Wheelabrator TECHNOLOGIES

Deadline 3: Applicant's Response to the Examining Authority's Further Written Questions (ExQ1A)

Appendix 1.46a – WTI C&I Review and RDF Review - Hendeca

Wheelabrator Kemsley (K3 Generating Station) and Wheelabrator Kemsley North (WKN) Waste to Energy Facility Development Consent Order

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April 2020 – Deadline 3

1. Introduction

1.1 The WTI C&I Review

1.1.1 Dated 17th November 2017, KCC issued document title 'Kent Waste Needs Assessment 2017, Commercial & Industrial Waste Generated in Kent Management Requirement: Report Post Consultation', version 1.2 (KCC C&I Need Assessment).

1.1.2 The KCC C&I Need Assessment is a key area of concern in the evidence base prepared to underpin the Partial Review. This report presents the WTI C&I Review. Unlike the WTI LACW Review, this is not a comprehensive need assessment for C&I waste generated in Kent. WTI has previously made submissions regarding its concern with the approach used in BPP Consulting's approach to estimating future C&I waste management needs. This Review focusses on two areas that cause most concern:

- the treatment of 'Not Codeable' waste (Section 2); and
- the management route that is assumed for C&I waste (Section 3).

1.2 The WTI RDF Review

1.2.1 In addition, this report contains the WTI RDF Review (at Section 4) which explicitly calculates how much RDF is generated in Kent, from Kent's waste arisings, but is then lost to recovery capacity on mainland Europe.

2. 'Not Codeable' Waste

2.1 Introduction

2.1.1 The origin of waste is normally recorded in the Waste Data Interrogator (WDI) at the sub-region or waste planning authority (WPA) level, however when the origin of the waste is not known to this level the term 'Not Codeable' is used and the origin attributed to the region of origin.

2.1.2 This means that wastes can be identified as arising in the South East but 'Not Codeable' to a sub-region or WPA. This in turn means that there is the potential for wastes that arise in Kent to be reported in the 'Not Codeable' wastes at the South East level, and consequently missed as being generated in Kent.

2.1.3 'Not Codeable' tonnages within the WDI can be significant. Table 2.1 shows data for the last three available years of the WDI for 'Coded'' and 'Not Codeable' with South East Region recorded as the origin. The figures highlight that 14% to 15% of the tonnage 'Coded'' to the South East cannot be 'Coded'' to the WPA level.

2.1.4 Therefore when estimating the amount of C&I waste generated in Kent, consideration needs to be given to a proportion of the 'Not Codeable' waste that might have its origin in Kent. This does not appear to have been undertaken in the KCC C&I Need Assessment

Table 2.1 Quantity of 'Coded' and 'Not Codeable' waste with South East Region as origin

Year	Total Tonnes '*Coded*' to the South East	Tonnes '*Not Codeable*' to WPA level in South East	Tonnes '*Coded*' to WPA level in South East	Tonnes '*Coded*' to Kent	Tonnes '*Coded*' to Kent as % of tonnes '*Coded*' to WPA level in South East
2014	28,879,223	3,955,862	24,923,361	5,457,226	22%
2015	29,238,162	4,103,843	25,134,319	4,465,377	18%
2016	30,960,260	4,590,523	26,369,737	5,095,817	19%

2.2 'Not Codeable' waste generated in Kent

2.2.1 Table 2.1 shows that the waste 'Coded'' to Kent makes up approximately 20% of the waste in the South East Region 'Coded' to WPA level.

2.2.2 Applying this percentage such that it is assumed that waste from Kent makes up 20% of 'Not Codeable' tonnage from the South East Region (i.e. the same proportion as the waste 'Coded' with an origin of Kent) would mean that there could be an additional 920,000 tonnes to consider in the analysis of C&I waste generated in Kent in 2016.

2.2.3 However, it needs to be remembered that the 'Not Codeable' tonnage will include non-C&I waste tonnages (e.g. CD&E wastes) and an element of double counting (waste handled through transfer stations).

