Document Control
Prepared for Sustainable Destination Partnership and City of Sydney by EC Focus Pty Ltd.

Business Case Guidance for

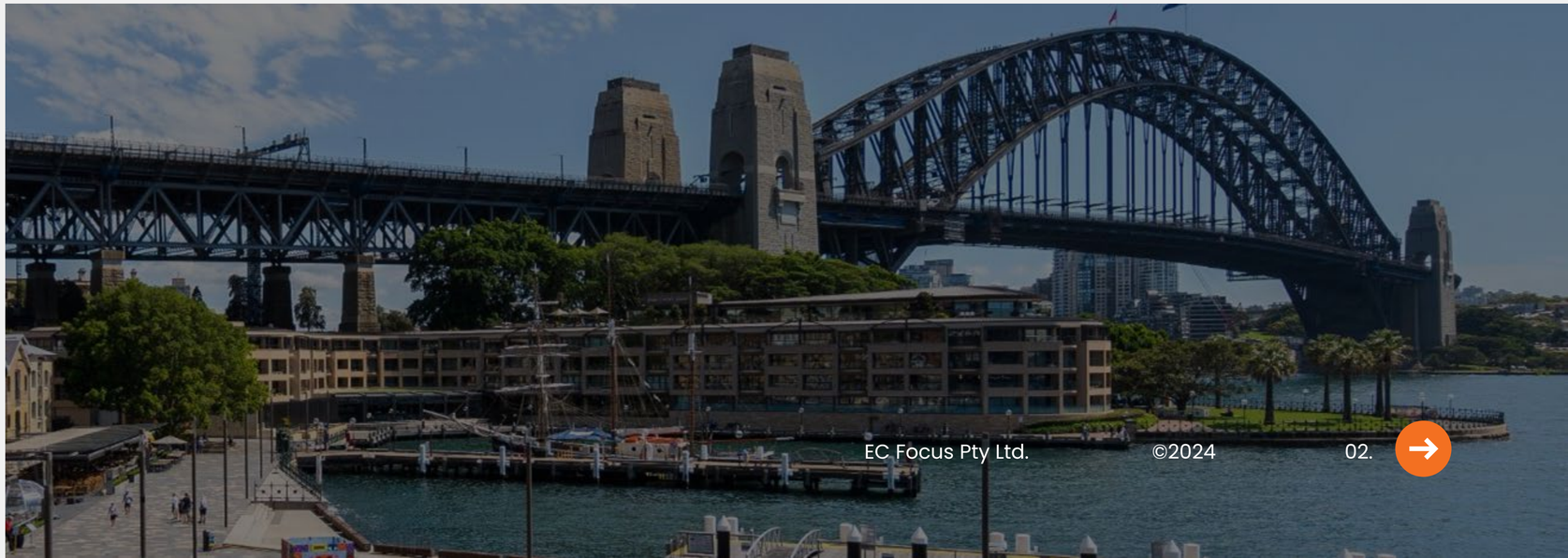
Food Waste Avoidance

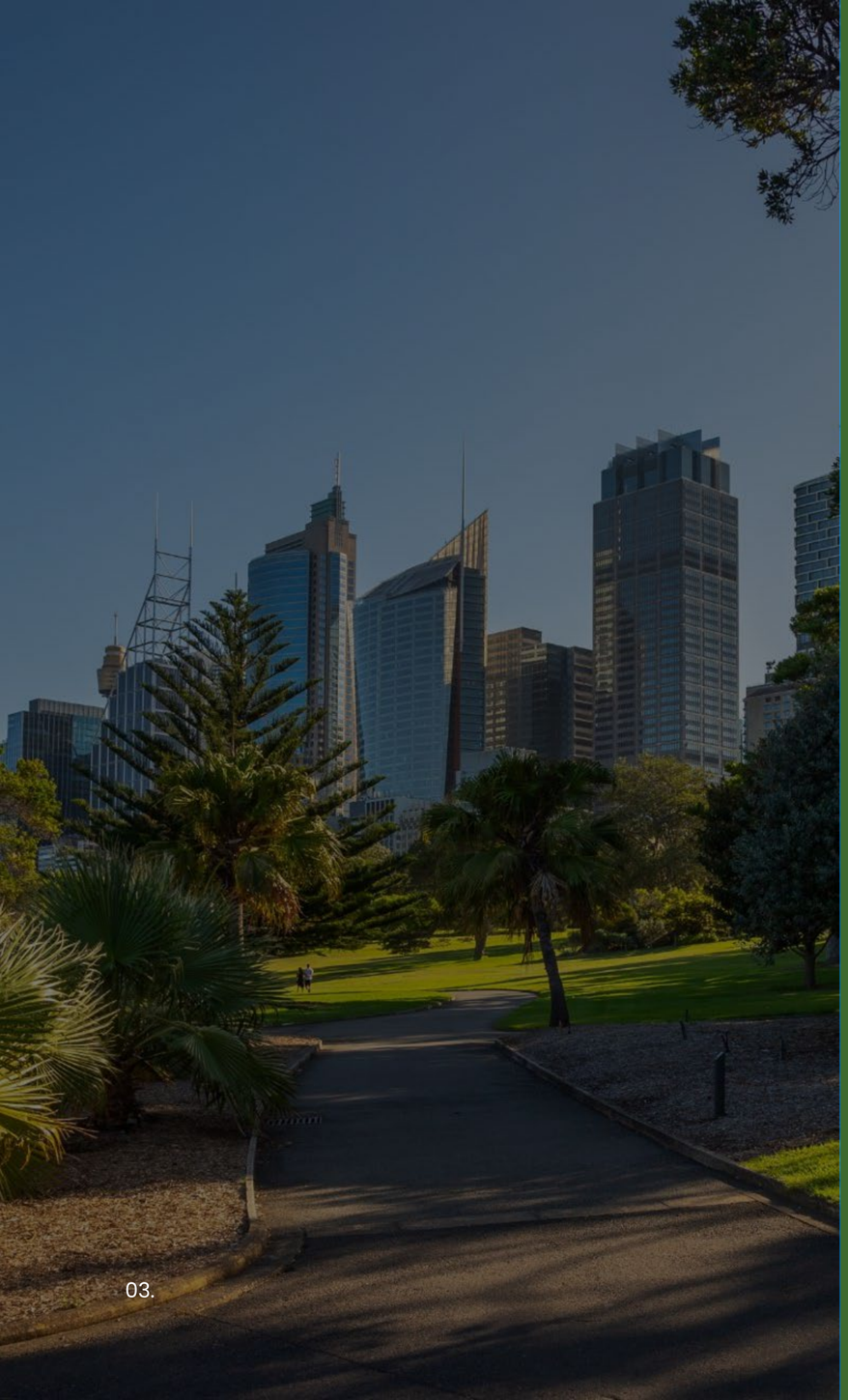
SUSTAINABLE DESTINATION PARTNERSHIP

About

Sustainable Destination Partnership is a collaboration of hotels, backpacker hostels, serviced apartments, cultural institutions, entertainment venues and industry influencers ***working together to make Sydney a sustainable destination.***

Members preparing business cases for projects which contribute to Partnership goals of halving food waste can utilize this guide to help to demonstrate the financial and non-financial benefits of proposed actions.





How To Use

SUSTAINABLE DESTINATION PARTNERSHIP

This document provides resources and guidance to assist preparation of a business case for initiatives to reduce and recycle food waste in the hospitality sector.

01.

Business Drivers

A summary of business drivers which can provide both financial and non-financial benefits for improvements in food waste. This material can be utilized to explain the broader rationale for action.

02.

Calculating Business Case

Advice is also provided on steps to measure food waste and calculate costs and benefits.

