

Bedford Borough Council
Environment and Sustainable Communities Overview
& Scrutiny Committee

(Thursday, 21st June, 2018 6.30 pm)

Advanced Questions submitted by the Council and Covanta's responses:

1. What are the benefits of the Covanta facility as a waste treatment facility?

Energy-from-Waste (EfW) is an important part of an overall integrated waste management approach, recognized in the European Union waste management hierarchy as preferable to landfilling for those materials remaining after waste reduction, reuse and recycling efforts have been exhausted.

After recycling takes place, EfW facilities recover energy from remaining waste materials in an environmentally sound manner. While doing so, EfW facilities reduce the need for fossil based energy and reduce greenhouse gas (GHG) emissions relative to landfilling.

2. What is the role of Energy-from-Waste in a Circular Economy?

The circular economy aims to keep products, components and materials at their highest utility and value at all times. In this way, "waste" does not have to be wasted, but rather may be used as an input for another process. Just like the waste hierarchy, waste reduction, reuse and recycling should be prioritized, but for remaining materials, energy recovery has an important role to play. Nearly every step of a circular economy requires an energy input, and recovering energy from leftover waste can help meet this need.

3. Does the Covanta facility discourage recycling?

Covanta is fully committed to the international recognized waste hierarchy of reduce, reuse, recycle, energy recovery and as a last resort, landfill. More sustainable waste management can be one of the best mechanisms to help combat global climate change and reduce environmental impacts.

EfW does not interfere with recycling. In fact, experience and data collected in both the European Union and the U.S. have shown that EfW and recycling work very well together. In the European Union (EU), EfW and recycling have grown together because of policies that minimize landfills. The European Environment Agency says, "There is no evidence to support [the argument that] incineration of waste with energy recovery hinders the development of recycling." The EU countries with the highest recycling rates all use EfW extensively to process waste left over after recycling.

Accepting already separated recyclables doesn't make good business sense for EfW facilities. The higher energy content of paper and plastics relative to mixed municipal solid waste is disadvantageous to revenues at an EfW facility. EfW facilities are

generally limited by the amount of steam they can make, and in turn, the amount of heat energy that can be fed into the boiler in the form of waste materials.

Taking additional or bulk quantities of high heat content materials, like paper and plastics, reduces the amount of waste that a typical EfW facility can process. Since most EfW revenues come from waste tip fees, revenues would decrease from taking in large amounts of paper and plastics. In addition, large bulk amounts of recyclable glass and metal can negatively impact facility operations, leading to potential increased maintenance costs and an increase in residual material that must be processed or disposed.

4. What is the composition of the waste you are burning?

Rookery South will only process household, commercial and industrial waste from the UK Commercial and Industrial (C&I) waste is controlled waste arising from the business sector, such as factories, shops and offices – the composition of this C&I waste is very similar to household waste.

No hazardous waste or medical will be accepted or processed at the facility. Importantly, the types of waste that this facility can accept are clearly set out in the Environmental Permit.

5. Is the solution robust enough to manage variations in feedstock composition as upstream policy measures are implemented?

Yes, EfW facilities are well suited to processing and handling variations in waste feedstock and are specifically designed to manage variations in heat content, moisture content, and composition. Covanta has direct experience in operating facilities for over 30 years. During this time, we have seen large scale shifts in waste composition, as a result of recycling programs and changes in the products we use.

We also operate facilities across a wide variety of waste management policies. Some of our facilities operate in communities with very extensive recycling programs with food waste diversion and yard waste composting programs, and even kerbside cooking grease recycling. EfW facilities have demonstrated consistent reliable performance across these variations.

EfW facilities are able to deliver strong performance in light of this variation through a robust combustion process. We start with the proper mixing of the waste by crane operators to maintain consistent feed stock. Waste is fed to the stoker system that agitates the waste in a systematic fashion to provide continuous drying, volatilization, ignition and ultimately complete combustion of the waste.