2.2.4 In 2016, there were three predominant List of Waste (LoW) Chapters in the 'Not Codeable' tonnage (rounded to nearest 1,000 tonnes):

- Ch17 - Construction and Demolition Wastes: 1,730,000 tonnes
- Ch19 - Waste and Water Treatment Wastes: 1,203,000 tonnes
- Ch20 - Municipal Wastes: 1,353,000 tonnes

2.2.5 Of these principal waste steams:

- LoW Ch17 wastes need to be discounted because they cover CD&E wastes that are not C&I wastes;
- LoW Ch19 wastes covers wastes from waste management facilities and will include wastes handled through transfer stations and intermediate treatment process (such as RDF production), these should also discounted to avoid double counting.

2.2.6 This leaves the municipal waste element (LoW Ch20) of the 'Not Codeable' tonnage to be considered. When it is assumed that 20% of that tonnage from the South East Region is generated in Kent, this results in up to an additional 270,000 tonnes to be considered when estimating C&I waste arisings.

2.2.7 Whilst this is considered to be a reasonable assumption, it is noted that:

- the origin of all the waste generated in Kent could be correctly coded; and
- the 'Not Codeable' wastes reported against LoW Ch20 are likely to include an element of Local Authority Collected Waste (LACW) which should not be included in C&I waste estimates.

2.2.8 In conclusion, it is reasonable to assume **a range of 0 and 270,000 tonnes of C&I wastes generated in Kent** could be included in the wastes reported in the WDI with origins 'Not Codeable' to WPA level in the South East.

3. Management Route Allocations for C&I Waste

3.1 Introduction

3.1.1 The assessment of any future capacity need should be based on two principal elements:

3.1.2 estimated waste arisings; and

3.1.3 the assumptions related to the allocation of management routes, i.e. the levels of recycling/composting that may be achieved and the resultant residual waste treatment and disposal capacity required.

3.1.4 In the WTI LACW Review (Section 6) waste management routes for LACW waste as presented in the KCC LACW Need Assessment were considered. The proportions of LACW to be handled via different waste management routes were broadly in line with current EC proposals and future capacity was tested through a series of sensitivity analyses.

3.1.5 Set out in this section is a review of the treatment route allocations for C&I waste as used in the KCC C&I Need Assessment.

3.2 KCC C&I Need Assessment management route allocations

3.2.1 To assess future capacity need the KCC C&I Need Assessment is based on assumptions about the proportions of waste which will be handled via different waste management routes. Table 3.1 summaries the proportions used in the KCC C&I Need Assessment to estimate the capacity need in Kent up to 2030/31 for C&I waste.

Table 3.1 Waste management route for C&I waste in KCC C&I Need Assessment

C&I waste	Milestone years			
Management route	**2015/16**	**2020/21**	**2025/26**	**2030/31**
Recycling and composting	70%	70%	70%	70%
Other recovery	25%	28%	28%	28%
Landfill	5%	2%	2%	2%

3.2.2 No sensitivity analyses was undertaken in the KCC C&I Need Assessment to consider different proportions handled of waste handled via different waste management routes. Further, whilst the assumed proportions of waste handled through different management routes for LACW can be justified by the current data; there is no evidence presented to substantiate the assumed management routes for C&I waste.

European Circular Economy Package

3.2.3 The circular economy is an alternative concept to the traditional linear economy (make, use, dispose) in which:

- resources are keep in use for as long as possible;
- the maximum value is extracted from them whilst in use; and
- products/materials are recovered and regenerated at the end of each service life.

3.2.4 The European Commission has adopted a Circular Economy Strategy, 'Closing the Loop', which is designed to stimulate Europe's transition towards a circular economy.

3.2.5 The Commission's Circular Economy package proposes amendments to six EU Directives with the aim of improving resource efficiency and creating a more circular economy resulting in major economic, environmental and social benefits. This action is intended to boost global competitiveness, foster sustainable economic growth and generate new jobs.

3.2.6 In December 2017, following much debate between Member States, the European Commission and representatives of the European Parliament, provisional agreement was reached on the revisions to the Waste Framework Directive and the Landfill Directive with the following targets agreed:

- 55% recycling target for municipal waste by 2025;
- 60% recycling target for municipal waste by 2030;
- 65% recycling target for municipal waste by 2035; and
- 10% limit on the landfilling of municipal waste by 2035.