Business Drivers

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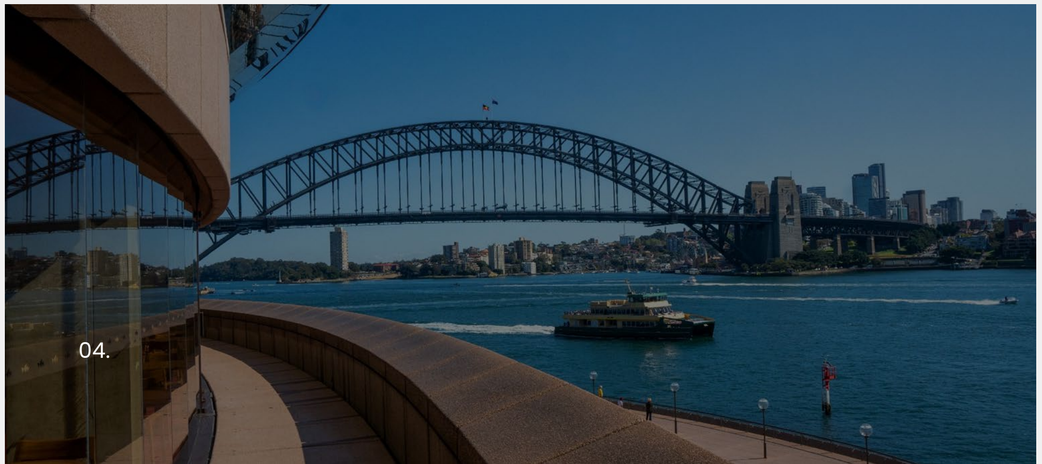
There are a wide range of business drivers that can be included in a Business Case for food waste actions. These will vary depending on the audience and the organization's commitment to delivering zero carbon targets. The following is not an exhaustive list, and with investor sentiment and legislation changing rapidly, it is recommended seeking out the latest information when preparing the business case.

01 **Climate and Environmental**

02 **Reputational and Branding**

03 **Regulatory**

04 **Costs**



Driver 1 | Climate and Environmental

Climate Change & Greenhouse Emissions

To minimize the risk of catastrophic climate change, Australia is party to international agreements to limit the average global temperature rise to below 1.5°C above pre-industrial levels. National Greenhouse and Energy Reporting suggests that in landfill, food organics will generate at least 2.1 tonnes of CO2e per tonne of food over a 100-year period. Food waste sent to landfill generates methane, which is at least 28 times more harmful than carbon dioxide in its global warming impact. It accounts for about 3% of Australia's greenhouse gas emissions.[1]

Programs to reduce food waste thus contribute to global efforts to minimize the dangerous impacts of climate change. Your organization may also soon be required to report your greenhouse gas emissions and your efforts to reduce them. (see Driver 3)

[1] https://www.dcceew.gov.au/environment/protection/waste/food-waste

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Fast action on methane to keep a 1.5°C future within reach

Global Methane Pledge

Methane is a powerful but short-lived climate pollutant that accounts for about half of the net rise in global average temperature since the pre-industrial era.

Rapidly reducing methane emissions from energy, agriculture, and waste can achieve near-term gains in our efforts in this decade for decisive action and is regarded as the single most effective strategy to keep the goal of limiting warming to 1.5˚C within reach while yielding co-benefits including improving public health and agricultural productivity.

https://www.globalmethanepledge.org/

Waste to Landfill

Sending waste to landfill is undesirable not only because it generates methane emissions, but because it uses significant areas of metropolitan or regional land for direct receipt of garbage or as buffer zones, thereby disqualifying these areas from use for agriculture, housing or industry.

Materials buried in landfill cannot be reused for manufacturing or for growing food. At our current rates of waste generation, the landfill sites servicing Greater Sydney are like to reach capacity within the next 10 to 15 years.[1]

Soil nutrition

When food waste is composted and returned to the soil it improves soil quality. It can support growth of food crops, the maintenance of grazing land and development of urban amenities like sports fields, gardens and bio-filtration systems for cleaning storm water run-off.

The NSW ***"Cool Compost"*** program provides information on the beneficial uses of food waste.[2]

[1] NSW Waste and Sustainable Materials Strategy 2041 p.11
[2] https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/food-organics-and-garden-organics/cool-compost

Driver 2 | Reputation and Branding

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Organisational Sustainability Targets

Over 95% of Australia's 100 largest ASX listed companies report of sustainability and smaller companies are increasingly adopting this trend.[1]

Government funded organizations such as galleries and museums need to follow state or federal policies on sustainability.

In joining the Sustainable Destination Partnership your organization has made a commitment to making Sydney a sustainable destination for local and international visitors. What sustainability targets or policies has your organization set through annual reporting and public commitments and who is responsible for delivering them? Setting targets to reduce food waste and increase organic recycling will contribute to these targets.

