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SPALDING ENERGY EXPANSION

REVISED COMBINED HEAT AND POWER ASSESSMENT

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LIST OF ABBREVIATIONS

ACC	Air Cooled Condenser
CCGT	Combined Cycle Gas Turbine
CCR	Carbon Capture Readiness
CHP	Combined Heat and Power
CHPA	Combined Heat and Power Association
CHP-R	Combined Heat and Power Ready
CO2	carbon dioxide
DECC	Department of Energy and Climate Change
DUKES	Digest of UK Energy Statistics
ES	Environmental Statement
ES FID	Environmental Statement Further Information Document
HP	High Pressure
LHV	Lower Heating Value
LP	Low Pressure
LPCT	Lincolnshire Primary Care Trust
MW	Megawatt
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OCGT	Open Cycle Gas Turbine
OS	Ordnance Survey
SEE	Spalding Energy Expansion
SEEL	Spalding Energy Expansion Limited

1 INTRODUCTION

1.1 Intention to Vary Consent under Section 36C of the Electricity Act 1989

1.1.1 In March 2009, Spalding Energy Expansion Limited (SEEL) submitted an application for Consent under Section 36 of the Electricity Act 1989 (the Original Consent Application) to the Secretary of State for Energy and Climate Change (the Secretary of State) via the Department of Energy and Climate Change (DECC) to construct a 900 megawatt (MW) Combined Cycle Gas Turbine (CCGT) generating station to be known as Spalding Energy Expansion (SEE). In addition, a direction that planning permission be deemed to be granted under Section 90 of the Town and Country Planning Act 1990 was also sought.

1.1.2 Amongst other documents / studies, the Original Consent Application was accompanied by an Environmental Statement (ES) (the March 2009 ES) and the Original Combined Heat and Power (CHP) Assessment.

1.1.3 On 11 November 2010, Consent under Section 36 of the Electricity Act 1989 and deemed planning permission under Section 90 of the Town and Country Planning Act 1990 was granted (the Original Consent) for SEE.

1.1.4 Based on a number of influencing factors since the Original Consent was granted, SEEL is submitting an application under Section 36C of the Electricity Act 1989 to the Secretary of State via DECC for the Original Consent to be varied (the Variation Application).

1.1.5 If the Original Consent is varied as per the Variation Application, SEE will provide up to 945 MW of power generation capacity. In providing up to 945 MW of power generation capacity, the Proposed Development will either comprise:

- Scenario 1: Up to 945 MW of CCGT units; or,
- Scenario 2: Up to 645 MW of CCGT units and less than 300 MW of Open Cycle Gas Turbine (OCGT) units.

1.1.6 In addition, if the Original Consent is varied as per the Variation Application, the commencement of the deadline for the Consent will be 5 years from the date of granting the variation. Similarly, the commencement deadline for the deemed planning permission will be 5 years from the date of granting the variation.

1.2 The Purpose of this Document

1.2.1 To accompany the Variation Application, SEEL is providing the following information to DECC:

- An Environmental Statement Further Information Document (ES FID) (the Variation Application ES FID), which includes (amongst other items):
  - The rationale for proposing that the Original Consent is varied;
  - An assessment of whether the likely significant effects on the environment of the Proposed Development[1] differ from those described in the March 2009 ES; and,
    - Where there is potential for the likely significant effects to differ, an updated impact assessment;
    - Where there is no potential for the likely significant effects to differ, an explanation and / or supporting information.
- A Revised Carbon Capture Readiness (CCR) Feasibility Study;
- A Revised CHP Assessment; and,

[1] Being the generating station which SEEL would be authorised to construct under the Original Consent if this is varied as requested in the Variation Application.

- A Supplementary Flood Risk Assessment.

1.2.2 This Document is the Revised CHP Assessment which accompanies the Variation Application.

2 CONTEXT (THE PURPOSE OF A CHP ASSESSMENT) AND METHODOLOGY

2.1 Context

Introduction

2.1.1 CHP is the generation of electrical power and usable heat in a single process. This is also known as co-generation. CHP is a well proven process for reducing primary energy consumption, and reducing carbon dioxide (CO_2) emissions.

2.1.2 In recognition of the role that CHP can play in meeting the UK's Energy Policy priorities, the UK Government states that it is committed to the development and installation of CHP schemes[2,3].

2.1.3 In particular, wherever possible, the UK Government has committed to promoting CHP schemes which qualify as 'Good Quality CHP' schemes. 'Good Quality CHP' schemes are those which have been certified as highly efficient under the CHP Quality Assurance Programme and, in accordance with Directive 2012/27/EU on energy efficiency (the Energy Efficiency Directive), achieve at least a 10 per cent saving in primary energy consumption.

2.1.4 Information on installed CHP schemes is provided in Chapter 7 of the Digest of UK Energy Statistics[4] (DUKES) (July 2014) and Table 7A notes that in 2013 there were 2,014 CHP schemes in the UK with an electrical capacity of 6,170 MW (or a heat capacity of 22,225 MW). The corresponding electrical power and heat generation was 20,891 GWh and 46,701 GWh respectively. Furthermore, Table 7H notes that in 2013 the use of CHP schemes provided an estimated 14.83 Mt of CO_2 savings against all fossil fuels, and an estimated 9.34 Mt of CO_2 savings against all fuels (including nuclear and renewables).

Requirement for Consideration of CHP in Applications for Consent under Section 36 / 36C of the Electricity Act 1989

2.1.5 As noted in Section 2 (Rationale for Development) of the Variation Application ES FID, current national policy for energy infrastructure (including the construction / extension of a generating station with a generating capacity of more than 50 MW) is provided in the Overarching National Policy Statement (NPS) for Energy (EN-1) (NPS EN-1), and the technology-specific NPSs. Used together, and in accordance with the provisions of Section 104 of the Planning Act 2008, the NPSs form the primary policy basis for decisions made by the Secretary of State on applications for energy infrastructure comprising Nationally Significant Infrastructure Projects (NSIPs) under the Planning Act 2008. However, it is considered that the NPSs also form a material consideration when determining the Variation Application for the Proposed Development.

2.1.6 NPS EN-1 states (at paragraph 4.6.1) that:

"*A CHP station may either supply steam direct to customers of capture waste heat for low-pressure steam, hot water or space heating purposes after it has been used to drive electricity generating turbines. The heat can also be used to drive absorption chillers, thereby providing cooling".*

2.1.7 Furthermore, in terms of electricity generating stations and their potential to incorporate CHP, NPS EN-1 states (at paragraph 4.6.2) that:

"*In conventional thermal generating stations, the heat that is raised to drive electricity generation is subsequently emitted to the environment as waste. Supplying steam direct to industrial customers or using lower grade heat, such as in district heating networks,*

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[2] Energy White Paper: 'Our Energy Future – Creating a Low Carbon Economy' (February 2003).
[3] Energy White Paper: 'Meeting the Energy Challenge – A White Paper on Energy' (May 2007).
[4] Available at:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/337711/chapter_7.pdf

can reduce the amount of fuel otherwise needed to generate the same amount of heat and power separately. CHP is technically feasible for all types of thermal generating stations, including nuclear, energy from waste and biomass, although the majority of CHP plants in the UK are fuelled by gas".

2.1.8 In terms of consideration of CHP in applications for Consent, NPS EN-1 states (at paragraph 4.6.6) that:

"*Under guidelines issued by DECC (then DTI) in 2006, any application to develop a thermal generating station under Section 36 of the Electricity Act 1989 must either include CHP or contain evidence that the possibilities for CHP have been fully explored to inform the* [Secretary of State's] *consideration of the application.* […] *The* [Secretary of State] *should have regard to* [the guidelines issued by DECC] *or any successor to it when considering the CHP aspects of applications for thermal generating stations".*

2.1.9 The guidelines issued by DECC (then DTI) in 2006 are the 'Guidance on Background Information to Accompany Notifications under Section 14(1) of the Energy Act 1976 and Applications under Section 36 of the Electricity Act 1989' (December 2006) (the CHP Guidance).

2.1.10 The CHP Guidance states (at paragraph 24) that:

"*The Government recognises that decisions on major new power station investments, including the location and anticipated load duty of the station (e.g. base load, mid-merit, peak-lopping, support to local industry, etc) will primarily be driven by the market, taking into account fiscal and other incentives now on offer for CHP".*

2.1.11 In this regard, and in terms of the location and anticipated load duty of the station, NPS EN-1 states (at paragraph 4.6.7) that:

"*In developing proposals for new thermal generating stations, developers should consider the opportunities for CHP from the very earliest point and it should be adopted as a criterion when considering locations for a project".*

And (at paragraph 4.6.8) that:

"*Utilisation of useful heat that displaces conventional heat generation from fossil fuel sources is to be encouraged where, as will often be the case, it is more efficient than the alternative electricity / heat generation mix. To encourage proper consideration of CHP, substantial additional positive weight should therefore be given by the* [Secretary of State] *to applications incorporating CHP".*

2.1.12 Since the publication of the CHP Guidance, guidelines have been issued by the Environment Agency to be used in applications for Environmental Permits under the Environmental Permitting (England and Wales) Regulations 2010. These guidelines are the 'CHP Ready Guidance for Combustion and Energy from Waste Power Plants' (February 2013) (the CHP-R Guidance).

