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(Refer to PEI Report Volume 2)

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(Refer to PEI Report Volume 3)

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2.0 THE PROPOSED PROJECT

2.1 Introduction

- 2.1.1 This chapter of the Preliminary Environmental Information Report (PEI Report) provides a description and details of the Proposed Project.
- 2.1.2 The purpose of the Proposed Project is to extend the generating capacity of the Consented Development from 50MWe to 60MWe. The Consented Development, which is currently under construction, will remain as consented by the TCPA regime. The Proposed Project includes different and additional technology within the buildings that can generate a higher peak output from the same fuel throughput, along with some very minor external works (namely an external above ground pipe run on a consented pipe rack with consented pipes).
- 2.1.3 This chapter of the PEI Report provides details of:
- The Proposed Project Site - The DCO Site Boundary;
 - The Proposed Project Description - Overview of the Proposed Infrastructure;
 - The Proposed Project Description - Electricity Export;
 - The Proposed Project - Construction Programme and Activities;
 - The Proposed Project - Operational Activities; and
 - The Proposed Development - Decommissioning.

2.2 The Proposed Project Site

- 2.2.1 The Proposed Project Site is located within the Slough Heat and Power site and includes the site for the Slough Multifuel Facility which was granted planning consent in June 2017 (Planning Ref. P/00987/024) and Further Development Works (for demolition of a fuel store and construction of a central site services building, installation of a water treatment plant, provision of replacement car parking and associated works) (Planning Ref. P/00987/025) and Cooling Tower 8. Construction is currently underway on the Consented Development, the refurbishment of Cooling Tower 8, which together with the Proposed Project will form the Slough Multifuel Facility.

The Proposed Project Site Boundary

- 2.2.2 The expected maximum area of land potentially required for the Application is illustrated on Figure 2.1 (PEI Report Volume 2) and comprises 2.81 hectare (ha). No physical works will take place to Cooling Tower 8, but it will be solely dedicated to the Consented Development and Proposed Project. The Proposed Project Site includes all parts of the generation station.

Site Access

- 2.2.3 There are no new access being created as part of the Consented Development. The main construction access to the Site for the Proposed Project works will be from Edinburgh Avenue (refer to Figure 2.4 in the PEI Report Volume 2). Depending on the construction activities and sequence it may be necessary to use other HGV access and egress routes available on site. This could include the Greenock Road entrance or, on occasions, the Edinburgh Avenue HGV entrance. Construction traffic predictions are confirmed in Chapter 7 of this PEI Report but there are not expected to be more than 20 vehicles in total over a two month construction period (<1 per day on average). For comparison the peak period of construction of the Consented Development led to approximately 100 HGV deliveries in a 24-hour period.
- 2.2.4 Operational access and egress will be as for the Consented Development (refer to Figure 2.2 in PEI Report Volume 2), via Edinburgh Avenue to the north of the Site but with the removal of the egress point for the Proposed Project under the SHP North Stack which will remain part of the SHP operations.

2.3 Description of the Proposed Project

Overview of the Proposed Infrastructure

- 2.3.1 The Proposed Project involves the mechanical modification of the Consented Development and provision of additional systems including:
- heat exchanger bundles (internal to the existing Consented Development building envelope);
 - external and internal above ground pipework and valves;
 - pipe supports (external and internal);
 - thermal insulation (external and internal works);
 - instrumentation (internal to the existing Consented Development building envelope);
 - cabling and containment (internal); and
 - mechanical modifications to the steam turbine inlet control system (internal works).
- 2.3.2 The increase in efficiency and generating capacity will not require any increase in the hourly throughput of Waste Derived Fuel (WDF) or the number of approved deliveries to the facility. The consented building envelope and architecture of the Consented Development, currently under construction, will remain unchanged. Details of the Proposed Project Layout are presented in Figure 2.3 (Refer to PEI Report Volume 2).

- 2.3.3 During the construction phase of the Proposed Project, the temporary construction compound at Stirling Road which is in place for the Consented Development will be used to facilitate temporary storage for the Proposed Project construction phase if required.

Electricity Export

- 2.3.4 This Proposed Project will not require any new or additional underground or overhead cabling associated with electricity export over and above those required for the Consented Development.
- 2.3.5 Electricity generated by the Proposed Project will be exported via a consented below ground connection to Slough South substation, which is located within the wider Slough Heat and Power site. The Proposed Project would not amend the Consented Development electricity export connection.

