

# Implications of Carbon Pricing for Waste Management in Metropolitan Melbourne

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Waste management has both negative and positive greenhouse impacts. Negative impacts include emissions from landfills, organics processing and fossil fuel use. Positive impacts include the generation of renewable energy, emission offsets from materials recovery and carbon storage

The Federal Government's moves to put a dollar price on some of these carbon impacts will affect the costs of waste management.

This information sheet summarises the ways that carbon pricing are likely to affect waste management in metropolitan Melbourne.

It addresses the carbon pricing mechanism, the carbon farming initiative, materials and energy recovery and what council waste managers can do. It has been developed by Blue Environment Pty Ltd on behalf of MWMG.



## Carbon pricing mechanism

Recent federal legislation introduces a mechanism for pricing greenhouse gas emissions. The price is fixed for an initial three years from July 2012 to July 2015, starting at \$23 per tonne of carbon dioxide equivalent (t CO<sub>2</sub>-e) and rising in the following two years by 2.5% plus the rise in the consumer price index (CPI). From July 2015, a cap-and-trade system will operate with a flexible price determined by the market. In the first years of the flexible price period a floor price of \$15/t CO<sub>2</sub>-e plus CPI plus 4% per year will be applied.

Liability for the carbon price falls on sites emitting 25,000 t CO<sub>2</sub>-e or more. The methods to determine liabilities are those of the National Greenhouse and Energy Reporting (NGER) Act, which are set out in DCCEE (2011). The liable entity is generally the organisation with operational control of the facility. This could be a local government.

## Emissions from landfills

The carbon price applies to emissions from waste deposited at a liable landfill from 1 July 2012. The important gas is methane, which is allocated a CO<sub>2</sub>-e value of 21. Emissions from waste deposited before that date are exempt from carbon pricing but count in determining the liability threshold. It is likely that all putrescible landfills servicing metropolitan Melbourne will be liable.

Operators are required to estimate their emissions using a complex formula that assumes different carbon contents and decay rates for different waste materials. They can use their own waste composition data or default NGER values. If no gas is collected, the default emission rate for municipal waste works out at about 1.2 tonnes-CO<sub>2</sub>-e per tonne of waste. Measured landfill gas recovery is deducted from emission estimate, up to a deduction limit of 75%.

To guard against displacement of waste to non-liable landfills, a special liability threshold of 10,000 t CO<sub>2</sub>-e is established for landfills that lie within some undetermined set distance of a larger landfill. This provision will not be enforced prior to 2015/16, at which time the exemption will be reviewed with a preference that the exemption be maintained unless there is clear evidence of waste diversion.

Landfill operators face a difficult task in setting prices to cover their liability – waste deposited today will emit for several decades, and future carbon prices are uncertain. However, operators can reduce their exposure to the uncertainty of future prices. During the fixed price period they can buy Kyoto-compliant credits created under the carbon farming initiative (CFI, discussed below). After that date they can buy and bank permits at the time of deposition. Other complications in setting prices to cover emissions include:

- uncertainty about methane capture rates over the whole degradation process
- uncertainty about when the landfill emissions will fall below the 25,000 t CO<sub>2</sub>-e liability threshold
- the potential for earning income from reducing emissions under the CFI
- the risk that banked permits will be invalidated by the overturning of carbon pricing by a change in government
- the company tax implications associated with the gap between receiving payment and acquitting emissions' permits
- the likelihood that the global warming potential of methane will increase from 21 as a result of scientific developments.

The actual carbon price liability will vary with a range of unknowns including waste composition, site gas capture rates and potential, when emissions fall to below 25kt CO<sub>2</sub>-e per year, site CFI eligibility (an influence for the next 5-10 years), and permit prices (an influence after three years).

Under the current Metropolitan Waste Management Group Landfill Services Deeds, operators can claim a variation due to carbon pricing. To ensure that claims are based on reasonable decisions and assumptions, MWMG will request operators to provide detailed information to justify any claim for increased payment. The Australian Competition and Consumer Commission (2011) warns that it is illegal to make "false, misleading or deceptive claims attributing any increase in the price of goods and services to the introduction of a carbon price".

## Carbon farming initiative (CFI)

The CFI is intended to provide a market signal and financial opportunities for sectors that are not covered by the carbon pricing mechanism. It provides for the generation of 'Australian carbon credit units' (ACCUs) that can be sold internationally or used to offset liabilities under the carbon pricing mechanism. One of the approved CFI activities is reducing landfill emissions from 'legacy' waste – that is, material deposited before July 2012.