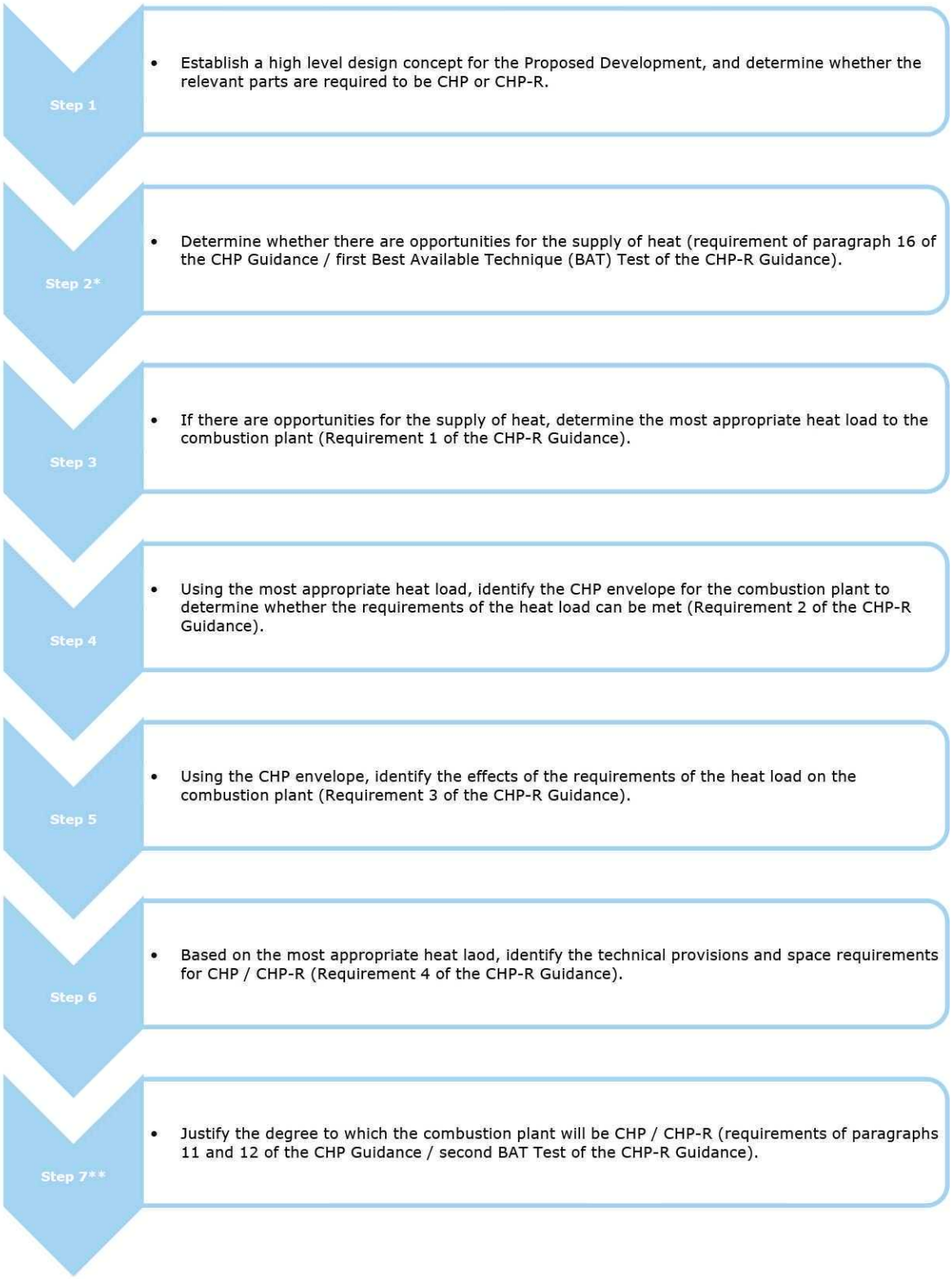
2.1.13 In terms of the requirements of the CHP Guidance and the CHP-R Guidance, the CHP-R Guidance states (in Section 3.3) that:

"*When consulted by the planning authorities on relevant consent applications for new plants, the Environment Agency will highlight the need for the plant to be CHP or CHP-R and will make reference to this CHP-R Guidance. Where a* [Section 36 Consent] *is required, the Environment Agency will additionally comment on the results of the CHP Assessment".*

2.2 Assessment Methodology

2.2.1 In developing the assessment methodology for this Revised CHP Assessment, the requirements of the CHP Guidance and the CHP-R Guidance have been considered holistically and the separate assessment methodologies have been combined. Accordingly, the assessment methodology for this Revised CHP Assessment is shown in Insert 2.1. The relevant extracts of the CHP Guidance (paragraphs 11 and 12) and the CHP-R Guidance (Insert 1) are provided in Appendix A and Appendix B respectively.

INSERT 2.1: ASSESSMENT METHODOLOGY



* Please see paragraph 2.2.2 below.
** Please see paragraph 2.2.3 below.

2.2.2 In terms of Step 2, the requirements of paragraph 16 of the CHP Guidance are that applicants:

- "*Demonstrate that they have properly consulted the results of the UK Heat Mapping Exercise* [...];
- *Demonstrate that they have worked with regional planning bodies and local planning authorities to identify whether opportunities presented by emerging spatial planning strategies can support CHP in planned development and that they have contributed wherever possible, given timing and commercial confidentiality constraints, to such strategies;*
- *Demonstrate that they have explored a number of potential heat markets, either singly or in combination; and,*
- *Demonstrate that they have contacted* [a number of] *organisations that can assist developers in identifying potential CHP customers*".

2.2.3 In terms of Step 7, the requirements of paragraphs 11 and 12 of the CHP Guidance are that applicants include within their application:

- *"An explanation of their choice of location, including the potential viability of the site for CHP;*
- *A report on the exploration carried out to identify and consider the economic feasibility of local heat opportunities and how to maximise the benefits from CHP;*
- *The results of that exploration; and,*
- *A list of the organisations contacted".*

And if the proposal is for generation without CHP, applicants should include within their application:

- *"The basis for the* [...] *conclusion that it is not economically feasible to exploit the existing regional heat markets;*
- *A description of potential future heat requirements in the area; and,*
- *The provisions in the proposed scheme for exploiting any potential heat demand in the future".*

2.3 Checklist

2.3.1 Based on Insert 2.1 (and the CHP Guidance and the CHP-R Guidance), a link to where the requirements of the CHP Guidance and the CHP-R Guidance are met is provided in Table 2.1.

TABLE 2.1: CHP ASSESSMENT CHECKLIST

Evidence Required		***Location in this Supplementary CHP Assessment***
Step 1	Requirement to be CHP or CHP-R	Section 3.4
Step 2	Determination of CHP / CHP-R opportunities	Section 4.2
Step 3	Determination of preferred CHP opportunity	Section 4.3
Step 4	Identification of CHP / CHP-R envelope	Section 5.2
Step 5	Identification of the effects of the preferred CHP / CHP-R opportunity	Section 5.2
Step 6	Identification of the technical provision / space requirements for the preferred CHP / CHP-R opportunity	Section 5.3 / Figure 1A (for Scenario 1) / Figure 1B (for Scenario 2)
Step 7	Justification for the degree of CHP / CHP-R	Section 5.3

2.4 The Structure of this Revised CHP Assessment

2.4.1 Based on the above methodology, this Revised CHP Assessment is structured as follows:

- ***Section 1***: A brief introduction, summarising the purpose of this Revised CHP Assessment;
- ***Section 2***: The context (i.e. the need for a CHP Assessment) and the assessment methodology that has been employed;
- ***Section 3***: A development description (covering the overall Proposed Development, the proposed SEE site, the CHP requirements for SEE associated with the Original Consent and an assessment of the requirement for SEE to be CHP / CHP-R;
- ***Section 4***: An evaluation of the CHP / CHP-R opportunities for SEE;
- ***Section 5***: Describes the preferred CHP / CHP-R opportunity; and,
- ***Section 6***: The conclusions of this Revised CHP Assessment.

Supporting information is provided in the Appendices.

3 DEVELOPMENT DESCRIPTION

3.1 SEE (i.e. The Proposed Development)

3.1.1 If the Original Consent is varied as per the Variation Application, SEE will provide up to 945 MW of power generation capacity. SEE will be capable of operating continuously for up to 35 years.

3.1.2 In providing up to 945 MW of power generation capacity, the Proposed Development will either comprise:

- Scenario 1: Up to 945 MW of CCGT units; or,
- Scenario 2: Up to 645 MW of CCGT units and less than 300 MW of Open Cycle Gas Turbine units.

3.1.3 In addition, if the Original Consent is varied as per the Variation Application, the commencement of the deadline for the Consent will be 5 years from the date of granting the variation. Similarly, the commencement deadline for the deemed planning permission will be 5 years from the date of granting the variation.

CCGT Unit

3.1.4 Under Scenario 1, there will be two CCGT units with a total rated electrical output of up to 945 MW. Under Scenario 2, there will be one CCGT unit with a rated electrical output of up to 645 MW.

3.1.5 Each CCGT unit will include a gas turbine, a HRSG, a steam turbine and associated equipment. The natural gas will be burnt in the combustion chamber of the gas turbine from which hot gases will expand through the turbine section to generate electricity. The hot exhaust gases still contain recoverable energy and will therefore be used in a HRSG to generate steam, which in turn is used to generate electricity via steam turbine equipment.

3.1.6 The steam exhausting the steam turbine equipment will pass to an Air Cooled Condenser (ACC) where it will be condensed. The resultant condensate will be returned to the HRSGs to continue the steam cycle.

3.1.7 The flue gases will be discharged via a dedicated stack.

3.1.8 The use of a combined gas and steam cycle increases the overall fuel efficiency of the generating station. As such, the CCGT unit(s) will be capable of generation in combined cycle mode with an overall electrical generation efficiency between approximately 55 to 60 per cent based on the Lower Heating Value (LHV) of the fuel.

OCGT Units

3.1.9 Under Scenario 2, the OCGT unit(s) will have a total rated electrical output of less than 300 MW.

3.1.10 In essence, an OCGT unit comprises the prime driver of a CCGT unit, which is the gas turbine. As with an OCGT unit, the natural gas will be burnt in the combustion chamber of the gas turbine from where the hot gases will expand through the gas turbine to generate electricity.

3.1.11 As there is no steam cycle, there is no condensing of steam which has an associated cooling requirement. Furthermore, whilst auxiliary cooling is still required, this requirement is significantly lower than for that for a CCGT unit.

3.1.12 The hot exhaust gases are routed directly to a dedicated stack. The stack normally contains a silencer to reduce noise emissions. Due to the higher stack exit temperature, the stacks of OCGT units are generally shorter than those of CCGT units.

3.1.13 The OCGT units will have an electrical generation efficiency between approximately 33 to 43 per cent based on the LHV of the fuel.

3.2 The Proposed SEE Site

3.2.1 The proposed SEE site lies approximately 2 km to the north east of Spalding town centre. The Ordnance Survey (OS) Grid Reference of the centre of the SEE site is approximately 525950, 324950.

3.2.2 The location of the SEE site is shown outlined in red in Insert 3.1.

INSERT 3.1: LOCATION OF THE SEE SITE



3.2.3 The proposed SEE site is bounded by West Marsh Road to the east and by Vernatt's Drain to the west. The River Welland lies approximately 30 m to the east.

3.2.4 The proposed SEE site occupies a total area of approximately 14 ha, within which approximately 4.3 ha of land in the south of the proposed SEE site has been set aside by SEEL for the purposes of Carbon Capture Readiness (CCR).

