1 Non Technical Summary

Introduction

1 An Environmental Statement (ES) has been submitted by Covanta Brig y Cwm Ltd (Covanta) to accompany its application for a Development Consent Order (DCO) to the Infrastructure Planning Commission (IPC). Should the DCO be approved it would authorise the construction and operation of an Energy from Waste (EfW) Facility at Brig y Cwm, which is located at Cwmbargoed in the County Borough of Merthyr Tydfil.

2 This document is the Non Technical Summary of the ES. The ES comprises four volumes:

   i) Volume 1: Text

   ii) Volume 2: Figures, photographs and photomontages

   iii) Volume 3: Technical appendices

   iv) Volume 4: Non-technical summary

Overview

3 The location of the proposed EfW Facility is shown on Figure 1.1. It is located at National Grid Reference SO 082 063 some 4km to the east of the centre of Merthyr Tydfil. A very small component of the proposed access road to the Facility would be located in the County Borough of Caerphilly.

4 The proposed EfW Facility would be capable of generating a nominal 77MWe of electricity. Allowing for around 10MWe electricity used within the process, up to 67MWe would be available for export to the national grid. Because the Facility could generate in excess of 50MWe of electricity it is regarded as a Nationally Significant Infrastructure Project (NSIP) and the Application for the Facility must be made to the Infrastructure Planning Commission (IPC).
The Facility would be fuelled by post-recycled (‘residual’) Municipal Solid Waste (MSW) and Commercial and Industrial Waste (C&I) arising from homes and businesses throughout Wales. No hazardous waste would be taken by the Facility. It would have a nominal capacity of 750,000 tonnes per annum (tpa). Of this, approximately 50% (by energy) is likely to be biogenic in origin; that is, not derived from fossil fuel. The Facility would therefore contribute towards the generation of renewable energy.

In addition (when taking account of post-treatment recovery of metals for recycling and bottom ash for use in construction), the Facility would divert from landfill and recover value from approximately 96% of the waste treated.

Approximately 75% of waste delivered to the site would be by rail from a network of rail-based waste transfer stations (WTSs) located close to population centres throughout Wales. The remaining 25% or so of waste deliveries would arrive by road. The bottom ash generated by the EfW process would be transferred in sealed containers to an offsite Ash Recycling Facility by rail.

The Facility has been designed to provide combined heat and power (CHP) and whilst the provision of heat energy would reduce the electricity exported, overall it would make the Facility substantially more efficient. The CHP scheme would provide a maximum heat export of 50MWth and as such the electrical power available for export would reduce to approximately 58MWe. This would result in a total energy export of 108MW (50MWth + 58MWe) compared with exporting 67MW electricity alone. Even when generating electricity only the Facility would be classed as a ‘recovery’ rather than a disposal facility.

As part of the CHP strategy for the Facility a separate planning application will be made to Merthyr Tydfil County Borough Council for an underground pipeline from the Brig y Cwm site to provide heat energy to the Goat Mill Road
Industrial Estate. In addition the connection of the Facility to the national grid network will also require a separate consent.

**The Applicant**

10 The group of companies of which Covanta forms a part is the world’s largest operator of EfW facilities (by tonnage). It has 44 plants worldwide, mostly in the United States. These facilities process about 18 million tonnes of residual MSW and C&I waste every year. By using waste as a fuel Covanta generates enough heat and electricity to power one million homes. In addition to dramatically reducing the amount of waste going to landfill, this also prevents some 15 million tonnes of carbon dioxide from entering the atmosphere every year.

11 Covanta entered the UK market in 2005 and offers high quality, safe and efficient solutions for treating residual MSW and C&I waste. Its strategy is to achieve this through investing in larger scale plants so as to maximise the economic and environmental benefits, enabling it to pass on some of these benefits to clients, including local authorities and local businesses. Covanta in the US has received a wide range of safety and environmental awards in recent years from environmental and government bodies.

12 Further information about Covanta is included in the Planning Statement (Document 8.2) submitted with the Application and information can also be found at: [http://www.covantaenergy.co.uk](http://www.covantaenergy.co.uk).

**Site context**

13 The application site covers an area of approximately 14.5 hectares, the majority which is located within land currently undergoing surface mining operations and restoration as part of the Ffos-y-fran Land Reclamation Scheme (FLRS) which is due to be completed in 2025. Currently the site largely comprises areas of mine spoil, restored spoil tip and newly reseeded grassland. The Site is in a prominent upland area between Merthyr and Gelligaer Commons. These comprise extensive areas of exposed upland
moorland with little tree cover and both are registered areas of historic landscape interest, a national landscape designation in Wales.