Customers

Corporate Clients – Purchasing decisions made by corporate clients reviewing options for accommodation and business functions may be influenced by information on organic recycling levels and initiatives to reduce food waste. Note that corporate customers may be required to measure and report on Scope 3 emissions under Australian Sustainability Reporting Standards.

Consumers – While private consumers awareness of food waste issues varies and segmentation of customers may be required to effectively target food waste projects, sensitivity to sustainability issues is increasing.

Note for example Australian Retailers Association research findings that Gen z consumers **(born after 1996)** *"care deeply about a company's ethical values, with over half buying sustainable products where possible. Brands with poor reputations around sustainability and ethics are seeing abandonment by Gen Z."* .[2]

[1] https://assets.kpmg.com/content/dam/kpmg/au/pdf/2024/australian-sustainability-reporting-trends-december-2023-update.pdf
[2] https://www.retail.org.au/retailinsightsreport/consumer-trends

Driver 2 | Reputation and Branding

Staff

Effective management of food waste and other sustainability initiatives can have a positive impact on staff motivation. In a recent survey of Australian hospitality staff by Flare HR, **53%** of respondents advised that their commitment and engagement to their job was impacted by company sustainability performance.[1] Staff can benefit through training in food waste management which assists them to operate more efficiently and to keep up with industry developments.

Community

Community representatives of the City of Sydney have set targets to achieve:

- net zero greenhouse gas emissions by 2035,
- a 15% reduction in waste generated by each person by 2030 compared to 2015 levels
- waste recycling rates of 90% by 2030.

[1] https://www.flarehr.com/benefits-index/hospitality

NSW Food Waste Mandates

The NSW Government is preparing for the introduction of legislation which will mandate that business operators in certain sectors separate and recycle food waste. Current proposals are that this legislation will include hospitality operations such as

- Food and drink premises
- Hotel or motel accommodation
- Registered clubs
- Premises with seating in a common food court for the consumption of food or drink bought at the premises

Start dates will be staggered based on residual bin capacity, so the largest waste generators will transition first:

- Premises with ≥3,800L of residual waste bin capacity to start on 1 July 2025.
- Premises with ≥1,900L of residual waste bin capacity to start on 1 July 2027.
- Premises with ≥660L of residual waste bin capacity to start on 1 July 2029.

For building complexes, the requirements will be placed on whoever is in charge of management and control of residual waste collection services ***(e.g. building complex owner, not individual tenants)***. The requirements that will need to be met include:

- Enough organics collection bins are provided for the collection of food waste
- Organic and non-organic waste must not be mixed during transportation.

Australian Government Sustainability Reporting Standards

For most businesses food waste emissions are ***"Scope 3"***, meaning they are indirectly caused outside business's immediate operations. The Australian Sustainability Reporting Standards **(AASB)** will require companies to disclose climate-related information, including climate governance, risks, opportunities, and emissions. Initially, companies will report on scope 1 and 2 emissions, with scope 3 added in the second year. They will also need to share emission reduction targets, metrics, and how climate issues influence their business strategy. The implementation will be in groups:

Group 1 : starts in January 2025 for large companies.

Group 2: starts in July 2026 for companies with 250+ employees, assets over $500m, or revenue above $200m.

Group 3: starts in July 2027 for companies with 100+ employees, assets over $25m, or revenue above $50m.

Companies below the threshold won't have to disclose climate-related information, but they should still anticipate some requirements from their supply chain. Therefore, all companies should start looking into this topic.

Driver 4 | Cost

True Cost of Food Waste

To calculate the “true cost” of food waste you should not only consider the cost of removing waste but also the materials, labour and energy which is invested in producing food which is thrown away.

Any actions which reduce the amount of wasted food can clearly save costs in materials. They may also save staff time in the preparation of meals, and they can save energy used to refrigerate excess materials or cook uneaten foods.

