



Briefing Note on the proposal to increase the annual throughput at the Dublin Waste to Energy (DWtE) facility from 600,000 tonnes to 690,000 tonnes.

Section 1 Introduction

The purpose of this report is to brief Members of the Council on the proposed increase in annual throughput at the Dublin Waste to Energy (DWtE) facility. The facility is operated on behalf of the four Dublin Local Authorities by Dublin Waste to Energy Limited (DWTEL) under a Public Private Partnership subject to a contractual 'Project Agreement'. Under the terms of the Project Agreement the operator is required to comply with the conditions of all the statutory consents. DWTEL as the operator and the current holder of the Waste Licence (now an Industrial Emissions Licence) may seek a review of the Licence at any time, without the prior approval of the Dublin local authorities.

The facility obtained the necessary planning approval from An Bord Pleanála (ABP) on 19 November 2007 and a Waste Licence (now an Industrial Emissions Licence) was issued in respect of the facility, by the Environmental Protection Agency (EPA) on 1 December 2008. The planning permission, as granted by the Board, set out 13 conditions but did not explicitly set a maximum throughput per annum for the facility. However, the Industrial Emissions Licence set a throughput limit of 600,000 tonnes per annum (tpa).

At the Council meeting on 1 April, it was agreed that a full report would be issued to the Council once the procedure for an increase in throughput at the plant had been clarified. The position is as follows:

- Dublin Waste to Energy Limited, the operator and holder of the Industrial Emissions Licence, has advised the City Council that it intends to seek a review of the licence granted by the EPA, with a view to increasing the permitted annual quantity of waste that can be accepted and treated at the facility from 600,000 tpa to 690,000 tpa.
- it is not proposed that there will be any physical modification to the DWtE facility to cater for the additional throughput,
- the operator will not be seeking any increase in the level of permitted emissions to air or water, nor any change to the current licence conditions, and
- the operator is satisfied that the proposal will not result in any additional traffic on the road network in excess of that assessed by ABP when consent was granted for the facility.

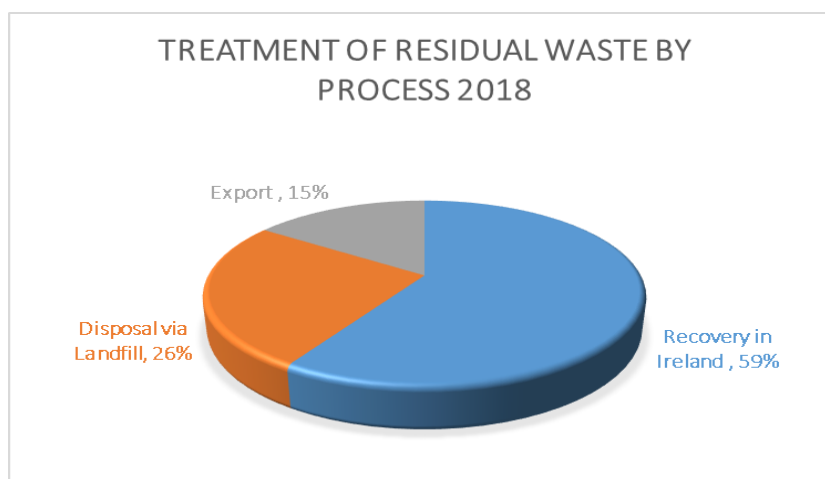
Dublin Waste to Energy Limited does not require the approval of the Dublin local authorities to increase the throughput of the facility. This is ultimately a matter for decision by the EPA under its statutory licensing process.

Information on the Eastern Midlands Regional Waste Management Plan, on the environmental performance of the DWtE facility, on the traffic impact of the facility and on the revenue implications for the City Council are set out in the Sections 2 to 5 below.

Section 2 Eastern Midland Regional Waste Management Plan

The framework for the prevention and management of waste is set out in the three regional Waste Management Plans. These are statutory documents underpinned by national and EU waste legislation and have been adopted by all local authorities within Ireland. The Eastern Midland Regional Waste Management Plan 2015-2021, set a target to reduce to 0% the direct disposal of unprocessed municipal waste to landfill from 2016 onward in favour of higher value pre-treatment processes and indigenous recovery practices. The Plan also set a target to achieve a recycling rate of 50% of managed municipal waste by 2020 and 60% by 2030.

Ireland produces approximately 3m tonnes of municipal solid waste every year, about 42% of this material is recycled, which leaves 1.7m tonnes of waste per annum which has to be managed. In 2018, this material was managed via a combination of thermal treatment for recovery in Ireland, export for thermal treatment abroad and disposal to landfill. Circa 1m tonnes was recovered in Ireland via thermal treatment in the two Waste to Energy facilities (located at Poolbeg and Duleek) and in cement kilns, approximately 270,000 tonnes was exported for recovery in waste to energy facilities abroad and 450,000 tonnes was sent for disposal in landfills in Ireland as set out in the chart below:



The chart also shows that Ireland is still highly reliant on the export of residual waste and on the disposal to landfill of residual waste, with circa 270,000 and 450,000 tonnes of residual waste being managed via these methods respectively in 2018.