Factors influencing Selection of the SEE Site

3.2.5 The proposed SEE site, which utilises brownfield land, was selected as the most appropriate site for the Proposed Development. Indeed, the proposed SEE site offers a number of key benefits including:

- The use of existing infrastructure wherever possible;
- The presence of a skilled workforce at the existing Spalding CCGT generating station, with established operational systems, who will be available for training new employees;
- The availability of technical support (if required) from the existing Spalding CCGT generating station;
- The close proximity of the National Grid Gas National Transmission System;
- The close proximity of the National Grid Electricity National Transmission System, and the allowable use of the existing overhead line;
- The availability of sufficient land for the Proposed Development;

- An appropriate visual context with the adjoining land uses;
- The opportunities to link beneficially adjoining land uses;
- Compatibility with planning policy; and,
- The existing strong relationships with key stakeholders and the local community.

3.3 Conditions associated with the Original Consent for SEE

3.3.1 Based on the Original CHP Assessment, Condition 3 of the Original Consent states that "*the Development shall be designed so as to have the capability for extracting steam from the electricity generating cycle".*

3.3.2 In addition, Condition 5(47) and Condition 5(48) of the Original Consent relating to the use of waste heat states that:

- "*The Commissioning of the Development shall not take place until sufficient plant and pipework has been installed to facilitate the future supply of heat to the boundary of the Site under Condition 5(48) at a later date if opportunities to do so are identified pursuant to Condition 5(48)*"; and,
- "*Prior to the Commissioning of the Development, an updated CHP Feasibility Review assessing potential opportunities for the use of heat from the Development shall be submitted to, approved in writing by, and deposited with the Relevant Planning Authority. This shall provide for the on going monitoring and full exploration of potential opportunities to use heat from the Development as part of a Good Quality CHP scheme* […]*, and for the provision of subsequent reviews of such opportunities as necessary. Where viable opportunities for the use of heat in such a scheme are identified, a scheme for the provision of the necessary plant and pipework to the boundary of the site shall be submitted to, approved in writing by, and deposited with the Council. Any plant and pipework installed to the boundary of the Site to enable the use of heat shall be installed in accordance with the agreed details*".

3.3.3 Furthermore, conditions related to CHP are also contained in the Section 106 Agreement between SEEL and South Holland District Council. In particular:

- CHP Fund: Upon the date of commencement of the Proposed Development, SEEL has agreed to contribute to a fund from which "*businesses, organisations, charities, associations and other organisations can obtain funding for the undertaking of feasibility studies into the use by such parties of heat from the SEE site".*
- CHP Package (South Holland Community Hospital): 6 months prior to the date of commencement of the Proposed Development, SEEL has agreed to offer to provide and install all necessary CHP infrastructure such that heat can be transported from the SEE site to the boundary of the South Holland Community Hospital site.
- Alternative CHP / Energy Efficiency Package: If Lincolnshire Primary Care Trust (LPCT) does not accept the offer for the CHP Package within the 6 months prior to the date of the commencement of the Proposed Development, SEEL has agreed to use reasonable endeavours to agree an alternative CHP and / or energy efficiency package.

3.4 Requirement for the Proposed Development to be CHP / CHP-R

3.4.1 The Proposed Development will either comprise: CCGT units only; or, both CCGT and OCGT units. The requirement for these units to be CHP / CHP-R is considered separately in this sub-Section.

CCGT Unit

3.4.2 Under both Scenario 1 and Scenario 2, the CCGT unit(s) will be required to be CHP / CHP-R.

3.4.3 For Scenario 1, the Original CHP Assessment determined the appropriate degree of CHP / CHP-R for up to 945 MW of CCGT units. The information from the Original CHP Assessment is summarised in this Revised CHP Assessment, and supplemented where necessary.

3.4.4 For Scenario 2, this Revised CHP Assessment will determine the appropriate degree of CHP / CHP-R for up to 645 MW of CCGT units.

OCGT Unit(s)

3.4.5 The CHP-R Guidance notes (at 'Applicability of the CHP-R Guidance) that:

"*Whilst it is considered that CHP is technically feasible for all types of new plants, it is recognised that in some cases (such as peaking plants and anaerobic digestion plants) the provision of CHP would not be compatible with original operating regimes / intentions. Therefore, in such cases, applicants* […] *should provide evidence as to why their plant should be excluded from being CHP-R".*

3.4.6 Therefore, under Scenario 2, the OCGT units should not be required to be CHP or CHP-R.

3.4.7 Indeed, conventionally, OCGT units (installed as 'peaking plant') are required to provide electrical power generation during peaks in demand and also, increasingly, to provide cover for variable supply from renewable energy sources, such as wind. Therefore the operating regimes of OCGT units comprise operation during peak periods in demand to provide support to the National Grid Electricity Transmission System.

3.4.8 Conversely, efficient CHP plants are usually designed to meet the demands of an identified heat load. These identified heat loads have heat demands which are usually steady or constant over an extended period of time. In these CHP plants, electrical power generation is utilised or exported to the grid.

3.4.9 Therefore, these are two conflicting modes of operation which indicate that the intermittent and peaking operation of the OCGT units is incompatible with a steady heat load requirement, and the operation of the OCGT units cannot be guaranteed to coincide with the identified heat demand.

3.4.10 In addition, as noted in Section 3.1, within OCGT units, there is no steam cycle (i.e. there is no associated HRSG / steam turbine plant) and therefore the provision of steam from an OCGT unit would not be possible without the provision of additional steam raising plant / equipment (i.e. in essence, the conversion of the OCGT unit into a CCGT unit).

3.4.11 In the provision of the additional steam raising plant / equipment, a significant amount of additional interconnections would also be required, demanding significant technical and economic investment.

Summary of the Requirement for the Proposed Development to be CHP / CHP-R

3.4.12 In terms of the requirement for the Proposed Development to be CHP / CHP-R, it is considered that:

- The CCGT unit(s) will be required to be CHP / CHP-R. Further discussion is provided in the remainder of this Revised CHP Assessment.
- The OCGT unit(s) will not be required to be CHP / CHP-R. No further discussion is provided in the remainder of this Revised CHP Assessment.

4 CHP / CHP-R OPPORTUNITIES

4.1 Introduction

4.1.1 When considering CHP / CHP-R opportunities, NPS EN-1 states (at paragraph 4.6.5) that:

"*To be economically viable as a CHP plant, a generating station needs to be located close to industrial or domestic customers with heat demands. The distance will vary according to the size of the generating station and the nature of the heat demand, but is likely to mean within a distance of 15 km".*

4.1.2 In general, CHP is more attractive in cases when the heat load is large and constant throughout the year. This is typically the case with chemical plants, refineries and factories which depend upon continuous processes and use large amounts of heat (usually supplied as steam).

4.1.3 CHP is less attractive in cases where the heat load is seasonal or intermittent. This is typically the case for district heating in countries (such as the UK) which have a relatively short winter heating season (compared to Scandinavian or Eastern European countries). As such, there is a general absence of significant district heating schemes in the UK and, where they are developed, district heating schemes have generally been associated with new-build publically funded and often high-rise housing where the heat loads can be readily combined and the heat distribution piping is compact.

4.2 CHP / CHP-R Opportunities

4.2.1 The CHP Guidance requires that CHP Assessments examine the information available on the Online Industrial Heat Map.

Summary of Opportunities identified in the Original CHP Assessment

4.2.2 The Original CHP Assessment examined the Online Industrial Heat Map (which was available at: http://www.industrialheatmap.com) to identify CHP opportunities in the East Midlands area.

4.2.3 Based on the Online Industrial Heat Map, the Original CHP Assessment noted that: "*although there are 790 sites identified as suitable for CHP in the UK, none are in close proximity to the proposed SEE".* Furthermore: "*the nearest Industrial Heat User is 19 km to the east (Premier Foods located between Long Sutton and Sutton Bridge). Therefore, in order to support the development of CHP in the UK, the proposed SEE is seeking to provide an innovative local solution".*

4.2.4 Therefore, no viable CHP / CHP-R opportunities were identified from the Online Industrial Heat Map.

4.2.5 Further to the examination of the Online Industrial Heat Map, SEEL consulted with the organisations identified by DECC that can assist developers in identifying potential CHP customers. These were:

- DECC;
- Lincolnshire County Council;
- South Holland District Council;
- East Midlands Regional Assembly;
- NHS Estates / Strategic Heath Authority;
- CHP Association (CHPA); and,
- The Carbon Trust.

4.2.6 No viable CHP / CHP-R opportunities were identified from the consultation with the organisations identified by DECC.

4.2.7 In addition, based on local knowledge, SEEL consulted with potential heat users local to the proposed SEE site. These were based in one of three zones close to the proposed SEE site:

- Zone 1: Comprising industrial and commercial businesses, a supermarket, a petrol station, the new South Holland Community Hospital and vacant employment land.
- Zone 2: Comprising the existing Spalding CCGT generating station, the proposed SEE site, a water treatment works and a food processing and distribution facility.
- Zone 3: Comprising the Springfields Shopping Centre, industrial and commercial businesses, and agricultural / horticultural land.

4.2.8 Of these, Zones 1 and 2 were targeted for CHP opportunities. Zone 3 was discounted due to the need to overcome the physical barrier of the River Welland. These zones are shown in Insert 4.1.

INSERT 4.1: ZONES IDENTIFIED CLOSE TO THE PROPOSED SEE SITE



4.2.9 Within Zones 1 and 2, the potential heat users were:

- Host A – A Food Processing Facility.
- Host B – Critical Local Services Provider.
- Host C – A Food Processing Facility.
- Host D – The New South Holland Community Hospital.
- Host E – Large Multinational Company.
- Host F – Intensive Agriculture.
- Host G – Intensive Agriculture.

4.2.10 Based on the above consultation with potential heat users local to the proposed SEE site, the two CHP opportunities progressed were with:

- Host D – The New South Holland Community Hospital.

  At the time of writing the Original CHP Assessment, the South Holland Community Hospital was under construction. It was officially opened in January 2010. The

main source of heat is from two gas fired boilers with the provision for a third gas fired boiler should it be required in the future.

The Original CHP Assessment noted that SEE could be configured with an extraction to supply all the future heat demand in the form of hot water coupled into the location reserved for the third gas fired boiler with minimal disruption to the hospital activities. Therefore the two gas fired boilers would be used initially, and then relegated to back-up once SEE is also to satisfy the heat demand. The gas fired boilers could also be used when heat is not available from SEE.