3.2.7 On the 23rd February 2018, EU ambassadors endorsed the provisional agreement on the four legislative proposals of the Circular Economy package reached with the European Parliament in December 2017.

3.2.8 The UK's decision to leave the European Union does place a degree of uncertainty over the development and implementation of future environmental policy and legislation over the next few years.

3.2.9 However, the 25-Year Environment Plan published by Defra in January 2018 makes a number of statements with regards to future environmental policy and legislation. Most notability with regards minimising waste, the 25-Year Plan makes the commitment:

'*meeting all existing waste targets – including those on landfill, reuse and recycling – and developing ambitious new future targets and milestones*'.

3.3 Implications for management route allocations for C&I waste

3.3.1 Section 2 of this Review highlights a key concern of the C&I waste baseline estimates presented in the KCC C&I Need Assessment and the potential underestimation. However, as a full C&I waste analysis and forecast has not be undertaken in this Review, the implications of alternative management route allocations have been prepared using the forecast presented in the KCC C&I Need Assessment.

3.3.2 Two alternative treatment route allocations have been considered:

A. Circular Economy package recycling/composting and landfill targets, with the 2035 landfill target applied from 2020.

B. Circular Economy package recycling/composting targets and the landfill targets proposed in the KCC C&I Need Assessment.

3.3.3 Table 3.2 summarises the alternative treatment route allocations and the resultant tonnage allocations.

Table 3.2 Summary of alternative management route allocations

Year	2021	2026	2031
KCC C&I Need Assessment Forecast (Table 26, tonnes)	**1,274,082**	**1,338,702**	**1,407,630**
Treatment route allocations in KCC C&I WNA			
Recycling and composting	70%	70%	70%
Other recovery	28%	28%	28%
Landfill	2%	2%	2%
Resultant tonnage allocations in KCC C&I Need Assessment (rounded to nearest 1,000 tonnes)			
Recycling and composting	892,000	937,000	985,000
Other recovery	357,000	375,000	394,000
Landfill	25,000	27,000	28,000
Alternative treatment route allocations A: Circular Economy package with proposed limited landfill from 2020			
Recycling and composting	50%	55%	60%
Other recovery	40%	35%	30%
Landfill	10%	10%	10%
Resultant tonnage allocations (rounded to nearest 1,000 tonnes)			
Recycling and composting	637,000	736,000	845,000
Other recovery	510,000	469,000	422,000
Landfill	127,000	134,000	141,000
Alternative treatment route allocations B: Circular Economy package with KCC C&I Need Assessment landfill targets			
Recycling and composting	50%	55%	60%
Other recovery	48%	43%	38%
Landfill	2%	2%	2%
Resultant tonnage allocations (rounded to nearest 1,000 tonnes)			
Recycling and composting	637,000	736,000	845,000
Other recovery	612,000	576,000	535,000
Landfill	25,000	27,000	28,000

3.3.4 The KCC C&I Need Assessment has assumed ambitious aspirational targets for recycling and compositing that go well beyond the recently adopted European Circular Economy package targets. Whilst it is important to look to maximise recycling and composting, there is a significant risk of under provision for non-recycling / composting capacity if those aspirational targets are not achieved.

3.3.5 The figures in Table 3.2 highlight that 'Other recovery' capacity could be underestimated by **28,000[1] to 141,000 tonnes by 2031[2]**, even if the European Circular Economy package targets are achieved.

[1] The difference between 394,000 tonnes other recovery at 2031 in KCC C&I Need Assessment and 422,000 tonnes other recovery demand at 2031 in Alternative A.

[2] The difference between 394,000 tonnes other recovery at 2031 in KCC C&I Need Assessment and 535,000 tonnes other recovery demand at 2031 in Alternative B.

4. WTI RDF Review

4.1 Background

4.1.1 Between 2015 and 2017, just under 9 million tonnes of RDF was exported to Europe from England[3] for recovery/incineration:

- 2015: 2,779,592 tonnes
- 2016: 3,152,087 tonnes
- 2017: 3,014,597 tonnes

4.1.2 RDF manufacture is an intermediate treatment process and access to incineration facilities is needed for the RDF to be recovered. The quantity of RDF produced by a RDF manufacturing facility depends on:

- the types of process being used e.g. purely mechanical treatment or mechanical biological treatment;
- the combustible faction of the wastes to be processed, which will be influenced by the source e.g. LACW / C&I waste, the materials separated for recycling and the levels of recycling achieved.

