



Municipal Association of Victoria

**Financial Implications of Carbon
Emissions Trading on Victorian
Councils**

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Disclaimer

The conclusions drawn in this Report are based on the data provided by the survey councils. No responsibility is taken for inferences that have been drawn from inaccurate data provided by respondents.

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1 Executive Summary

An emission trading scheme known as the Carbon Pollution Reduction Scheme (CPRS) is proposed to be implemented in Australia by July 2011 according to the Federal Government's current timetable.

Overall, the provision of services by Victorian councils is not energy intensive although there are individual examples where there is significant energy use such as aquatic centres. Council operations are heavily focused on the provision of services that tend to be labour intensive and hence their operation may not be affected as drastically as other sectors by the costs to be applied to greenhouse gases (GHGs).

The major contributor to the cost increases of councils from GHGs is likely to be waste disposal followed by construction. However, the likely impacts related to waste disposal are difficult to forecast due to the impacts of landfill gas recovery and the pricing policies that might be adopted by landfill operators, which include councils. The abatement of landfill gas through the flaring and use of methane as energy feedstock has the potential to offset significantly the costs of emissions trading for those particular councils that own/operate tips.

Future cost impacts related to electricity are difficult to assess. Councils have indicated greater use of renewable energy. However, the net financial impact on councils will be determined by the relativity between the cost penalty of using coal-fired electricity and the premium price paid for green supplies.

Based on a survey of councils (2007-08 data) the following order of magnitude increases in council cost might be expected. The percentages refer to recurrent annual costs applicable to a particular carbon price. Table 1.2 lists the cost impacts for individual councils.

Table 1.1: Summary table of impacts on council costs from carbon price

	Impact on Total Expenses @ \$25 CO ₂ -e tonne**	Impact on Rates @ \$25 CO ₂ -e tonne	Impact on Total Expenses @ \$40 CO ₂ -e tonne	Impact on Rates @ \$40 CO ₂ -e tonne
Automotive Fuel*	0.05%	0.08%	0.10%	0.17%
Construction	0.50 %	0.83%	0.80%	1.32%
Gas & Electricity	0.26%	0.43%	0.41%	0.68%
Waste Disposal	0.94%	1.55%	1.50%	2.48%
Sub-total	1.75%	2.89%	2.81%	4.64%
Other Contracts & Materials	unknown	unknown	unknown	unknown
Total	potentially 2%	potentially 3.3%	potentially 3%	potentially 4.95%

*under the current Carbon Pollution Reduction Scheme (CPRS) legislation fuel will not be affected by a carbon price as the equivalent amount of excise will be reduced to offset any price rise.

**The carbon price for the first year of the scheme will be capped at \$10/tonne.

Table 1.2: Table of impacts on council costs from carbon price

Council	% Increase in Expenses @ \$25 CO ₂ -e tonne	% Increase in Rates @ \$25 CO ₂ -e tonne	% Increase in Expenses @ \$40 CO ₂ -e tonne	% Increase in Rates @ \$40 CO ₂ -e tonne	Exclusions Other than "Other Materials"/Comments
1	1.2%	2.6%	1.9%	4.1%	
2	2.0%	3.8%	3.2%	6.0%	
3	1.9%	3.4%	3.1%	5.4%	
4	0.7%	1.0%	1.1%	1.6%	Waste Disposal
5	2.1%	2.9%	3.3%	4.6%	
6	1.5%	2.9%	2.5%	4.6%	Automotive Fuel, Electricity & Gas
7	2.3%	3.2%	3.7%	5.2%	
8	2.3%	3.4%	3.7%	5.4%	
9	1.3%	2.9%	2.1%	4.7%	Electricity & Gas
10	1.8%	2.8%	3.0%	4.5%	
11	1.0%	2.0%	1.6%	3.1%	
12	1.4%	3.4%	2.3%	5.4%	
13	1.9%	2.9%	3.1%	4.6%	
14	1.0%	1.7%	1.6%	2.8%	Automotive Fuel, Waste Disposal
15	1.5%	2.4%	2.4%	3.9%	
16	2.7%	5.2%	4.3%	8.4%	Construction ratio – substantively in-house
17	1.0%	2.4%	1.6%	3.9%	
18	2.0%	3.3%	3.2%	5.2%	
19	1.5%	2.4%	2.3%	3.8%	
20	1.5%	2.5%	2.4%	4.0%	
21	2.0%	2.5%	3.1%	4.0%	
22	1.3%	2.0%	2.0%	3.3%	
23	3.0%	5.4%	4.7%	8.6%	
24	1.2%	2.2%	1.9%	3.6%	Waste Disposal
25	1.8%	2.7%	3.0%	4.4%	
26	1.7%	2.7%	2.8%	4.3%	
27	1.1%	2.8%	1.8%	4.5%	
28	1.7%	3.2%	2.7%	5.1%	
29	1.2%	1.9%	2.0%	3.0%	
30	1.1%	2.4%	1.8%	3.8%	

Council	% Increase in Expenses @ \$25 CO ₂ -e tonne	% Increase in Rates @ \$25 CO ₂ -e tonne	% Increase in Expenses @ \$40 CO ₂ -e tonne	% Increase in Rates @ \$40 CO ₂ -e tonne	Exclusions Other than "Other Materials"/Comments
31	2.0%	5.2%	3.2%	8.4%	Construction adjusted – substantively in-house
32	2.0%	3.1%	3.1%	4.9%	
33	1.5%	2.4%	2.4%	3.9%	
34	1.7%	3.4%	2.7%	5.5%	
35	1.9%	3.2%	3.0%	5.1%	
36	1.2%	2.0%	2.0%	3.3%	
37	1.2%	1.7%	1.9%	2.7%	

The potential benefits arising from landfill gas use and carbon sinks are very difficult to estimate. A basic assessment for individual councils indicates that landfill gas abatement operations could potentially offset a significant proportion of the cost of a carbon price. Councils can also generate carbon credits via the planting of vegetation on council land. This must be done according to Kyoto Protocol rules and is discussed further in Section 3.7.

No increase in costs has been factored for changed administration requirements that are associated with "greenhouse accounting". This project found councils' systems for undertaking this requirement currently need more work. The MAV is pursuing a joint procurement process for emissions calculation and reporting services to councils to meet the compliance requirements of the proposed Carbon Pollution Reduction Scheme.

2 Introduction

An emission trading scheme known as the Carbon Pollution Reduction Scheme (CPRS) is proposed to be implemented in Australia by July 2011 according to the Federal Government's current timetable. The draft legislation has now been introduced and the intended structure of the CPRS is known. The findings in this report assume that the current proposed CPRS is the version that will be introduced, however it is very likely that changes will be made. Also, the regulations for the CPRS have not been made public, and these will contain further detail of the scheme that is currently unknown.