For this scheme to be completed, a hot water network would need to be installed along the same route as Vernatt's Drain from the proposed SEE site to the South Holland Community Hospital. This would consist of small diameter pipework that will be laid either over ground or buried. The hot water supply and return water would be a closed loop so that the water is not derived directly from the steam / water cycle of the CCGT unit, nor is it returned to the steam / water cycle. This is because the CCGT unit requires demineralised water and SEEL would not have any control of the water quality once it leaves the proposed SEE site.

- Host E – Large Multinational Company.

4.2.11 To exploit these two identified CHP opportunities alongside any future CHP opportunities, the Original CHP Assessment noted that SEEL will progress with the design of the Proposed Development to allow for the provision of up to 10 MWth of heat.

Updated Summary of Opportunities

4.2.12 Since the publication of the CHP Guidance and the submission of the Original CHP Assessment, the Online Industrial Heat Map has been replaced with the UK CHP Development Map (available at: http://chptools.decc.gov.uk/developmentmap/).

4.2.13 The results from the examination of the UK CHP Development Map, covering a search area of 15 km centred on the proposed SEE site (the CHP search area), are shown in Insert 4.2. The breakdown of the results from the examination of the UK CHP Development Map is shown in Table 4.1.

INSERT 4.2: RESULTS FROM THE EXAMINATION OF THE UK CHP DEVELOPMENT MAP

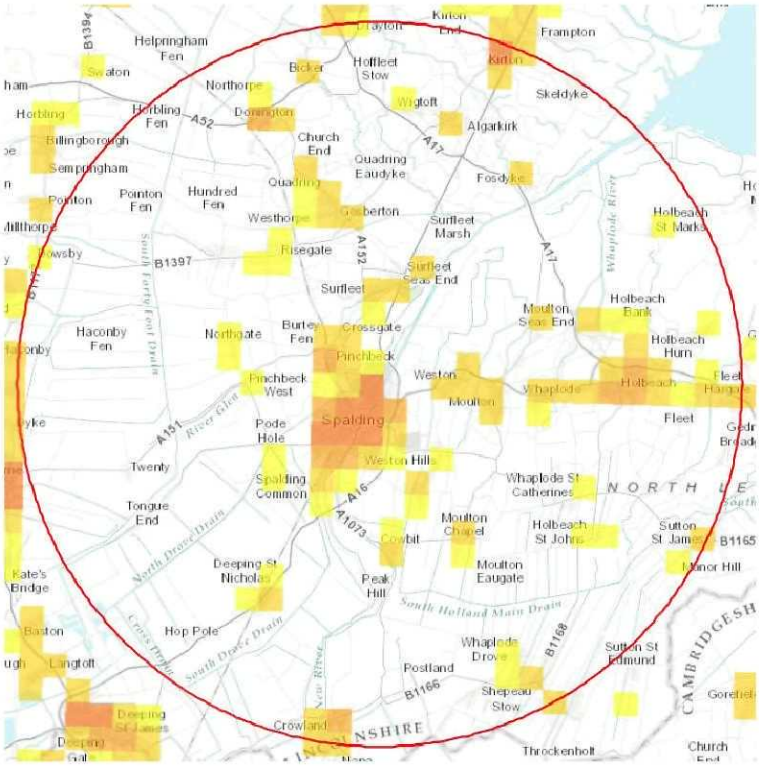


TABLE 4.1: BREAKDOWN OF THE RESULTS FROM THE EXAMINATION OF THE UK CHP DEVELOPMENT MAP

Sector	***Total MW***	***% of Total Heat Load***
Communications and Transport	0.09	0.02
Commercial Offices	2.33	0.67
Domestic	298.99	86.45
Education	2.37	0.68
Government Buildings	1.12	0.32
Hotels	1.86	0.54
Health	0.49	0.14
Other	1.97	0.57
Small Industrial	18.40	5.32
Retail	3.50	1.01
Sport and Leisure	0.35	0.10
Warehouses	14.41	4.17
Total Heat Load in the CHP Search Area	**345.87**	**100**

4.2.14 Based on the use of Table 4.1 it can be seen that the largest heat loads within the CHP search area were related to:

i) Domestic;

ii) Small Industrial; and,

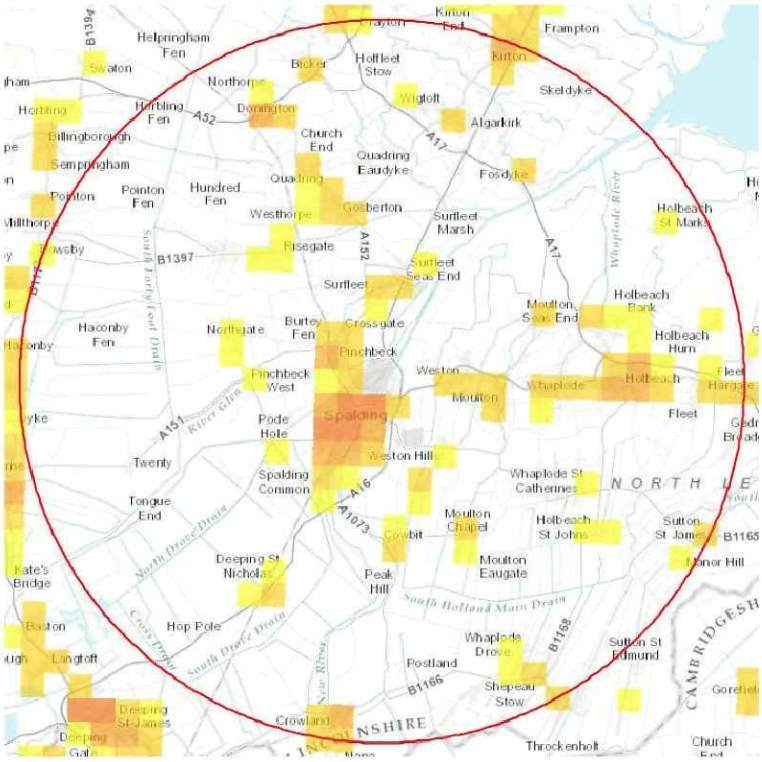
iii) Warehouses.

4.2.15 These heat loads are examined further in this sub-Section.

Domestic

4.2.16 In terms of the domestic heat loads within the CHP search area, the results from the specific examination of the UK CHP Development Map are shown in Insert 4.3.

INSERT 4.3: DOMESTIC HEAT LOAD RESULTS FROM THE EXAMINATION OF THE UK CHP DEVELOPMENT MAP



4.2.17 The results show that the domestic heat load within the CHP search area is 299 MW, approximately 86.45 per cent of the total heat load within the CHP search area. Based on the use of Insert 4.3, this domestic heat load is spread across the settlements that lie within the CHP search area.

4.2.18 In combination with the domestic heat load spread, NPS EN-1 states (at paragraph 4.6.5) in terms of district heating networks that:

"A "2009 Report for DECC[5] on district heating networks suggested that, for example, a district heating network using waste heat from a generating station would be cost-effective where there was a demand for 200 MWth of heat [assumed to be located in a concentrated area] *within 15 km. Additionally, the provision of CHP is most likely to be cost-effective and practical where it is included as part of the initial design and is part of a mixed-use development. For example, retrofitting a district heating network to an existing housing estate may not be efficient".*

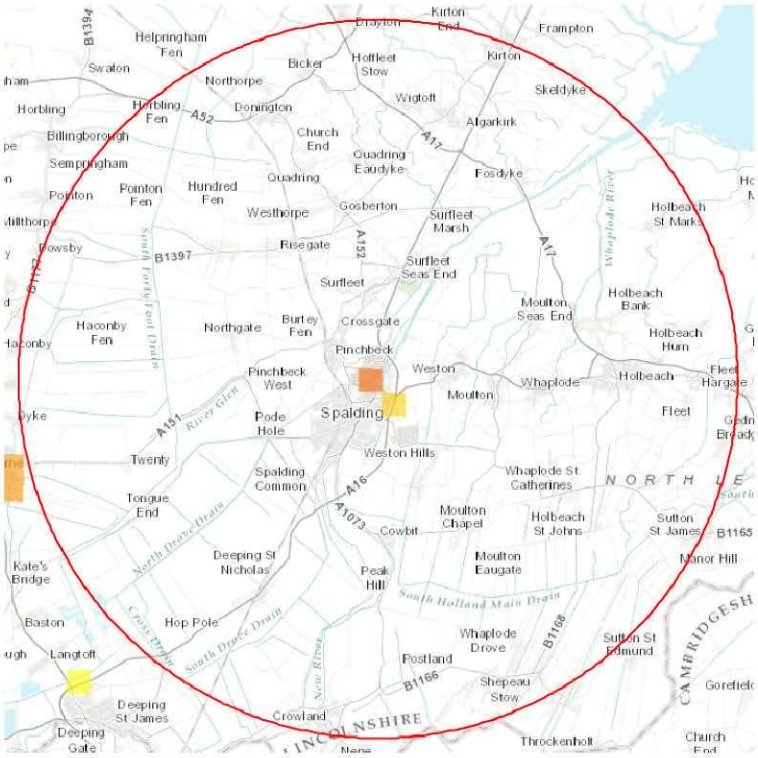
4.2.19 As the domestic heat load is spread across the CHP search area (i.e. is characterised by disparate, smaller settlements) and is not representative of a new heat load, the costs and practical benefits of including it as part of any initial design cannot be realised. In addition, it is also understood that there are no proposals for any new large-scale residential settlements in the area. Therefore, the domestic heat load is not considered to be a viable CHP opportunity.

[5] 'The Potential and Costs of District Heating Networks', April 2009. Pöyry and Faber Maunsell

Small Industrial

4.2.20 In terms of the small industrial heat loads within the CHP search area, the results from the specific examination of the UK CHP Development Map are shown in Insert 4.4.

INSERT 4.4: SMALL INDUSTRIAL HEAT LOAD RESULTS FROM THE EXAMINATION OF THE UK CHP DEVELOPMENT MAP



4.2.21 The results show that the small industrial heat load within the CHP search area is 18 MW, approximately 5.32 per cent of the total heat load within the CHP search area. Based on the use of Insert 4.4, this small industrial heat load is located in two disparate areas, close to Spalding.

4.2.22 However, as with the domestic heat load, as the small industrial heat load is not representative of a new heat load, the costs and practical benefits of including it as part of any initial design cannot be realised. Therefore, the small industrial heat load is not considered to be a viable CHP opportunity.

Warehouses

4.2.23 In terms of the warehouse heat loads, the results from the specific examination of the UK CHP Development Map do not allow for the identification of their locations. However, the results show that the warehouse heat load within the CHP search area is 14 MW, approximately 4.17 per cent of the total heat load within the CHP search area.

