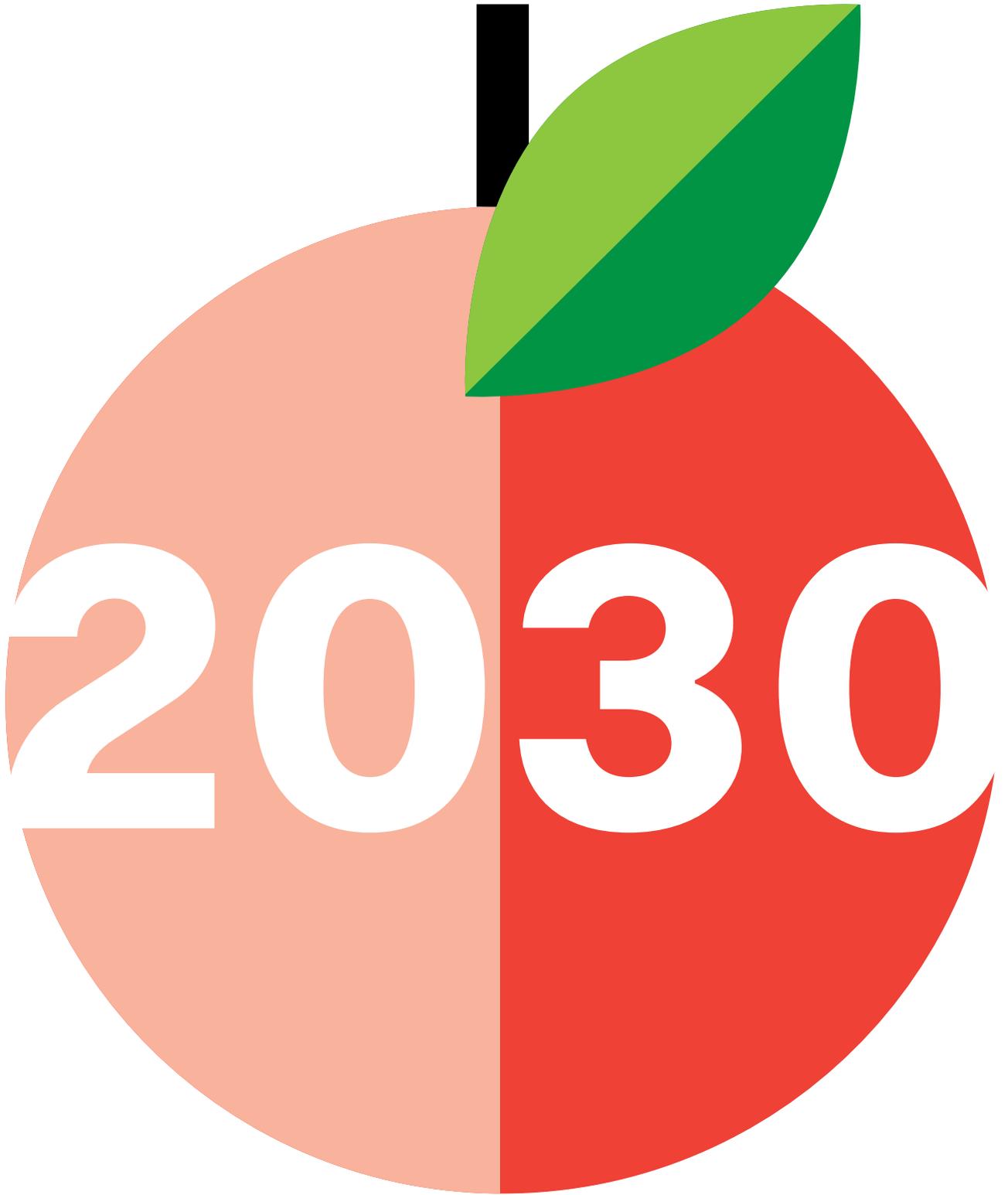


**A Roadmap for  
reducing Australia's  
food waste by half by 2030**





# Foreword

Halving Australia's food waste by 2030 is the target of the *National Food Waste Strategy*. Food Innovation Australia Limited (FIAL) has been contracted by the Australian Government to work with stakeholders across the food value chain to identify how to make this happen.

This Roadmap establishes a vision for moving forward, recognising the challenges of our current situation across the nation and along the food value chain. While work is already underway in many sectors, there are opportunities to improve coordination through robust governance, reporting against a balanced scorecard and better understanding the overall feasibility of achieving a 50% reduction by 2030.