When a price is put on carbon emissions, cost impacts are expected to arise from councils' purchases of automotive fuel and energy (electricity and gas), the generation of municipal wastes and costs related to construction (buildings and infrastructure). The effects will occur primarily through the higher prices paid by consumers, such as councils, through the capitalisation of externalities costs. It is not expected that councils will receive direct compensation for this increase in costs, however, low and middle income households are likely to receive compensation via the tax system.

The aim of this project was to assess the impacts of such a scheme on local government costs.

2.1 Survey

The MAV undertook a survey to provide baseline data that would give an indication of councils' greenhouse emissions and the associated additional financial costs. As stated above the exact details of how the CPRS will operate are unclear. Impacts have been modelled on the basis that the CPRS will impose a cost per CO₂ equivalent tonne generated. In other words, licences will reflect the capitalised cost of CO₂ equivalent volumes and unused volumes will be tradeable at the commensurate rate. The modelling has included rates at \$25 and \$40 per tonne which reflect the Treasury's modelled permit price and the upper cap price proposed for the commencement of the scheme respectively, except for the first year, which will be capped at \$10/tonne. From the third year of the scheme, the level of the price cap will rise by five per cent in real terms each year until it is removed on 30 June 2015.

The survey is provided in Appendix 1. The methodology involved the identification of specific energy sources and councils' consumption of these sources in the 2007-08 year. The intention was to obtain the breakdowns between energy sources because of their variable CO₂ equivalent impacts. For example, different outcomes are associated with the use of various automotive fuels (unleaded petrol, diesel and LPG). Breakdowns were also sought with respect to those areas assumed to be the major consumers of specific energy products. For example, electricity consumption data was sought with respect to aquatic and recreational centres, street lighting, other council buildings and other council sites. In addition data was obtained on amounts and costs of waste disposed to landfill and numbers of trees planted. Responses were obtained from 37 councils, 16 of which were fully complete. The remainder lacked data in various areas, for example, a lack of data on automotive fuel and/or power consumption/costs or waste volumes. A summary of the completeness of responses is provided in Appendix 2. The responses to the survey indicated a need for many councils to improve their greenhouse accounting systems, to allow for easier access to accurate and consistent data in the future.

Considerable time has been spent in an effort to verify volumes and obtain a better correlation between volumes and total costs submitted. However, caution should be observed when attributing confidence to the findings because of limits in the verification process that could be undertaken.

Some specific issues are relevant to the survey findings. These include: the contracting-out of services, in particular for construction and maintenance and aquatic and recreation centres where councils have been unable¹ to provide data on energy inputs;

- councils' ability to breakdown greenhouse impacts to functional areas; and
- implied unit costs well outside the expected range and inconsistent with rates for bulk purchase schemes in which councils participate.

The first issue poses considerable difficulty. While the calculation of impacts from councils' direct use of energy sources may be undertaken, cost impacts arising from their purchases of other goods and services through the inclusion of CO₂ costs in supplier prices is largely indeterminate. In cases where unreasonable figures were provided other more acceptable values have been introduced. For example, where fuel cost figures for individual councils were considered unreasonable the average unit cost derived from other councils has been used. In the case of electricity and gas instances where costs are unreasonable have been identified. However, default values have not been introduced because of the potential for significant variation in the "rolled-up" cost of energy arising from differences in maximum contract demand amounts, peak/off-peak usage, the mix of green versus conventional electricity and the effect of tiered volume-based prices for gas.

In the case of discrepancies between volumes and total costs related to waste volumes landfill gate fee prices have been used to revise figures².

¹ Either for commercial –in-confidence reasons cited by contractors or councils unwillingness to pursue data

² A number of councils included waste collection costs in figures

3 Findings

3.1 Automotive Fuel

Respondents were asked to provide information on fuel consumption (litres) by fuel type (unleaded, diesel or LPG) by function (construction and maintenance [C&M], waste collection or other). The table below shows the total fuel consumption by fuel type. Not all councils were able to split their fuel use by function and so this information has not been included.

Table 3.1: 2007-08 Fuel Consumption (1,000s litres)

	Unleaded petrol	Diesel	LPG
Council	Total	Total	Total
1	31	310	13
2	124	477	26
3	338	671	86
4	153	265	77
5	80	29	141
6	366	1,063	1,063
7	301	310	172
8	183	576	7
9	343	486	112
10	198	81	-
11	113	271	27
12	132	99	112
13	332	248	16
14	71	211	138
15	87	214	-
16	1,139	61	29
17	308	164	30
18	143	218	-
19	316	217	60
20	244	155	62
21	270	302	100
22	124	673	122
23	405	164	58
24	147	163	-
25	143	254	34
26	170	402	29
27	249	19	32
28	105	423	-
29	174	220	55
30	48	237	240
31	108	208	35
32	387	256	82
33	236	222	39
34	383	257	79

Note:

Quantities of unleaded and LPG for council 8 deduced from cost figures

Red cells are in-house waste collection

One council is not listed above but is listed in Table 3.3 as only fuel costs were given

Arguably, the relative use of different fuel types is influenced largely by whether councils directly undertake construction and maintenance and waste collection activities. Heavier vehicles and plant still rely heavily on diesel oil.

CO₂ equivalent impacts have been developed respectively for each council based on fuel type. Conversion factors from National Greenhouse Accounts (NGA) Factors have been used for this purpose.

Table 3.2: CO₂-e Conversion Factors for Fuel Used for Transport Energy Purposes

Automotive Fuel	Gj per KL	CO₂-e kg per GJ
<i>Unleaded Petrol</i>	34.2	69.6
<i>Diesel Petrol</i>	38.6	69.9
<i>LPG</i>	26.2	60.8

Source: National Greenhouse Accounts Factors

Table 3.3 sets out the impacts for each of the councils in terms of the per cent increase in their overall outlays for automotive fuels and overall operating expenses³ with an emissions cost of \$25 and \$40 per CO₂-e tonne. It should be noted that under the current proposal for the CPRS fuel will not be subject to a carbon price due to the equivalent reduction of the fuel excise for the first three years of the scheme. The cost estimates below refer to the effect of a carbon price without the offset of a fuel excise reduction. If the CPRS is introduced as it currently stands, the additional cost to local government from the purchase of liquid fuels will be zero until 30 June 2013 when the fuel excise will no longer be adjusted to neutralise the carbon price. However, the fuel excise will not be readjusted to the level previous to the implementation of a carbon price and will be left at the reduced level. This means that assuming the carbon price rises, the full impact of a carbon price will not influence the cost of liquid fuel purchases for some time.

The data indicate that emissions costs without a fuel excise reduction at these carbon price levels may add around five to eight per cent to most council's costs for automotive fuels but the effect on overall operating costs will be minimal. The data suggest generally figures of the same order regardless of whether councils provide in-house waste collection or not⁴.