Combustion air is delivered to the furnace both below and above the stoker system resulting in complete combustion. Complete combustion is achieved by having sufficient turbulence and mixing, maintaining a consistent load, and adequate residence time at high combustion temperatures. The conditions within the furnace are controlled through a sophisticated combustion control system operated by a licensed Boiler Operator.

The combustion process is monitored by feedback into the control system, and appropriate adjustments made by the operator if needed due to variations in the feedstock. Data from the facility's Continuous Emissions Monitoring System (CEMS), particularly carbon monoxide (CO) levels which indicate the completeness of combustion, are closely monitored to ensure proper combustion. Relative to the

wastes being processed, this aspect of combustion ensures a thermal destruction efficiency of organic hazardous air pollutants of 99.9999%.

6. Is there security of supply over the duration of the facility even if waste volumes are reduced?

In 2016, the UK landfilled 15.7 million tonnes of municipal waste. In addition, due to the closure of many landfill sites and insufficient EfW capacity, the UK exports approximately 3 million tonnes to other European countries for EfW treatment. Even with a significant increase in recycling with robust recycling markets, there will continue to be waste that will need EfW treatment.

The UK has a significant shortage of EfW treatment capacity and the Rookery South facility will provide much-needed treatment capacity for household and non-hazardous commercial and industrial waste.

In the future this need is likely to escalate as availability of the export market decreases and cost of export increases.

7. How does a solution complement rather than compete with upstream policy?

Waste reduction, reuse and recycling should be prioritized, but for remaining materials, energy recovery has an important role to play. Nearly every step of a circular economy requires an energy input, and recovering energy from leftover waste can help meet this need. Ash from the EfW facility will be processed off-site to recover ferrous and non-ferrous metals for recycling that would have otherwise been lost forever in a landfill, or exported to another country.

8. Why is an Environmental Permit needed to operate an EfW facility and what does this contain?

An Environmental Permit regulates the way the facility operates and set strict requirements in line with EU and British legislation. The permit is available for review on the Environment Agency's [website](#).

9. Will the Covanta facility affect air quality? What about dioxins?

All combustion processes (*cars, trucks, coal/oil/gas fired power plants, landfill gas to energy and EfW*) have potential air emissions; however, most have some form of air pollution control process. Cars have catalytic converters and periodic testing. EfW have complex air pollution control systems and continuous monitors and stack testing.

The Environmental Permit strictly specifies the operation and performance of the air pollution control equipment installed for the Rookery South facility to ensure that the operation of the facility is protective of human health and the environment.

Modelling has been carried out of the dispersion of potential emissions, which shows that they will be protective of on local air quality, health or nature conservation sites. Public Health England advises that well-run and regulated EfW facilities do not pose a threat to public health. They also state that the effects are likely to be 'undetectable'.

All EfW facilities in the UK are tightly regulated and have to operate within the EU's requirements, set out in the Industrial Emissions Directive. The Environment Agency also carries out spot-checks to ensure that the monitoring equipment is operating correctly.

10. Will the Covanta facility smell and will it be noisy?

No. Waste will be delivered and tipped into a bunker within the building. The building will operate under negative air pressure which prevents air and odours from escaping. The air from the tipping hall is drawn into the combustion chamber using large induction fans. Much of the operations will be carried out inside the building to prevent external noise.

During the planning process, noise was carefully considered and assessed using computer modelling of the proposed building and equipment. The expert consultants are using Government guidance on environmental noise, together with other standards, to establish suitable noise standards for the ERF. The calculations from computer modelling have been compared with the standards and, where targets would not be met, modifications to the layout and design of the facility were subsequently incorporated.

The resulting noise mitigation has included the specification of high-performance acoustic framed-openings with movable slats and quiet condenser fans. Initial calculations of construction noise indicate that this will be well below recommended levels. The preliminary assessment for operational noise indicates that the predicted noise from the facility will be generally below the target. The initial assessment of changes in traffic noise on the wider road network shows only small noise increases on all transport routes.