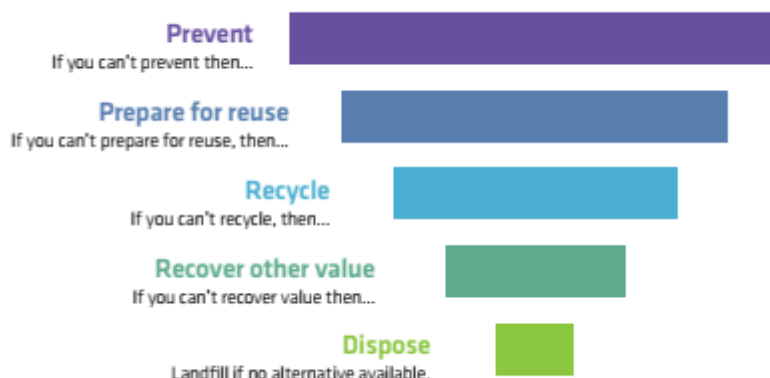
In 2018 the Dublin Waste to Energy facility treated 599,000 tonnes of non-hazardous residual municipal and industrial waste. This contributed to Ireland achieving a 59% recovery rate for the 1.7m tonnes of residual waste that was managed in 2018.

The Eastern Midlands Regional Waste Management Plan (EMRWMP) 2015-2021 provided an overview of the existing and planned thermal treatment capacity within Ireland at the time of the Plan, the results were presented in table 16.7, which is reproduced below.

Table 16-7: Active and Pending Capacity for the Thermal Recovery of MSW

Thermal Recovery Activity (Number of facilities)	Active (Tonnes)	Pending (Tonnes)	Total (Tonnes)	Intake (2013)
Waste-to-Energy (2)	220,000 ⁹⁴ (1)	600,000 ⁹⁵ (1)	820,000	206,000
Cement Kilns (3)	215,000 (2)	127,875 (1)	342,875	140,000 ⁹⁶
Pyrolysis (1)	-	65,000 (1)	65,000	-
Total (6)	435,000	792,875	1,227,875	346,000

The Plan also analysed the need for additional thermal treatment capacity for residual municipal waste by examining the future projections in waste arising to 2020 and to 2030 and assuming that Ireland will improve its recycling rate from the then 40% to 50% by 2020 and to 60% by 2030. It also made several assumptions with regard to the phasing out of landfills as a treatment option for the management of municipal solid waste, in line with national and European policies and reflecting the waste hierarchy.



It is unsustainable from an environmental perspective to continue to export waste for thermal treatment abroad or to continue to dispose of municipal waste in landfills.

Section 3 Overview of the DWtE Facility's Environmental Performance

The proposed increase in annual throughput of the DWtE facility will not require any change in the environmental parameters as set out in the EIS or in the current IE licence for the facility.

Each combustion line in the facility has its own independent train of Air Pollution Control (APC) equipment. Throughout the air pollution treatment process the emissions are continuously monitored using a real time continuous monitoring system (CEMS). Each stack has its own CEMS. In addition, a redundant CEMS is continuously on standby in the event of one of the live systems going down. These systems are calibrated weekly and certified on an annual basis to best practice and EPA guidance. Furthermore, quarterly independent stack testing is undertaken as per Schedule B.1 of the facility IE Licence.

From data submitted to the EPA by DWTEL it is clear that the facility operates well within its licence limits with respect to the concentration Emission Limit Values (ELVs) and mass flows.

The data indicates that emissions to air from the facility are generally running at less than 10% of the licence limits with respect to the periodic or 97% half hourly average concentration ELVs. The only exception is with respect to NO₂ which is averaging 70% of the ELV - these values are still well below the relevant lower limit values.