³ For the purposes of this analysis total expenses are net of abnormal items

⁴ The exclusion of councils with in-house waste collection services gives increases of 4.9% and 7.9% in fuel costs and once again negligible increases in total costs

Table 3.3: Emissions Costs Impacts of Automotive Fuel Use @ \$25 CO₂-e and \$40 CO₂-e

Automotive Fuel	Unleaded petrol	Diesel petrol	LPG	Total						
Council	CO ₂ -e tonnes	CO ₂ -e tonnes	CO ₂ -e tonnes	@ \$25 CO ₂ -e tonne (\$k)	2007-08 Outlays on Fuel (\$k)	Emissions Cost as % Outlays on Fuel	Emissions Cost as % Total Expenses	@ \$40 CO ₂ -e tonne (\$k)	Emissions Cost as % Outlays on Fuel	Emissions Cost as % Total Expenses
1	74	835	21	23	376	6.2%	0.1%	37	9.9%	0.2%
2	295	1,286	42	41	818	5.0%	0.0%	65	7.9%	0.1%
3	805	1,810	138	69	1,547	4.5%	0.1%	110	7.1%	0.1%
4	364	714	123	30	660	4.5%	0.1%	48	7.3%	0.1%
5	190	79	225	12	203	6.1%	0.0%	20	9.7%	0.0%
6	872	2,868	1,693	136	1,835	7.4%	0.1%	217	11.8%	0.2%
7	717	836	274	46	902	5.1%	0.0%	73	8.1%	0.1%
8	435	1,553	11	50	984	5.1%	0.2%	0	8.1%	0.3%
9	815	1,311	178	58	1,166	4.9%	0.1%	92	7.9%	0.1%
10	472	219		17	416	4.2%	0.0%	28	6.6%	0.0%
11	269	731	43	26	569	4.6%	0.1%	42	7.3%	0.2%
12	314	268	179	19	384	5.0%	0.0%	30	7.9%	0.0%
13	791	669	25	37	823	4.5%	0.0%	59	7.2%	0.1%
14	170	568	219	24	502	4.8%	0.0%	38	7.6%	0.0%
15	208	576		20	433	4.5%	0.1%	31	7.2%	0.2%
16	2,712	165	47	73	1,513	4.8%	0.1%	117	7.7%	0.1%
17	733	443	48	31	684	4.5%	0.0%	49	7.2%	0.0%
18	341	588		23	534	4.3%	0.1%	37	7.0%	0.1%
19	753	586	95	36	764	4.7%	0.0%	57	7.5%	0.1%
20	581	419	99	27	585	4.7%	0.0%	44	7.5%	0.1%
21	344	744	55	29	506	5.6%	0.1%	46	9.0%	0.1%
22	643	814	159	40	847	4.9%	0.0%	65	7.6%	0.1%
23	295	1,816	194	58	1,421	4.1%	0.1%	92	6.5%	0.1%
24	963	441	92	37	804	4.7%	0.0%	60	7.4%	0.0%
25	350	439		20	390	5.1%	0.1%	32	8.1%	0.1%
26	340	685	55	27	574	4.7%	0.1%	43	7.5%	0.2%
27	405	1,084	45	38	834	4.6%	0.1%	61	7.4%	0.1%
28	593	51	51	17	379	4.6%	0.0%	28	7.3%	0.0%
29	251	1,142		35	687	5.1%	0.1%	56	8.1%	0.2%
30	414	594	88	27	555	4.9%	0.0%	44	7.9%	0.0%
31	113	639	383	28	545	5.3%	0.1%	45	8.3%	0.0%
32	256	561	55	22	458	4.8%	0.0%	35	7.6%	0.1%
33	921	691	131	44	1,177	3.7%	0.0%	70	5.9%	0.1%
34	561	598	61	31	572	5.3%	0.0%	49	8.5%	0.0%
35	913	693	125	43	376	5.1%	0.0%	69	18.4%	0.1%
Total						5.0%	0.0%		8.0%	0.1%

Notes: Red cells are in-house waste collection

3.2 Construction & Maintenance

While in some cases the survey indicated the use of significant amounts of automotive fuel related to construction and maintenance works, further follow-up indicated a large proportion of such activity is undertaken by external contractors. There is considerable difficulty in estimating such cost increases for the sector because of differences in construction type, for example, whether building or road construction. The greenhouse impacts of construction and maintenance works is also not confined solely to automotive fuels for construction machines. Inputs include road construction materials (aggregate, bitumen, concrete and recyclables), site wastes and construction site energy used. All such inputs, and in particular the higher production costs of concrete, bitumen, steel/metal and plastic products inclusive of emissions costs, would be expected to be passed downstream and therefore by contractors to the final purchasers (councils).

Research has not uncovered any broad indicators of the greenhouse impacts of different types of construction. For this reason a crude approach to estimating the possible effects of the inclusion of emissions costs on councils' construction activity has been used. ABS data from its Greenhouse Emissions Accounts⁵ and Value of Construction Activity has been used to derive a very basic ratio of tonnes of CO₂-e emissions per dollar of construction activity for Australia. Indexed to 2007-08 construction values the ratio gives 1,040 CO₂-e tonnes per million dollars of construction activity. This ratio has been multiplied by councils' 2007-08 construction outlays to suggest the cost increases that might be faced by councils. It should be noted that the figures used concern only capital and not maintenance spending and are inclusive of related automotive fuel emission impacts. It should also be noted that these figures are a rough estimate as the construction profile of councils is different to the average profile of all construction.

Table 3.4: Possible Impacts Arising from Capex Emissions Costs @ \$25 CO₂-e and \$40 CO₂-e

Council	2007-08 Buildings & Other Construction Capex (\$k)	Emissions Cost @ \$25 tonne CO ₂ -e (\$k)	Emissions Cost as % Capex @ \$25 tonne CO ₂ -e	Emissions Cost as % Total Underlying Expenses @ \$25 tonne CO ₂ -e	Emissions Cost @ \$40 tonne CO ₂ -e (\$k)	Emissions Cost as % Capex @ \$40 tonne CO ₂ -e	Emissions Cost as % Total Underlying Expenses @ \$40tonne CO ₂ -e
1	3,124	81	2.6%	0.4%	130	4.2%	0.7%
2	27,753	722	2.6%	0.8%	1,155	4.2%	1.2%
3	5,230	136	2.6%	0.2%	218	4.2%	0.3%
4	7,105	185	2.6%	0.5%	296	4.2%	0.8%
5	9,502	247	2.6%	0.3%	395	4.2%	0.6%
6	2,396	62	2.6%	0.3%	100	4.2%	0.5%
7	31,242	812	2.6%	0.7%	1,300	4.2%	1.2%
8	49,688	1,292	2.6%	0.9%	2,067	4.2%	1.5%
9	9,298	242	2.6%	0.8%	387	4.2%	1.3%
10	10,341	269	2.6%	0.3%	430	4.2%	0.4%
11	8,882	231	2.6%	0.4%	369	4.2%	0.6%

