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2023-24
Budget

Next steps for the ACT Food Organics and Garden Organics (FOGO) Facility (TCCS C06)

The table below reflects the agreement by Cabinet and published figures in the 23-24 Budget, Budget Outlook publication.

(these figures may differ from the below business case due to a Cabinet decision (ie a reduction in scope, or varied funding, etc)

Next steps for the ACT Food Organics and Garden Organics (FOGO) Facility (TCCS C06)

	2023-24 \$'000	2024-25 \$'000	2025-26 \$'000	2026-27 \$'000	Total \$'000
Capital					
Capital – Provision		NFP	NFP	NFP	NFP
Offset – Capital					
Offset – Capital – Provision	NFP	NFP	NFP	NFP	NFP
Net capital	NFP	NFP	NFP	NFP	NFP
Depreciation					
Expenses					
Offset – Revenue					
Net cost of services					

The Government will deliver an industrial scale waste recovery facility to process food organic and garden organic (FOGO) waste to produce a clean, high-quality compost for re-use. This will be partially funded through the Commonwealth Government’s Food Waste for Healthy Soils Fund.

The Government will also extend the existing FOGO waste collection pilot arrangement for a further two years to October 2025. The funding will be fully offset from existing funding and other Government waste related revenues.

This initiative builds on recent Government actions in this area, including the 2021-22 Budget initiative *Food organics and garden organics – household waste trial*.

This initiative contributes to the wellbeing domains of Environment and climate and Economy.

Key Points

- This initiative includes:
 - TCCS C06a ACT FOGO facility; and
 - TCCS C06b Continuation of the FOGO Pilot.

FOGO facility

Depreciation	-	1	3	4	8
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☐ Culturally and linguistically diverse people

☐ Children and young people

☐ Aboriginal and Torres Strait Islander Peoples

☐ People with disability

Priority alignment: (Multiple categories can be ticked)

☐ PAGA Appendix 1 or 2 item

☐ Other Election commitment

☐ *National Agreement on Closing the Gap*

☐ *ACT Aboriginal and Torres Strait Islander Agreement 2019-2028*

☐ Housing

☐ Mental health

☐ Early years

☐ Women and/or the *ACT Women's Plan 2016-2026*

Electorate: All

Funding category: Expansion

Existing program(s): TCCS2021-22-0032-C-Household waste collection

Year to cease funding or ongoing: ongoing

Link to Budget consultation: Free text. Yes/No. Enter whether the proposal is linked to Budget consultation, and if so, which submission(s) it is linked to.

Contact officer: Jordan Pye

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Option 1: Expand the pilot to include an additional 6,000 households in suburbs in the Belconnen region

Financial Impacts Summary (Preferred Option)	2023-24 \$'000	2024-25 \$'000	2025-26 \$'000	2026-27 \$'000	Total \$'000
Capital Impacts					
Capital injection	142	35	14	-	191
Capital inflows	-	-	-	-	-
Capital - Offset – Existing provision ^(a)	-	-	-	-	-
New capital provision	-	-	-	-	-
MPC fee – resources received free of charge (if applicable) ^(b)	-	-	-	-	-
Expense Impacts					
Expense	1,989	2,824	1,025	-	5,838
Expense – Offsets ^(c)	-	-	-	-	-
Expense – Offsets – Existing provision ^(a)	-	-	-	-	-
New expense provision	-	-	-	-	-
Depreciation	-	-	-	-	-
Revenue ^(d)	-	-	-	-	-
Commonwealth contribution	-	-	-	-	-
Savings	-	-	-	-	-
Staffing Impact^(e)	2023-24	2024-25	2025-26	2026-27	
Total Additional FTEs (number)	1	1	1		

(a) Please identify the title of the existing provision.

(b) Please refer to Treasury Memoranda (Memo 2022/05) for additional details as to how MPC-related fees should be incorporated. Should not be applied to ICT or to designated major projects.

(c) Please refer to 'Identifying genuine savings' in the 2023-24 Budget Process Rules for what constitutes a genuine offset.

(d) A positive number here indicates a proposal that is increasing the revenue collected by government.
A negative number here indicated a proposal which is reducing the amount of revenue collected by government.

(e) All initiatives seeking additional FTEs will require a recruitment strategy to be completed, refer to section 6 of the business case.