4.3 Summary of the Preferred CHP / CHP-R Opportunity

4.3.1 Given the conditions associated with the Original Consent for SEE, the conditions related to CHP in the Section 106 Agreement, the results of the Original CHP Assessment and the results of the updated summary of opportunities, the preferred CHP / CHP-R opportunity remains that related to the South Holland Community Hospital.

4.3.2 Therefore, for both Scenario 1 and Scenario 2, SEEL will progress the design of the Proposed Development to allow for the provision of up to 10 MWth of heat.

5 PREFERRED CHP / CHP-R OPPORTUNITY

5.1 Introduction

5.1.1 Based on the preferred CHP / CHP-R opportunity (i.e. the South Holland Community Hospital), this Section describes the proposed CHP-R design.

5.2 Identification of the CHP Envelope

5.2.1 The Original CHP Assessment noted that, based on the preferred CHP / CHP-R opportunity, the CCGT units design would be identical to conventional CCGT units except for the inclusion of the following additional items:

- Accessible tie-in locations in either the:
  - High pressure (HP) steam turbine exhaust (from the cold re-heat line); or,
  - Low pressure (LP) steam turbine inlet.
- Stack design that would allow for future retrofit of flue gas extraction equipment; and,
- Control systems linked to the connections.

5.2.2 This approach is maintained for this Revised CHP Assessment. Therefore, the potential CHP-R designs evaluated related to the different extraction points. These are:

- HP steam turbine CHP-R design;
- LP steam turbine CHP-R design; and,
- Stack heating CHP-R design.

5.2.3 The HP steam turbine CHP-R design and LP steam turbine CHP-R design would, if implemented, have an effect on the steam cycle (and therefore performance) of the CCGT unit(s). The stack heating CHP-R design would not have an effect on the CCGT unit(s). Therefore only the HP steam turbine CHP-R design and LP steam turbine CHP-R design are evaluated further here.

5.2.4 For both Scenario 1 and Scenario 2, heat and power envelopes for the HP steam turbine CHP-R design and LP steam turbine CHP-R design showing the possible operating ranges for the CCGT unit(s) have been prepared. On the heat and power envelopes, the limits are defined as follows:

A: Minimum Stable Load (with no Heat Extraction)
B: Minimum Stable Load (with maximum Heat Extraction)
C: 100 per cent Load (with maximum Heat Extraction)
D: 100 per cent Load (with no Heat Extraction)

5.2.5 The CHP efficiency (ηCHP) is defined as:

$$\eta_{CHP} = \frac{\text{Net Process Heat Output + Net Power Output}}{\text{Fuel Input}}$$

5.2.6 However, it should be noted that the heat and power envelopes should not be considered as definitive, and would ultimately depend on the required steam conditions and the steam turbine design of the CCGT unit(s).

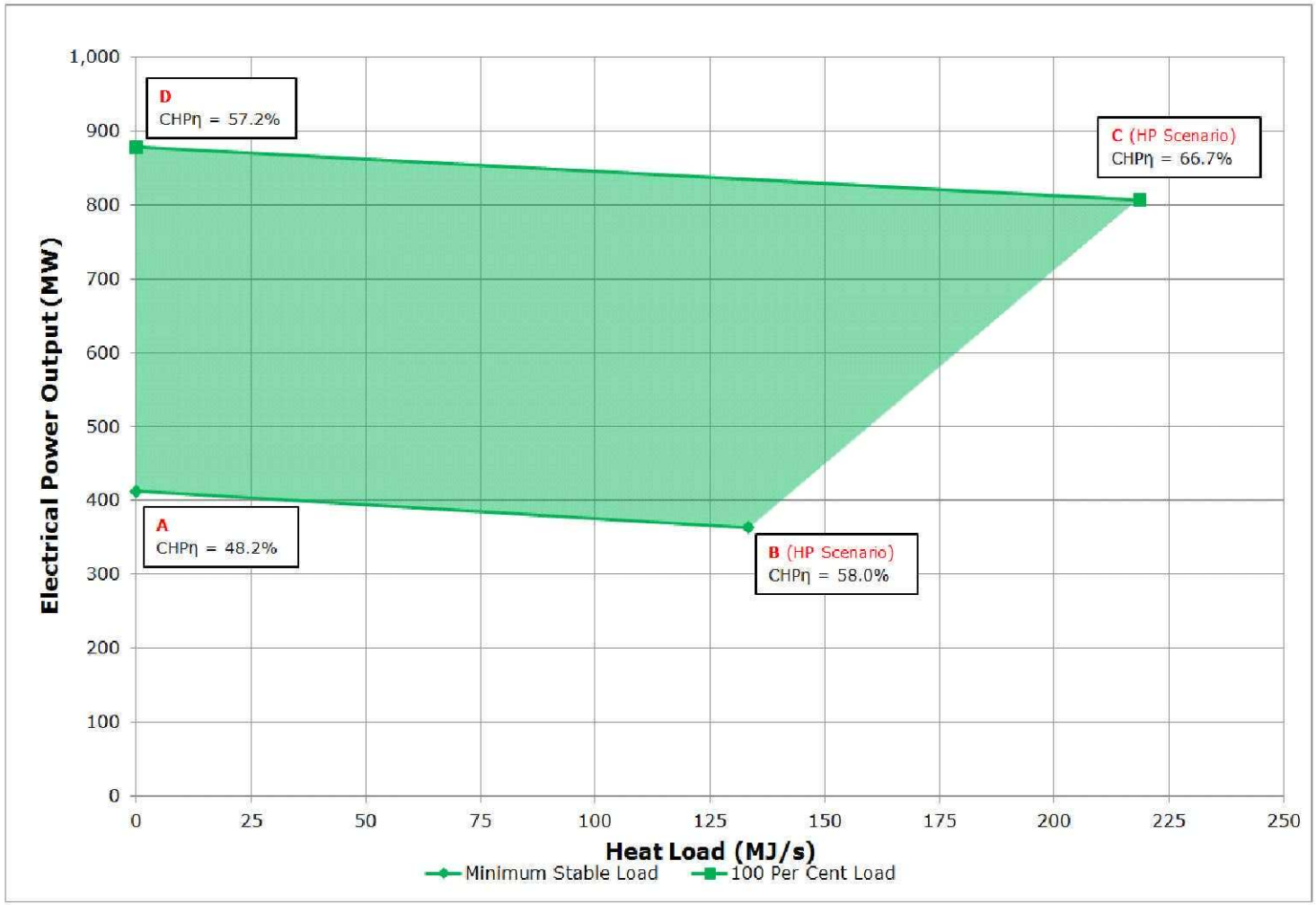
Scenario 1

5.2.7 For Scenario 1, heat and power envelopes are shown in Insert 5.1 and Insert 5.2 for the HP steam turbine CHP-R design and LP steam turbine CHP-R design respectively. The performance of the CCGT units (i.e. the indicative heat and power envelope data) is summarised in Table 5.1.

Scenario 2

5.2.8 For Scenario 2, heat and power envelopes are shown in Insert 5.3 and Insert 5.4 for the HP steam turbine CHP-R design and LP steam turbine CHP-R design respectively. The performance of the CCGT unit (i.e. the indicative heat and power envelope data) is summarised in Table 5.2.