⁵ Latest figures published are for 1994-95 and indexed to 2007-08 values

12	4,936	128	2.6%	0.7%	205	4.2%	1.1%
13	20,807	541	2.6%	0.6%	866	4.2%	1.0%
14	22,454	584	2.6%	0.6%	934	4.2%	0.9%
15	12,805	333	2.6%	0.3%	533	4.2%	0.5%
16	10,723	279	2.6%	0.4%	446	4.2%	0.6%
17	2,841	74	2.6%	0.4%	118	4.2%	0.6%
18	12,408	323	2.6%	0.3%	516	4.2%	0.4%
19	13,353	347	2.6%	0.3%	555	4.2%	0.6%
20	10,678	278	2.6%	0.7%	444	4.2%	1.1%
21	18,490	481	2.6%	0.7%	769	4.2%	1.1%
22	5,535	144	2.6%	0.2%	230	4.2%	0.3%
23	7,118	185	2.6%	0.6%	296	4.2%	1.0%
24	27,018	702	2.6%	0.6%	1,124	4.2%	0.9%
25	13,600	354	2.6%	0.3%	566	4.2%	0.5%
26	16,085	418	2.6%	0.3%	669	4.2%	0.5%
27	4,044	105	2.6%	0.5%	168	4.2%	0.7%
28	4,297	112	2.6%	0.5%	179	4.2%	0.9%
29	12,665	329	2.6%	0.6%	527	4.2%	1.0%
30	28,163	732	2.6%	0.5%	1,172	4.2%	0.8%
31	6,144	160	2.6%	0.6%	256	4.2%	1.0%
32	23,605	614	2.6%	0.6%	982	4.2%	1.0%
33	7,487	195	2.6%	0.2%	311	4.2%	0.3%
34	9,290	242	2.6%	0.5%	386	4.2%	0.8%
35	35,415	921	2.6%	0.8%	1,473	4.2%	1.3%
36	14,213	370	2.6%	0.4%	591	4.2%	0.6%
37	14,351	373	2.6%	0.3%	597	4.2%	0.5%
Total	523,086	13,600	2.6%	0.50%	21,760	4.2%	0.80%

This simple model indicates that the inclusion of GHG emission costs could possibly add from 2.6 per cent to 4.2 per cent to capital expenditure costs and from 0.5 per cent to 0.8 per cent in total expenses.

3.3 Energy

Electricity and natural gas consumption figures are provided in Table 3.5. The figures include councils' direct purchases of energy, but may exclude energy at facilities such as recreational centres operated by contractors on behalf of councils.

There is considerable variation in the proportion of green energy purchased. Clearly conventional electricity obtained from brown coal is the predominant source of council energy, although several councils already source the bulk of their power requirements from green supplies. A number of remaining councils have indicated programs to substitute conventional supplies with green power in the near future. It is expected the inclusion of emissions costs in energy prices will influence the level of substitution. It has been assumed that accredited green energy will not be affected by a carbon price as it is emissions free. However, it is still unknown how the Greenpower program will change with the implementation of the CPRS. It is also unknown what effect the CPRS will have on the electricity price, including Greenpower. It is possible that renewable energy electricity also goes up in price with the introduction of a CPRS. This is because currently, Greenpower is charged at the fossil-fuel electricity price, plus a premium, the price is not determined separately.

Table 3.5: Electricity & Gas Consumption

	Total kWh Green Electricity	Total kWh Other Electricity	Total kWh Electricity	% Green Electricity	Intended Green Power %	Total GJ Natural Gas
1	119,162	1,495,526	1,614,688	7%	25% (2008-09)	7,968
2	-	9,646,333	9,646,333	0%		153,194
3	553,474	8,416,509	8,969,983	6%		6,938
4	-	1,372,778	1,372,778	0%		-
5	4,015,868	4,717,042	8,732,910	46%		13,068
6	-	13,244,392	13,244,392	0%		13,695
7	-	14,528,941	14,528,941	0%		6,239
8	2,923,068	8,224,826	11,147,894	26%	40% (2008-09)	17,087
9	-	3,380,910	3,380,910	0%		-
10	227,073	845,669	1,072,742	21%		-
11	-	11,647,922	11,647,922	0%		15,719
12	2,643,528	8,216,518	10,860,046	24%		36,997
13	6,000	7,934,541	7,940,541	0%		34,811
14	-	2,292,128	2,292,128	0%		86
15	747,355	5,936,885	13,061,620	6%		28,772
16	3,370,706	6,607,016	9,977,722	34%		5,932
17	54,905	2,196,639	2,251,544	2%	5% (2008-09)	1,114
18	684,700	6,765,300	7,450,000	9%	15% (2008-09)	-
19	1,013,168	7,504,930	8,518,098	12%	70% (2012-13)	
20	-	2,419,082	2,419,082	0%		10,320
21	-	19,599,307	19,599,307	0%		68,216
22	2,646,537	5,670,555	8,317,092	32%		32,329
23	13,129,000	285,000	13,414,000	98%		12,750
24	-	838,792	838,792	0%		296
25	-	1,150,804	1,150,804	0%		-
26	1,840,182	998,227	2,838,409	65%	100% (2008-09)	14,927
27	622,202	10,047,324	10,669,526	6%	22% (2008-09)	3,220

28	-	2,557,850	2,557,850	0%		-
29	-	10,400,568	10,400,568	0%	4% (2008-09)	33,347
30	3,561,238	8,687,854	12,249,091	29%		29,831
31	-	4,825,000	4,825,000	0%		-
32	1,919,581	7,054,030	8,973,611	21%	100% (2008-09)	4,200
33	1,290,590	8,264,012	9,554,602	14%	100% (2011-12)	157,061
34	8,046,264	1,202,317	9,248,581	87%		4,406

Conversion factors from National Greenhouse Accounts (NGA) are provided in the following table.

Table 3.6: CO₂-e Conversion Factors for Electricity & Gas

Energy	kg CO₂-e per kWh	kg CO₂-e per GJ
Electricity	1.22	
Natural Gas		51.33

Source: National Greenhouse Accounts Factors

GHG emissions cost impacts are summarised in Tables 3.7 and 3.8. The data show considerable impacts in terms of possible increases in electricity and natural gas costs under both the \$25 and \$40 CO₂-e tonne scenarios. The variation is directly impacted by levels of green power currently purchased by individual councils. Similar to the findings for automotive fuel, emissions costs related to electricity and gas would not result in a significant increase in councils' overall expenses, up to 0.5 per cent based on \$40 tonne.

The CPRS currently includes substantial one-off compensation payments to coal-fired generators for loss of asset value. This is not expected to be passed on to electricity consumers.