2.4 Extension Construction Programme and Activities

Construction Programme and Staffing

- 2.4.1 Construction of the Proposed Project will commence as soon as practical subject to development consent being granted and the discharge of any relevant DCO requirements, and it is intended that it will be completed before the Consented Development enters operation. It is expected that it will be undertaken within and in parallel with the existing TCPA consented programme; it is not expected that there would be any change to the existing consented facility construction duration.
- 2.4.2 There will be a minor increase in construction staff of around 20 persons over a two-month installation period for the Proposed Project.
- 2.4.3 A dedicated offsite parking facility with 120 spaces has been provided for construction workers and is located at Whitby Road railway siding (refer to Figure 2.5 in PEI Report Volume 2). This is currently in place for construction of the Consented Development and will also be used for the Proposed Project construction staff. A bus facility operates between the car park and Site. There is also a parking facility for 25 cars at 689 Stirling Road and a space for offloading mini buses safely. There is no change to these arrangements for Site construction staff as a result of the Proposed Project.
- 2.4.4 The hours of operation for the Proposed Project will be as per those for the Consented Development.

Construction HGV Movements

- 2.4.5 There will be approximately 20 HGV deliveries over the two-month period (an average <1 HGV arrival per day). This will relate to delivery of a small amount of additional pipework and labour resources to install the infrastructure associated with the Proposed Project over a two-month construction period.

- 2.4.6 There will no abnormal weight deliveries or sized vehicles required for the Proposed Project.

Construction Site Management

- 2.4.7 The existing approved Consented Development Construction Environmental Management Plan (CEMP) is included in the PEI Report as an Appendix (Refer to Appendix 2A PEI Report Volume 3), which describes the mitigation measures relevant to, and to be followed by, the Consented Development and which are also relevant and directly applicable to the Proposed Project. The aim of the CEMP is to reduce nuisance impacts from:

- Use of land for temporary laydown areas, accommodation, etc.;
- Construction traffic (including parking and access requirements);
- Noise and vibration;
- Dust generation;
- Waste generation, segregation and disposal in accordance with the waste hierarchy; and
- Working hours and a procedure for consenting exceptions.

Construction Activities

- 2.4.8 The works associated with the Proposed Project are predominately within the boiler house and turbine hall, with a single external pipe run between these two buildings (and not expected to be visible outside the Site, other than from a specific location along Liverpool Road) on a pipe rack to be installed as part of the Consented Development (i.e. the pipe rack will be constructed as part of the Consented Development with external pipes, and the Proposed Project will add 1 additional pipe to this pipe rack). The main differences from the Consented Development comprise the following:

- A boiler primary air preheating system will be provided to increase the thermal efficiency of the generating station. The system – which is internal to the consented building envelope - will utilise low-pressure steam extracted from the steam turbine, which will be fed through the heat exchangers raising the temperature of primary air used for combustion. Condensate will be returned from the heat exchangers to the auxiliary condensate system. The new preheating system will comprise heat exchanger bundles, pipework, valves, pipe supports, thermal insulation, instrumentation, cabling, and containment.
- A boiler secondary air preheating system will be provided within the consented building envelope to increase the thermal efficiency of the generating station. The system will utilise low-pressure steam extracted from the steam turbine; this will be fed through the heat exchangers raising the temperature of secondary air used for combustion. Condensate will be returned from the heat exchangers to the auxiliary condensate system. The new preheating system will comprise of heat exchanger bundles, pipework, valves, pipe supports, thermal insulation, instrumentation, cabling, and containment.

- The actuated steam turbine inlet control valve will be mechanically modified to allow the steam capacity to be increased. This increase in steam capacity will allow the power capacity of the generating station to be increased.
- The turbine control system and distributed control system software will be modified to account for the physical changes to the generating station and to allow for an increase in generating capacity.
- The generating station will be commissioned and fully tested at an increased level of performance. Following successful testing the plant will be assigned with a new nameplate rating (referring to the increase in capacity i.e. 60 MW).

2.4.9 The only expected external amendment associated with the Proposed Project to the Consented Development will be the presence of one new, additional pipe, 18m above ground level. The 250mm diameter, 30m length pipe will be located alongside other consented pipes of similar dimensions in the same location and within the same pipe rack which form part of the Consented Development. This is illustrated in Plate 2.3 which is a view from Liverpool Road and is the only location where the Proposed Project is expected to be visible outside the Site.