14 Whilst the site is almost devoid of natural vegetation, both the application site and the area surrounding it have a rich cultural heritage associated with former coal mining activities. In particular, part of the Sarn Howell Pond and Watercourses Scheduled Monument is close to the Facility’s proposed road access whilst the other part is adjacent to the route of the proposed heat pipeline.

15 Due to the FLRS the natural drainage of the site has been altered and many of the watercourses and ponds shown on the Ordnance Survey maps are no longer present. The site drains to two watercourses both of which flow from north to south. To the west it drains to the Bargoed Taff which crosses the extreme western end of the Application site. To the east it drains to the Nant Gyrawd which is a tributary of the Bargoed Taff.

16 The site is currently accessed by both rail and road. Rail access is via the existing ‘mineral’ railway line from Cardiff which terminates at the site. This is used currently to export coal from the FLRS via the adjacent Cwmbargoed Disposal Point to Aberthaw Power Station in the Vale of Glamorgan. The line approaches the site via Ystrad Mynach to the south and up to that point freight traffic to Cwmbargoed shares the route with passenger transport.

17 Existing vehicular access to the site is from a private unnamed single track from the Bogey Road to the north across a gated level crossing over the railway line. To the east the Bogey Road joins Common Road which connects with the A465 Heads of the Valley Road and Merthyr Tydfil to the north. Access to the A465 and Merthyr is also available to the west via the Bogey Road and the A4060.

18 The most prominent existing features in the vicinity of the site are the Cwmbargoed Disposal Point, which adjoins the north eastern boundary of the
site, the Trecatti landfill site some 1.5km to the north, and the FLRS to the immediate north, west, and south.

19 The closest residential properties are two isolated dwellings at Nantyffin, 1.5km to the south of the site, on the lower side Garth Fawr. The nearest communities are Fochriw and Pentwyn which are located at approximately 2km and 2.5km to the east and south east of the site respectively. Merthyr Tydfil and Rhymney are approximately 4km to the west and approximately 3km to the north east respectively.

20 The Nant Gyrawd, which runs north-south along the eastern boundary of the site, forms part of the Cwm Golau Site of Importance for Nature Conservation (SINC), a site designated locally by Merthyr Tydfil County Borough Council. Slightly further to the east is the Gelligaer Common SINC. This is a very extensive upland common comprising mainly unimproved acid grassland and grass heath. Amphibians, several species of bat and a variety of breeding birds have been recorded previously on the site.

21 Although there are no nationally designated sites of nature conservation interest in the vicinity of the site there are some 27 within 15km, especially to the north.

22 There are no public rights of way within or in the immediate vicinity of the site, although there are a number of footpaths and bridleways on Gelligaer Common within 500m and the land to the north of the railway line is access land, although access rights are currently suspended for the duration of the FLRS.

Alternatives

23 The Alternative Site Assessment Report appended to the ES outlines the process undertaken to identify the site for the EfW Facility at Brig y Cwm. It looked at 336 different sites and concludes that 7 sites, including Brig y Cwm, had the potential to accommodate an EfW facility. Of these Brig y Cwm
scored best in terms of transport linkages and other sustainable credentials and was available and deliverable.

24 The Engineering Design Statement accompanying the Application provides an overview of the main technology processes available to treat and recover residual waste. Moving grate technology was selected as the most appropriate technology for the Facility due to it being a flexible, safe, reliable, energy efficient process with a low carbon footprint.

25 The Environmental Agency's Waste and Resources Assessment Tool for the Environment (WRATE) has been used to model and compare the environmental impact of a single large large-scale rail linked EfW facility against multiple waste treatment facilities distributed across Wales with waste delivered by road and a "do-nothing" scenario of the continued predominant use of landfill. The assessment considers a number of variations of the single site scenario and concludes that a large facility is superior to the multi-site and "do-nothing" scenarios.

26 The Design and Access Statement accompanying the Application refers to the range of alternative design options considered through the iterative design process, resulting in the detailed consideration of a number of design options. For example, whilst the layout and orientation of the plant were determined by operational considerations the presence of the EfW was minimised through the selection of a design with three closely related stacks rather than a design with 3 separated stacks which emphasised their presence within the landscape. The building form evolved through consideration of a number of design options in consultation with the public and the Design Commission for Wales, and has resulted in a structure with an elegant, curved roof that sits comfortably within its upland landscape setting.

27 The design of the rest of the Facility focused on the existing railhead, the need to provide vehicular access from the local highway (which was substantially modified as a result of consultation), the need for sufficient land to provide attenuation ponds to control the discharge to neighbouring watercourses and prevent the potential for flooding downstream, and
sufficient space during the construction period for temporary laydown and storage areas.