Table 3.7: Emissions Costs Impacts of Electricity & Natural Gas Consumption @ \$25 CO₂-e tonne

Council	Electricity CO ₂ -e tonnes	@ \$25 CO ₂ -e tonne	% Electricity Outlays	% Total outlays	Natural Gas CO ₂ -e tonnes	@ \$25 CO ₂ -e tonne	% Natural Gas Outlays	% Total Outlays
1	1,825	45,614	19%	0.2%	409	10,225	15%	0.1%
2	11,769	294,213	29%	0.3%	7,863	196,586	15%	0.2%
3	10,268	256,704	28%	0.3%	356	8,904	*	0.0%
4	1,675	41,870	22%	0.1%	na			
5	5,755	143,870	20%	0.2%	671	16,770	22%	0.0%
6	16,158	403,954	30%	0.4%	703	17,574	20%	0.0%
7	17,725	443,133	33%	0.3%	320	8,006	15%	0.0%
8	10,034	250,857	16%	0.2%	877	21,927	20%	0.0%
9	4,125	103,118	*	0.2%	na			
10	1,032	25,793	*	0.1%	na			
11	np			0.0%	205	5,137	np	0.0%
12	14,210	355,262	28%	0.4%	807	20,171	20%	0.0%
13	10,024	250,604	18%	0.2%	1,899	47,476	26%	0.0%
14	9,680	242,004	32%	0.3%	1,787	44,671	22%	0.1%
15	2,796	69,910	25%	0.3%	4	110	*	0.0%
16	7,243	181,075	*	0.2%	1,477	36,922	23%	0.0%
17	8,061	201,514	*	0.2%	305	7,613	15%	0.0%
18	2,680	66,997	23%	0.2%	57	1,430	*	0.0%
19	8,254	206,342	27%	0.3%	np			0.0%
20	9,156	228,900	29%	0.3%	883	22,086	24%	0.0%
21	2,951	73,782	25%	0.2%	530	13,243	18%	0.0%
22	23,911	597,779	27%	0.5%	3,502	87,539	24%	0.1%
23	6,918	172,952	*	0.2%	1,659	41,486	17%	0.0%
24	348	8,693	0%	0.0%	654	16,361	20%	0.0%
25	1,023	25,583	28%	0.1%	15	380	np	0.0%
26	1,404	35,100	22%	0.2%	na			
27	1,218	30,446	*	0.1%	766	19,155	31%	0.0%
28	12,258	306,443	22%	0.2%	165	4,132	15%	0.0%
29	3,121	78,014	23%	0.3%	na			
30	12,689	317,217	32%	0.3%	1,712	42,793	25%	0.0%
31	10,599	264,980	22%	0.3%	1,531	38,281	19%	0.0%
32	5,887	147,163	np	0.3%	na			
33	8,606	215,148	*	0.2%	216	5,390	*	0.0%
34	10,082	252,052	34%	0.2%	8,062	201,549	*	0.2%
35	1,467	36,671	*	0.0%	226	5,654	8%	0.0%
Total	254,950	6,373,754	23%	0.2%	37,663	941,570	22%	0.0%
Average			25%	0.3%			20%	0.0%
Median			25%	0.3%			20%	0.0%

Notes: na is not applicable
 np is data not provided
 asterisked not considered reliable

Table 3.8: Emissions Costs Impacts of Electricity & Natural Gas Consumption @ \$40 CO₂-e tonne

Council	Electricity CO ₂ -e tonnes	@ \$40 CO ₂ -e tonne	% Electricity Outlays	% Total outlays	Natural Gas CO ₂ -e tonnes	@ \$40 CO ₂ -e tonne	% Natural Gas Outlays	% Total Outlays
1	1,825	72,982	30%	0.4%	409	16,360	24%	0.1%
2	11,769	470,741	47%	0.5%	7,863	314,537	24%	0.3%
3	10,268	410,726	45%	0.5%	356	14,246	*	0.0%
4	1,675	66,992	36%	0.2%	na			
5	5,755	230,192	31%	0.3%	671	26,832	36%	0.0%
6	16,158	646,326	48%	0.6%	703	28,119	32%	0.0%
7	17,725	709,012	53%	0.5%	320	12,810	25%	0.0%
8	10,034	401,372	26%	0.4%	877	35,083	32%	0.0%
9	4,125	164,988	*	0.3%	na			
10	1,032	41,269	*	0.2%	na			
11	np				205	8,218	np	0.0%
12	14,210	568,419	44%	0.6%	807	32,274	32%	0.0%
13	10,024	400,966	29%	0.4%	1,899	75,962	41%	0.1%
14	9,680	387,206	51%	0.5%	1,787	71,474	34%	0.1%
15	2,796	111,856	40%	0.6%	4	177	*	0.0%
16	7,243	289,720	*	0.2%	1,477	59,075	36%	0.0%
17	8,061	322,422	*	0.3%	305	12,180	25%	0.0%
18	2,680	107,196	37%	0.3%	57	2,287	*	0.0%
19	8,254	330,147	43%	0.5%	np			
20	9,156	366,241	46%	0.5%	883	35,337	39%	0.0%
21	2,951	118,051	41%	0.4%	530	21,189	28%	0.1%
22	23,911	956,446	42%	0.8%	3,502	140,062	39%	0.1%
23	6,918	276,723	*	0.3%	1,659	66,378	27%	0.1%
24	348	13,908	1%	0.0%	654	26,178	32%	0.0%
25	1,023	40,933	45%	0.2%	15	608	np	0.0%
26	1,404	56,159	35%	0.3%	na			
27	1,218	48,713	*	0.1%	766	30,648	49%	0.1%
28	12,258	490,309	35%	0.3%	165	6,611	23%	0.0%
29	3,121	124,823	37%	0.5%	na			
30	12,689	507,548	51%	0.5%	1,712	68,468	40%	0.1%
31	10,599	423,967	36%	0.4%	1,531	61,250	31%	0.1%
32	5,887	235,460	np	0.5%	na			
33	8,606	344,237	*	0.3%	216	8,623	*	0.0%
34	10,082	403,284	54%	0.4%	8,062	322,479	*	0.3%
35	1,467	58,673	*	0.1%	226	9,046	13%	0.0%
Total	254,950	10,198,006	37%	0.4%	37,663	1,506,512	35%	0.1%
Average			39%	0.4%			32%	0.1%
Median			41%	0.4%			32%	0.0%

Notes: na is not applicable
 np is data not provided
 asterisked not considered reliable

3.4 Municipal Waste Disposal

It is expected that most landfills used by Victorian councils to dispose of their waste will be covered under the CPRS. The rules of the CPRS as they stand will cover all landfills that have emissions of 25,000 tonnes of CO₂-e or more each year, or 10,000 tonnes CO₂-e if there is another landfill within a certain distance (yet to be set). This smaller threshold is expected to cover metropolitan landfills. These thresholds apply to landfills before gas capture or flaring is taken into account. The waste in landfills is divided into two categories. Legacy waste is waste deposited in the landfill before 1 July 2008. The emissions from this waste will be counted as part of the total emission from a facility (to determine whether it is over the threshold), but the facility operator will not be liable for emissions from this waste until 1 July 2018. New waste is any waste deposited after 1 July 2008. Emissions from this waste are included as part of the total emissions from a facility and the operator will be liable for these from the commencement of the CPRS.

