Poolbeg Incinerator

EIS Climate Chapter

A Critique of the Poolbeg 3 Model

August 2007

An Analysis of the EIS Climate Chapter

Submission to the

Environmental Protection Agency

Waste Licence Application

W0232-01

Applicant: Dublin City Council

Development: Dublin Waste to Energy Facility
Pigeon House Road
Poolbeg Peninsula
Dublin 4

Submission by: Joe McCarthy & Valerie Jennings

Agenda

- Three Poolbeg Models
  - Our Analysis
  - Findings
  - Corrected Results

- Assessment of the Poolbeg 3 Model

Poolbeg Climate Models

- Poolbeg 1
  - Published in the EIS
- Poolbeg 2
  - Submitted to Oral Hearing on 26th April 2007
- Poolbeg 3
  - Submitted to Oral Hearing on 28th May 2007

- Waste Mix
  - Sources – EPA & Dublin Waste Strategy
  - CCW and FCF
  - “Other” fraction
- Electricity produced
  - Incorrect MW hours used
  - CCGT Factor
  - CO2 avoided
- Corrected Result

Errors Found

- Waste Mix & Fractions
- Electricity Figures
  - Used directly
  - C Norgaard combustion calculation ignored
  - Without proven foundation
- Hours of operation
  - Uses 8000 for Electricity
  - Uses 8537 for District Heating

Poolbeg 3

Waste Mix & Fractions

						600000
	Waste Totals	Waste Fraction	% Dry Matter Content	Total Carbon Content (Dry)	Fossil Carbon Fraction	CO2 Emissions (Tonnes/Annum)
Paper	184,800	30.8%	90%	35%	0%	
Glass	16,200	2.7%	100%	0%	0%	
Plastic	87,600	14.6%	100%	51%	100%	163,812
Ferrous	8,400	1.4%	100%			
Aluminium	6,000	1.0%	100%			
Other Metals	6,000	1.0%	100%			
Textiles	41,400	6.9%	80%	50%	50%	37,950
Organics	178,200	29.7%	40%	44%	0%	577
WEEE	4,200	0.7%	100%			
Wood	4,800	0.8%	85%	50%	0%	
Others	62,400	10.4%	80%	50%	50%	57,200
						259,539

Poolbeg 3

Correction 1 - Waste Mix & Fractions

						600000
	Waste Totals	Waste Fraction	% Dry Matter Content	Total Carbon Content (Dry)	Fossil Carbon Fraction	CO2 Emissions (Tonnes/Annum)
Paper	184,800	30.8%	90%	35%	0%	
Glass	16,200	2.7%	100%	0%	0%	
Plastic	87,600	14.6%	100%	61%	100%	195,932
Ferrous	8,400	1.4%	100%			
Aluminium	6,000	1.0%	100%			
Other Metals	6,000	1.0%	100%			
Textiles	41,400	6.9%	80%	50%	50%	37,950
Organics	178,200	29.7%	40%	44%	0%	577
WEEE	4,200	0.7%	100%			
Wood	4,800	0.8%	85%	50%	0%	
Others	62,400	10.4%	80%	50%	100%	85,800
						320,259

Error	**60,720**

Poolbeg 3

Correction 2 - Electricity Exported

Similar analysis to Poolbeg 2

	MW (1)	Hours (2)	MWhrs	Factor	CO_2 Avoided
Per Dr Porter	59.2	8,000	473,600	0.567	**268,531**
Corrected	53.2	8,000	425,600	0.4	**170,240**

Error	**98,291**

Corrections:

1. Internal electrical usage -6 MW
2. Planned and Forced Outages -17 days
3. Factor for avoided electricity

Poolbeg 3

Net position of Incineration after 2 Corrections

	Incineration	CO2	Electricity MW Hours	CO2 Avoided	Net
Per Dr Porter	600,000	259,539	473,600	268,531	**-8,992**
As corrected	600,000	320,259	425,600	170,240	**150,019**

Error	**159,011**

Corrections:

1. Waste mix
   Plastic CCW% to 61%
   Textile FCF 50% to 100% and
   Other to CCW 50% and FCF 100%

2. Internal electrical usage -6 MW
   Planned and Forced Outages -17 days
   Factor for avoided electricity

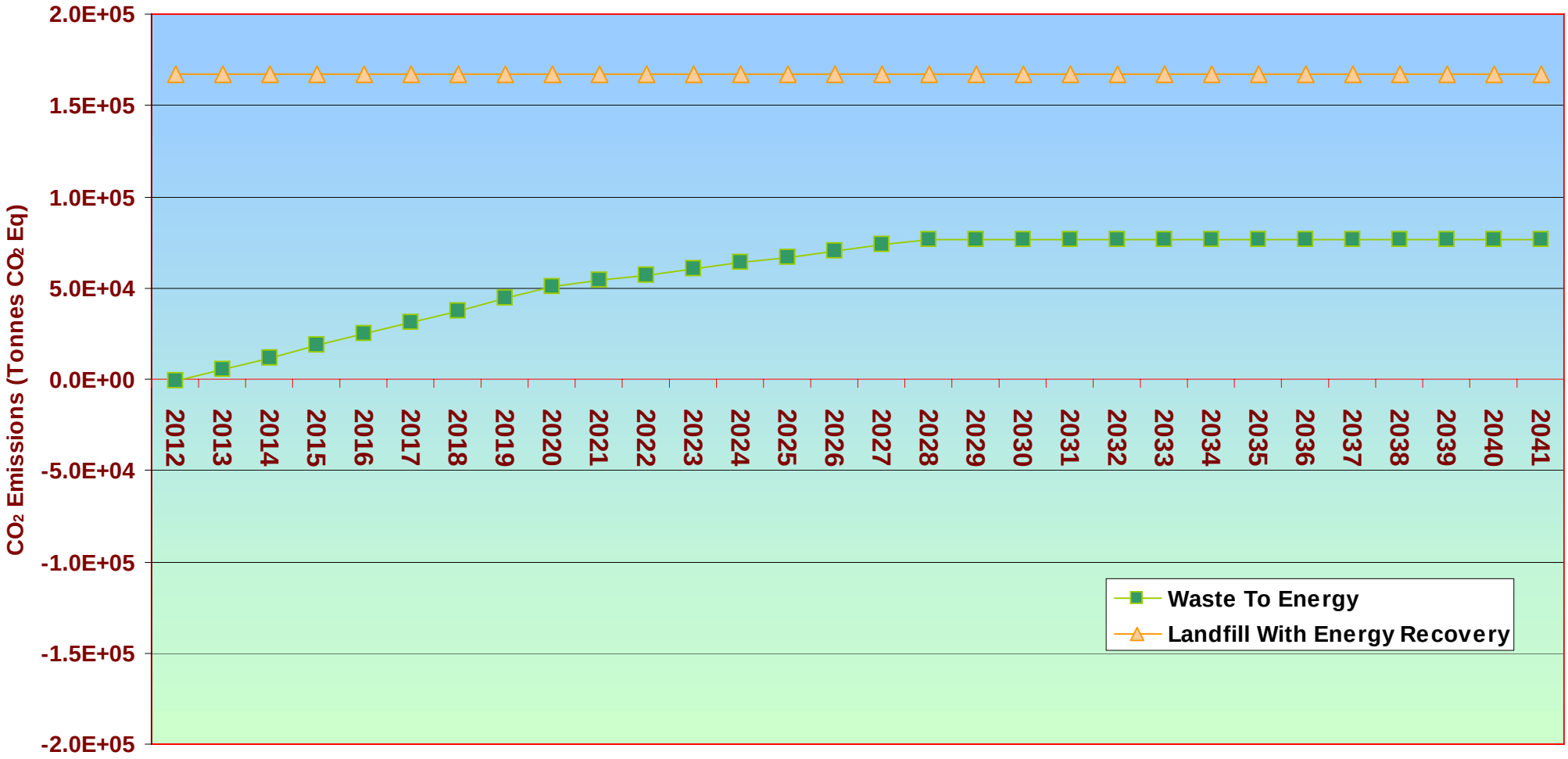
Scenarios

- Scenario 1 – Incineration v Landfilling
  - with reducing biogenic content
- Scenario 2 – Incineration v Landfilling
  - with reduced tonnage
- Scenario 3 – Incineration v Landfilling & AD
- Scenario 4 – Incineration v Landfilling & AD
  - with 50% gas capture
- Scenario 5 – Incineration v Landfilling & AD
  - with 50% gas capture and District Heating

These scenarios **cannot** be compared with those in **Poolbeg 1** or **Poolbeg 2**.
And note that **carbon sequestration** has not been assessed.

Poolbeg 3

Scenario 1



Poolbeg 3