The DWtE facility emissions data from independent stack testing for each combustion line for the period Q3 2018 to Q2 2019 is set out in the table on the next page, including the percentage below the EPA limit:

Parameter	Units	Result Line 1 Q3 2018/th>	Result Line 2 Q3 2018	Result Line 1 Q4 2018	Result Line 2 Q4 2018	Result Line 1 Q1 2019	Result Line 2 Q1 2019	Result Line 1 Q2 2019	Result Line 2 Q2 2019	EPA License Limit	Avg	% below EPA Limit(Avg)
Dates		17 to 26 Sept 2018	17 to 26 Sept 2018	12 to 15 Nov 2018	13 to 15 Nov 2018	21-25 Jan 2019	21-25 Jan 2019	02-11 April 2019	02-11 April 2019			
PM ₁₀	mg/m ³	0.12	0.14	0.124	0.118	0.136	0.34	0.123	0.149	-	0.15625	
PM _{2.5}	mg/m ³	0.1	0.12	0.122	0.116	0.134	0.37	0.121	0.147	-	0.15375	
Cadmium & Thallium	mg/m ³	<0.00081	<0.001	0.00073	<0.00061	0.00062	<0.001	0.00062	<0.00065	0.05	0.0006567	98.7
Heavy Metals	mg/m ³	0.0114	0.0181	0.037	0.014	0.024	0.028	0.024	0.0072	0.5	0.0204625	95.2
Mercury	mg/m ³	0.00048	0.00073	<0.00023	0.00034	0.00043	0.00036	0.00069	0.00125	0.05	0.0006114	98.8
Arsenic	mg/m ³	<0.00034	<0.00043	0.00034	<0.00037	0.00037	0.00041	<0.00037	<0.00039	0.2	0.0003733	99.6
Dioxins & Furans (NATO I-TEQ)	ng/m ³	0.00082	0.00124	0.0022	0.00035	0.0016	0.0006	0.0004	0.00043	0.1	0.000955	99.0
Hydrogen Fluoride	mg/m ³	<0.038	0.09	0.42	0.5	0.11	<0.05	0.17	<0.051	2	0.258	87.1
Nitrous Oxide	mg/m ³	5.52	3.32	1.96	3.34	2.05	1.77	2.05	3.72	400	2.96625	99.3
Oxides of Nitrogen (as NO ₂)	mg/m ³	117.74	163.03	143.9	111.53	127.3	140.48	179.7	163.4	200	143.385	28.3
Sulphur Dioxide	mg/m ³	0.84	0.41	3.88	6.95	24.62	11.46	2.13	4.95	50	6.905	86.2
Carbon Monoxide	mg/m ³	2.75	14.8	7.68	10.26	11.47	13.09	3.69	10.17	100	9.23875	90.8
Volumetric Flow Rate (REF)	m ³ /hr	245802	240015	260869	248468	246623	248059	245562	229680	275000	245635	

1 Reference Conditions (REF) are 273K, 101.3kPa ,dry gas, 11% Oxygen

The following data is available to view on the DWtE website:

- the combustion chamber temperature,
- a weekly summary of continuous emissions monitoring data,
- the in stack test results and
- the previous day's half-hourly data from the on-line continuous emissions monitoring systems.

Section 4 Overview of the Traffic Impact of DWtE Facility

The facility operates on a 24 hour, 7 days a week basis. However it is only licenced to accept waste delivery vehicles on Monday to Saturday from 08:00hrs to 22:00hrs (excluding bank holidays when no waste can be accepted). The planing approval, from ABP was based on the waste delivery strategy, which would generate a total of 121 waste delivery vehicle trips per day or 242 combined trips arriving and departing the facility.

Since the commencement of operation the average number of waste delivery vehicles per day at the facility has been shown, based on traffic counts and weighbridge data to be 95 trips per day or 190 combined trips entering and leaving the facility. All bulk delivery vehicles were found to be utilising the strategic road network, arriving and departing the facility via the Port Tunnel/East Link Bridge, with the majority of the refuse collection vehicles utilising the same route.

With the proposed increase in facility throughput of 15% or 90,000 tpa, the total number of trips would be 105 waste delivery vehicles per day or 210 combined trips entering and exiting the facility per day, which is lower than the anticipated trip numbers projected in the original EIS and equates to less than 5% of the existing AM and PM peak network traffic in the vicinity of the facility.

There are two main reasons why the number of waste delivery vehicles has been less than anticipated:

1. there are a higher number of bulk delivery vehicles transporting waste to the facility (and fewer refuse freighters) than expected and
2. the average pay load of the bulk delivery vehicles is 25.7 tonnes, compared with the original assumption of 20 tonnes.

Section 5 Overview of the Financial Impact of DWtE Facility on Dublin City Council

The four Dublin local authorities benefit financially from the DWtE facility under a number of different headings as follows:

Authority Contingent Obligation (ACO) and Associated Revenue Share

During the first 15 years of the facility's operation, '*the PPP period*', the DLAs are bound by an Authority Contingent Obligation (ACO) mechanism to underpin the waste market revenue of the facility. Under the ACO the DLAs will provide partial (i.e. 58%) revenue support in respect of any revenue shortfall below a threshold waste revenue. The ACO only becomes effective if the operator fails to achieve the threshold waste revenue in any year during the PPP period.