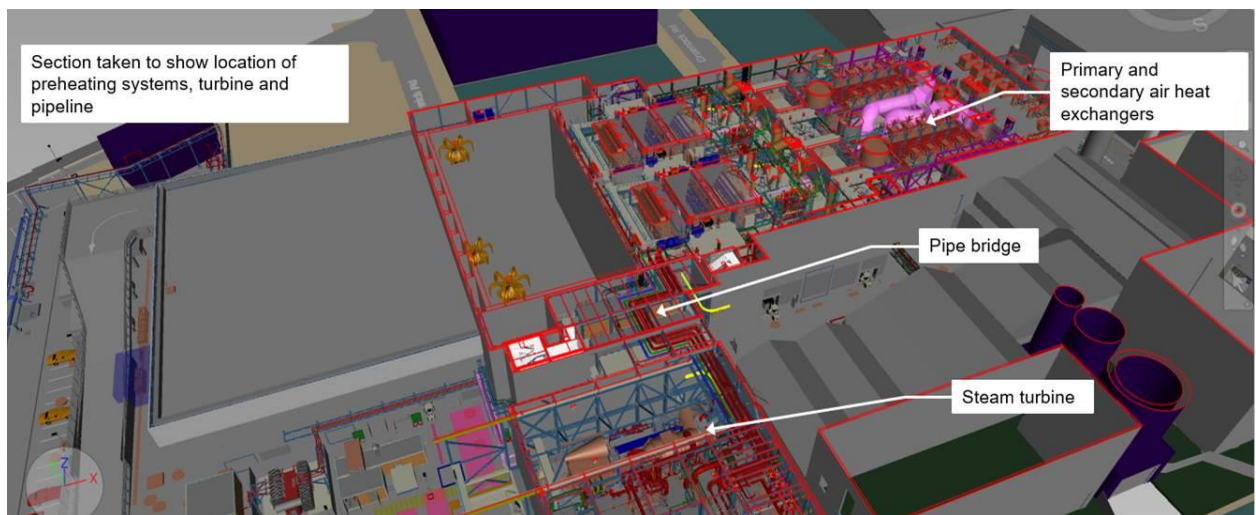


Plate 2.1 – 3D Model Section View of Consented Development with external pipework and pipe supports (Note – Proposed Project external pipework is coloured blue)

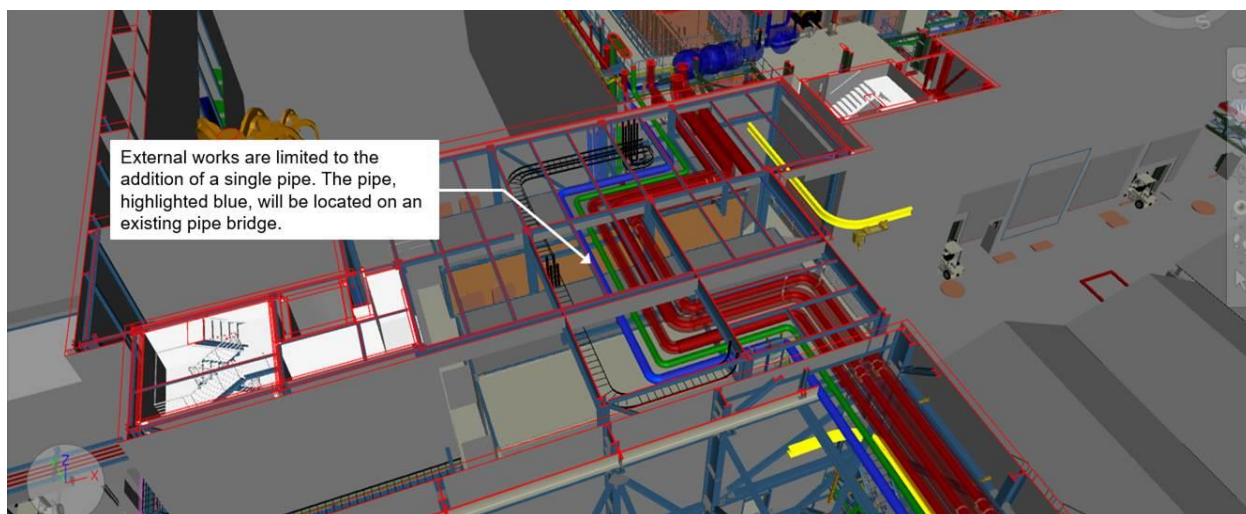


Plate 2.2 – 3D Model Close-up Aerial View of Consented Development with external pipework and pipe supports (Note – Proposed Project external pipework is coloured blue)