Breakdown of capital injection	2023-24 \$'000	2024-25 \$'000	2025-26 \$'000	2026-27 \$'000	Total \$'000
<i>Delivery of New MGBs</i>	122	-	-		122
<i>Replacing Broken assets (FOGO bins and Caddy's)</i>	20	35	14		69
TOTAL	142	35	14		191

Breakdown of Expenses	2023-24 \$'000	2024-25 \$'000	2025-26 \$'000	2026-27 \$'000	Total \$'000
Employee expenses	122	126	44	0	292
Other (further details in Table 3)	1,867	2,698	981		5,546
TOTAL	1,989	2824	1,025	0	5,838

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Option 3: Continue the pilot under the current collection model in the four suburbs for two further years within the term of the current contract arrangements.

Financial Impacts Summary	2023-24 \$'000	2024-25 \$'000	2025-26 \$'000	2026-27 \$'000	Total \$'000
Capital Impacts					
Capital injection	7	13	5	-	25
Capital inflows	-	-	-	-	-
Capital - Offset – Existing provision ^(a)	-	-	-	-	-
New capital provision	-	-	-	-	-
MPC fee – resources received free of charge (if applicable) ^(b)	-	-	-	-	-
Expense Impacts					
Expense	742	1,202	461	-	2,405
Expense – Offsets ^(c)	-	-	-	-	-
Expense – Offsets – Existing provision ^(a)	-	-	-	-	-
New expense provision	-	-	-	-	-
Depreciation	-	-	-	-	-
Revenue ^(d)	-	-	-	-	-
Commonwealth contribution	-	-	-	-	-
Savings	-	-	-	-	-
Staffing Impact^(e)	2023-24	2024-25	2025-26	2026-27	
Total Additional FTEs (number)	-	-	-	-	-

Please identify the title of the existing provision.

(b) Please refer to Treasury Memoranda (Memo 2022/05) for additional details as to how MPC-related fees should be incorporated. Should not be applied to ICT or to designated major projects.

(c) Please refer to 'Identifying genuine savings' in the *2023-24 Budget Process Rules* for what constitutes a genuine offset.

(d) A positive number here indicates a proposal that is increasing the revenue collected by government.
A negative number here indicated a proposal which is reducing the amount of revenue collected by government.

(e) All initiatives seeking additional FTEs will require a recruitment strategy to be completed, refer to section 6 of the business case.

Breakdown of capital injection	2023-24 \$'000	2024-25 \$'000	2025-26 \$'000	2026-27 \$'000	Total \$'000
<i>Delivery of New MGBs</i>	-	-	-		
<i>Replacing Broken assets (FOGO bins and Caddy's)</i>	7	13	5		25
TOTAL	7	13	5		25

Breakdown of Expenses	2023-24 \$'000	2024-25 \$'000	2025-26 \$'000	2026-27 \$'000	Total \$'000
Employee expenses	-	-	-	0	-
Other (further details in Table 7)	742	1,202	461	0	2,405
TOTAL	742	1,202	461	0	2,405

1. Problem statement – define the problem and provide evidence

FOGO: Meeting organic waste commitments for emissions reduction and resource recovery

Kerbside bin audits conducted in 2014 found that food waste makes up 37% of the waste disposed to landfill by ACT households, while garden waste makes up a further 10%. When disposed to landfill, food organics and garden organics (FOGO) break down and releases methane, a greenhouse gas which is 28 times more potent than CO₂. Methane emissions are only partially controlled by the landfill gas capture systems at the Mugga Lane landfill. This means food and garden waste diversion from landfill is an important action to reduce greenhouse gas emissions.

The ACT Government has committed to emissions reductions targets and the introduction of a city-wide FOGO collection service. The FOGO collection services create a new pathway for diverting the waste to productive recovery. The ACT Climate Strategy 2019-2025 commits “to introduce a food and garden waste collection for all households (including multi-unit dwellings) from 2023, and support with an education program from 2020.” Introduction of a FOGO collection is an ACT Government commitment under the Parliamentary and Governing Agreement for the 10th Legislative Assembly. This business case reaffirms the ACT Government’s commitment to this pilot ahead of the implementation of a citywide FOGO service and delivery of a dedicated FOGO processing facility.

2. Options analysis

Option 1: Expand the FOGO pilot to include an additional 6,000 households and suburbs.

Under Option 1, the FOGO pilot would expand to include an additional 6,000 single unit dwelling households exclusively from additional Belconnen suburbs. This would be completed through an extension of the existing contract arrangements. A deed of variation will also detail the expansion of the pilot and the potential expansion of the temporary FOGO processing facility depending on the volume of FOGO material from the additional households. This option would require an additional administrative resource to manage special consideration applications associated with expansion into new suburbs.