In return for the provision of the ACO, the DLAs receive 54% of all DWtE waste revenue above the threshold waste revenue for the PPP period (i.e. the first 15 years). In addition, they receive 25% of energy revenue above an agreed threshold for the PPP period and 45% of energy revenue above the same threshold for the merchant period (i.e. the subsequent 30 years - years 15 to 45).

Generally, electricity generated at the DWtE facility will be sold at the wholesale market price. However, for the first 13 years of operation (i.e. until 31 December 2030) the DWtE facility benefits from a national renewable energy feed in tariff under the REFIT 3 Programme, which provides a guaranteed price per MWh for approximately 56% of the electricity produced at the facility. This means that if the wholesale price of electricity is below the REFIT 3 tariff, approximately 50% of the electricity will be guaranteed the REFIT 3 tariff by the State.

Actual returns to the DLAs depend primarily on the development of the waste and electricity markets, although a significant element of the energy revenue is effectively guaranteed until 31 December 2030.

Refinancing Gain

DWTEL was responsible for financing the construction, commissioning and operation of the Dublin Waste to Energy facility. In 2014, the Project was funded on a project finance basis by a consortium of domestic and international banks in conjunction with equity investors. At the time the senior debt was secured for the project (2014), senior debt margins for Irish PPPs were very high, primarily due to Ireland's participation in the EU/IMF programme and the State's sub investment grade credit rating.

However, subsequent to Ireland's emergence from the EU/IMF programme and uplift in credit ratings, debt margins for Irish PPPs have substantially declined as international funders re-entered the Irish market. The improved funding market created scope for significant refinancing gains, as there were much improved financing terms available for both senior debt margins and base rates. In January 2017, DWTEL notified Dublin City Council that they intended to refinance the DWtE project's debt funding post the commencement of operation, which occurred in November 2017. The Project Agreement provided for the Dublin local authorities to share in any refinancing gain.

The Project refinancing occurred on 14 December 2017 and the refinancing gain payable to the Dublin local authorities was €8,025,224.

Commercial Rates

Commercial rates are payable to the City Council in respect of the facility by Dublin Waste to Energy Ltd.

In addition, the permission from An Bord Pleanála provided for a Community Gain Fund to be established by Dublin Waste to Energy Limited and applied to fund community projects in a defined area close to the facility.

Payments to the City Council from Dublin Waste to Energy Limited in the years 2016, 2017, 2018 and 2019 (expected) including the value of disbursements from the Community Gain Fund which were committed to local projects are set out in the table below:

	2016 €m	2017 €m	2018 €m	2019 €m
Revenue share			0.95m	2.1m
Refinancing Benefit		3.32m		
Commercial Rates			3.2m	4.5m
Community Gain Fund	4.8m	4.25m		1.5m

Dublin City Council's capital expenditure on the waste to energy project (including land acquisition, statutory approvals, consultants' fees etc.) was €38.5m. This will be financed from the refinancing gain and the annual revenue share.

If the facility processes an additional 90,000 tonnes per annum, it is anticipated that Dublin City Council will receive circa €1 million in additional revenue per annum.

Section 6 Conclusions

The DWtE facility is operated on behalf of the four Dublin local authorities by Dublin Waste to Energy Limited (DWTEL) under a Public Private Partnership subject to a contractual 'Project Agreement'. Under the terms of the Project Agreement the operator is required to comply with the conditions of all the statutory consents. DWTEL as the operator and the current holder of the Waste Licence (now an Industrial Emissions Licence) may seek a review of the Licence at any time, without the prior approval of the Dublin local authorities.

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The position is as follows:

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Dublin Waste to Energy Limited does not require the approval of the Dublin local authorities to increase the throughput of the facility. This is ultimately a matter for decision by the EPA under its statutory licensing process.

DWtE facility is already constructed and, subject to a successful licence application, it has the ability to manage and treat an additional 90,000 tpa which can be diverted away from either export or disposal to landfill. It seems clear that increasing the throughput of the facility offers the most sustainable environmental solution in terms of dealing with this waste at this point in time and for the foreseeable future. However, to minimise any risk to the achievement of recycling targets in the event that additional planned thermal treatment capacity comes on stream, there may be a case to make the licensing of additional throughput at the DWtE facility subject to review in say 5 years' time.

Should the licence to increase the throughput be granted by the EPA the City Council will ensure that appropriate enhanced operating and maintenance programmes, are implemented so that the facility continues to operate well within its Emission Limits Values and the lifecycle of the plant is not reduced. The Environment and Traffic Department will also commission an independent traffic count survey, to ensure that there is no additional traffic on the road network in excess of that assessed by An Bord Pleanála when consent was granted for the facility, This study will further confirm if waste delivery vehicles are travelling to the facility are confined to the strategic road network.

Owen P. Keegan
Chief Executive

13 June 2019