**Alternative routes for heat pipeline**

28 As the Scheme evolved a number of alternative routes for the proposed heat pipeline from the Facility to the Goat Mill Industrial Estate were examined. These included constructing the pipeline along the Bogey Road from the site entrance, and alternative routes along the highway verge or on adjoining private land. Another alternative, which was subsequently adopted was to use the trackbed of the disused railway as far as bridge carrying the Bogey Road.

**Alternative grid connections**

29 Two options are being explored for the electrical connection from the plant to the national grid. The first would be via a 132 kV overhead line (OHL) northwards to Rassau. The second would be via a 132 kV underground cable westwards to the existing 400 kV OHL at a location within the FLRS called Incline Top House where a new 132/400 kV substation would be required to complete the connection.

**The Scheme**

**The EfW Facility**

30 The main processing facility would be a large dome-roofed structure containing three waste processing streams, a waste reception hall, a fuel bunker, a boiler hall, a turbine hall and three flue gas treatment streams which clean the combustion exhaust gases prior to them being emitted via their respective and dedicated 115m tall chimney stack. Offices, workshops and a visitor centre would also be included within the main structure.

31 Other structures on site would include the new rail sidings, an electricity switchyard, air cooled condensers, maintenance buildings and storage areas. The plant and the site would be lit.
The Facility would include dedicated surface water collection, pollution prevention, attenuation and discharge facilities. The plant is designed to harvest rainwater and to make maximum use of water recycling. Domestic foul drainage would be treated by a packaged treatment plant on site.

Vehicular access would be via a new road access off the Bogey Road at the location of the existing crossing to the Cwmbargoed Disposal Point. The new access crosses a small area of common land.

The plant would produce heat and power 24 hours a day, 7 days per week. It would operate continuously throughout the year except during essential maintenance. During operation, up to 81 full time operational and maintenance staff are expected to be employed.

Approximately 75% of the waste would arrive by rail in sealed containers with up to 4 trains per day except Sundays with times designed to avoid conflict with other freight and passenger services. Under normal operating conditions the remaining 25% or so of waste deliveries would arrive by road between 6am and 11pm, with the majority of road deliveries being between 7am and 5pm. Normally there will be no deliveries after 5pm on Saturdays with no deliveries on Sundays, except under exceptional or emergency circumstances. It is proposed that all access to and from the site would be to/from the east via Common Road/Rhymney Road and thence onto the trunk road network on the A465 Heads of the Valleys.

Waste arriving by both rail and road would be taken to the reception hall where it would be tipped into the fuel bunker at the start of the process. The technology used is "state of the art" and provides an efficient thermal treatment process which produces electrical and heat energy, 50% of which is renewable, by raising steam in the boilers using the heat contained in the hot combustion gases of the process. The Steam is used to produce electricity via a steam turbine and hot water via a heat exchanger and enables recovery and recycling of up to 96% of the waste entering the site. The hot
gases then pass through a flue gas treatment system to ensure that they meet regulatory requirements before being emitted from the stack. The solid flue gas treatment residue would be removed from site in sealed road tankers, whilst bottom ash would be removed in sealed containers by rail for reprocessing.

37 Construction is expected to take 44 months commencing (subject to the timing of the Development Consent Order) in the first half of 2012. The Facility would be operational in late 2015. During construction an average of around 340 people would be employed, peaking at approximately 650. A Code of Construction Practice has been prepared and is attached to the ES. This sets out the principles and minimum standards for the protection of human health and the environment during the construction period, which would form the basis for a Construction Environmental Management Plan to be adopted by Covanta and its contractors. It also provides the framework for a series of other more detailed plans, procedures and protocols that would be instigated during construction.

Other Scheme Elements

38 In addition to the Facility the overall Scheme includes a number of other elements which would be subject to their own consenting process:

i) a heat pipeline from the Facility to the Goat Mill Industrial Area in Merthyr Tydfil;

ii) a grid connection to the national grid;

iii) a network of Waster Transfer Stations; and

iv) an Ash Recycling Facility.

Environmental Impact Assessment

39 The Scheme requires Environmental Impact Assessment (EIA) as it is a waste disposal installation for non-hazardous waste having a capacity
exceeding 100 tonnes per day and falls within the description of projects contained in Schedule 1 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations 2009). This Non Technical Summary is provided in accordance with those Regulations.

40 The ES records the results of the EIA which has examined the effects of the Scheme during the construction, operational and decommissioning phases on a wide range of environmental topics. These topics were agreed with the IPC through a formal EIA scoping process. It also considers the cumulative effects of the Facility with other major developments in both the vicinity of Brig y Cwm and wider afield in South Wales.

41 All the environmental topics were assessed using the following key dates:

i) The existing situation in 2010.

ii) A future baseline of 2015 - which is when the Facility would become operational.

iii) A future baseline of 2025 - which is when the FLRS would be complete and most of the land around the Facility will have been returned to agricultural and recreational use.

