

Appendix 4.1 Delivery Scenarios of Peat and Biomass Fuel to WOP Station

The following sets out the various scenario's, in terms of maximum peat and biomass delivery operational activity that could occur on site.

General Fuel Handling:

Burning of biomass or peat in the station boiler produces thermal energy which drives a steam cycle to generate electricity. The station is equipped with a peat delivery system comprising:

- a rail tippler building to unload peat delivered by rail to the station allowing two trains to unload simultaneously (it also has two HGV unloader facilities but these are rarely used)
- a 3 bay HGV (lorry) unloader building which facilitates up to 3 moving floor lorry unloaders
- an underground conveyor belt which is fed commonly by the tippler building and HGV unloader and which feed to
- an elevated conveyor belt to a screen house and then to a fuel storage building (the Intermediate Peat Store or IPS)
- two elevated conveyor belts from the IPS to the day hoppers at the generating station unit itself which feed the fuel into the boiler where it is combusted.

Biomass fuel will utilise the HGV unloader building, the existing conveyor belt fuel handling system and IPS on a just in time basis of fuel delivery. Two additional biomass storage slabs will be provided as part of the development as well as a dedicated pellet silo and fuel handling system.

Peat fuel is delivered to the station primarily by rail with some by road.

By rail peat is delivered by two trains (rakes) arriving simultaneously at the rail tippler building. Rail wagons are tipped over onto an underground conveyor belt which links to the overhead conveyor system and transfers the peat to the Intermediate Peat Store (IPS) building. Peat from the IPS store is conveyed by a separate system to day hoppers serving the station boiler. Two trains can be unloaded simultaneously with an approximate 20 minute delivery time, i.e. a maximum of 6 rail deliveries per hour. The rail tippler building also has two HGV unloader bays designed into it to allow fuel delivery by road onto the conveyors.

By road, peat fuel is delivered to a dedicated 3 bay HGV unloader building. 3 moving floor HGVs can unload simultaneously at this building and this is the normal means of peat delivery by road. The HGV unloader building delivers peat to the same underground conveyor as the rail peat, and on to the IPS. Unloading and turnaround takes approximately 15- 20 minutes.

Both rail and road deliveries of peat can occur simultaneously as the underground conveyor has sufficient carrying capacity to allow this.

Peat and biomass cannot be tipped simultaneously to the underground conveyor for operational reasons, as the fuel has to be directed to either the peat end of the IPS or the biomass end.

Biomass fuel comprises either woodchip, residues or pellets. Biomass deliveries will occur only by road. It is anticipated that biomass will be delivered on a just in time basis with no extended storage on site. Excluding pellets, biomass will normally be delivered directly to the existing 3 bay HGV unloader building with 3 moving floor HGVs capable of unloading simultaneously. Biomass will be dropped onto the underground conveyor system and transferred to the IPS building where it will be stored separately from the peat. As the conveyor system to the IPS is common to both peat and biomass deliveries and as these will cannot be mixed no unloading of peat can occur when biomass is being unloaded into the IPS.

2 storage slabs (A and B) are been provided for temporary storage of biomass. This will allow for flexibility of operation and will supplement the just in time deliveries as required. It is intended that biomass placed on these slabs will be utilised within a short time frame, typically less than 1 week. Deliveries to these slabs will be made by HGVs. To deliver the slab stored biomass to the station's IPS building mechanical shovels will typically be used to load biomass onto moving floor HGVs which will then transfer to the HGV unloader bays. It will be possible to deliver biomass to the storage slabs and peat by road to the HGV unloader building simultaneously subject to a maximum combined number as detailed below.

The pellet handling, storage and delivery system is separate from the peat and other biomass delivery system. It is located adjacent to Slab A and comprises a pellet intake building, vertical lift and pellet silo. Deliveries to the pellet intake building will cross Slab A for access purposes. The pellet silo feeds directly to the final conveyor belt leading to the feed hoppers to the boiler.

Road Deliveries: It is has been estimated that 95th percentile hourly delivery flow, will be 15 HGV deliveries per hour or lower, and that the 97.5th percentile will be 20 HGV deliveries or lower regardless of whether they deliver peat or biomass. Then daily 95th percentile of HGV deliveries of biomass/peat is 129 HGV deliveries.

Road peat: There are three HGV unloader bays where peat is unloaded using moving floor vehicles. The unloading process takes up to 15 -20 minutes per HGV including access and egress from the site. No biomass can be delivered whilst peat is being unloaded. Typically unloading at of 12 HGVs per hour.

Rail peat: 2 rail peat delivery trains (rakes) can unload peat simultaneously directly to the underground conveyor belt system in the rail tippler building. Rakes unload at the rate of 2 per 20 minutes, i.e. 6 rakes per hour. Rail delivery of peat can occur simultaneously with road peat unloading. It is possible to have a maximum of 6 trains and 12 HGVs unloading peat simultaneously.

Biomass: Neither road nor rail delivered peat can be unloaded when biomass is being unloaded at the HGV Unloader. When delivering biomass to the storage slabs

it is possible to have peat deliveries by rail and/or road being unloaded at the HGV unloading building. Biomass deliveries could be split between storage Slab A and storage Slab B, with a preference for Slab A as it is nearest the conveyor system

Mixed: It is possible to have mixed deliveries by road, i.e. peat by road and biomass by road, but again subject to the numbers of deliveries as mention above provided the unloading restrictions above are adhered to.

Internal: Biomass will only be stored on the slabs on a short term temporary basis before being transferred to the underground conveyor belt system. Transfer will be achieved by using a mechanical shovel and moving floor HGV. This could entail the use of two HGV unloader bays which are designed into the rail tippler building in addition to the bays in the 3 bay HGV unloader building. No peat delivered by road or rail would be unloaded during this operation. 2 mechanical shovels could be used for biomass transfer from the slabs. Biomass deliveries by road to the storage slabs could however occur at the same time but subject the number of deliveries as mentioned above.

Pellets: A separate pellet storage silo and handling facility area is provided. Designated pellet biomass delivery HGVs will be used for this purpose at a maximum rate of 4 per hour. Rail deliveries of peat and HGV deliveries of peat or biomass can occur simultaneously but subject the number of deliveries as mentioned above.