I would like to acknowledge the commitment and contributions from the National Food Waste Steering Committee members:

- » AgriFutures Australia
- » Australian Food and Grocery Council
- » Australian Hotels Association
- » Australian Institute of Packaging
- » Australian Retailers Association
- » Centre for Supply Chain and Logistics, Deakin University
- » CSIRO
- » Fight Food Waste Cooperative Research Centre
- » OzHarvest
- » National Farmers' Federation
- » National Waste and Recycling Industry Council
- » Australian Food Cold Chain Council
- » Council of Rural Research and Development Corporations

State and Territory Governments, the Australian Local Government Association and food rescue and relief organisations have also made valuable contributions to the development of this Roadmap.

These consultations show there is real promise in increasing awareness and changing behaviour through communication, engagement and working together across the food value chain.

A Voluntary Commitment Program is a powerful vehicle for reducing food waste across the supply chain; from retail, hospitality, food service organisations, to suppliers. An effective Voluntary Commitment Program that has been implemented internationally has been found to reduce food waste by up to 28%. FIAL is currently developing a Voluntary Commitment Program for Australia.

The first of a number of targeted sector action plans has been drafted with more scheduled in 2020. These plans take a 'whole-of-sector' systems perspective to identify opportunities and target interventions that maximise food recovery, reduce waste and create multiple benefits.

Everyone has a role to play in reducing food waste and now is the time to take action. We hope you will join us on the path to halving food waste by 2030.

**Dr Michele Allan—**  
CHAIR FOOD INNOVATION AUSTRALIA LIMITED



**Everyone has  
a role to play in  
reducing food waste  
and now is the time  
to take action.**

# Vision

# Halve food waste

## Purpose

This Roadmap provides a clear path forward to halve food waste in Australia by 2030. The Roadmap documents the main steps and initiatives required and recognises the significant contributions of governments and the private sector to date. Further commitment, collaboration and funding is required if we are to achieve this ambitious target. All levels of government, industry and key stakeholders, such as the food rescue and relief sector and industry associations, have a role to play.





# by 2030

**1. Move food waste and surplus food up the food recovery hierarchy**

**2. Reduce the generation of food waste by maximising the value of water, energy, labour and other resources required for food production.**

**3. Maximise societal benefit**

- » Facilitate food rescue and relief
- » Make wasting food socially unacceptable

**4. Reduce the environmental impacts of**

- » Food production
- » Food consumption
- » Waste management



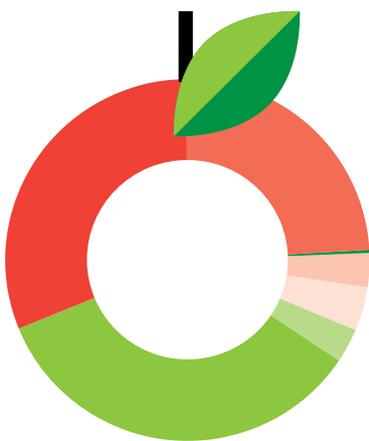
# Situational snapshot

## 7.3m tonnes per year

### Food waste by value chain sector<sup>1</sup>

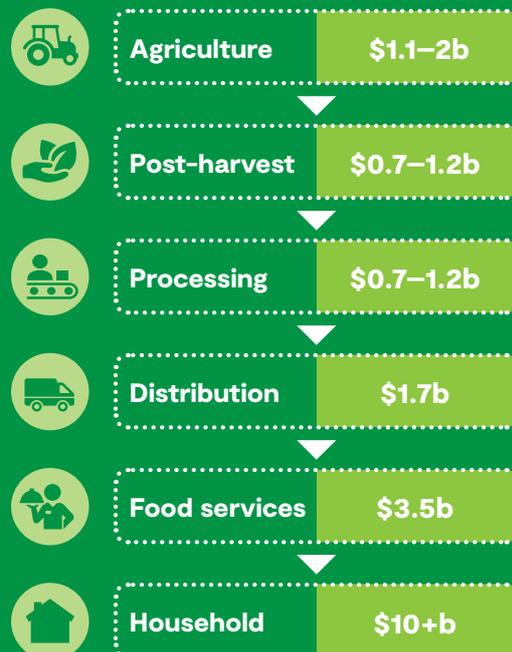


### FOOD WASTE PER ANNUM (%)<sup>1</sup>

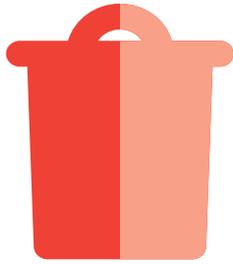


### FOOD WASTE PER ANNUM (DOLLARS)<sup>2</sup>

# \$20 billion



## Quantifying food waste in Australia



**\$2,200–3,800  
PER HOUSEHOLD<sup>3</sup>**

**298 KG/PER CAPITA<sup>1</sup>**

## Environmental impact



**475 litres  
per person  
per day**

AMOUNT OF IRRIGATION WATER REQUIRED TO PRODUCE VEGETABLES IN MELBOURNE IN 2016<sup>4</sup>



**7.6m  
tonnes**

OF CO<sub>2</sub>e GENERATED FROM FOOD WASTE DISPOSED IN 2014–15 OVER THE LIFE OF ITS DECAY.\*<sup>3</sup>

\* International research has shown that these 'end-of-life' emissions form only a part of the larger overall food chain emissions embedded in food wasted during production, logistics, processing and manufacturing, retail or hospitality and food service and household consumption