In the calculations below it has been assumed that all council waste is going to landfills covered within the CPRS. In practice, not all landfills will be covered, however the vast majority will be.

It is expected the cost of CO₂-e emissions from methane release will be reflected in increased gate fees that landfill operators charge. Amounts of waste collected and directed to landfill are provided in the following table.

Table 3.9: Tonnes of Waste to Landfill

Council	Domestic Kerbside Waste Collection	Trade and/or Commercial Waste Collection	Other Waste Collection	Total
1	1,842	-	2,177	4,019
2	17,884	-	-	17,884
3	20,257	1,862	23,202	45,321
4	19,045	-	21,896	40,941
5	3,885	2,427	16	6,328
6	36,622	-	832	37,454
7	41,531	-	534	42,064
8	2,500	-	-	2,500
9	25,169	11,814	957	37,940
10	6,861	-	589	7,449
11	2,206	-	-	2,206
12	35,500	-	-	35,500
13	27,420	-	2,607	30,027
14	12,071	29,383	7,131	48,586
15	1,100	-	-	1,100
16	54,763	-	-	54,763
17	26,381	-	240	26,621
18	6,230	-	1,830	8,060
19	20,950	-	-	20,950
20	16,885	-	1,315	18,201
21	12,048	5,267	-	17,315
22	40,935	-	2,651	43,586
23	26,891	21,423	-	48,314
24	3,101	-	-	3,101

Council	Domestic Kerbside Waste Collection	Trade and/or Commercial Waste Collection	Other Waste Collection	Total
25	2,500	-	4,500	7,000
26	7,242	-	-	7,242
27	19,886	-	23	19,909
28	5,500	5,500	-	11,000
29	25,650	-	1,760	27,410
30	25,900	3,100	590	29,590
31	7,565	40	7,210	14,815
32	30,500	-	-	30,500
33	12,441	-	-	12,441
34	25,987	-	1,126	27,113

Conversion factors from National Greenhouse Accounts (NGA) have been applied to these tonnages to derive emissions costs. For the purpose of the analysis the conversion rate for commercial and industrial has been used for councils' trade and/or commercial waste collections and a factor of 0.8 has been adopted for other waste (reflecting a combination of things such as street sweepings and inert material). Care should be taken in conclusions drawn about levels of GHGs arising from the disposal of councils' collections of commercial and industrial and "other" waste. The level of inert material in, and composition of these collections, may vary considerably. Ultimately, impacts will be influenced by the extent that landfill owners discriminate between different types of waste in the setting of gate fees to offset the extra costs associated with GHGs. For example, whether a blanket fee per tonne of waste applies to all loads or whether fees per tonne are based on their propensity to generate methane. This will be particularly significant for councils that collect organic or garden waste separately from municipal solid waste and process it outside of a landfill for conversion to mulch or compost.

Table 3.10: CO₂-e/t Conversion Factors for Waste

Waste Type	CO ₂ -e/t
<i>Municipal Solid</i>	1.3
<i>Commercial and Industrial</i>	1.7
<i>Construction and Demolition</i>	0.3

Source: National Greenhouse Accounts Factors

The analysis shows that there will be substantial increases in costs associated with the disposal of council waste collections if GHG costs are incorporated into landfill gate fees. At \$25/CO₂t-e most council costs for waste disposal would be expected to increase by at least half and, if the survey councils are any indication, on average by two-thirds. At \$40/CO₂t-e most of the councils surveyed would face a doubling in waste disposal costs. In terms of total expenses respective increases of just under 1% and 1.5% would be expected at these rates. These increases assume no benefit from landfill gas capture is passed on to councils in reduced gate fees, while carbon prices are passed on. It was not possible to determine the effect of current levels of gas capture (and either flaring or electricity generation from the captured gas) on landfill gate fees as data was only available on the local government segment of the total amount of waste going to landfill.

Table 3.11: Increase in cost of landfill gate fees with carbon price

Council	Domestic Waste Emission Costs as % Gate Fees @ \$25 tonne CO2-e/t	Total Waste Emission Costs as % Gate Fees @ \$25 tonne CO2-e/t	Domestic Waste Emission Costs as % Total Expenses @ \$25 tonne CO2-e/t	Total Waste Emission Costs as % Total Expenses @ \$25 tonne CO2-e/t	Domestic Waste Emission Costs as % Gate Fees @ \$40 tonne CO2-e/t	Total Waste Emissions Costs as % Gate Fees @ \$40 tonne CO2-e/t	Domestic Waste Emission Costs as % Total Expenses @ \$40 tonne CO2-e/t	Total Waste Emission Costs as % Total Expenses @ \$40 tonne CO2-e/t
1	79%	74%*	0.3%	0.4%*	127%	118%*	0.5%	0.6%*
2	65%	65%	0.6%	0.6%	104%	104%	1.0%	1.0%
3	78%	64%	0.8%	1.4%	126%	102%	1.2%	2.2%
4	np	np	0.9%	1.5%	np	np	1.4%	2.4%
5	38%	44%	0.7%	1.2%	61%	70%	1.1%	1.9%
6	59%	59%	1.1%	1.1%	95%	94%	1.7%	1.7%
7	65%	65%	1.0%	1.0%	105%	104%	1.6%	1.6%
8	59%	59%	0.3%	0.3%	95%	95%	0.5%	0.5%
9	77%	98%*	0.8%	1.3%*	123%	156%*	1.2%	2.0%*
10	50%	53%	0.4%	0.4%	80%	85%	0.6%	0.7%
11	90%	90%	0.4%	0.4%	144%	144%	0.6%	0.6%
12	np	np	1.3%	1.3%	np	np	2.1%	2.1%
13	61%	59%	0.8%	0.9%	97%	94%	1.3%	1.4%
14	72%	71%	0.5%	2.3%	116%	113%	0.8%	3.7%
15	98%	98%	0.2%	0.2%	156%	156%	0.3%	0.3%
16	56%	56%	1.5%	1.5%	90%	90%	2.4%	2.4%
17	58%	58%	0.9%	0.9%	94%	93%	1.4%	1.4%
18	57%	52%	0.5%	0.6%	91%	83%	0.8%	1.0%
19	68%	68%	0.9%	0.9%	108%	108%	1.5%	1.5%
20	117%	111%	0.7%	0.7%	187%	177%	1.1%	1.2%
21	49%	53%	1.3%	2.0%	78%	85%	2.0%	3.2%
22	76%	74%	1.2%	1.3%	121%	118%	2.0%	2.0%
23	40%	45%	0.7%	1.4%	63%	72%	1.1%	2.2%
24	29%	29%	0.4%	0.4%	47%	47%	0.7%	0.7%
25	92%	70%	0.4%	0.8%	148%	111%	0.6%	1.3%
26	83%	83%	0.4%	0.4%	133%	133%	0.7%	0.7%
27	99%	99%	0.4%	0.4%	159%	159%	0.7%	0.7%
28	44%	62%	0.7%	1.6%	71%	99%	1.1%	2.5%
29	59%	52%*	0.9%	0.9%*	94%	84%*	1.4%	1.5%*
30	51%	50%*	0.8%	0.9%*	82%	80%*	1.3%	1.5%*
31	98%	80%	0.5%	0.8%	156%	127%	0.8%	1.3%
32	54%	54%	0.9%	0.9%	87%	87%	1.4%	1.4%
33	85%	33%	0.4%	0.4%	136%	53%	0.6%	0.6%
34	67%	66%	0.8%	0.8%	108%	106%	1.2%	1.3%
Total	68%	67%	0.7%	0.9%	109%	107%	1.2%	1.5%
Median	65%	64%	0.7%	0.9%	105%	102%	1.1%	1.4%