The timing of this option is dependent on the contractor’s timeframes to supply additional collection vehicles and increase FOGO processing capacity. The timeframes may be impacted by potential supply chain delays.

Other timing considerations include the requirement for the Territory would be required to give six months’ notice to advise the household landfill and recycling bin collection contractor of the change in collection frequency from weekly to fortnightly landfill bin . Additionally this option would require significant engagement with the ACT EPA (Environmental Protection Authority) as the increased throughput of material from the new suburbs may require the processing facility to seek a variation of their Environmental Authorisation to undertake the composting activity.

Option 2: Expand the pilot to include remaining MUDs (Apartment Buildings) in the current four suburbs.

Under Option 2, the FOGO pilot would continue to operate under the current contractual arrangements in the same four pilot suburbs of Belconnen, Bruce, Cook, and Macquarie. This option would require all MUD complexes in the four suburbs to participate in the FOGO pilot.

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the expansion of the pilot and the potential expansion of the temporary FOGO processing facility depending on the volume of FOGO material from the additional households.

This option would require an additional administrative resource to manage special consideration applications associated with expansion into new suburbs as well as an additional MUDs engagement resource within ACT NoWaste to support the engagement of the remaining MUD households. The adoption of the FOGO service in MUDs has required additional and on-going engagement with the residents and strata managers. This option may include the "Republic Belconnen" MUD complex, however serving this complex as well as new suburbs may not be achievable by the contractors.

The timing of this option is dependent on the contractor's timeframes to supply additional collection vehicles and increase FOGO processing capacity. Both options 1 and 5 require increased capacity in the processing facility at Mugga Lane. The timeframes may be impacted by potential supply chain delays.

Other timing considerations include the requirement for the Territory would be required to give six months' notice to advise the household landfill and recycling bin collection contractor of the change in collection frequency from weekly to fortnightly landfill bin, however engagement with MUD households could commence under the same time frame as Option 2.

Additionally, this option would require significant engagement with the ACT EPA (Environmental Protection Authority) as the increased throughput of material from the new suburbs may require the processing facility to seek a variation of their Environmental Authorisation to undertake the composting activity.

Notwithstanding these considerations, this option is recommended as it provides the greatest opportunity to assess the impacts of a FOGO service on suburbs of a different demographic and housing make up and expand collections from MUDs which have a significant complexity with managing and implementing changed collection services.

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	Option 1: Expand the pilot to include an additional 6,000 Single unit households and suburbs.	Option 2: Expand the pilot to include remaining MUDs (Apartment Buildings) the current four suburbs.
Benefits Outline the key strengths and advantages	Expands the resource recovery achievements of the pilot to date and continues to provide a service which the majority of the participants support.	Expands the resource recovery achievements of the pilot to date and continues to provide a service with the majority of the participants support. Enhances the knowledge base of ACT NoWaste on how to engage challenging MUDs with a new resource recovery program and better supports full rollout of FOGO to all households.
Disadvantages List weaknesses and negative consequences	The expansion of the pilot will reduce the services required from the landfill bin contractor and may impact the contract relationships. Households may have collection calendars that are not aligned with all the services.	The recovery of FOGO from MUDs is less (kilogram of recovered material per dwelling) than SUDs, however the fraction of food waste recovered is significantly higher. Total tonnage of material recovered will be lower than option 1, however the nutrient value of material recovered will be higher.
Timescale What period will the costs and benefits be incurred over	Subject to the capacity of the contractor, the expansion could occur in early 2024. This timeframe allows for budget approval timeframes and minimum notification periods included in contracts with collection contractors.	The expansion can begin as soon as funding is secured and will be a phased approach to ensure that new apartments can participate in the program while not increasing contamination. The time taken for new MUDs to join will depend on engagement from the MUD, existing infrastructure at the site and logistics associated with delivering FOGO assets (Caddies, MGBs and Liners)
Costs Summarise the costs and assumptions	The costs are based on the rates of the current contract arrangements while factoring an increase in the number of households using the service. Costs may have increased due to recent inflation factors.	The costs are based on the rates of the current contract arrangements while factoring an increase in the number of MUD households using the service.
Major Risks Summarise the major risks associated	The major risk associated with this option is stakeholder risk around managing the relationship of multiple contractors and workforces who deliver key services to the community. These multiple contracts are due to be renewed over the next 12-24 months and changing the services delivered late in contracts can be problematic to the relationship with contractors	The major risks associated with this option are around the time required to engage and educate the remaining MUDs into the Pilot program. To date this process has been complicated and time consuming, however this engagement model used by ACT NoWaste as resulted in better engagement, participation and retention within the MUDs than other models have delivered.
Performance measurement Determine how the performance of the proposal will be monitored	By maintaining FOGO pilot collections, this option diverts waste from landfill, avoids greenhouse gas emissions and preserves landfill capacity at Mugga lane as a long-term asset for essential waste disposal in the ACT.	By maintaining FOGO pilot collections, this option diverts waste from landfill, avoids greenhouse gas emissions and preserves landfill capacity at Mugga lane as a long-term asset for essential waste disposal in the ACT.