## References and further information:

Australian Competition and Consumer Commission (2011) Carbon Price Claims: [accu.gov.au/content/index.phtml/tag/carbon/](http://accu.gov.au/content/index.phtml/tag/carbon/)

DCCEE (Department of Climate Change and Energy Efficiency 2011) Technical Guidelines for the estimation of greenhouse gas emissions by facilities in Australia, [climatechange.gov.au/en/government/initiatives/national-greenhouse-energy-reporting/publications/technical-guidelines.aspx](http://climatechange.gov.au/en/government/initiatives/national-greenhouse-energy-reporting/publications/technical-guidelines.aspx)

DCCEE (2011b) Emissions from landfill facilities, [www.cleanenergyfuture.gov.au/emissions-from-landfill-facilities-2/](http://www.cleanenergyfuture.gov.au/emissions-from-landfill-facilities-2/)

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As with similar programs, proponents need to demonstrate that the activity for which they seek ACCUs is additional to business-as-usual. The draft methodology for claiming ACCUs from reducing legacy waste emissions discusses additionality with reference to 'baseline' regulatory requirements for landfill gas management. Gas recovery projects approved under the Greenhouse Friendly program or NSW Greenhouse Gas Reduction Scheme may be able to receive CFI credits for abatement from 1 July 2010. It is anticipated that default baselines for these projects will be specified. It appears likely that many landfills will be able to claim credits for some gas they are already collecting.

The landfill industry's capacity to generate ACCUs may reduce the impact of the carbon price on wastemanagement costs in the early years of carbon pricing. An individual site may, in a single year, be able to both generate ACCUs from its legacy waste (CFI credits) and accrue liabilities for emissions associated with its new waste.

Some compost industry advocates have lobbied for payments for adding to carbon storage in soils. This case has not been successful to date. Composters' bid for recognition under the CFI is likely to be considered within the larger scale challenge on how to encourage greater carbon uptake in agriculture.

## Energy and materials recovery

The additional cost imposed on energy derived from fossil fuels will make energy recovery from organic waste more attractive. The main technology operating at present is recovery of landfill gas and its conversion to electricity. Other options that are less common in Australia include anaerobic digestion and thermal technologies such as incineration and pyrolysis. Carbon pricing is likely to boost the uptake of these technologies. In addition, the Federal Government is making \$10 billion available through the Clean Energy Finance Corporation. There may be potential for this to support waste projects that produce good greenhouse outcomes. Energy generated from organic waste is also eligible for Renewable Energy Certificates.

Recycling is generally less energy intensive than virgin manufacture, so carbon pricing should help to boost the relative price of recycled product. Some composts could also offset the need for fossil-fuel intensive fertilisers. However, exposure to untaxed overseas competition may drive more materials overseas, and the transitional assistance provided to some large industries processing virgin materials may mask the carbon advantages of recycling, at least in the first few years.

## Emissions from fuel and transport

A carbon price will be effectively imposed on fuel use in off-road vehicles through reduced access to fuel tax credits. The cost of fuel used in some waste management operations (e.g. landfills) will increase by about six cents per litre in July 2012. The impact on their overall costs will be very small.

The Federal Government plans to impose a similar effective price onto heavy on-road vehicles from July 2014 but this has not been agreed by all members of the Multi-Party Climate Change Committee. If it goes ahead, the cost of waste collections would typically increase.

## What can council waste managers do?

Carbon pricing acts largely to support the existing directions of waste policy, encouraging resource recovery and high standards of landfill operation. Options for local government waste managers to reduce payments for carbon emissions from waste include:

- Understand the implications of waste management options for carbon impacts and payments.
- Divert waste from landfill: less tonnes = less liability.
- Divert organics from landfill: the most significant waste materials in domestic waste are typically food, followed by garden waste, then paper. MWMG will discuss with its contracted landfill operators the option of establishing waste composition data acceptable to the regulator as an alternative to NGRS default values.
- Subject to contractual obligations, deliver inert waste streams to landfill separately from putrescible waste, and ensure it is classified at the site as inert material.
- Subject to contractual obligations, use a landfill that has low methane emissions and efficient capture costs e.g. that generates electricity and/or gains CFI credits. This should impart a competitive advantage.

## Exploring carbon pricing and landfill costs

MWMG has engaged Blue Environment to develop a calculator to help council waste managers understand the impact of carbon pricing on landfill costs. The calculator will generate cost estimates based on different waste compositions, gas collection efficiencies, carbon price scenarios and operator choices for satisfying their liability. MWMG will consult with councils on the use of this tool in preparation for contractual negotiations with contracted landfill operators.