## Foodbank 2019 Hunger Report<sup>5</sup>—Key findings



MORE THAN 5 MILLION AUSTRALIANS EXPERIENCED FOOD INSECURITY IN THE PAST 12 MONTHS



22% INCREASE IN PEOPLE SEEKING RELIEF FROM CHARITIES



WOMEN ARE 50% MORE LIKELY TO BE FOOD INSECURE THAN MEN



FOOD INSECURITY CAUSES A DECLINE IN MENTAL HEALTH

## Behaviour change campaigns and Research



<sup>1</sup> Arcadis. (2019). National Food Waste Baseline Study.

<sup>2</sup> Fight Food Waste CRC estimate

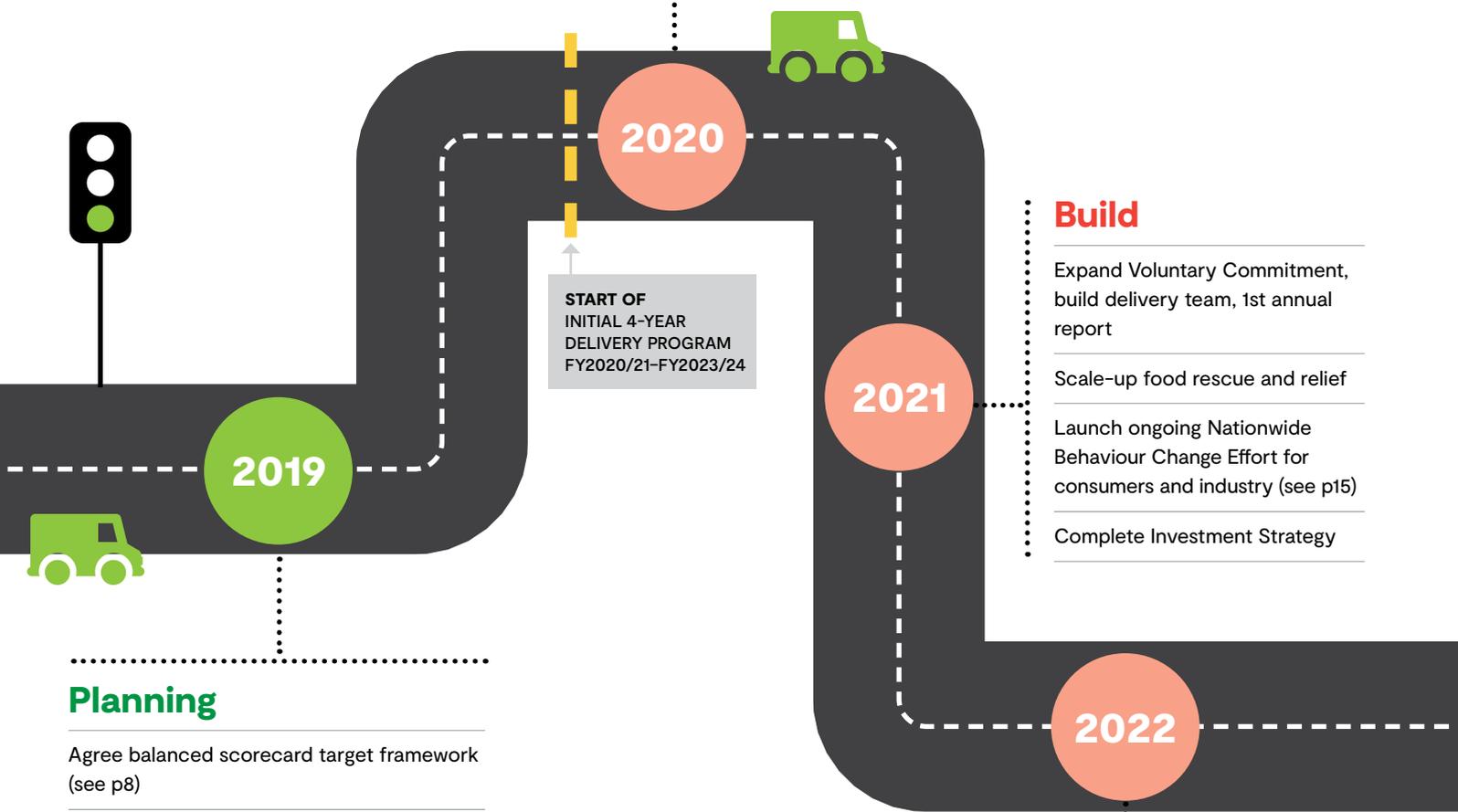
<sup>3</sup> Australia, Commonwealth of. (2017). *National Food Waste Strategy: Halving Australia's Food Waste by 2030*. Canberra: Commonwealth of Australia.