np is data not provided

total waste includes domestic, trade and commercial and other waste
 asterisked may have issues regarding reliability of costs for non-domestic waste

3.5 Landfill Operations

It is assumed in the previous analysis that any additional costs posed by methane emissions will be borne by users through the gate fees charged by owners/operators in eligible landfills. It is difficult to forecast the likely outcomes of the CPRS in terms of the prices paid for waste disposal due to the influence of landfill gas recovery and the pricing policies of landfill operators. A further issue is created with respect to legacy emissions that arise from landfills that closed after 1 July 2008.

Of the survey councils, 15 currently operate landfills and 20 had operated landfills which have closed. The details are listed in Table 3.12. Almost all of the closed landfills will fall outside the CPRS when it begins, as they were closed before the 1 July 2008 cut-off date. Up to five of the council owned landfills may fall beneath the emissions threshold, however insufficient information was available to calculate this.

Greenhouse gas abatement occurs in several operating and closed landfills via the flaring or burning of methane for energy production. There would be significant financial benefits to those councils that own/operate these landfills if abated volumes of greenhouse gas translated directly to carbon credits. The joint ownership of some of these facilities makes it impractical to hypothecate the financial benefits of carbon credits to individual councils although this could be undertaken if the ownership details, including shares of equity, were known. Estimates indicate that additional costs arising from the CPRS might be offset by landfill gas abatement in individually-owned/operated council tips by up to 4-81 per cent between the council with the lowest level of greenhouse gas capture and the highest.

Table 3.12: Details of councils' landfill operations

Council	Tip Operation	Closed Landfills	Annual Tonnage Municipal Solid Waste	Gas Capture/ Energy Production	Abated Tonnes CO ₂ -e	Value of Abated Tonnes @ \$25 CO ₂ -e/t (\$k)	Value of Abated Tonnes @ \$40 CO ₂ -e/t (\$k)
1	yes	yes	10,000	no			
2							
3		yes					
4							
5							
6	yes		9,000	no			
7		yes					
8		yes *		yes	17,888	447.2	715.5
9	yes	yes	14,454	no			
10		yes					
11	yes	yes	17,800	no			
12	yes		2,200	no			
13							
14	yes		48,000	yes	20,327	508.2	813.1
15		yes *		yes	14,000	350.0	560.0

Council	Tip Operation	Closed Landfills	Annual Tonnage Municipal Solid Waste	Gas Capture/ Energy Production	Abated Tonnes CO ₂ -e	Value of Abated Tonnes @ \$25 CO ₂ -e/t (\$k)	Value of Abated Tonnes @ \$40 CO ₂ -e/t (\$k)
16	yes	yes	12,000	yes	4,000	100.0	160.0
17		yes					
18		yes					
19		yes			14,266	356.7	570.6
20		yes		no			
21							
22							
23	yes	yes	23,000	no			
24	yes *		100,000	yes	43,249	1,075.0	1,720.0
25							
26	yes	yes	26,891	no	14,257	na	na
27	yes	yes	17,638	no			
28	yes	yes	4,974	no			
29		yes					
30							
31	yes		5,500	no			
32	yes *		250,000	yes	30,000	750.0	1,200.0
33		yes		yes	50,000	1,250.0	2,000.0
34		yes		no			
35	yes		200,000	yes	29,000	725.0	1,160.0

Notes:

Asterisked landfills owned/part-owned by various councils and/or other parties

Abated tonnes of CO₂ for 14 and 24 based on conversion of methane content of 45%, conversion of 0.717kg per m³ and 21 methane tonnes per CO₂ tonne

Council 26 NGACs (New South Wales Greenhouse Gas Abatement Certificates) already claimed by the operator

3.6 Other Materials

There is no practical way to estimate reasonably the transmission of cost increases related to the other materials purchased by councils. This would require an understanding of the inventory of council purchases and the inputs to their manufacture - well beyond the scope of this project. General cost increases in goods will occur through the energy used in industrial manufacturing processes and transport/distribution chain which allows them to be moved to final users. In theory the relative cost between goods will change as carbon intensive products experience a greater increase in price compared with products that do not result in as many carbon emissions.

3.7 Carbon Sinks – Trees

Councils control significant areas of open space including parks, gardens and nature strips with vegetation that reduce the level of atmospheric CO₂. Carbon sinks exist when trees left free to grow from major disturbance capture more carbon than they release through death or decomposition.

Data was sought from the councils with respect to all trees and those that would be acknowledged under the Kyoto protocol. The latter recognises trees planted after 1990 in forests/plantations of at least 0.2 ha at least two metres in height and with tree crown cover of 20 per cent. The Protocol therefore excludes the vast majority of trees under council control and hence any major financial benefit under an ETS may not be forthcoming for many councils. Of the survey councils only three could identify tree numbers that qualified under the Kyoto regime.

There are some widely ranging figures reported for carbon reduction. The Department of Climate Change provides the National Carbon Accounting Toolbox to estimate GHG accounts for forestry activities. This is a complex model that takes account of numerous variables including species type, rainfall, age (maximisation sequestration capacity may occur after 20 years) etc. in order to provide estimates of CO₂ uptake.

Currently the CPRS provides an option for forestry activities to opt in to the emissions trading scheme in order to generate credits and thereby income. Opting in also means you are liable for any emissions that result from your forestry practice if the trees are removed or destroyed.

4 Conclusions

The MAV surveyed 37 councils to determine their exposure to a carbon price of \$25 and \$40 per tonne of CO₂-e as proposed via the CPRS. These price increases will mainly occur via council waste disposal, construction activity, and fuel and electricity consumption.

It is estimated that costs for local government will increase by around two per cent with a \$25/tonne carbon price and around 3 per cent with a \$40/tonne carbon price. These cost increases do not take into account potential savings from the capture of landfill gas or the neutralisation of liquid fuel carbon costs via the reduction of the fuel excise in the first few years of the scheme.