Many of our US facilities that were once located on the outskirts of town are now surrounded by homes, shopping centres, restaurants and food stores that were built right outside our facilities. Today, in many major European cities, including several considered to be among the world's most liveable cities, EfW facilities are central to the downtown area, providing sustainable waste management and steam for district heating.

11. What happens to the ash it produces?

After combustion, the volume of waste is reduced by 90%, leaving an inert ash and metal. Residues from the process will be transferred to an off-site processing plant. Remaining bottom ash will likely be beneficially reused for the production of aggregate materials and metal will be sent to an off-site location where it is recovered and sorted for recycling. Fly ash collected in the air pollution control equipment will be stored in silos and removed from site in sealed containers by a licensed contractor.

12. Why is this type and scale of facility required in Bedfordshire?

The Rookery South site, located within the Northern Marston Vale Growth area, was chosen after an extensive search in this region. Covanta originally looked at over 340 sites and Rookery Pit South was considered the most suitable. The site is an appropriate location to develop the Project because:

- It is accessible by a suitable road network, and offers the potential for rail transport in the future;
- It is centrally located, enabling the required waste management and energy supply capacity to be provided in a strategically advantageous position.
- It provides enough space to allow for landscaping to better integrate the facility into the surrounding area and provide additional distance from neighbours to further minimize any noise or odour from the facility;

In addition, there is a paucity of recovery capacity across the Waste Catchment Area. This is defined approximately as 60-mile circumference from the Rookery South site.

There remains more than 1.6 million tonnes per year of residual waste that should be diverted from landfill, for which no treatment capacity currently exists. The Rookery South Energy Recovery Facility would be available to manage approximately 35% of the residual wastes which remain to be diverted from landfill.

13. When does the construction start and finish, when is it envisaged to be operational?

It is anticipated that construction will commence in 2018 and be operational by 2021.

14. What about the increase in traffic and associated emissions from lorries going into the site?

While there will be an increase in traffic in the immediate vicinity of the site, the total traffic impact (and associated total emissions impact) of the project will be neutral since the project will eliminate the need to transport waste either to landfill sites or to ports for export to European EfW facilities. The predicted concentrations of NO₂ and PM₁₀ are predicted to be well below the air quality standards, such that impacts can be considered not significant.

15. Where will the feedstock be coming from?

Veolia will supply municipal, commercial and non-hazardous industrial residual waste from surrounding areas. A Route Management Plan has also been developed to ensure that waste haulers do not travel through local settlements such as Stewartby, Marston Moretaine and Ampthill. Further information on the waste transport options is detailed in the Non-Technical Summary and Preliminary Environmental Report.

16. How does this plant meet the waste hierarchy? Is there any pre-treatment of the feedstock coming into the facility beforehand or once it gets to the facility?

EfW is an important part of an overall integrated waste management approach. It is widely recognized in the UK and European Union waste management hierarchy as preferable to landfilling for those materials remaining after waste reduction, reuse and recycling efforts have been exhausted. After recycling takes place, EfW facilities recover energy from remaining waste materials in an environmentally sound manner. While doing so, EfW facilities reduce the need for fossil based energy and reduce greenhouse gas (GHG) emissions relative to landfilling.

17. Will there be any recycling from the back end of the facility?

Yes. The metals will be removed from the residual bottom ash for recycling. After combustion takes place at EfW facilities we are able to recover metals from the remaining ash for recycling.

In total, Covanta's facilities recycle approximately 550,000 tons of both ferrous and non-ferrous metals. That's enough steel to build more than 400,000 automobiles and sufficient aluminium to manufacture more than three billion beverage cans. Recycling metal from EfW facilities avoids a tremendous amount of greenhouse gases and recovers valuable natural resources that would have otherwise been lost in landfills.