42 In line with best practice a further future baseline of 2030 for traffic-related assessments was also used.

43 Where relevant, consultation was undertaken with the local authority and prescribed consultees to determine study areas, methodology and mitigation measures for each environmental topic.

44 The assessments for each topic are described in Chapters 6 to 14 of Volume I of the ES. Cumulative effects are summarised in Chapter 15.

Transport and Traffic

45 In addition to the assessment included within the ES, a separate Transport Assessment has been undertaken of the proposed Facility. The transport
effects have been assessed in accordance with the relevant guidance and in consultation with the Welsh Assembly Government, Merthyr Tydfil County Borough Council and Caerphilly County Borough Council. The impact of traffic movements associated with the Facility on the local highway network in terms of capacity, a perceived severance of communities, driver delay, pedestrian delay, accidents and safety and hazardous loads are all considered.

46 For the operational phase the assessment considers the likely transport implications resulting from 25% of the proposed 750,000 tonnes of waste per annum arriving by road and also a worst case of 50% of waste arriving via road.

47 The assessments undertaken demonstrate that if, as is intended, only 25% of the waste arrives by road then this will increase traffic flows by a maximum of 27.4% on the Bogey Rd (West of Common Rd) link. In the worst case of 50% arriving by road, the maximum daily traffic flows increase is 40.9% on the Bogey Rd (West of Common Rd) link. In either case the increases are unlikely to create any perceptible effect upon the road network and as a result no significant environmental impact is predicted.

48 Although the total daily percentage increases do not exceed the good practice thresholds these links were still assessed due to high HGV percentage increases from the currently low baseline traffic flows. These more detailed assessments establish that such increases on Common Road and Rhymney Road are unlikely to create any perceptible effect upon the road network and consequently no significant environmental impact is predicted.

49 During construction it is proposed to instigate a travel plan to manage contractor traffic. It is also proposed to provide contractor parking at Goat Mill Road to further limit the traffic effects of the scheme. The assessments show that larger percentage increases are predicted as a result of the vehicles
generated during the peak construction phase. However these increases are insufficient to produce a significant environmental effect.

50 Similar assessments have been undertaken to assess the environmental effect of traffic rerouting as a result of construction of the heat pipe. These have also demonstrated there will be no significant impact in respect of severance, driver delay, pedestrian delay, pedestrian amenity, accidents and safety, and hazardous loads.

**Air Quality and Human Health Risk Assessment**

51 An assessment of the air quality effects associated with the Facility has been undertaken in accordance with current policy and guidance and following consultation with the Countryside Council for Wales, Merthyr Tydfil County Borough Council and Caerphilly County Borough Council. The assessment includes a description of the current air quality conditions within the study area and describes the methodology used to assess the air quality effects of the Facility.

52 The Facility would be designed to control emissions from the stack, via a flue gas treatment system, to limits specified within the Waste Incineration Directive (WID) using Best Available Techniques (BAT) and to render harmless any residual emissions prior to their release. The height of the stack, 115 m, is considered to be the optimum for the effective dispersion of emissions and would minimise impacts on designated ecological sites within 15 km of the Application site.

53 The assessment assumed the worst-case input and operating levels. This is likely to result in an over-estimate of the air quality effect that will arise in practice from the proposed Facility.

54 The results of the assessment indicate that the emissions from the Facility and the resulting environmental levels are well within current air quality objectives and limit values.
Traffic and train emissions are also considered in the air quality assessment based on worst-case vehicle movements associated with the Facility. No significant impacts are predicted.

Effects from construction activities at the site have been assessed based on the London Best Practice Guidelines for Construction Dust. The assessment concludes that following the implementation of recommended dust management measures set out in the air quality assessment and the application of good-house keeping measures secured as part of the Construction Environmental Management Plan (CEMP), the effects would be ‘low’.

The potential impacts to human health have been assessed following good practice guidelines. A Human Health Risk Assessment (HHRA) has been completed based on the modelled emission of heavy metals, Poly Chlorinated Biphenyl (PCB), Poly Aromatic Hydrocarbons (PAH), and Dioxins and Furans. The HHRA concludes that potential exposure to emissions from the Facility, taking into consideration background exposure where appropriate, would pose no unacceptable risk to people, including residents and farmers the vicinity of the Facility.

The detailed ecological impact assessment predicts impacts from the proposed EfW on statutorily designated ecological sites within 15 km of the application site. The assessment finds that in comparison to relevant thresholds the predicted contributions of oxides of nitrogen ($NO_x$), sulphur dioxide ($SO_2$) and ammonia ($NH_3$) and acid/nitrogen deposition are not likely to have any significant effects as a result of emissions to air. However there would be an adverse effect on three locally designated Sites of Importance to Nature Conservation (see Ecology and Nature Conservation).