INSERT 5.1: SCENARIO1 – HEAT AND POWER ENVELOPES FOR HP STEAM TURBINE SCENARIO



INSERT 5.2: SCENARIO 1 – HEAT AND POWER ENVELOPES FOR LP STEAM TURBINE SCENARIO

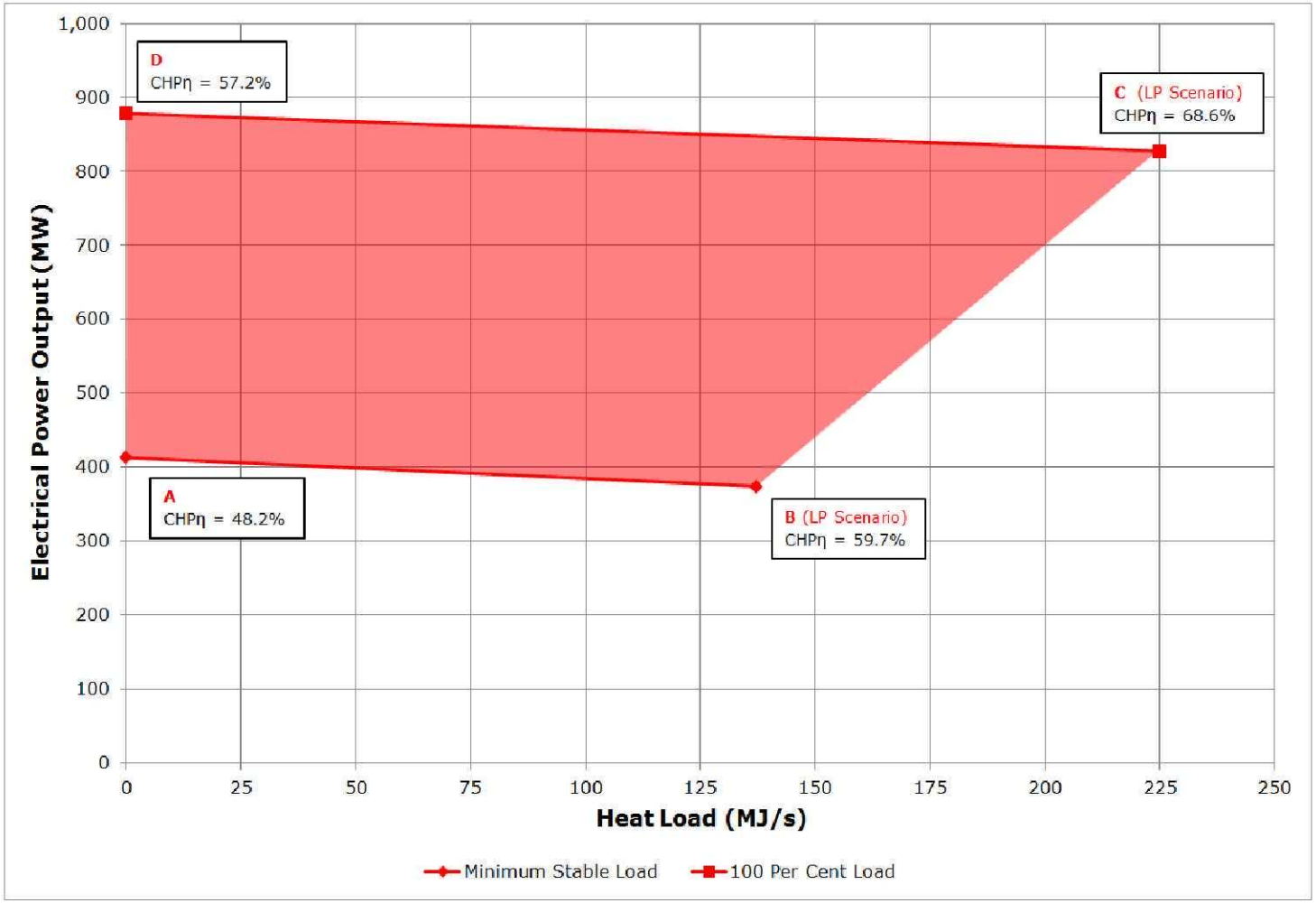
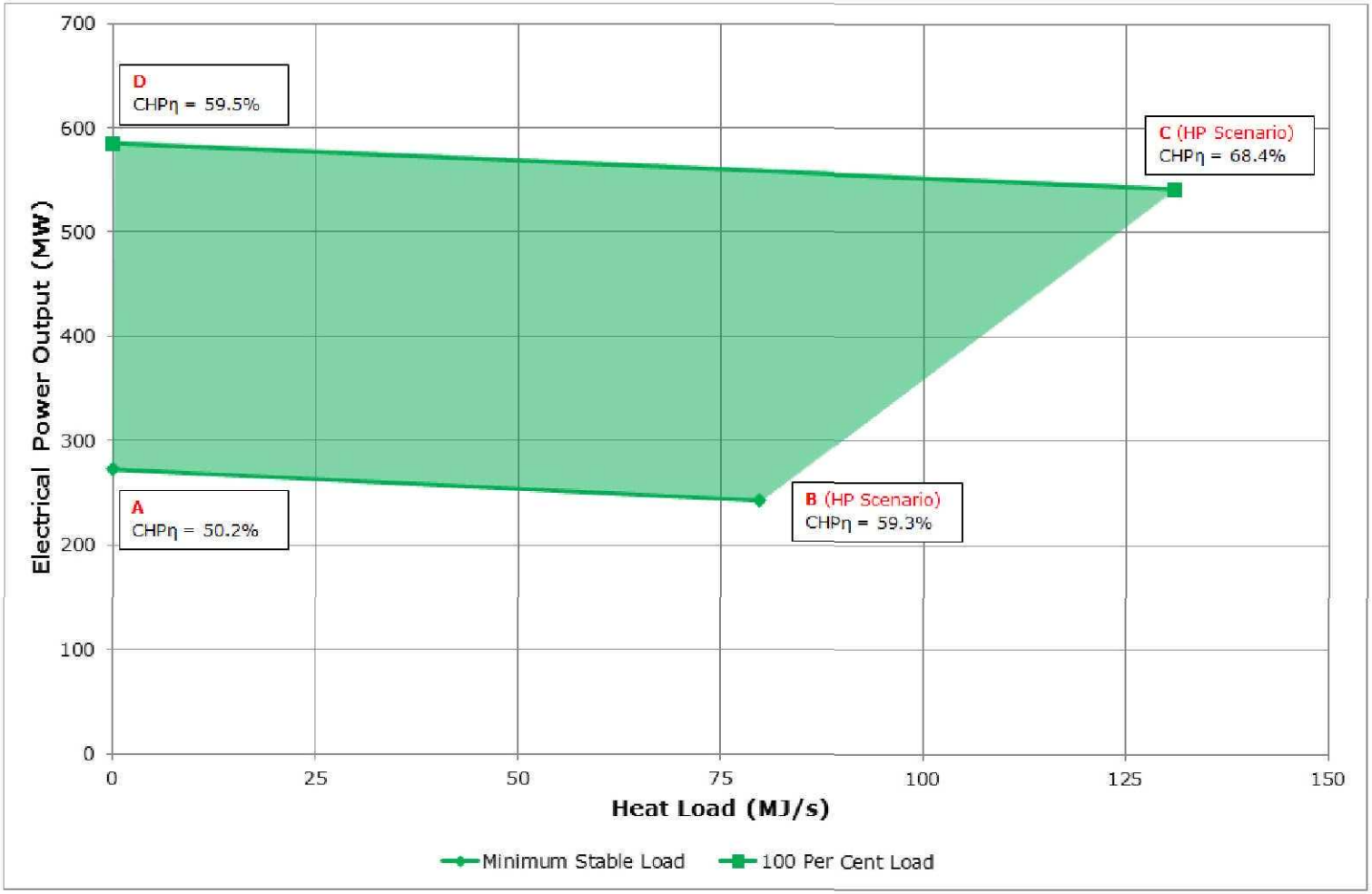


TABLE 5.1: SCENARIO 1 – INDICATIVE HEAT AND POWER ENVELOPE DATA

		No Heat Extraction	*Maximum Heat Extraction*
HP Steam Turbine Scenario			
Minimum Stable Load		**A**	**B**
Fuel Input*	MJ/s	856	856
Net Process Heat Output	MW	0	133
Net Electrical Power Output	MW	413	363
Total Heat and Power Output	MW	413	496
CHP Efficiency	%	48.2	58.0
100 Per Cent Load		**D**	**C**
Fuel Input*	MJ/s	1536	1536
Net Process Heat Output	MW	0	219
Net Electrical Power Output	MW	878	806
Total Heat and Power Output	MW	878	1025
CHP Efficiency	%	57.2	66.7
LP Steam Turbine Scenario			
Minimum Stable Load		**A**	**B**
Fuel Input*	MJ/s	856	856
Net Process Heat Output	MW	0	137
Net Electrical Power Output	MW	413	374
Total Heat and Power Output	MW	413	511
CHP Efficiency	%	48.2	59.7
100 Per Cent Load		**D**	**C**
Fuel Input*	MJ/s	1536	1536
Net Process Heat Output	MW	0	225
Net Electrical Power Output	MW	878	828
Total Heat and Power Output	MW	878	1053
CHP Efficiency	%	57.2	68.6

* Fuel input is based on the Lower Heating Value (LHV)

INSERT 5.3: SCENARIO 2 – HEAT AND POWER ENVELOPES FOR HP STEAM TURBINE SCENARIO



INSERT 5.4: SCENARIO 2 – HEAT AND POWER ENVELOPES FOR LP STEAM TURBINE SCENARIO

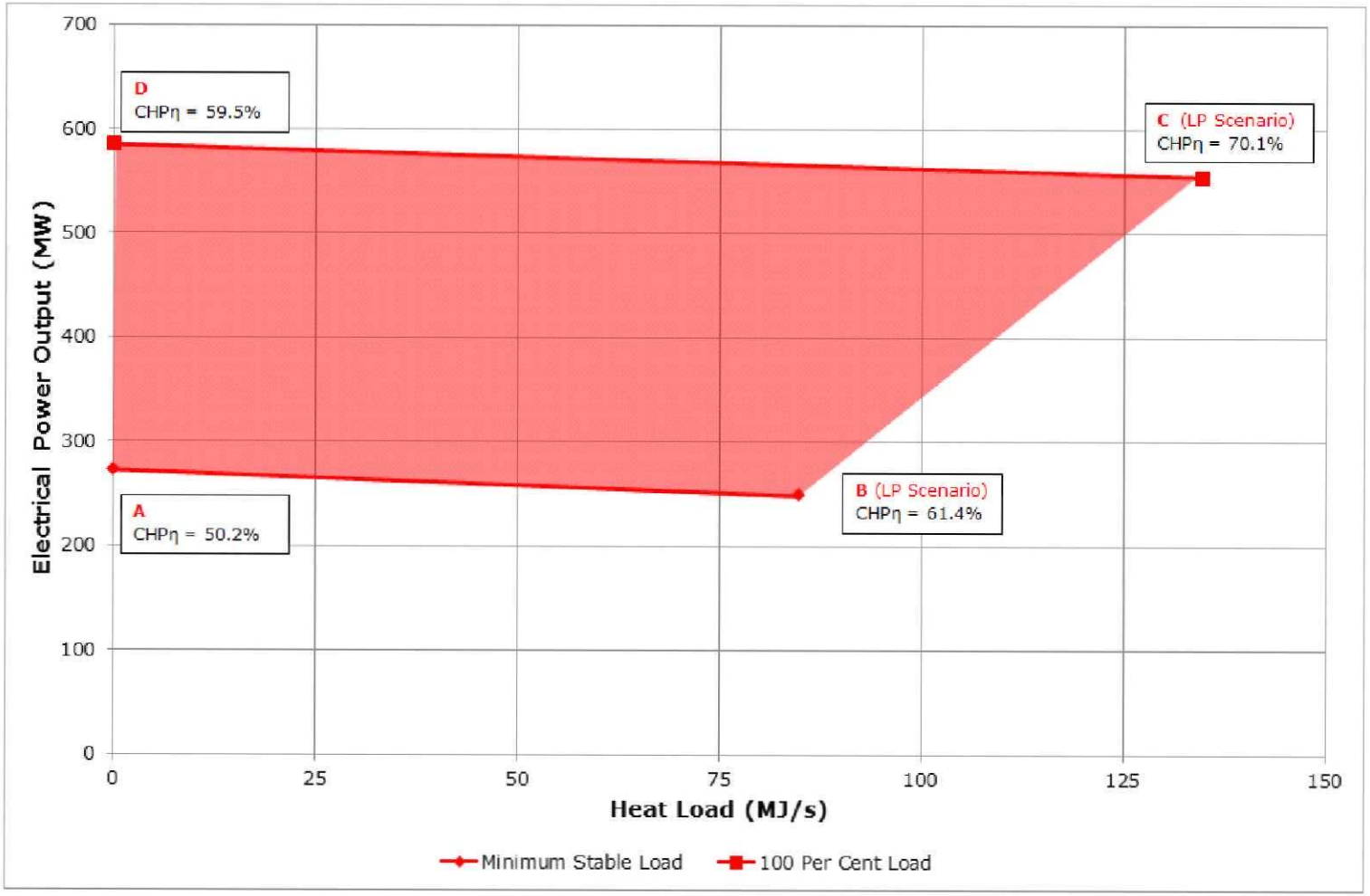


TABLE 5.2: SCENARIO 2 – INDICATIVE HEAT AND POWER ENVELOPE DATA

		No Heat Extraction	*Maximum Heat Extraction*
HP Steam Turbine Scenario			
Minimum Stable Load		**A**	**B**
Fuel Input*	MJ/s	543	543
Net Process Heat Output	MW	0	80
Net Electrical Power Output	MW	273	243
Total Heat and Power Output	MW	273	323
CHP Efficiency	%	50.2	59.3
100 Per Cent Load		**D**	**C**
Fuel Input*	MJ/s	983	983
Net Process Heat Output	MW	0	131
Net Electrical Power Output	MW	585	542
Total Heat and Power Output	MW	585	673
CHP Efficiency	%	59.5	68.4
LP Steam Turbine Scenario			
Minimum Stable Load		**A**	**B**
Fuel Input*	MJ/s	543	543
Net Process Heat Output	MW	0	85
Net Electrical Power Output	MW	273	249
Total Heat and Power Output	MW	273	333
CHP Efficiency	%	50.2	61.4
100 Per Cent Load		**D**	**C**
Fuel Input*	MJ/s	983	983
Net Process Heat Output	MW	0	135
Net Electrical Power Output	MW	585	555
Total Heat and Power Output	MW	585	689
CHP Efficiency	%	59.5	70.1