4.1.3 Therefore when considering capacity need in areas where there is significant RDF manufacture, there is a need to consider the availability of incineration capacity for the RDF produced, if that area wishes to be broadly self-sufficient.

4.1.4 England currently utilises significant incineration capacity in Europe. However, the UK's decision to leave the European Union places a degree of uncertainty over the long term economic access to European facilities.

4.2 Major Notifiers

4.2.1 Between 2015 and 2017, there were a total of 59 notifiers, i.e. the company that notifies the RDF shipments under the Transfrontier Shipment of Waste Regulations 2007. It should be noted that the notifier is not always the company that produces the RDF.

4.2.2 21 of the 59 notifiers exported over 100,000 tonnes in the 3 year period between 2015 and 2017, which accounted for 86% of the total exports. Table 4.1 summarises the companies that notified over 100,000 tonnes between 2015 and 2017, providing a breakdown of the annual tonnages of RDF exported.

[3] https://data.gov.uk/dataset/international-waste-shipments-exported-to-england
https://ea.sharefile.com/share/view/sc1791badb1e4024a

Table 4.1 Top notifiers of RDF exports, 205 to 2017

Notifier	RDF exports (tonnes)			
	2015	2016	2017	3-year Total
Biffa Waste Services Ltd	325,337	417,100	460,383	1,202,820
N&P Alternative Fuels Ltd	204,242	314,785	288,074	807,102
SITA UK Ltd	234,850	348,266	48,981	632,097
Seneca Environmental Solutions Ltd	189,335	221,823	218,945	630,103
Andusia Recovered Fuels Ltd	225,047	209,320	183,965	618,332
FCC Recycling (UK) Ltd	200,522	216,271	178,259	595,052
Geminor UK Ltd	18,629	139,987	278,621	437,237
Shanks Waste Management Ltd	76,837	98,117	131,346	306,300
SUEZ Recycling and Recovery UK Ltd	-	-	289,051	289,051
Gemi UK Ltd	219,244	60,040	3,543	282,827
Countrystyle Recycling Ltd	67,437	76,959	78,899	223,295
Bertling Enviro	43,007	85,225	87,066	215,299
McGrath Bros (Waste Control) Ltd	75,441	69,584	64,556	209,580
Probio Energy Ltd	60,296	77,110	67,454	204,860
Veolia Environmental Services (UK) Plc	-	51,768	118,413	170,181
New Earth Solutions (Canford) Ltd	59,924	62,747	47,454	170,124
Greenway Waste Recycling	76,268	81,631	8,807	166,706
Associated Waste Management Ltd	36,935	57,825	51,978	146,739
Totus Environmental Ltd	46,611	48,472	35,905	130,988
Streetfuel Ltd	15,797	53,072	46,074	114,943
Mid UK Recycling Ltd	55,610	51,479	5,063	112,152
Others	548,222	410,506	321,761	1,280,489
Grand Total	**2,779,592**	**3,152,087**	**3,014,597**	**8,946,276**

4.2.3 Table 4.2 provides a summary of the destination countries by year and over the 3 year period, showing that between 93% to 96% of the RDF was sent to five countries:

- The Netherlands;
- Germany;
- Sweden;
- Denmark; and
- Norway.

4.2.4 The export data does not provide details of the facilities producing the RDF, the waste streams used to produce the RDF or where those facilities received the waste from.

4.2.5 Therefore, in isolation the export data cannot provide an estimate of the RDF produced in Kent, or whether it was produced from waste generated in Kent. However, used in conjunction with the Environment Agency's Waste Data Interrogator (WDI) the sites operated by the major notifiers can be further explored to aid our understanding of the RDF produced in Kent.