**Landscape and Visual Resources**

The Landscape and Visual Assessment (LVIA) considers the potential effects of the Facility on landscape character and representative visual receptors. Because the Facility will be lit the LVIA considers effects during the daytime
and at night. It has been prepared based on best practice guidance and the methodology and scope of the assessment has been subject to consultation with the Countryside Council for Wales, Merthyr Tydfil, Caerphilly and Rhondda Cynon Taff County Borough Councils and the Brecon Beacons National Park Authority.

60 The Facility would be located in a prominent upland area between Merthyr and Gelligaer Commons which comprises extensive areas of exposed upland moorland with little tree cover. However, this landscape is at present severely compromised by the FLRS, which will continue until 2025, and the adjacent Cwmbargoed Disposal Point.

61 The Facility would not directly affect any nationally or locally designated landscapes which lie to the north (Brecon Beacons National Park) and the east.

62 The significance of effect on landscape character during the operational phase of the Facility in the years 2015 and 2025 ranges from Moderate/Minor adverse in the day to Neutral/Negligible adverse at night. None of these effects would be significant in EIA terms.

63 Opportunities for mitigation of impacts on landscape character and visual receptors were addressed from an early stage in the design of the Facility. Aspects of the design, including choice of stack arrangement, the domed roof, profile and height of the main plant and the selection of natural finishes are all designed to minimise adverse impacts. The stack would form the only visible element of the proposals in many distant views where intervening landform would screen the building. Where the building is visible in distant views the crest of the domed roof would be barely visible as a sliver of curving architecture, similar in shape, form and colour to surrounding landscape.

64 In relation to views, thirty five representative viewpoints were identified following consultation for the purpose of the assessment, with differing views towards the Application site. These are classified as being short, middle or long distance views and include those available to the public or community at
large, residents and visitors to the area. Site evaluations were undertaken on all thirty five viewpoints and two were found to have no views of the Facility.

65 Of the 33 viewpoints assessed, during the construction period receptors at the 5 near viewpoints would experience a range of adverse effects from Moderate in the day to Negligible/Minor at night. Receptors at the 18 mid-distance viewpoints would experience adverse effects ranging from Minor/Moderate in the daytime to Negligible/Neutral at night. Receptors at the 10 distant viewpoints would experience a range of effects which would be Negligible/Minor adverse in the day to Neutral effects at night. None of these effects would be significant in EIA terms.

66 The main difference between the assessment of construction phase effects and the operational EfW Facility will be the potential, intermittent, presence of a visible plume from the stack. The plume would only be visible during periods of clear, cold, calm weather usually experienced at night or in the early morning.

67 Nevertheless, of the 33 viewpoints assessed for the operational Facility in 2015, all would experience the same level of effect as during the construction phase.

68 In 2025 however following completion of the FLRS, receptors at the 5 near viewpoints would experience a range of adverse effects from Major/Moderate in the day, which is significant in terms of the EIA Regulations, to Moderate/Minor at night. All other receptors would experience effects which are not significant in EIA terms.

69 The receptors at the near viewpoints are high sensitivity receptors, and represent mainly local walkers and recreational users on Merthyr Common and Gelligaer Common. They would experience the most significant adverse change in view when the scheme is operational.

Ecology and Nature Conservation

70 An ecological impact assessment has been undertaken in accordance with current best practice. This identifies potential effects resulting from the
construction and operation of the Facility and the significance of any consequent ecological effects.

71 The scope of the assessment was agreed in advance following consultation with the Countryside Council for Wales and via the Scoping Opinion issued by the IPC. The principal issues raised were the need to consider the potential air quality effects on European, national and local sites designated for their ecological importance, the need for appropriate ecological surveys, the effect on protected species local to the area (great crested newt, otter, bats, barn owl, lapwing) as well as wildlife in the immediate vicinity of the site.

72 Detailed modelling was undertaken of the impact of air quality change on habitats in all designated sites of nature conservation importance within 15km of the site. This concluded that the proposed Brig y Cwm EfW Facility would not affect the integrity of any European Site of nature conservation importance as a result of emissions to air, either alone or in combination with other projects. Similarly there would be no significant effects on any of the Sites of Special Scientific Interest (SSSIs) within 15km of the Brig y Cwm site. At the Gelligaer Common, Tair Carreg Moor and Cefn Gelligaer Sites of Importance for Nature Conservation (SINCs), the rates for acid deposition are such that some adverse effects on vegetation as a result of the operation of the Brig y Cwm EfW Facility cannot be discounted. However, within the context of the existing background acid deposition levels, the contribution of the proposed Facility would be small.