<sup>4</sup> Melbourne, U. (2016). Infographic: how much water we eat. Retrieved from <https://research.unimelb.edu.au/foodprint-melbourne/publications/how-much-water-is-needed-to-grow-melbournes-food>

<sup>5</sup> Foodbank. (2019). *Foodbank Hunger Report 2019*.

# The Roadmap: proposed timeline, activities and milestones

As can be seen from the Roadmap, there are some critical building blocks that need to be put in place over the next 18 months to ensure the successful delivery of the Strategy. These are highlighted and described in the following sections.



## Initiation and evidence

- Initiate and complete feasibility study (see p9)
- Set and buy into delivery trajectory to 2030.
- Agree 2023 interim targets (see p9)
- Confirm program funding to end FY2023
- Set-up governance entity framework, implement Sector Action Plans (see p8)
- Build data gathering and analysis platform
- Launch Phase 1 Voluntary Commitment

## Build

- Expand Voluntary Commitment, build delivery team, 1st annual report
- Scale-up food rescue and relief
- Launch ongoing Nationwide Behaviour Change Effort for consumers and industry (see p15)
- Complete Investment Strategy

## Planning

- Agree balanced scorecard target framework (see p8)
- Design Voluntary Commitment (see p12)
- Initial investment needs analysis (see p9)
- Set consumer behavioural baseline (see p14)
- Complete NFWS Roadmap

## Review and refine

- Re-apply baseline methodology
- Prioritise and scale successful programs
- Identify and fill gaps in activity
- Agree Phase 2 Voluntary Commitment targets and activities
- New Voluntary Commitment/Sector Action Plans
- Mainstream Fight Food Waste CRC research findings

