

**Appendix A:**  
**Technology and Carbon Footprint**



### Calculation of Transport Emissions

Tonnes of Waste	100,000	Tonnes	
Tonnes of Treated Domestic Waste	40,500	Tonnes	
Tonnes of Commercial & Industrial Waste	59,500	Tonnes	
Estimated Distance to Landfill (miles)	Old Site Domestic	255.9	Km
	Old Site C&i	165.8	
	New Site	40.2	Km
Carrying Capacity of Waste vehicles (Tonnes)	20	Tonnes	
Kg of CO <sub>2</sub> e / L (for Rigid >17t vehicle)	Empty load	0.79251	Kg
	Full Load	1.13581	Kg

Transport Emissions 2011 Figures		Total Landfill	Incineration	Transport of Fly	SAVING
Total Tonnage		100,000	100,000	24,258	
Average load (Tonnes)		20	20	20	
Number of trips		10,000	10,000	2,426	
Total Miles covered		1,256,800	250,000	249,857	756,943
Tonnes of CO <sub>2</sub> e	Empty load	801	159.4	159.3	483
	Full Load	1,149	228.5	228.4	692

### Calculation of Treatment Emissions

	Existing (landfill)	Proposed (incineration)
Domestic waste (tonnes)	59,500	59,500
CO <sub>2</sub> e from Process	846	
C&I waste (tonnes)	40,500	40,500
CO <sub>2</sub> e from Process	839	
TOTAL CO <sub>2</sub> e	1,685	86
Savings:	1599.02	
Material	CO <sub>2</sub> e emitted when 1 tonne material is landfilled	Decomposition Half Life (Years)
Domestic Waste	0.199	7
Commercial Waste	0.29	7

## Calculation of CO<sub>2</sub>e Offset

Plant operating hours per year	8,000			
Plant availability	91%			
5 year rolling average Kg CO <sub>2</sub> e per kWh (electricity)	0.5246			
Gas CO <sub>2</sub> e per kWh	0.184			
<b>2011 Report</b>				
		<b>Scenario 1</b>	<b>Scenario 2</b>	<b>Scenario 3</b>
Process Steam to Turbine		100%	60%	30%
<b>Electricity Available for Export</b>	kW	5,100	2,400	400
	kWh	40,800,000	19,200,000	3,200,000
CO <sub>2</sub> e offset from electricity export (Tonnes)		21,404	10,073	1,679
<b>Heat Available for Export</b>	kW		7,600	13,300
	kWh		81,066,667	141,866,667
CO <sub>2</sub> e offset from Heat export (Tonnes)			14,884	26,047
<b>Total CO<sub>2</sub>e Offset (Tonnes)</b>		<b>21,404</b>	<b>24,956</b>	<b>27,725</b>