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Disadvantages List weaknesses and negative consequences	The expansion of the pilot will reduce the services required from the landfill bin contractor and may impact the contract relationships. Households may have collection calendars that are not aligned with all the services. The recovery of FOGO from MUDs is less (kilogram of recovered material per dwelling) than SUDs, however the fraction of food waste recovered is significantly higher. Total tonnage of material recovered will be lower than option 1, however the nutrient value of material recovered will be higher.
Timescale What period will the costs and benefits be incurred over	SUDs component: Subject to the capacity of the contractor, the expansion could occur in early 2024. This timeframe allows for budget approval timeframes and minimum notification periods included in contracts with collection contractors. MUDs Component: The expansion can begin as soon as funding is secured and will be a phased approach to ensure that new apartments can participate in the program while not increasing contamination. The time taken for new MUDs to join will depend on engagement from the MUD, existing infrastructure at the site and logistics associated with delivering FOGO assets (Caddies, MGBs and Liners)
Costs Summarise the costs and assumptions	The costs are based on the rates of the current contract arrangements while factoring an increase in the number of households using the service. Costs may have increased due to recent inflation factors.
Major Risks Summarise the major risks associated	The major risk associated with this option is stakeholder risk around managing the relationship of multiple contractors and workforces who deliver key services to the community. These multiple contracts are due to be renewed over the next 12-24 months and changing the services delivered late in contracts can be problematic to the relationship with contractors Reputational risks of customer dissatisfaction associated with changes to household behaviour during the reversion to standard services and the re-introduction to FOGO services.
Performance measurement Determine how the performance of the proposal will be monitored	By maintaining FOGO pilot collections, this option diverts waste from landfill, avoids greenhouse gas emissions and preserves landfill capacity at Mugga lane as a long-term asset for essential waste disposal in the ACT.

5. Implementation, risk management and governance

5.1 Implementation timeline Option 1

Stage	Duration	Timing	Linkages to FOGO processing infrastructure
FOGO Pilot continues under current arrangements (contract extension)	Milestone	October 2023	Data collection informing processing infrastructure design
FOGO Pilot expands to include additional suburbs	Milestone	February 2024	Expansion of temporary facility
FOGO Pilot collections transition to new contractual arrangements	Milestone	October 2025	Assuming New contract executed within expected timeframes.

5.2 Implementation timeline Option 2

Stage	Duration	Timing	Linkages to FOGO processing infrastructure
FOGO Pilot continues under current arrangements (contract extension)	Milestone	October 2023	Data collection informing processing infrastructure design
FOGO Pilot expands to include additional MUDs in current suburbs	Milestone	October 2023- October 2025	Data collection informing processing infrastructure design
FOGO Pilot collections transition to new contractual arrangements	Milestone	October 2025	Assuming New contract executed within expected timeframes

5.3 Implementation timeline Option 5 (recommended)

Stage	Duration	Timing	Linkages to FOGO processing infrastructure
FOGO Pilot continues under current arrangements (contract extension)	Milestone	October 2023	Data collection informing processing infrastructure design
FOGO Pilot expands to include additional MUDs in current suburbs	Milestone	October 2023- October 2025	Data collection informing processing infrastructure design
FOGO Pilot expands to include additional suburbs	Milestone	February 2024	Expansion of temporary facility
FOGO Pilot collections transition to new contractual arrangements	Milestone	October 2025	Assuming New contract executed within expected timeframes

5.4 Governance arrangements

Both proposals will be implemented by ACT NoWaste in TCCS. A steering committee of NoWaste Directors, and others when required, will be established to assist the project team review and enhance the service delivery, procurement and contracting model.

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One ASO6 has been costed. The ASO6 would be a MUDs Engagement Officer, who would liaise with strata managers of MUD complexes.

