

**Burwood Landfill Gas Utilisation Project:
Annual Report 2007 Calendar Year
Revised June 2008
Tony Moore, Christchurch City Council, June 2008**

Table 1. Emissions Produced from Construction in 2007

Emission Source	Usage	Emission Factor	CO ₂ -equivalent Tonnes
Electricity	0.00200 GW hours	625 tonnes CO ₂ -e per GW hour	1.25
Diesel	400 litres	0.00271 tonnes CO ₂ -e per litre	1.08
Petrol	400 litres	0.00232 tonnes CO ₂ -e per litre	0.93
Steel	0 tonnes	2.01 tonnes CO ₂ -e per tonne	0.00
Cement	0 tonnes	0.46 tonnes CO ₂ -e per tonne	0.00
Other elements: Polyethylene pipe Imported Steel	Exempt	0	0.00
TOTAL			3.26

Note: Emission Factors used here are taken from the Project Agreement with the Crown, dated March 2005.

Table 2. Emissions Produced from Operating the Project in 2007

Emission Source	Usage	Emission Factor	CO ₂ -equivalent Tonnes
Electricity	0.21813 GW hours	625 tonnes CO ₂ -e per GW hour	136.33
Petrol	600 litres	0.00232 tonnes CO ₂ -e per litre	1.39
LPG	Excluded because no heat output from LPG is included	0.00162 tonnes CO ₂ -e per litre	0
Other elements: Emissions from the burning of Methane	2,480.08 tonnes	2.75 CO ₂ -e per tonne (44/16 = 2.75)	6,820.22
TOTAL			6,957.94

Table 3. Emission Reductions Achieved by the Project in 2007

Source of emission reduction	Quantity	Emission Factor	CO ₂ -equivalent tonnes
Methane burnt in flare at Burwood Landfill	2,480.08 tonnes	21	52,081.68
Methane burnt in Boiler 1 at QEII Park	239.37 tonnes	21	5,026.77
Methane burnt in co-generation engine at QEII Park	Not included until contract amendment finalised	21	0
Gigajoules of heat generated by Boiler 1	11,118 GJ	0.06537 tonnes CO ₂ -e per Gjs of heat output Boiler 1	726.78
Gigajoules of heat generated by Boiler 2	Not included (burning LPG)	0.06537 tonnes CO ₂ -e per Gjs of heat output Boiler 2	0
TOTAL			57,835.23

Table 4 Net Emission Reductions Achieved by the Project in 2007

Source	CO ₂ -equivalent tonnes
Total Project Abatement (from Table 3)	57,835.23
LESS	
Total construction emissions (from Table 1)	3.26
Total operational emissions (from Table 2)	6,957.94
Net emission reductions for the year	50,874.03

Table 5 Emission Units Claimed by the Project Owner

Source	CO ₂ -equivalent tonnes
Net emission reductions for the year (from Table 4)	50,874
Discount Factor (from Clause 5 of Project Agreement)	0.98
Total claimable emission units	49,856

Although units are not able to be claimed until 2008, this table reflects the total emissions avoided by the project once the discount factor contained in the Project Agreement with the Crown, has been applied.