## Mid-way point

Assess progress against baseline and trajectory

Highlight key success stories

Mid-term adaptive management

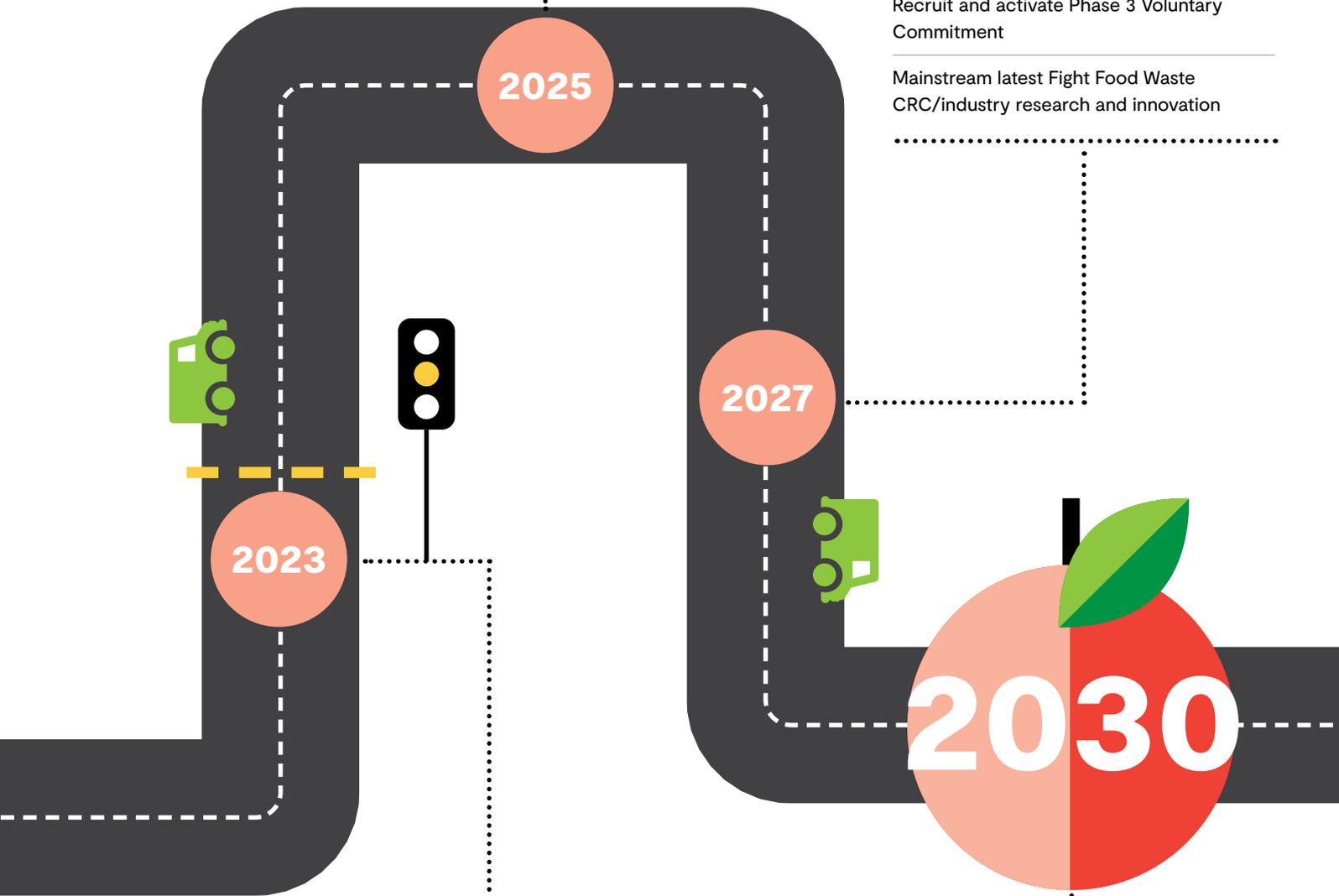
## The final push

Re-apply baseline methodology

Phase 2 Voluntary Commitment results reporting and case studies

Recruit and activate Phase 3 Voluntary Commitment

Mainstream latest Fight Food Waste CRC/industry research and innovation



2023

2025

2027

2030

## Extend

Draft and agree investment case to 2028–30

Phase 1 Voluntary Commitment results reporting and case studies

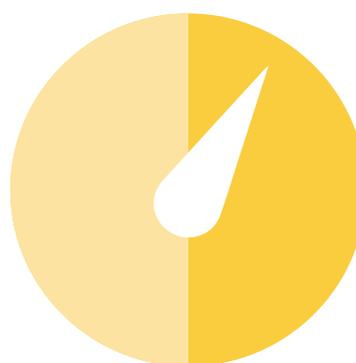
Recruit and activate Phase 2 Voluntary Commitment

## Complete

Final evaluation and reporting against national target framework and UN SDG Target 12.3

# Setting up for success:

**These foundational initiatives are required in early 2020 to enable Australia to meet its commitment to reduce food waste by half by 2030.**



## 1. Structuring for success

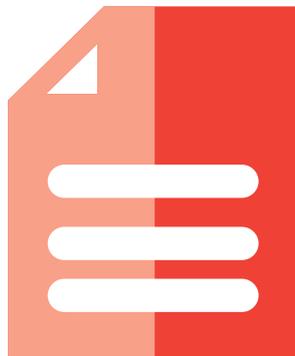
Stakeholders agree on the importance of **establishing a longer-term governance entity** to lead ongoing delivery of the Strategy, including the Voluntary Commitment Program, and Sector Action Plans; and to drive the sort of collaborations and innovation required to deliver the target.

- » International experience and feedback from Australian stakeholders suggest that the establishment of a third party, independent governance entity, sitting between governments, industry and other key stakeholders, is required to provide the credibility to deliver such an ambitious target in a relatively short timeframe.
- » Any entity must be sufficiently resourced, capable of building trust amongst stakeholders, agile and empowered to deliver the National Food Waste Strategy.
- » It must also be constituted in a way that allows for all key stakeholders to be suitably represented.

## 2. Measuring progress

One important role for the governance entity is reporting, initially by adopting a **balanced scorecard** approach to track progress on implementation by:

- » Agreeing metrics to be tracked at each level of the food recovery hierarchy
- » Agreeing interim targets against selected metrics where sufficient data is available
- » Recognising credit for early action at the same time as maintaining momentum.
- » Allowing for a rebalancing of activity to move food/ food waste up the food recovery hierarchy over time.



### 3. Feasibility study

Our analysis to date identifies the crucial requirement for a targeted national food waste **feasibility study** to:

- » Fill significant data gaps emergent in the National Food Waste Baseline Report<sup>1</sup>
- » Provide insights about where the food waste ‘hotspots’ are and what solutions are available to reduce them.
- » Understand likely delivery trajectories for food waste recovery and reduction to 2030; using different scenarios to determine the overall feasibility of delivering a 50% reduction target and the required investment case under each scenario. Critical to this is understanding the impact of alternative definitions of food waste on our ability to deliver the target; and the policy levers and business actions required.
- » Form the basis for a future evidence-based food waste policy review.