Plate 2.3 – 3D Model Aerial View (Bare Earth view from Liverpool Road of Consented Development with external pipework and pipe supports looking between turbine hall and boiler hall (Note – Proposed Project external pipework is coloured blue)

2.5 Operational Phase

- 2.5.1 The additional electricity generated by the Proposed Project comes from raising the temperature of the combustion air fed into the boiler by providing pre-heaters. As the incoming air will be at a higher temperature, less fuel is required to achieve the design output. If the same amount of fuel is burned, then more steam will be produced which can be used by modifying the steam turbine inlet system to increase the output.

- 2.5.2 The existing steam connection from the SHP site to the Slough Trading Estate will be used for the Consented Development to export heat and steam to offsite users. The Proposed Project will not change this, and the Consented Development will continue to be able to export heat as either steam or hot water, depending on the requirements of the consumer. There will continue to be 20MW thermal energy available to export.
- 2.5.3 Cooling Tower 8 and its associated pumps will be utilised by the Consented Development and the Proposed Project. This is the same as for the Consented Development, but with the difference that it will now be solely connected to and utilised by the Proposed Project rather than operated as shared infrastructure (to other energy generating activities on the SHP site). Cooling Tower 8 is to be disconnected from the common cooling water system and be refurbished to extend the life of the existing concrete shell, repack and replace the cooling water pumps and refurbish the existing cooling underground pipework. There will also be a small containerised electrical house to provide the power supply to the pumps. The Proposed Project will not result in any change to the Consented Development building envelope and architecture, currently under construction, for the Consented Development, other than the single external pipe described earlier.

Fuel Type

- 2.5.4 The Proposed Project will utilise the same fuel type (WDF) approved for the Consented Development (and conditioned under Consented Development Planning Condition 23 and the Environmental Permit). The maximum hourly fuel throughput will not increase from the Consented Development.

Operational Phase Hours of Operation

- 2.5.5 It is expected that the Proposed Development will operate for approximately 8,000 hours per annum (to allow for offline periods for maintenance), which is as per the Consented Development. However, for the purpose of the PEIR, assessments have been undertaken on the basis of the Proposed Development operating continually, for twenty-four hours per day, seven days a week (i.e. for a total of 8,760 hours per annum) so that a “worst case scenario” has been assessed. This again is as per the assessments for the Consented Development. The Proposed Project will not lead to an increase in operational hours

Operational Phase HGV Movements

- 2.5.6 There will be no change in the number of road traffic deliveries during the operational phase due to the Proposed Project.

Operational Phase Staffing

- 2.5.7 The Proposed Project will be operated and managed by suitably qualified and trained personnel. The Proposed Project would not change operating staff numbers from the Consented Development.

2.6 Decommissioning

- 2.6.1 The Proposed Project will be an extension to the Consented Development and is expected to have a design life of at least 30 years with the possibility of extending this to 50 years. At the end of operation, it would be expected that the plant will have some residual life remaining, and an investment decision would then be made based on the market conditions prevailing at that time.
- 2.6.2 At the end of its operating life, the most likely scenario is that the plant and all equipment will be shut down and removed from the Site. Decommissioning of the Consented Development is addressed in Environmental Permit and Planning Condition 22 of the Consented Development which states that a decommissioning and demolition scheme must be submitted to the planning authority for approval in advance of any of the associated works commencing.
- 2.6.3 Prior to removing the plant and equipment, all residues and operating chemicals would be cleaned out from the plant and disposed of in an appropriate manner. The amount of such chemicals will be restricted to the normal plant residues and any remaining operating chemicals such as hydrated lime, activated carbon, boiler water treatment chemicals or ammonia solution. The bulk of the plant and equipment is likely to have some limited residual value as scrap or recyclable materials.
- 2.6.4 Any part of the Proposed Project and Consented Development containing chemicals will be fitted with sealed bunds and integral hardstanding that would be maintained over the life of the Environmental Permit through the site preventative maintenance regime. The fuel tipping area will also be a sealed area to contain any leaks or spillages. It is therefore considered highly unlikely that the Proposed Project will create any new areas of ground contamination. Once the plant and equipment have been removed to ground level, it is expected that the hardstanding and sealed concrete areas will be left in place. Any areas of the plant which are below ground level are likely to be backfilled to ground level to leave a levelled area.