Article 44 Requirements

Article 44 of the IED states:

An application for a permit for a waste incineration plant or waste co-incineration plant shall include a description of the measures which are envisaged to guarantee that the following requirements are met:
(a) The plant is designed, equipped and will be maintained and operated in such a manner that the requirements of this Chapter are met taking into account the categories of waste to be incinerated or co-incinerated;
(b) The heat generated during the incineration and co-incineration process is recovered as far as practicable through the generation of heat, steam or power;
(c) The residues will be minimised in their amount and harmful-ness and recycled where appropriate;
(d) The disposal of the residues which cannot be prevented, reduced or recycled will be carried out in conformity with national and Union law.

DWtE are satisfied that the facility meets the requirements of Article 44 as discussed in the following paragraphs.

The DWtE facility is designed to optimise power output. The facility is also designed to accommodate a district heating system and when a district heating system in Dublin comes into operation this can be implemented with minor modifications to the equipment. Electricity is generated on site from the thermal energy produced by the combustion of waste. The two boiler lines supply steam to one complete turbine/generator set with high-voltage system that is connected to the electrical grid. A small portion of this electricity is used to power the plant with the remainder exported to the national grid. The turbine design optimises the power output and thus the electricity supply regime, as no heat supply regime is in place at present. Cooling of the exhaust steam from the turbine takes place in a seawater-cooled condenser. The condenser pressure is minimised using cooling water from the River Liffey thus securing a higher electrical efficiency compared to that obtained with air-cooled condensers and/or wet cooling towers.

The design results in a net power output of approximately 62-63 MW equivalent to a net power efficiency of approximately 32%.

The Dublin District Heating system (DDHS) is currently being developed and is expected to be in operation within 18 months. The DWTE facility will provide the baseload heat for the DDHS which on its own will supply a heat source for over 50,000 homes. Once this is operational the DWTE facility will have net energy efficiency of over 88%.

The quantity of residues from the thermal recovery process is minimised by the optimal operation of the waste to energy lines.

The harmfulness of residues from the thermal recovery process is minimised by adherance to strict waste acceptance criteria which means that only non-hazardous waste from previously authorised sources is accepted at the DWtE facility. Furthermore a strict waste acceptance procedure is followed which examines waste loads and those deemed unsuitable are quarantined for off-site disposal.

Residues from the thermal recovery process are recovered in authorised and approved waste facilities as follows:

- Incinerator Bottom ash (IBA) - an approved recovery facility (currently in the Netherlands) recovers the metal (ferrous and non-ferrous) from the IBA and the resulting ash residue is recycled in concrete block manufacturing,

road construction, concrete paving, etc. It is intended to carry out this activity, through a 3rd party, in Ireland once the prerequisite licences and approvals are granted.

- Air Pollution Control Residues (APCR) - is shipped to two locations in mainland Europe, both of which use the material for recovery purposes. At present the recovery options for APCR are:
  - used to neutralize an acid waste, thus forming a stable gypsum matrix, which is utilized to back-fill a historic limestone quarry, in Norway;
  - used to stabilize a salt mine in Germany.