<sup>1</sup> Arcadis. (2019). National Food Waste Baseline Study.



### 4. Further investment is required

To ensure adequate long-term funding until 2030 an **investment strategy** is required. The commissioning body would be the governance entity in conjunction with key stakeholders across the food value chain. This study will be informed by the outputs of the feasibility study and recommendations from the Sector Action Plans for Food Rescue and Relief and for improving the efficiency of the cold chain.

# Partnerships and collaboration



## ■ Australian Government

Signatory to Sustainable Development Goals including SDG Target 12.3  
Responsible for national coordination and policy settings

## ■ States and Territories

Environment Ministers have committed to the National Food Waste Strategy target of halving food waste by 2030  
State and Territories support business, community and industry to halve food waste through a range of initiatives including behaviour education campaigns, research, infrastructure and other programs.  
Responsible for state coordination and policy settings, including contributing to halving the amount of organic waste to landfill.

## ■ Local Governments

Front line in waste management  
Implementing programs to reduce organics to landfill  
Working with communities to reduce food waste

## ■ Industries

Primary audience for Voluntary Commitment Program  
Opportunity for cost-savings, business improvement and market development

## ■ Households

Over 1/3 of food waste occurs at household level with most going to landfill  
Opportunity to raise awareness for behaviour change

## ■ Transport and logistics

Key opportunity for reducing food loss and waste  
An effective cold chain is fundamental to maintaining shelf-life

## ■ Primary production

Sector is widely spread across production systems and regional diversity  
Opportunities to improve crop utilisation and quality, and increase food recovery through industry bodies

## ■ Researchers

Identifying knowledge gaps and opportunities for improvement  
Collaborating with industries on improvements  
Critical to better understand and drive behaviour change

## ■ Food rescue and relief sector

Increasing food rescue and relief is a key element of the Roadmap's vision  
Supporting the food rescue and relief sector action plan

## ■ Retailers, hospitality and food service companies

Key sectors as they set standards, deal directly with consumers and manage a wide range of food products every day

## ■ Industry Associations

Important channel for messaging and feedback to test policy options and provide advocacy