Table 4.2 Destination countries for RDF exports, 2015 to 2017

Countries of destination	RDF exports (tonnes)			
	2015	2016	2017	3-year Total
The Netherlands	1,279,963	1,527,131	1,539,720	4,346,814
Germany	667,061	698,335	641,218	2,006,613
Sweden	393,288	403,669	523,668	1,320,626
Denmark	179,983	198,268	36,292	414,544
Norway	99,592	117,660	135,559	352,811
Latvia	38,593	45,354	44,425	128,372
Belgium	56,895	51,528	5,139	113,562
Portugal	25,992	32,455	5,282	63,730
Cyprus	2,275	36,043	21,853	60,171
France	23,661	21,334	8,225	53,220
Poland		7,452	41,785	49,237
Estonia	10,045		7,514	17,559
Bulgaria	199	12,000	3,132	15,331
Unknown	2,044			2,044
Spain		857	299	1,156
Greece			487	487
Grand Total	**2,779,592**	**3,152,087**	**3,014,597**	**8,946,276**

4.3 Environment Agency, Waste Data Interrogator (WDI)

4.3.1 Data on the quantities of waste removed from permitted waste management facilities can be extracted from the WDI by waste type, destination and fate.

4.3.2 Running a query in the WDI for RDF removed from waste facilities, using LoW code 19 12 10 shows that 6.3 million tonnes of RDF was removed from permitted waste management facilities operating in England in 2016.[4]

Chapter 19 Wastes from Waste Management Facilities, Off-Site Waste Water Treatment Plants and the Preparation of Water Intended for Human Consumption and Water for Industrial Use

Sub-chapter 19 12 Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified

Waste Code 19 12 10 Combustible waste (refuse derived fuel)

4.3.3 Operators of permitted waste facilities are requested to provide information on the 'origin' of the waste accepted at their sites and the 'destination' of any waste that is removed from their site. The information on both 'origin' and 'destination' of the waste is supposed to be

[4] Most recent year available in the WDI

reported to local authority level, but can get reported at the waste planning authority, sub-regional, or regional level.

4.3.4 For wastes that are exported from England to outside the UK, operators are supposed to identify the recorded destination as 'Outside UK'. Filtering the data to present only RDF removed from waste facilities filter for destinations 'Outside UK', indicates that 2,975,229 tonnes of RDF was reported to have destinations 'Outside UK'.

4.3.5 This figure is broadly comparable with the 3,152,087 tonnes of exported RDF reported under the Transfrontier Shipment of Waste Regulations 2007. The difference in tonnage is potentially resulting from:

- the RDF may not be directly exported from the producing facility; and/or
- the operators not knowing the final destination.

4.3.6 The data quantify the amount of RDF removed from each permitted facility by region and sub-region, which means that an estimate of the quantity of RDF removed from facilities, or produced from waste arising, in the South East and Kent can be made.

4.3.7 A total of 569,539 tonnes of RDF were removed to 'Outside UK' from facilities in the South East of England, of which **198,532 tonnes were from facilities in Kent**. This is summarised in Table 4.3.

Table 4.3 RDF removed from permitted facilities in Kent to destinations 'Outside UK', 2016

Operator	Site Name	Permit No	Postcode	Tonnes of RDF removed to 'Outside UK'
Countrystyle Recycling	Countrystyle Recycling	XP3298HV	ME9 8SR	21,990
	Countrystyle Recycling	KP3539AJ		92,749
Pinden	Pinden Quarry	WP3598HY	DA2 8EB	22,367
Suez UK Environment	Sittingbourne Waste Transfer Station	CP3598HB	ME10 3TT	12,703
Thanet Waste Services	Richborough Hall Waste Transfer & Recycling Centre	MP3898HW	CT13 9NW	20,195
Veolia Environmental Services	East Kent RDF Facility	VP3130WU	CT3 4HQ	28,529
Total				**198,532**

4.3.8 Some of the operators use multiple permits at an operating location and therefore the permit number against which RDF removal was made may not be the permit against which waste was received at the site. For example, Countrystyle Recycling has three permits for its operations at Swale, but waste is only reported as being removed from two of the permit numbers.

4.3.9 To allow an assessment of the proportion of waste arising for Kent and the South East received at these facilities, Table 4.4 summarises the details of the permitted facilities at the locations from which RDF was removed along with the total tonnages received.