18. In relation to the heat generated from the plant, is there an off-taker?

At over 30%, the electrical efficiency of the plant will be at the highest level currently possible for energy generated from waste and is comparable to coal and biomass fired power plants. This means that significant heat which cannot be used to generate power, is also available to customers should this be economically-viable for both parties

Integrating heat off-take into the facility would further increase its efficiency and put available waste materials to even better use. While we do not currently have a heat off-taker in place, we have already had enquiries from potential heat off-takers for both district heating and commercial applications. We are keen and ready to engage with all interested parties who wish to discuss their requirements with us.

19. What is the impact on the local community?

We recognise the importance of being part of the wider community. Covanta was an early adopter of a Community Outreach and Environmental Justice policy, which guides our approach to working with our communities.

The development of the Rookery South Energy Recovery Facility will bring a range of local community, employment, infrastructure and environmental benefits to the local area. During the planning process, several ways to contribute to the local community were identified.

Examples include:

- Electricity Subsidy Scheme (unique in the UK)
- Community Trust Fund (£150k initial before commencement of operations /then £50k for each year of operations)
- Education and Visitor Centre
- Footpath and cycle path enhancements enabling improved access to Rookery pit
- Marston Vale Trust Fund (Initial £250k, then £50k/year)
- Contribution to Bedford & Milton Keynes Waterway project (Design £200k/Construction £3.175 million) – enabling a linking part of the 'jigsaw' to be put in place
- Millennium Country Park planting scheme (trees and shrubs to the value of £32.8k)
- Stewartby level crossing safety upgrade funded by Covanta
- Restoration of the Rookery South pit to a beneficial use
- Employment and training opportunities (apprenticeships)
 - Around 320 construction jobs
 - More than 40 operational jobs
 - Indirect employment via local suppliers including catering and accommodation during construction
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20. Will the facility be operating 24/7, if so how will noise be managed?

Yes, the facility will operate 24/7, but there will be restrictions on waste delivery hours. The majority of operations will be carried out inside the building, mitigating the amount of noise that is heard externally.

During the planning process, noise was carefully considered and assessed using computer modelling of the proposed building and equipment. The companies are using Government guidance on environmental noise, together with other standards, to establish suitable noise standards for the ERF. The computer model's calculations have been compared with the standards and where targets would not be met, modifications to the layout and design of the facility have been made.

The resulting noise mitigation has included the specification of high-performance acoustic framed-openings with movable slats and quiet condenser fans. Initial calculations of construction noise indicate that this will be well below recommended criteria. The preliminary assessment for operational noise indicates that the predicted noise from the facility will be generally below the target. The initial assessment of changes in traffic noise on the wider road network shows only small noise increases on all of the links. In all cases, the change would not be perceptible and is not significant.

21. How many vehicle movements per day will there be at the site?

Our most recent forecast (February 2018) as provided to Network Rail for both construction and operation, including HGVs, light commercial vehicles and private cars shows an average of around 50 HGVs arriving daily through the construction period, although this will peak for a short period at 150 vehicles arriving each day.

During the operational phase, we expect around 100 HGVs bringing in waste each day and 25 taking ash away for recycling and/or secure disposal. That is approximately 250 total movements.

22. The Environment Agency is responsible for checking that all Energy-from-Waste facilities in the UK meet the emissions limits set by the Industrial Emissions Directive and monitoring the emissions whilst they are operational, how will you do this to protect local residents?

Covanta strives to reduce emissions from our EfW facilities to ensure they are below the strict air emissions limits set by regulatory bodies which that have been demonstrated to protect human health and the environment. We employ sophisticated technologies to achieve superior environmental performance and minimise our impact.

To demonstrate compliance, we use a combination of continuous emission monitoring systems that monitor emissions 24 hours a day, seven days a week and regular stack testing.