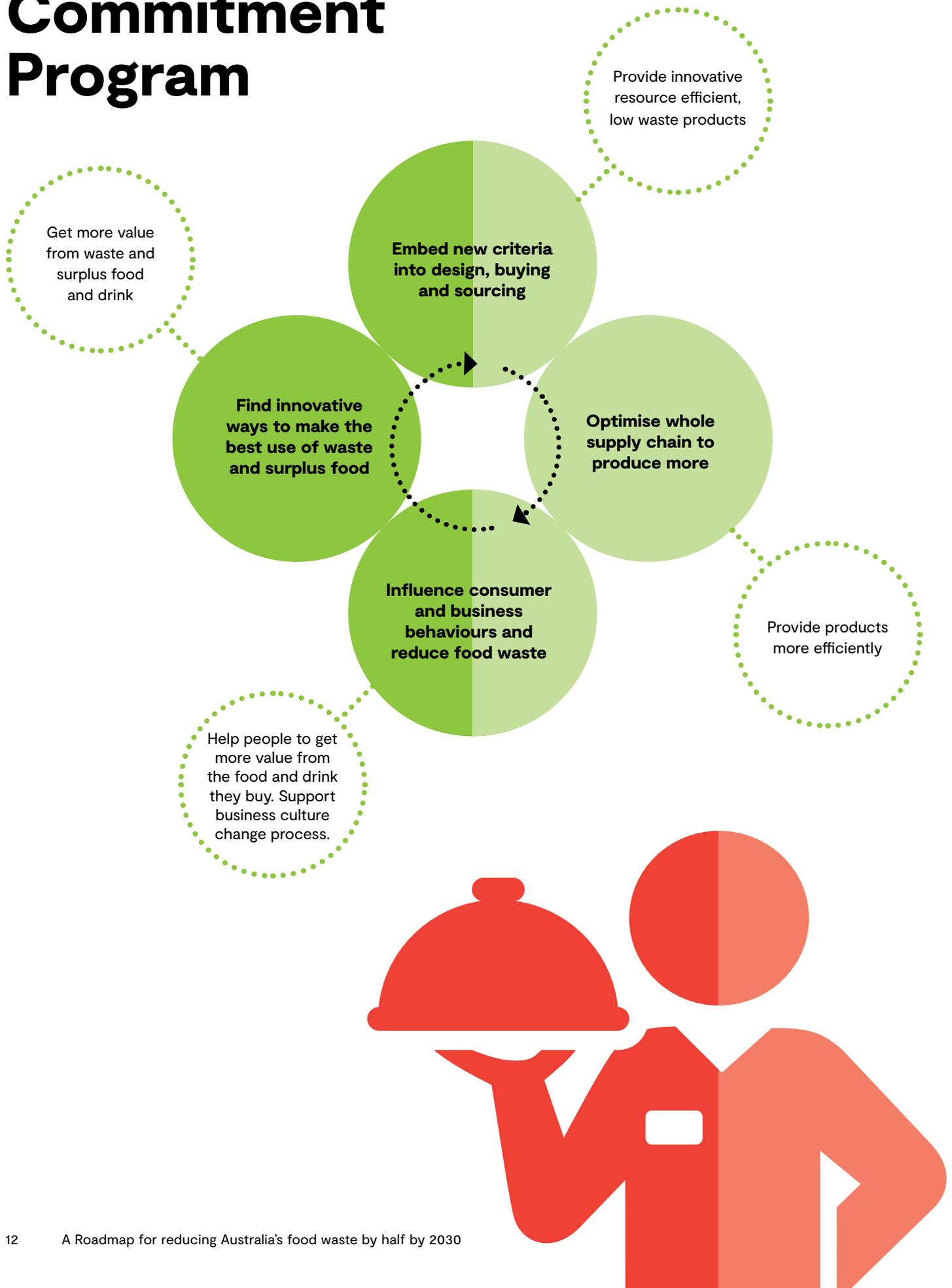
# Matching interventions to sectors

Food value chain	Cross-Sector action plans	Focus of Voluntary Commitment program	Current State, Territory and Local Government programs
 PRIMARY PRODUCTION			
 MANUFACTURING	   		
 WHOLESALE	   		
 RETAIL	   		
 HOSPITALITY	   		
 INSTITUTIONS	   		
 HOUSEHOLDS			

For specific information on the priorities and programs of specific States, Territories and Local Governments see their websites.

 Focus 
  Some activity 
  Food Rescue Sector 
  Cold chain transport

# Voluntary Commitment Program



# 80%

of the environmental impacts of products and services are determined in the early design stages

A tried and tested implementation vehicle to reduce food waste is to establish a Voluntary Commitment Program. For example, in the UK, the first 10 years of WRAP's Courtauld Commitment reduced avoidable food waste by 28%, saving consumers and food businesses \$12 billion and reducing GHG emissions by 11Mt CO<sub>2</sub>e emissions. The business case for action is strong, with a global average return on investment for food waste prevention initiatives of 14:1. By joining the program, signatories pledge to:

- » Collaborate and create new partnerships to innovate and drive change in a safe, pre-competitive environment;
- » Set targets and quantify their food waste;
- » Agree future activities to reduce food waste;
- » Maximise the potential to donate surplus food to food rescue and relief organisations; and
- » Explore the potential to create new value from co-products derived from food waste streams.

This **Target, Measure, Act** approach has been successful all over the world in helping agri-food businesses to better understand and reduce their food waste; at the same time as supporting the delivery of the policy and strategy objectives of national governments, local government and NGOs.

Signatories report on progress against an agreed program of actions in reducing their food waste. This transparent monitoring and reporting against agreed individual and collective actions provides much needed evidence to track and report progress against collective food waste reduction targets and a trajectory to be agreed with signatory organisations.

Signatories to the Voluntary Commitment Program will receive support from an expert implementation support team, who will work alongside their own teams to establish the food waste reduction activities that form part of each organisation's implementation plan. They will also be encouraged to work with relevant state-based and local government programs where these exist. Signatories will also benefit from the research done by others and the tools and resources developed as part of this pre-competitive program. They are free to mainstream the findings from pilot projects in their own operations and value chains and promote their own efforts and those of partners in the market.

- » **80%** of the environmental impacts of products and services are determined in the early design stages<sup>1</sup>
- » **Changes in commercial supply practices** can improve food value chain resource efficiency by up to **25%**
- » **Whole chain resource efficiency** projects can unlock significant additional value for food value chains (e.g. **5-25%** increases in crop/livestock utilisation)
- » **Changing behaviours** in Australian homes and businesses can deliver significant waste savings (circa **25-40%** from experience in other countries)
- » **A 10-fold increase in the food rescue and relief sector** could deliver **10%** of Australia's 50% food waste reduction target by 2030, if critical barriers, like tax reform and infrastructure funding, can be unlocked.
- » **Valorisation of food waste streams** can lead to the creation of new co-products for the food industry and other sectors of the economy

# 28%

of the UK's avoidable foodwaste reduced in 10 years through WRAP's Courtauld Commitment

<sup>1</sup> Industrial Ecology, by T. E. Graedel, and B. R. Allenby. Englewood Cliffs, NJ: Prentice Hall, 1995)

# Sector action plans

A range of sectors and product categories make up the food value chain. Sector action plans are an opportunity to target interventions to reduce food loss and waste, while realising multiple benefits for supply chain partners and collaborators. Sector action plans are well placed to embody food systems thinking and a circular economy approach.