Table 4.4 Permitted facilities in Kent at the locations from which RDF was removed, 2016

Operator	Site Address	District	Site Name (Permit No)	Site Type	Tonnes	
					Annual Capacity	2016 Input
Countrystyle Recycling	Kemsley Fields Business Park, Ridham Dock Road, Iwade, Sittingbourne, Kent , ME9 8SR	Swale	Countrystyle Recycling (KP3539AJ)	Composting	200,000	172,380
			Countrystyle Recycling (XP3298HV)	Material Recycling Facility & Composting	200,000	40,447
			Countrystyle Recycling (HB3337AG)	Material Recycling Facility	100,000	101,459
Pinden	Pinden End Farm, Pinden End, Longfield, Dartford, Kent, DA2 8EB	Dartford / Sevenoaks	Pinden Quarry (WP3598HY)	Non-Haz Waste Transfer	413,200	283,291
			Pinden Quarry Lansfill (BV1674IL)	Hazardous Landfill	127,200	13,538
Suez UK Environment	Units 5 And 6, West Lane, West Lane Trading Estate, Sittingbourne, Kent, ME10 3TT	Swale	Sittingbourne Waste Transfer Station (CP3598HB)	Haz Waste Transfer	74,999	36,657
Thanet Waste Services	Richborough Hall, Ramsgate Rd, Sandwich, Kent, CT13 9NW	Dover	Richborough Hall Waste Transfer & Recycling Centre (MP3898HW)	Haz Waste Transfer	380,000	112,466
			Richborough Park (ZP3292EL)	Non-Haz Waste Transfer	450,000	110,848
Veo Environmental Services	Unit 3, Island Road, Hersden, Kent, CT3 4HQ	Canterbury	East Kent RDF Facility (VP3130WU)	Physical Treatment	40,000	30,264

4.3.10 Data on the 'origin' of waste received at these sites was extracted from the WDI and is summarised in Table 4.5. Table 4.5 shows total input into the sites, along with waste that has its:

- 'origin' identified as Kent; and
- 'origin' identified as South East Region (including Kent).

4.3.11 This allows the proportion of waste arising in Kent and South East Region at the sites producing RDF to be estimated. The figures show that a minimum of 50% of the material received at these sites had origins in Kent; this could be higher as the waste deposited at Pinden Quarry was 'Not Codeable' to the WPA level, only to the South East Region.

Table 4.5 Origin of waste at permitted facilities in Kent at the locations from which RDF was removed, 2016

Operator	Input from Kent		South East Region (including Kent)		Total input
	Tonnes	% of total input	Tonnes	% of total input	Tonnes
Countrystyle Recycling	219,453	70%	269,110	86%	314,286
Pinden	Not 'codeable' to WPA		283,291	100%	283,291
Suez UK Environment	36,657	100%	36,657	100%	36,657
Thanet Waste Services	223,314	100%	223,314	100%	223,314
Veolia Environmental Services	30,264	100%	30,264	100%	30,264
Total	**446,287**	**50%**	**842,635**	**95%**	**887,812**

4.3.12 Therefore between 50% and 95% of the RDF produced in Kent and removed to 'Outside UK' could be produced from wastes with reported origins in Kent or the South East.

4.3.13 This equates to **100,000 to 188,000 tonnes of RDF**[5] that has been manufactured in Kent with its original origin in Kent or the South East, which is currently reliant on incineration capacity outside of the UK.

[5] 50 to 95% of 198,532 tonnes, RDF removed from permitted facilities in Kent to destinations 'Outside UK', 2016, Table 4.3

5. Conclusions

5.1.1 This focussed Review has identified three areas of the evidence base where C&I wastes generated in Kent do not appear to be fully accounted for.

5.1.2 In summary these are:

- 'Not Codeable' wastes – 0 to 270,000 tonnes;
- Wastes arising through more reasonable management route proportion assumptions - 28,000 to 141,000 tonnes; and
- RDF generated in Kent but exported 'Outside UK' – 198,532, of which 100,000 to 188,000 tonnes was manufactured in Kent with its origin also in Kent or the South East.