73 Surveys identified the presence of great crested newt and other amphibians in the vicinity of the site, otters using the Nant Gyrawd, a barn owl nest in a disused office building (which would be demolished) in the assigned Northern Laydown Area, a bat roost was recorded in the old Bogey Road Bridge over the disused railway, and lapwing nesting in the area immediately to the south of the Facility.

74 The proposals include measures for habitat creation. The limited loss of habitat for amphibians would be compensated for by the provision of the attenuation ponds, and associated marginal planting areas and wet grassland.
Lighting would be directed away from the Nant Gyrawd so as not to discourage otters from using it. Care would be taken during construction to avoid disturbance to bats, and barn owl nesting boxes would be established as early as possible after consent to provide alternative nesting opportunities for barn owls. In order to mitigate the effects on the future lapwing breeding areas following completion of the FLRS, the applicant has proposed a contribution to the funding of the RSPB’s Heads of the Valleys Lapwing Strategy.

In terms of protecting local biodiversity assets during construction, locally important ecological areas (Cwm Golau SINC, the FLRS Central Ecological Area, and areas containing great crested newts) would be fenced off and access restricted to that which is essential. However there is likely to be a change from marshy grassland to drier acid grassland in the area between the eastern edge of the site and the Nant Gyrawd as a result of very local changes in hydrology.

**Hydrogeology and Ground Conditions**

The site is located in an area with a long legacy of principally deep mining activities and is currently surrounded by areas of surface mining associated with the FLRS. It is variously underlain by a thin layer of man-made ground of variable composition and/or glacial till. This overlies the mudstone, siltstone and sandstone of the Coal Measures.

The assessment of the hydrogeology (the groundwater movements of the underlying geology) and the ground conditions of the Application site was informed by undertaking both a Phase 1 Desk Study and a Phase 2 Ground Investigation.

The overall hydrogeological and land quality setting is considered to be of relatively low sensitivity for the following reasons:

i) there are no significant groundwater abstractions down gradient of the site;
ii) there are no groundwater source protection zones on, or overlapping the site;

iii) the groundwater in the made ground is shallow, discontinuous in nature and perched above the groundwater in the underlying aquifer; and

iv) the groundwater identified in the Coal Measures underlying the site constitutes a secondary aquifer unit.

Groundwater flows underneath the site are to the south and/or southeast, ultimately discharging to the Nant Gyrawd.

The low level of soil contamination identified on the site is not indicative of gross contamination and does not represent an unacceptable risk to human health or to groundwater.

The key issues associated with the development in relation to ground conditions on the site are land stability issues associated with historical deep mining in the vicinity of the site.

Mitigation measures during construction include the location and stabilisation of former mine shafts present; the production and implementation of a comprehensive Construction Environmental Management Plan which would include a Groundwater Monitoring Plan and a Site Waste Management Plan; and intrusive investigations along the route of the proposed heat pipeline.

The Facility has been designed to ensure that storage and use of hazardous materials would not result in any adverse effects on ground or surface waters.

**Water Resources, Water Quality and Flood Risk**

A Flood Consequences Assessment (FCA) has been undertaken in accordance with current planning policy and following consultation with the Environment Agency Wales. The site is in an area with a low level of flood risk from fluvial and tidal sources. The FCA however identified the possible risk from other sources of flooding and the need for mitigation measures in relation to surface water drainage. A comprehensive surface water drainage strategy for the Facility has been developed which includes means to
attenuate the release of surface water to the Bargoed Taff and the Nant Gyrawd. With these measures in place the significance of the effects on surface water drainage and flood risk up to the design storm event is insignificant and of slight benefit for lesser events.

85 Both during the construction phase and the operation of the Facility the spare capacity in the 6-inch water main that runs along the Bogey Road would be used as the primary source of water although it is anticipated that on average 35% of the plant’s water needs would be met by water harvesting and recycling.

86 The potential effects of construction activities on the water environment would be managed through the implementation of a Construction Environmental Management Plan, the foundation for which is set out in the Code of Construction Practice. Discharges of water off site would be via the early construction of the Facility’s attenuation ponds and foul drainage would be suitably contained and taken offsite by tanker. The significance of effects on surface water drainage and flood risk during construction is considered to be insignificant.

87 Overall the effects of the Facility upon local hydrology and flood risk would be not significant and there would be no residual or cumulative effects. The Facility complies fully with current legislation and national, regional and local planning policy in respect of development and flood risk.

**Noise and Vibration**

88 Noise and vibration impacts associated with the construction and operation of the proposed Facility have been assessed using best practice techniques according to relevant national and international noise and vibration standards and guidance. The assessment has been based on a number of ‘worst-case’ assumptions and the likely significant effects identified. Impacts have been assessed for both on site activities, including construction and operation and also off site activities; movement of material and waste by rail and road infrastructure.
Baseline noise surveys have been carried out to establish the existing noise levels surrounding the site. The surveys show that the area can be relatively quiet, except where houses are close to road and rail routes. The results of the surveys have been used to assess the significance of construction and operational impacts.