Understand  
the sector as a  
system

Implement and  
measure progress

Develop an  
implementation  
plan

Co-design future  
initiatives

Review existing  
programs

# Nationwide behaviour change effort

## What's required to deliver an effective behaviour change effort?

- » Highly active multi-actor campaigning
- » Consistency, repetition and amplification of messages
- » Positive reinforcement of behaviour change
- » Identification, testing and scaling of interventions

In Australia households create one third of food waste, 92% of which goes to landfill; and a quarter of all food waste is generated by food businesses. International research on changing the behaviour of households indicates a national household and industry behaviour change effort is essential to raise awareness, develop capacity and showcase opportunities to reduce waste. Recent findings from the Fight Food Waste CRC Household Food Waste Behaviour Baseline (2019) show 76% of Australian's are motivated to reduce food waste, however 44% report making extra food 'just in case' and less than half use leftovers (47%). Therefore a nationwide behaviour change effort is vital to raise awareness of food waste and change behaviours to reduce it.



UNDERSTAND  
BEHAVIOURS



IDENTIFY  
BEHAVIOURAL  
INTERVENTIONS



WORK WITH  
INDUSTRY  
TO DEVELOP  
AND PILOT  
INTERVENTIONS



REFINE, ROLL OUT  
AND MONITOR  
INTERVENTIONS

# Research

Solutions to reducing food waste in all parts of the supply and consumption chain need additional research. The Fight Food Waste Cooperative Research Centre (FFW CRC) has been established with support from the Australian Government to provide solutions to reduce food waste throughout the food value chain, transform unavoidable waste into innovative high value co-products and to engage with industry and consumers to raise awareness and deliver behaviour change.

Research on food waste and recovery is also being conducted by CSIRO, such as the national analysis of fruit and vegetable losses pre-retail and pre-feasibility studies for regional food processing hubs and co-creation of vegetable waste value-adding ventures.

# Next steps

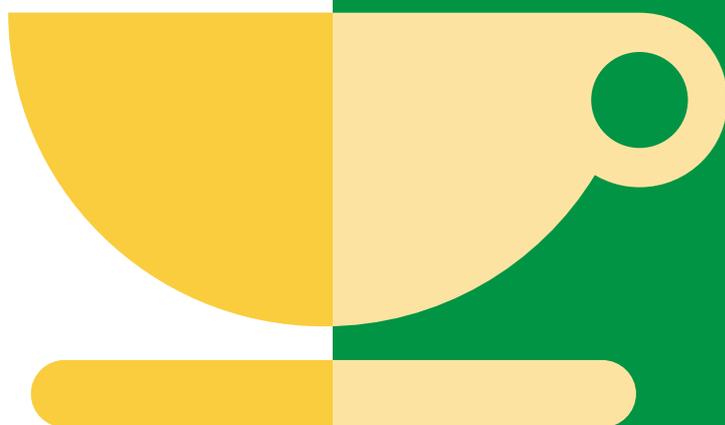
FIAL, through its many stakeholder consultations, has identified what is required to halve Australia's food waste by 2030.

Now is the time for governments, business and industry to work with key stakeholders in the agri-food value chain to put in place the initial measures to:

- » Establish an ongoing governance entity
- » Agree the basis for targets in the balanced scorecard
- » Examine the overall feasibility of delivering the target
- » Identify food waste hotspots for further action
- » Fully understand the investment required to meet the target for 2030.

These initiatives need to commence in early 2020 to maintain momentum and initiate action at the earliest opportunity.

Until June 2020 FIAL will continue to work with stakeholders to develop the Voluntary Commitment Program, co-design sector action plans with key sectors across the food value chain and support the other initiatives described in this Roadmap.





# FIAL

Food Innovation Australia<sup>Ltd</sup>

Food Innovation Australia Ltd. (ABN 50 164 124 609) make no express or implied guarantees, representations or warranties in relation to the strategies, material or information provided. Readers should not act solely on the basis of *A Roadmap for reducing Australia's food waste by half by 2030* (which includes generalised strategies) and should consider other factors including those specifically relevant to individual circumstances before implementing or using any of the Strategies.

Any questions, queries about specific references and suggestions on *A Roadmap for reducing Australia's food waste by half by 2030*, Food Innovation Australia Limited (2019) should be addressed to FIAL at [foodwaste@fial.com.au](mailto:foodwaste@fial.com.au).

The implementation of the National Food Waste Strategy is supported through funding from the Australian Government.