* Fuel input is based on the Lower Heating Value (LHV)

Scenario 1: Summary of Heat and Power Envelopes

HP Steam Turbine CHP-R Design

5.2.9 Insert 5.1 and Table 5.1 indicate that:

- The CCGT unit(s) could supply heat loads up to approximately 133 MJ/s, without an impact upon the operational range (i.e. the CCGT unit could operate anywhere between MSL and 100% Load);
- The CCGT unit(s) could supply heat loads between approximately 133 MJ/s and 219 MJ/s, with an associated impact upon the operational range (i.e. the CCGT unit would not be able to operate down to MSL); and,
- The CCGT unit(s) would not be able to (in isolation) supply heat loads above approximately 219 MJ/s.

LP Steam Turbine CHP-R Design

5.2.10 Insert 5.2 and Table 5.1 indicate that:

- The CCGT unit(s) could supply heat loads up to approximately 137 MJ/s, without an impact upon the operational range (i.e. the CCGT unit could operate anywhere between MSL and 100% Load);
- The CCGT unit(s) could supply heat loads between approximately 137 MJ/s and 225 MJ/s, with an associated impact upon the operational range (i.e. the CCGT unit would not be able to operate down to MSL); and,
- The CCGT unit(s) would not be able to (in isolation) supply heat loads above approximately 225 MJ/s.

Scenario 2: Summary of Heat and Power Envelopes

HP Steam Turbine Scenario

5.2.11 Insert 5.3 and Table 5.2 indicate that:

- The CCGT unit could supply heat loads up to approximately 80 MJ/s, without an impact upon the operational range (i.e. the CCGT unit could operate anywhere between MSL and 100% Load);
- The CCGT unit could supply heat loads between approximately 80 MJ/s and 131 MJ/s, with an associated impact upon the operational range (i.e. the CCGT unit would not be able to operate down to MSL); and,
- The CCGT unit would not be able to (in isolation) supply heat loads above approximately 131 MJ/s.

LP Steam Turbine Scenario

5.2.12 Insert 5.4 and Table 5.2 indicate that:

- The CCGT unit could supply heat loads up to approximately 85 MJ/s, without an impact upon the operational range (i.e. the CCGT unit could operate anywhere between MSL and 100% Load);
- The CCGT unit could supply heat loads between approximately 85 MJ/s and 135 MJ/s, with an associated impact upon the operational range (i.e. the CCGT unit would not be able to operate down to MSL); and,
- The CCGT unit would not be able to (in isolation) supply heat loads above approximately 135 MJ/s.

5.3 Further Consideration of CHP / CHP-R

5.3.1 To allow the identified (and any additional future) CHP / CHP-R opportunity to be realised, the design and final build will incorporate a number of appropriate provisions which will allow for the future implementation of CHP. In terms of these appropriate

provisions, the Original CHP Assessment noted that the CCGT units design would be identical to conventional CCGT units except for the inclusion of the following additional items:

- Accessible tie-in locations in either the:
  - HP steam turbine exhaust (from the cold re-heat line); or,
  - LP steam turbine inlet.
- Stack design that would allow for future retrofit of flue gas extraction equipment; and,
- Control systems linked to the connections.

5.3.2 The location of these appropriate provisions is shown in Figure 1A (for Scenario 1) and Figure 1B (for Scenario 2).

5.3.3 Accordingly, under either Scenario 1 or Scenario 2, it is considered that the CCGT unit(s) will be designed and built CHP-R. It is considered that this degree of CHP / CHP-R is an appropriate solution given the current preferred CHP / CHP-R opportunity and is prescribed through the Conditions associated with the Original Consent for SEE.

6 CONCLUSIONS

6.1.1 SEEL is submitting an application to the Secretary of State for the Original Consent to be varied (the Variation Application). If the Original Consent is varied as per the Variation Application, SEE will provide up to 945 MW of power generation capacity. In providing up to 945 MW of power generation capacity, the Proposed Development will either comprise:

- Scenario 1: Up to 945 MW of CCGT units; or,
- Scenario 2: Up to 645 MW of CCGT units and less than 300 MW of Open Cycle Gas Turbine (OCGT) units.

6.1.2 In addition, if the Original Consent is varied as per the Variation Application, the commencement of the deadline for the Consent will be 5 years from the date of granting the variation. Similarly, the commencement deadline for the deemed planning permission will be 5 years from the date of granting the variation.

6.1.3 To accompany the Variation Application, SEEL is providing the following information to DECC:

- An ES FID (the Variation Application ES FID), which includes (amongst other items):
  - The rationale for proposing that the Original Consent is varied;
  - An assessment of whether the likely significant effects on the environment of the Proposed Development differ from those described in the March 2009 ES; and,
    - Where there is potential for the likely significant effects to differ, an updated impact assessment;
    - Where there is no potential for the likely significant effects to differ, an explanation and / or supporting information.
- A Revised CCR Feasibility Study;
- A Revised CHP Assessment; and,
- A Supplementary Flood Risk Assessment.

6.1.4 This Document is the Revised CHP Assessment which accompanies the Variation Application.

6.1.5 Whilst this Revised CHP Assessment has indicated that there are a number of potential identified CHP loads within the CHP Search Area, these CHP loads are not considered viable. Therefore, given the conditions associated with the Original Consent for SEE, the conditions related to CHP in the Section 106 Agreement, the results of the Original CHP Assessment and the results of the updated summary of opportunities, the preferred CHP / CHP-R opportunity remains that related to the South Holland Community Hospital. Accordingly, for both Scenario 1 and Scenario 2, SEEL will progress the design of the Proposed Development to allow for the provision of up to 10 MJ/s of heat.

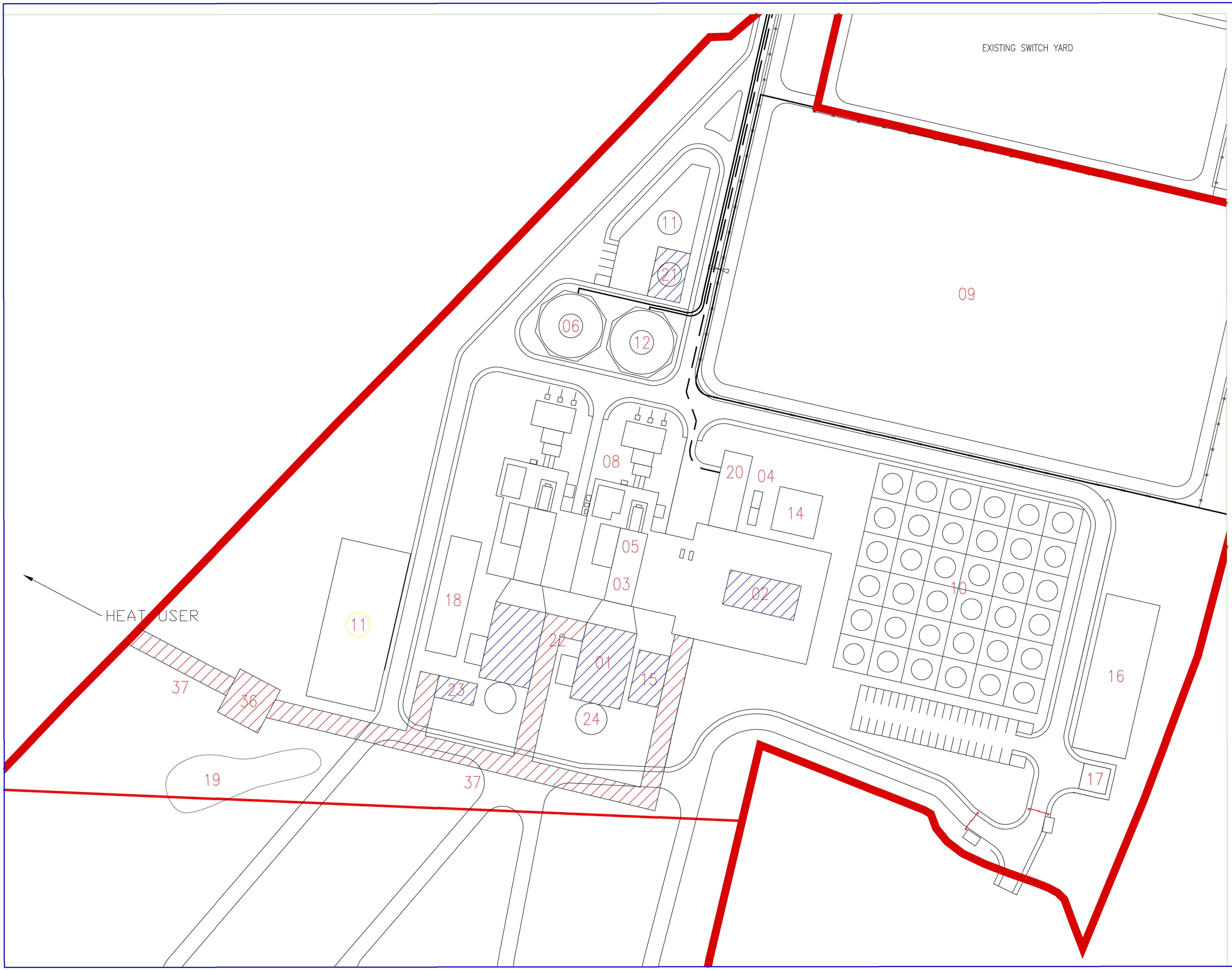
6.1.6 To allow the identified (and any additional future) CHP / CHP-R opportunity to be realised, the design and final build will incorporate a number of appropriate provisions which will allow for the future implementation of CHP. In terms of these appropriate provisions, the Original CHP Assessment noted that the CCGT units design would be identical to conventional CCGT units except for the inclusion of the following additional items:

- Accessible tie-in locations in either the:
  - HP steam turbine exhaust (from the cold re-heat line); or,
  - LP steam turbine inlet.