Owing to the distance between the site and the nearest residential area (in excess of 1.5km) worst-case construction impacts would not give rise to any significant noise effects. An assessment has been undertaken regarding possible blasting. No significant vibration effects are predicted. Traffic generated during the construction phase would not lead to adverse noise impacts.

The Code of Construction Practice presents standard industry best practice with regards to construction activities and with appropriate controls there would be minimal disruption during the construction phase of the development.

Operational effects would arise from process noise from the Facility and the transportation of waste and ash to and from the Facility by a combination of road and rail routes. The design and layout of the Project has been influenced by the intention to minimise noise emissions. Quiet equipment has been selected and the buildings have been designed to control noise breakout. These measures are designed to ensure that the noise levels in the community are within acceptable limits and again owing to the spatial separation, no significant operational effects are predicted from onsite process noise. Whilst there would be an intensification of freight traffic to and from the site (on the same rail line as used currently by trains accessing the Cwmbargoed Disposal Point) the degree of noise would not lead to any adverse impacts and hence no significant noise effect.

Overall, the effects of the proposed Facility are considered to be of neutral significance.

Social and Economic Effects
The social and economic assessment has two elements. The first is concerned with the economic effects of the Scheme in terms of the direct provision of employment at the construction and operational stages, and the encouragement of inward investment by the availability of locally sourced heat and power to existing and potential new businesses in the Merthyr Tydfil area.

The second is concerned with the potential effects of the Facility on recreation and tourism in the area.

Data to establish the baseline economic conditions in Merthyr Tydfil County Borough and the adjacent and nearby authorities of Rhondda Cynon Taff, Caerphilly and Blaenau Gwent were obtained from the 2001 Census and the NOMIS Labour Market Profiles. For recreation and tourism, information was gathered mainly from Ordnance Survey maps and local authority websites.

The data show that economic conditions in the four County Boroughs are characterised by high unemployment, low economic activity rates, high levels of poor health and limiting long term illness, and low levels of car ownership and qualifications. The 2008 Indices of Multiple Deprivation, and the latest (November 2010) research by Sheffield Hallam University, confirm this picture. However, Merthyr Tydfil exhibited lower levels of outcommuting (people that travel outside the area to work) and a higher job density (the ratio of jobs in and area to its resident workforce) than the other County Boroughs.

The local area contains extensive areas of common and access land. Nevertheless, the main opportunities for outdoor recreation in the region are found in the Brecon Beacons National Park to the north of the project site, and the principal visitor attractions of South East Wales are mainly located away from the Merthyr Tydfil area.

The project is likely to provide up to about 650 jobs in its three/four year construction period and 81 permanent jobs when complete and in operation. This would be of significant benefit to the local economy, as will the availability of renewable energy to potential inward investors.

The secondary employment benefit that would accrue to Wales from the related waste transfer stations and proposed ash recycling facility (280-400
construction jobs and 40-65 operational jobs) would be of further significant benefit to the national economy.

101 The effect on recreation and tourism would also be beneficial in that the proposed Visitor Centre, which would not only provide an understanding of waste management and energy production processes but also information on the history, ecology and landscape of the area, would attract visitors from outside the area as well as local residents.

102 Finally, the community benefit fund will when established be an asset to the local community.

**Cultural Heritage**

103 An assessment of the potential effects of the Facility on the cultural heritage resources of the site and the surrounding area has been undertaken. Cultural heritage resources include buried archaeological sites (both designated and undesignated), Scheduled Monuments, Conservation Areas, listed buildings of all grades and historic landscapes. The method and scope of the assessment was subject to consultation with Cadw, Merthyr Tydfil County Borough Council and Glamorgan-Gwent Archaeological Trust Historic Environment Record (GGAT) who act for the County Boroughs of Merthyr Tydfil and Caerphilly.

104 The assessment of potential cultural heritage effects (both direct and indirect) involves desk-based research, site walkovers, and visits to potential off-site receptors. The desk-based study includes a review of all available relevant sources of information on the extent and nature of any features of cultural heritage interest located within, and up to 10km from, the site.

105 This information includes existing records of known features and documentary sources such as historic maps and aerial photographs, other published and unpublished documents.

106 Direct effects on cultural heritage resources are limited to the loss of those undesignated cultural heritage assets with the Application site. Those relate to the former coal mining activities at Cwm Bargoed Pits and associated
infrastructure, the leats (ditches), reservoirs and dams that formed part of the Dowlais Free Drainage System and part of the route of the dismantled Dowlais Iron Company Railway and its associated buildings. The proposed access road to the Facility was moved to avoid the adjacent Sarn Howell Pond and Watercourse Scheduled Monument and to minimise impact on associated unscheduled remnants of the Dowlais Free Drainage System.