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Estimated total cost of food waste by activity

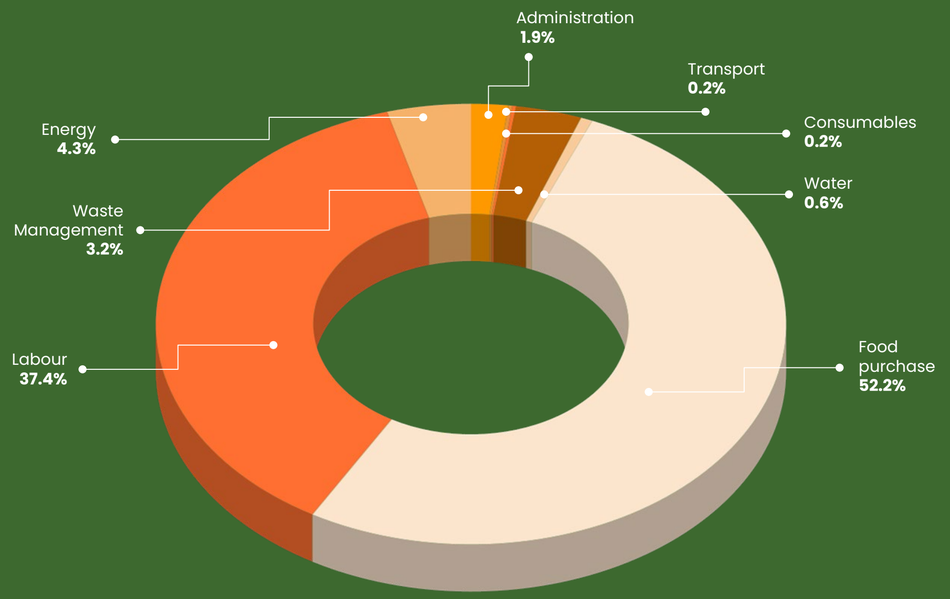

Figure 1: A breakdown of the total cost of food waste (avoidable and unavoidable) in 2011 by cost centre. Waste management makes a small amount of the cost but regulation is still driving action. (Source: Wrap UK https://bfff.co.uk/wp-content/uploads/2014/01/WRAP-Waste-in-the-UK-Hospitality-and-Food-Service-Sector-2012-Report.pdf)

Driver 4 | Cost

Workspace

Lack of space in busy commercial kitchens is often cited as a reason why sustainability measures cannot be introduced. However, this may be a question of organization rather than space when one considers that:

- Reducing the amount of food materials which go to waste will actually provide savings in space – both in storage and bin space.

- Even if total waste volumes are not reduced, waste volumes will remain the same and a system for separating and recycling food waste should require the same amount of bin volume. One general waste bin could be replaced by two bins half the size, occupying the same footprint in the kitchen with potential to reduce waste collection costs.

Equipment

Depending on the quantity of organic waste generated, cost savings may be achievable through installing equipment to pre-process organic waste on site, making it cheaper to collect for recycling. Equipment options include pulping and dehydration. Additional water and energy consumption required by these options needs to be factored into the case for deploying them.

Driver 4 | Cost

Waste Collection

Waste collectors disposing of general waste in Sydney are required to pay a landfill waste levy of $170.10 per tonne from 1 July 2024. This levy is the highest in Australia. It is imposed to encourage diversion of waste from landfill through waste avoidance and recycling.

The levy does not apply to separated organic waste so this material may be collected at more competitive rates and provide cost savings on waste bills.

Note that food waste is heavier than most other materials and may be adding a lot of weight, and therefore cost, to your waste bill.

