implementation of mitigation measures, cumulative impacts are likely to be insignificant.
Noise and Vibration	Following implementation of mitigation measures, cumulative impacts are likely to be insignificant.	Following implementation of mitigation measures, cumulative impacts are likely to be insignificant.
Landscape and Visual	Likely temporary significant adverse cumulative impacts during construction. However, these impacts will be temporary in nature and, as such, the residual impact is assessed as not significant.	Likely significant adverse cumulative impacts during operation.
Ecology	Following implementation of mitigation measures, cumulative impacts are likely to be insignificant.	Following implementation of mitigation measures, cumulative impacts are likely to be insignificant.
Land Use / Geology, Hydrology and Hydrogeology	No cumulative impacts are identified.	Some positive cumulative impacts are likely to arise during site remediation.
Traffic and Infrastructure	Following implementation of mitigation measures, cumulative impacts are likely to be insignificant.	Following implementation of mitigation measures, cumulative impacts are likely to be insignificant.
Cultural Heritage	No cumulative impacts are identified.	No cumulative impacts are identified.
Socio-Economics	Positive socio-economic impacts are identified, therefore no mitigation is required.	Positive socio-economic impacts are identified, therefore no mitigation is required.