107 The Facility will be visible over relatively long distances, thus raising the potential for visual effects on the setting of those cultural heritage resources in the surrounding area. Consequently a systematic study of the effect on setting of all cultural heritage resources was undertaken out to 3km, and a more selective review up to 10km from the Facility, including the World Heritage site at Blaenavon, at some 13km distant.

108 The assessment included site visits and reference to wireframes and photomontages produced to illustrate likely views of the Facility. The assessment was undertaken in close co-operation with the Landscape and Visual Assessment and found that the cultural heritage receptors to be significantly affected by the proposed development would be a leat (a ditch) associated with the Dowlais Free Drainage System, Sarn Howell Pond and Watercourses which is a Scheduled Monument, and the Timber Aqueduct over Former Taff Bargoed Railway, Cwm Bargoed, which is a Grade II listed building. The assessment concluded that the significance of effect on the setting of these resources would be no greater than Moderate Adverse. There would be slight adverse effects on the settings of a further 29 heritage assets.

109 In Wales the Countryside Council for Wales promotes a prescriptive method for assessing the effect of a major development on areas registered as landscapes of historic interest. This is a multi staged process referred to as ASIDOHIL (Assessment of the Significance of the Impact of Development on Historic Landscape Areas). Such an assessment was undertaken on both the Registered Landscape of Outstanding Interest in Wales at Merthyr and on the Registered Landscape of Special Interest in Wales at Gelligaer.
Detailed site walkovers were undertaken to examine the current ground conditions and land use of each historic landscape and to identify and assess the implications of this for the preservation of any previously unrecorded features of cultural heritage interest. It included visits to known archaeological features and heritage assets within the respective landscapes and those within a wider area with the potential to be affected indirectly.

The assessment concludes the effect on both registered landscapes would be no greater than Moderate Adverse and that the previous uses of the site meant that there is very little prospect of undiscovered archaeological remains being impacted by the development, and therefore no further mitigation was required.

Further Information

The Environmental Statement will be deposited for inspection during opening hours at the following addresses:

- Merthyr Tydfil County Borough Council, Civic Centre, Castle Street, Merthyr Tydfil CF47 8AN
- Caerphilly County Borough Council, Tredomen House, Tredomen Park, Ystrad Mynach, Hengoed CF82 7WF
- Merthyr Central Library, High Street, Merthyr Tydfil CF47 8AF
- Dowlais Library, Church Street, Dowlais, Merthyr Tydfil CF48 3HS
- Treharris Library, Perrott Street, Treharris CF46 5ET
- Ystrad Mynach Library, High Street, Ystrad Mynach CF82 7BB
- Caerphilly Nelson Library, Commercial Street, Nelson CF46 6NF
- Pontlottyn Library, Community Centre, Pontlottyn CF81 9QD
- Rhymney Library, Victoria Road, Rhymney NP22 5NU.
113 The full Environmental Statement including the Non Technical Summary can be viewed and downloaded from the IPC website at: www.infrastructure.independent.co.uk

114 Copies of the ES either as hard copy or on CD can be obtained (in English and Welsh) from:

Covanta Energy,
Orbit Centre,
Rhydycar Business Park,
Merthyr Tydfil CF48 1DL

or through contacting Covanta@wepr.co.uk.

115 Paper copies of the Non Technical Summary (in English and Welsh) are available free of charge from the same address.

116 Please note a charge of £400 for Volumes I, II and III will be made to cover the costs of production and despatch.
Client: Covanta Energy Limited
Project: Brig y Cwm EfW Facility: Environmental Statement
Title: Location Plan
Figure Number: 1.1
Legend
- Site location

Scale @A3 1:25,000
OSGB36 BNG
Figure Number: 2.2

Title: Key Environmental and Planning Constraints

Legend:
- DCO application boundary
- Local authority boundary
- Approximate route for heat pipeline
- Conservation area
- Area of archaeological importance
- TPO and ancient semi-natural woodland
- Listed buildings & ancient monuments
- Operational landfill site
- SINC (Merthyr Tydfil)
- SINC (Caerphilly)
- SLAs (Caerphilly)
- Sites of Special Scientific Interest
- Ancient & environmentally important woodlands
- Access Land / Urban Common
- Southern boundary of Grade I Landscape of Historic Interest in Wales
- Disposal point (Cwmbedoed coal washery)

- Client: Covanta Energy Limited
- Project: Brig y Cwm EfW Facility: Environmental Statement
- Date: Dec 10
- Projection: OSGB36
- Scale: 1:25,000
- Job Ref: JNP2199