These estimates are based on the available figures provided by surveyed councils and the current draft CPRS legislation released by the Federal Government. It is essential that councils improve their greenhouse accounting prior to the introduction of the scheme. The details of the scheme are very likely to change when the legislation is introduced into parliament.

In order to reduce local government's exposure to a carbon price it is recommended that councils continue their work to reduce their own energy and fuel consumption and their community's disposal of organic waste. Those councils that own landfills can ensure that they have effective gas capture technologies in place.

5 Appendices

Appendix 1: Survey Sent to Councils

TABLE 1: QUANTITIES 2007-08

			Fleet - Cars, Trucks, Plant Used for Construction & Maintenance ⁽¹⁾	Cars, Trucks, Plant Used for Garbage Collection ⁽¹⁾	Fleet - Cars, Trucks, Plant Other ⁽¹⁾	Fleet - Cars, Trucks, Plant Total	Recreation and Aquatic Centres	Other Council Buildings	Other Council Sites ⁽²⁾	Streetlighting - local roads	Streetlighting - VicRoads main roads	Total Electricity/Natural Gas	Domestic Kerbside Waste Collection ⁽³⁾	Trade and/or Commercial Waste Collection ⁽³⁾	Other Waste Collection ⁽³⁾	Net No. Trees as Per Kyoto Protocol ⁽⁴⁾	Net Other Trees ⁽⁵⁾
Quantity																	
Transport Fuels																	
Unleaded petrol		litres				0											
Diesel petrol		litres				0											
LPG		litres				0											
Energy																	
Electricity	Green Energy	%					0%	0%	0%	0%	0%	#DIV/0!					
Electricity	Green Energy	kwh				0	0	0	0	0	0	0					
Electricity	Other Energy	kwh				0	0	0	0	0	0	0					
Electricity	Total Energy	kwh				0	0	0	0	0	0	0					
Natural Gas	Total	Gj										0					
Municipal and Other Waste Collected																	
		tonnes															
Vegetation Sinks																	
		number															

Notes:

Electricity - enter total kwh of energy in row 13, and then the proportion of GreenPower that is purchased

(1) Provide if available for different sources, otherwise report total.

(2) Also include electricity from the grid used at landfills. Only include sites where council has operational control, ie. pays the electricity/gas bill

(3) only include your council's collections that are destined for landfill. Exclude putrescible food and other waste that is collected separately and processed downstream e.g. composted, recycled, recovered, reprocessed

(3i) include litter bins, street-sweeping and other collections

(4) include trees planted in forests/plantations of at least 0.2 ha., with tree crown cover of 20%, at least 2m in height and planted after 1990. Net figures exclude trees removed

(5) A reasonable estimate of other trees planted after 1990, where this data is readily available from existing databases. Net figures exclude trees removed.

TABLE 2: ENERGY AND WASTE COSTS 2007-08

			Fleet - Cars, Trucks, Plant Construction & Maintenance	Fleet - Cars, Trucks, Plant Garbage Collection	Fleet - Cars, Trucks, Plant Other	Fleet - Cars, Trucks, Plant Total	Recreation and Aquatic Centres	Other Council Buildings	Other Council Sites ⁽¹⁾	Streetlighting - local roads	Streetlighting - VicRoads main roads	Total Electricity/Natural Gas	Domestic Kerbside Waste Collection ⁽²⁾	Trade and/or Commercial Waste Collection ⁽²⁾	Other Waste Collection ⁽²⁾	
Total Cost																
Transport Fuels																
Unleaded petrol		\$000														
Diesel petrol		\$000														
LPG		\$000														
Energy																
Electricity	Green Energy	\$000														
Electricity	Other Energy	\$000					0	0	0	0	0	0				
Electricity	Total	\$000														
Natural Gas	Total	\$000														
Municipal and Other Waste Collected																
		\$000														

Notes:

Electricity - enter total \$ electricity and Greenpower premium \$

(1) include electricity from the grid used at landfills. Only include sites where council has operational control, ie. pays the electricity/gas bill

(2) costs entered should only relate to **landfill gate fees** associated with the quantities entered in Table 1.

TABLE 3: GREENPOWER PROGRAM	% Total Electricity from Green Power	% Streetlighting	% Other electricity
2007-08	#DIV/0!	0%	0%
2008-09			
2009-10			
2010-11			
2011-12			
2012-13			

Intended Proportions
Intended Proportions
Intended Proportions
Intended Proportions
Intended Proportions

Does your council have an emissions target? If so what is it?

Table 4: Landfills - operating and closed -	Operator ⁽¹⁾	Opening year	Closure / Estimated closure year	Municipal Solid waste tonnes/ Yr	Municipal Solid waste - % degrad. ⁽²⁾	Commercial & Industrial - tonnes/yr	Commercial & Industrial % degrad. Carbon	Construction & demolition - tonnes/yr	Construction & demolition % degrad. Carbon	Estimated total tonnes - capacity	Flaring / energy ⁽³⁾	Flaring / energy - tonnes of CO2e abated/yr	Estimated efficiency of gas capture	Current use ⁽⁴⁾	Financial Assurance - remediation ⁽⁵⁾	Annual Operating Cost ⁽⁶⁾
Site Name																

Notes:

- (1) For example, council, TPI, SITA, etc
- (2) Any estimations that have been made, otherwise indicate 'Unknown'
- (3) Indicate 'flaring' or 'energy' or 'none'
- (4) If closed. For example: sportsground, park, car park, etc
- (5) If required by EPA - Indicate type (eg. bank guarantee, accumulating fund) and yearly cost
- (6) include all operating costs including depreciation expense and overheads

Appendix 2: Summary of Completeness of Responses from Councils

	Complete	All Automotive Fuel Data Missing	Automotive Fuel Quantities Missing	Breakdown by Use of Automotive Fuel Quantities Missing	Breakdown by Use of Automotive Fuel Costs Missing	Litres of Unleaded Automotive Fuel Missing	All Utilities Data Missing	Breakdown by Use of Utilities Quantities Missing	Breakdown by Use of Utilities Costs Missing	Utilities Costs Missing	All Waste Data Missing	Waste Costs Missing
1	X											
2	X											
3				X	X							
4				X	X			X	X		X	
5				X	X							X
6		X					X					
7	X											
8				X	X							
9						X						
10				X	X							
11				X	X							
12				X	X							
13				X	X		X					
14		X						X	X		X	
15				X	X			X	X			
16	X											
17				X	X							
18	X											
19				X	X							

20				X	X							
21	X											
22				X	X							
23			X									
24				X	X					X		
25	X											
26	X											
27	X											
28	X											
29	X											
30				X	X							
31	X											
32	X											
33	X											
34				X	X					X		
35	X											
36	X											
37				X	X							