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Landfill Levies

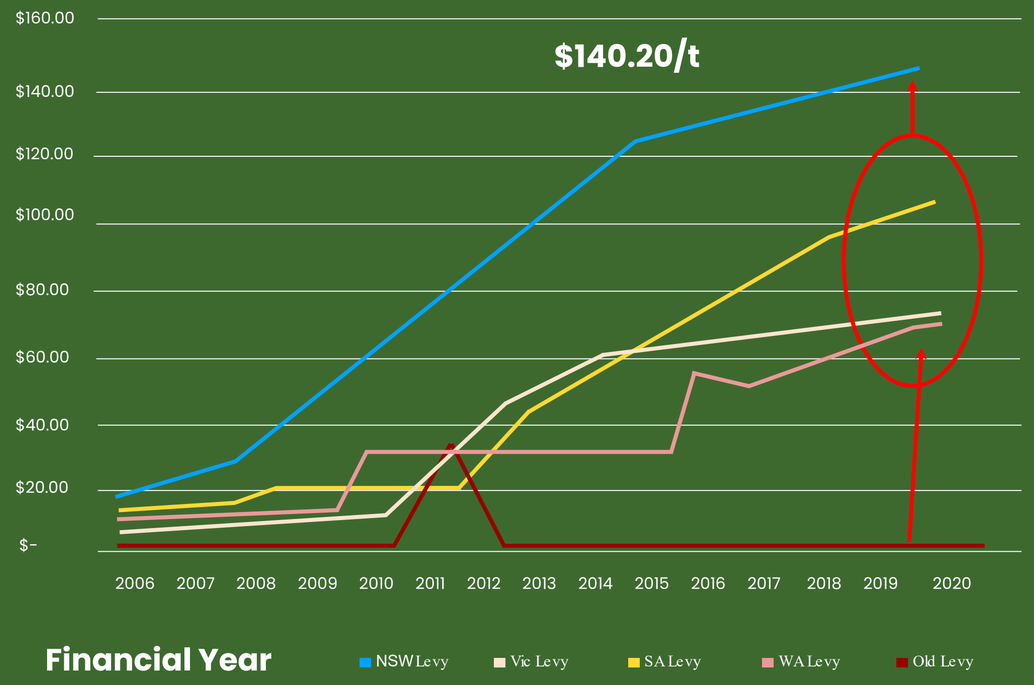

Figure 2: Shows how expensive the NSW Landfill levy is compared to other states. (Source MRA: https://mraconsulting.com.au/australian-waste-levies-something-needs-to-be-done/)

Calculating costs and benefits

The City of Sydney has calculated that businesses that invest in preventing food waste can expect an average return on investment of 14:1. [1]

Several approaches can be used to calculate the financial costs of food waste and the potential benefits of avoiding or recycling waste. The best approach may vary according to operational scale and nature of services. For organizations starting from a low knowledge base, it may be necessary to introduce measurement on a staged basis. The foundation of any approach to calculation is to measure the amount of food you are wasting.

[1] https://www.cityofsydney.nsw.gov.au/environmental-support-funding/love-food-sydney - Roadmap for Zero Food waste – Guide for Businesses.

Measuring Food Waste

Determining boundaries and categories for measurement

- Will your calculation be based across your whole organization, or are you able to determine how much waste is generated specifically from kitchen and food service areas? Note some food waste may go to bins in guest rooms or public place bins.
- Can you determine what % of waste from these areas is food waste?
- Can you categorize food waste according to functional areas such as events and buffets, process points such as storage, preparation and plate waste, or major food groups like proteins, fruit and vegetables, carbohydrates?

Methods for calculating food waste baseline

Audit

Separate and weigh food waste in total or by categories – e.g., storage, preparation and plate waste – over a few nights or a week to provide a representative sample of the weight of food waste you generate by relevant categories. [1]

Ongoing measurement

Set up ongoing systems to separate and measure food waste and log weights of waste, in total by categories.

Technology

For larger scale operations, assess the benefits of commercial food waste measurement systems with software and, AI photography for efficient capture and categorization of food waste. [2]

[1] https://www.lovefoodhatewaste.nsw.gov.au/food-waste-review
[2] For example Leanpath or Winnow

Waste collection data

Waste bills can provide a key source of data for calculating food waste quantities and disposal costs. Factors to consider include:

- Does your waste bill provide data on actual pickups by number and volume of bins, or by actual bin weights? Some bills may only report the number of bins in the dock rather than how many are actually emptied, and some weight data may be calculated by using an industry standard average bin weight, rather than actual weights.
- Conducting a physical audit of general waste bin contents and separating and weighing food waste will enable you to establish the percentage of your general waste which is food. You can then apply this percentage to your general waste billing data to estimate the annual quantity and collection costs for food waste.
- Setting up a food waste recycling bin collection and ensuring that all food waste is directed to this service provides a good way to measure food waste.
- You can measure the impact of initiatives to reduce food waste by tracking reductions in your general waste or organic waste collections.

Methods for calculating food waste baseline

Metrics

Determine the most relevant measurement units and ratios for reporting food waste, eg:

% of food wasted by weight and/or $ spend.

$ cost per kg for food waste disposal through general waste or recycling.

Food waste weight per cover.
Food waste costs by $ revenue.