- Stack design that would allow for future retrofit of flue gas extraction equipment; and,
- Control systems linked to the connections.

6.1.7 Accordingly, under either Scenario 1 or Scenario 2, it is considered that the CCGT unit(s) will be designed and built CHP-R. It is considered that this degree of CHP / CHP-R is an appropriate solution given the current preferred CHP / CHP-R opportunity and is prescribed through the Conditions associated with the Original Consent for SEE.

FIGURES



Notes

1. DO NOT SCALE FROM THIS DRAWING.
2. FOR KEY TO DRAWINGS/GRAPHICAL SYMBOLS SEE LEGEND.
3. THIS IS NOT AN INSTALLATION DRAWING, NOR A COORDINATION DRAWING
4. THE HEAT SUPPLY SYSTEM IS INDICATIVE, AND IS SUBJECT TO FINAL DESIGN

LEGEND:

CCGT PLANT

1. HEAT RECOVERY STEAM GENERATOR
2. STEAM TURBINE AREA
3. GAS TURBINE AREA
4. CO2 LOW PRESSURE STATION
5. GAS TURBINE INLET FILTER
6. DEMINERALIZED WATER STORAGE TANK
8. GAS TURBINE GENERATOR TRANSFORMERS
9. SWITCHYARD
10. AIR COOLED CONDENSER
11. WAREHOUSE/MAINTENANCE/ADMIN/CONTROL
14. STEAM TURBINE GENERATOR TRANSFORMER
15. AUXILIARY BOILER
16. GAS CONDITIONING
17. REFUSE COLLECTION/STORAGE
18. FIN FAN COOLERS
19. SUDS POND
20. ELECTRICAL ANNEX
21. WATER TREATMENT PLANT
22. FUTURE SCR AMMONIA SKID
23. FUTURE AMMONIA STORE AND BUND
24. STACK

CHP-R PROVISIONS

1. HRSG WITH PROVISIONS FOR IDENTIFIED SUITABLE RETURN POINTS
2. STEAM TURBINE WITH PROVISIONS FOR IDENTIFIED SUITABLE RETURN POINTS
15. AUXILIARY/STAND-BY BOILER
21. POSSIBLE EXPANSION TO WATER TREATMENT PLANT
36. ON SITE SPACE FOR DISTRICT HEATING HEAT EXCHANGERS
37. ON SITE SPACE FOR DISTRICT HEATING PIPEWORK (PIPE CORRIDOR) SYSTEM INCLUDING PIPE BRIDGES

Rev	Description	Date	By	Chk	App
P02	Note 4 added	16/04/15	SL	EA	EA
P01	FOR INFORMATION	12/03/15	SL	EA	

INTERGEN/SPALDING ENERGY EXPANSION LIMITED

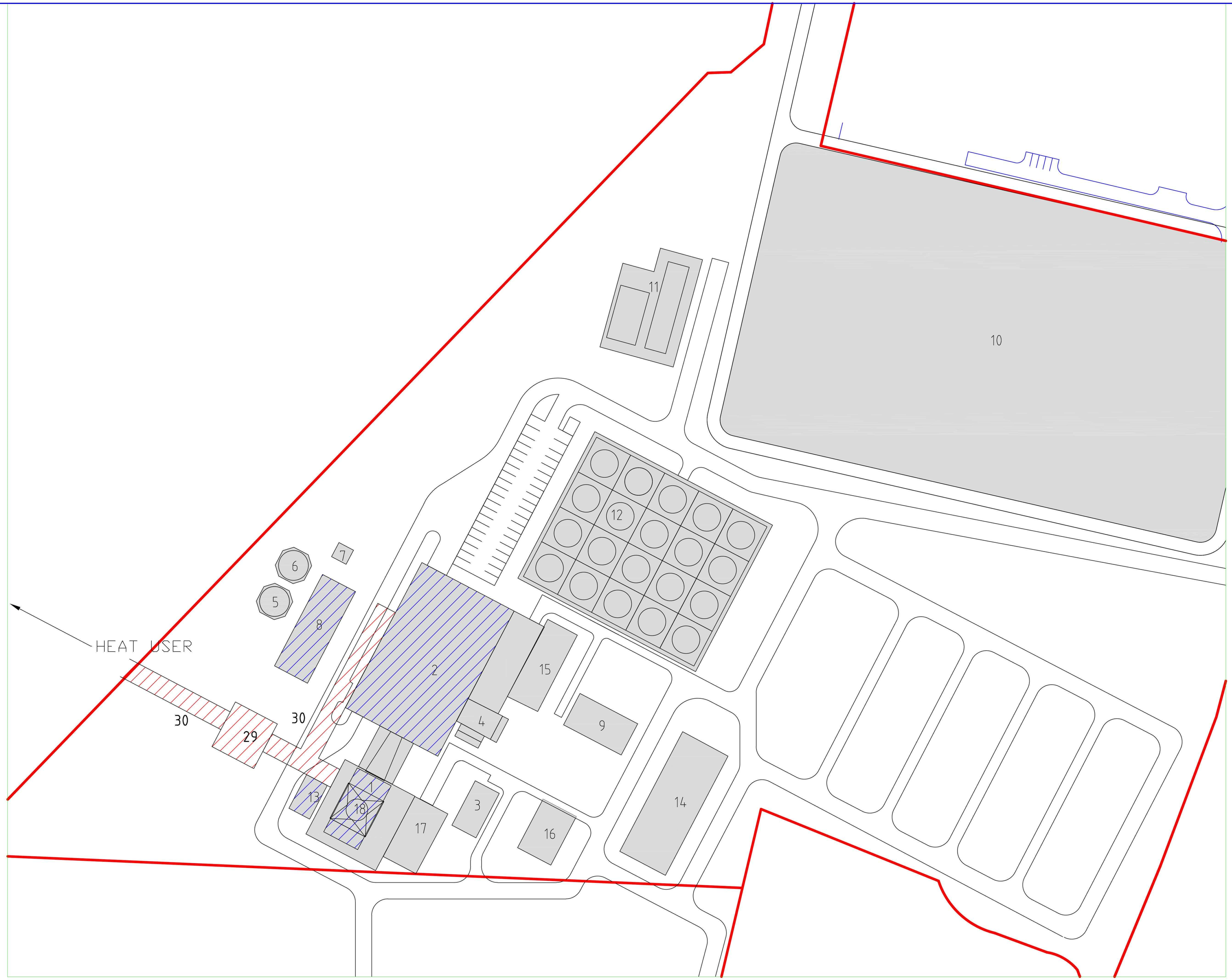
SPALDING ENERGY EXPANSION

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FIGURE 1A PROPOSED LAYOUT CCGT + 10 MJ/s DH SCENARIO 1

Scale:	Date:	Drawn:	Checked:
NTS	MAR 2015	SL	EA

Drawing No.: 482302-11-02 Rev: P02



Notes

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3. THIS IS NOT AN INSTALLATION DRAWING, NOR A COORDINATION DRAWING.
4. THE HEAT SUPPLY SYSTEM IS INDICATIVE, AND IS SUBJECT TO FINAL DESIGN

LEGEND

CCGT PLANT

1. HEAT RECOVERY STEAM GENERATOR
2. TURBINE HALL (GAS TURBINE AND STEAM TURBINE)
3. GAS FINAL FILTER AND PREHEATING
4. GT INLET FILTER
5. DEMINERALIZED WATER TANK
6. RAW WATER STORAGE TANK
7. FIRE FIGHTING PUMPS
8. WATER TREATMENT PLANT
9. GENERATOR TRANSFORMER
10. SWITCHYARD
11. GAS PRESSURE REDUCTION STATION
12. AIR COOLED CONDENSER
13. AUXILIARY BOILER
14. WORKSHOP/WAREHOUSE/ADMINISTRATION
15. POWER CONTROL CENTRES
16. RAIN WATER RETENTION

CHP-R PROVISIONS

1. HRSG WITH PROVISIONS FOR IDENTIFIED SUITABLE RETURN POINTS
2. STEAM TURBINE WITH PROVISIONS FOR IDENTIFIED SUITABLE RETURN POINTS
8. POSSIBLE EXPANSION TO WATER TREATMENT PLANT
13. AUXILIARY/STAND BY BOILER
29. ON SITE SPACE FOR DISTRICT HEATING HEAT EXCHANGERS
30. ON SITE SPACE FOR DISTRICT HEATING PIPEWORK (PIPE CORRIDOR) SYSTEM INCLUDING PIPE BRIDGES

Rev	Description	Date	By	Chk	App
P03	NOTE 4 ADDED	16/04/15	SL	EA	EA
P02	CAR PARK ADDED, REVISED TITLE	11/03/15	SL	EA	
P01	FOR INFORMATION	16/02/15	SL	EA	

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FIGURE 1B PROPOSED LAYOUT CCGT + 10 MJ/s DH SCENARIO 2

Scale:	Date:	Drawn:	Checked:
NTS	MAR 2015	SL	EA

Drawing No.: 482302-1-02

Rev: P03

APPENDICES

APPENDIX A: RELEVANT EXTRACT FROM THE CHP GUIDANCE

APPENDIX A: RELEVANT EXTRACT OF THE CHP GUIDANCE

11. Developers should therefore provide evidence to show the steps that they had taken to assess the viability of CHP opportunities within the vicinity of their proposed location for the plant. Their application or notification should contain:

- *an explanation of their choice of location, including the potential viability of the site for CHP;*
- *a report on the exploration carried out to identify and consider the economic feasibility of local heat opportunities and how to maximise the benefits from CHP;*
- *the results of that exploration; and*
- *a list of organisations contacted.*

12. And, if the proposal is for generation without CHP:

- *the basis for the developer's conclusion that it is not economically feasible to exploit existing regional heat markets;*
- *a description of potential future heat requirements in the area; and*
- *the provisions in the proposed scheme for exploiting any potential heat demand in the future.*

APPENDIX B: RELEVANT EXTRACT FROM THE CHP-R GUIDANCE

APPENDIX B: RELEVANT EXTRACT OF THE CHP-R GUIDANCE