23. The Health Protection Agency (HPA) (now Public Health England (PHE)) is an advisory organisation that provides guidance to the government and the Environment Agency on, amongst other things, the impact of Energy-from-Waste facilities. It states that: "Modern, well managed incinerators make only a small contribution to local concentrations of air pollutants." It is possible that such small additions could have an impact on health but such effects, if they exist, are likely to be very small and not detectable. Do you agree with this statement?

Public Health England advises that well run and regulated EfW facilities do not pose a significant threat to public health. Their findings are consistent with those reached by other studies and regulatory agencies. Long-term biomonitoring near three Dutch EfW facilities found “no potential risk with respect to human consumption quality of the investigated crops and products in the vicinity.” And the Massachusetts Department of Public Health found prevalence of childhood asthma in the Merrimack Valley—where several EfW facilities are located—was not associated with emissions of particulate matter (PM10) or volatile organic compounds (VOCs) from the local stationary sources, including EfW.

24. Emissions - Particulate matter and metals will be abated by bag filters. Is it true that this facility will reduce the air quality in Bedfordshire with particulate matter emitted from the proposed bag filter technology? We understand DEFRA has no monitoring stations for PM2.5s.

The Rookery South ERF has been designed in a way that emissions released from the stack are well within the strict requirements of EU and British legislation. Modelling has also been carried out of the dispersion of potential emissions, which shows that they will not have unacceptable effects on local air quality, health or nature conservation sites.

Operating like a very efficient vacuum cleaner, the baghouse removes particulate matter from the combustion gases. As air is drawn through the baghouse, particulate matter and fly ash are caught on the surface of the bags. The particulate and fly ash are removed from the bottom.

25. Covanta Energy Ltd has to notify the EA within 14 days, unless the Stock Market prohibits it, of the following:

- a. **Steps taken with a view to going into administration; steps taken with a view to the dissolution of the operator; where the operator proposes to make a change in the nature or functioning, which may have consequences for the environment, and the change is not otherwise the subject of an application for approval under the regulations or this permit.**

Why only 14 days for the EA and local Bedfordshire community to respond to major changes which would affect the environment close to where they live?

We do not anticipate any major changes of this nature. The 14-day notice is a requirement of the Environment Agency.

26. Combined Heat and Power was a selling point when Covanta applied and was granted planning permission, but it now looks unlikely at least in the short to medium term when the plant is built due to lack of other schemes such district heating etc, can this be confirmed and what is happening about CHP offtake?

The Rookery plant will have a significant amount of heat available for sale to district heating and commercial customers. It is generally uneconomic to retrofit existing areas of housing with district heating and also to supply heat to customers more than about 10 miles away.

While we currently do not have any contracts in place or under negotiation for the sale of heat, we are very aware of planned housing and commercial developments within a 10-mile radius of the Rookery site. The timing of such developments is

outside of our control. We are keen to engage with housing developers and potential commercial heat off-takers when they are ready to do so.

27. Over 0.5 million tonnes per year capacity will attract waste all over the country to be burnt in Bedfordshire, bringing in unnecessary highway congestion, transport emissions and local disruption, how is this all going to be managed by Covanta?

Transport and access to the site and the impact of deliveries and people employed at the ERF is the subject of a full Transport Study, which has taken on comments by the Highway Authorities. Measures that Covanta is proposing to minimise and enhance traffic and access impacts include:

- Restrictions on delivery hours and a controlled and monitored HGV Route Management Plan;
- A new junction with a right turning lane on Green Lane to provide access to the Facility;
- Improvements to the footway/cycleway provision on Green Lane – potentially creating a second public access into The Forest Centre and Millennium Country Park;
- Upgrade the Green Lane level crossing;
- Reconnection of severed footpaths and creation of new footpaths and cycleways.
- A travel plan is provided to minimise car usage by staff travelling to the site and the wider network will be not have any perceivable effects.

The environmental impact assessment indicates that there will be only a slight delay to drivers in the immediate vicinity of the site as a result of the Project during the peak travel periods and would not be perceivable against the daily fluctuation in vehicles movements.