Food waste as % of total waste.
Food waste recycling as % of total waste.

Measuring input cost

Ingredients

- What data do you hold on ingredient costs? Calculating ingredient costs is basic good food business practice and can be supported by a range of accounting and food service software tools. Tracking the costs of ingredients segregated by main service lines (eg buffet service, a la carte, events) or material types (eg proteins, carbohydrates, fruit and vegetables) is highly valuable for calculation of profitability and pricing for different meals and activities. This data also provides a basis for calculating the cost of food waste.
- When calculating the cost of plate waste, consider whether customers actually want to purchase food which they do not consume, or whether they would pay the same price for the amount of food they actually eat.

Labour

- Leading UK food waste research group WRAP has calculated that the labour associated with the preparation and cooking of food by kitchen and catering assistants, chefs and cooks etc. **represented 37% of the true cost of wasted food.** [1]

- The labour savings which can be achieved from food waste improvement are highly dependent on the specific initiatives proposed, so team member involvement in estimating impacts on work time and developing innovation is essential.

[1] The True Cost of Food Waste within Hospitality and Food Service, WRAP, p53

Measuring input cost

Waste collection

- Use your waste bills to calculate the cost per kg for removal of food waste. Unless the bill records actual bin weights, you will need to use standard densities advised by your waste contractor or sources such as NABERS Waste[1] – which may not be accurate - or conduct a density audit by weighing the net contents of your bins.

- If you have calculated your cost per kg for removal of food waste and have a good estimation of the weight of your food waste annually, you can estimate the waste collection cost savings which can be achieved by reducing food waste or changing to cheaper collection options, such as organic recycling collection or pre-processing of food waste for recycling collection.

[1] https://www.nabers.gov.au/sites/default/files/2022-11/Waste%20Technical%20Ratings%20Rules.pdf p67 – densities of 105kg per M3 for general waste and 280kg per M3 for organic recycling are applied.

Energy and Water

- UK food waste research group WRAP has calculated that energy and water associated with the preparation and cooking of food by kitchen and catering assistants, chefs and cooks etc. **represented 5% of the true cost of wasted food.**

- If your organization has conducted energy and water efficiency audits, these studies may provide insights into utility costs and the energy consumption of different equipment types – eg refrigeration or baking ovens. This data could be useful to estimate potential savings which could be achieved by reduction in food waste.

- If you are proposing installation of waste processing equipment the energy and water consumption of the equipment should be considered.

Waste Processing Equipment

- If you have calculated your current cost per kg for removal of food waste and have a good estimation of the weight of your food waste annually, you can estimate the waste collection cost savings which can be achieved by installing equipment such as pulpers or dehydrators which pre-process food waste for recycling collection.

- To calculate Net Savings, include equipment rental or purchase costs, maintenance and service fees, fees for removal of pulp or residual waste and additional water or energy costs necessary for operation of the unit.

- Note that this equipment may also save space required for organic or general waste bins and manage WHS issues such as waste odour and vermin.

Calculating Environmental Benefits

- To include an estimation of the Scope 3 emissions savings and greenhouse benefits which projects to reduce food waste can achieve, you can convert tons of food waste to CO2e using Australian National Greenhouse Accounts Factors.

- These Factors estimate that on average, 1 ton of food waste generates greenhouse gas emissions of 2.1 tons of CO2eTh.

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Table 1: Emission factors to be used if food waste weight (or volume) is known

Emissions from solid waste disposal to landfill

Waste type	Scope 3 emission factor (t CO_2-e/t)	Volume to mass conversion factor (t/m_3)
Food	2.1	0.50

Table 15 waste mix methane conversion factors and emission factors.

Table 2: Those who do not know the composition of their waste can use weighted average

Emission factors for the municipal, commercial and industrial waste categories

Waste stream	Scope 3 emission factor (t CO2-e/t)	Volume to mass conversion factor (t/m3)
Municipal solid waste	1.6	0.36

Table 16 indirect (scope 3) waste emission factors for total waste disposed to landfill by broad waste stream category.

Australian National Greenhouse Accounts Factors, 2023 (pages 33 and 34) <https://www.dcceew.gov.au/sites/default/files/documents/national-greenhouse-account-factors-2023.pdf.

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Guidance for preparing business cases