- The current market is an employee job market, which creates challenges for recruitment processes. Fast turnarounds are key to secure staff. Recent recruitment processes in this space have yielded high application rates.
- Overloading the current workforce if these positions are not filled is a major risk.

Option 5:

One ASO4 has been costed. The ASO4 would be an additional Customer Service Officer, which would manage special consideration applications and support the Customer Service Hotline for additional services.

One ASO6 has been costed. The ASO6 would be a MUDs Engagement Officer, who would liaise with strata managers of MUD complexes.

- The current market is an employee job market, which creates challenges for recruitment processes. Fast turnarounds are key to secure staff. Recent recruitment processes in this space have yielded high application rates.
- Overloading the current workforce if these positions are not filled is a major risk.

7. Performance measures and evaluation

Performance measures and KPIs will be detailed within the collection services contract.

A range of KPIs are already included in each of the three existing waste collection contracts. The contract administrators for these existing contracts will be involved in reviewing the effectiveness of different KPIs and developing an appropriate and efficient suite of performance measures and KPIs for the consolidated services contract.

Service delivery-level measures may include:

- % missed collections or incorrect collections (spills etc)
- Response time to reported missed or incorrect collections
- Customer satisfaction and awareness levels, as measures through surveys and/or social research
- Number of interactions and/or people reached through education and engagement initiatives
- Customer complaints
- Resource recovery rate
- Contamination rate of FOGO and comingled recycling streams
- Preparation of and compliance with formal environmental and OH&S plans

Touchpoints for collection and reporting on KPIs include:

- Onboard data collection capabilities of waste collection vehicles
- Contractual reporting by the service provider to support invoicing
- Bin tagging program (delivered by the collections contractor)
- Number and type of customer interactions with education initiatives and customer service hotline
- Reconciliation with weighbridge data at Mugga Lane landfill
- Reconciliation with waste receipt and contamination disposal data reported by MRF and FOGO processing facility

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Table 3: Supplies and services cost profile for Option 1

Supplies and Services Costs	2023-24	2024-25	2025-26	Total
	\$'000	\$'000	\$'000	\$'000
Community education and engagement – Contractor Cost: Contractor staffing for bin tagging and general education. Contractor resource development and distribution - bin tagging and compliance collateral	Incorporated into collection cost			
Communications and promotion delivered by ACT NoWaste – FOGO pilot	35	60	25	120
Contract Payment (second composting dome)	100	-	-	100
Upgrades to WSMS to improve record keeping	100	-	-	100
Delivery of Liners and Caddies – FOGO pilot	257	276	-	533
Collection – FOGO pilot	984	1,721	717	3,422
Processing – FOGO Pilot	321	561	233	1,115
Auditing and evaluation -FOGO pilot	60	60	-	120
FOGO Bin/Caddy repair and replacement	10	20	6	36
Total Supplies and Services Costs (Non-indexed)	1,867	2,698	981	5,546
Total Supplies and Services Costs (Indexed)				

Table 4: Capital expenditure cost profile for Option 1:

Capital expenditure	2022-23	2023-24	2024-25	Total
	\$'000	\$'000	\$'000	\$'000
Delivery of MGBs	245	-	-	245
Replace MGBs	32	56	23	111
Total Capital Expenditure (non-indexed)	277	56	23	356
Total Capital Expenditure (Indexed)				

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Table 7: Supplies and services cost profile for Option 3

Supplies and Services Costs	2023-24	2024-25	2025-26	Total
	\$'000	\$'000	\$'000	\$'000
Community education and engagement – Contractor Cost: Contractor staffing for bin tagging and general education. Contractor resource development and distribution - bin tagging and compliance collateral	Incorporated into collection cost			
Communications and promotion delivered by ACT NoWaste – FOGO pilot	25	25	25	75
Delivery of Liners and Caddies – FOGO pilot	114	118	0	232
Collection – FOGO pilot	396	740	330	1,466
Processing – FOGO Pilot	137	239	100	476
Auditing and evaluation -FOGO pilot	60	60	0	120
Caddy repair and replacement	10	20	6	36
Total Supplies and Services Costs (Non-indexed)	742	1,202	461	2,405
Total Supplies and Services Costs (Indexed)				

Table 8: Capital expenditure cost profile for Option 3

Capital expenditure	2022-23	2023-24	2024-25	Total
	\$'000	\$'000	\$'000	\$'000
Delivery of MGBs	0	0	0	0
Replace MGBs	7	13	5	25
Total Capital Expenditure (non-indexed)				25
Total Capital Expenditure (Indexed)				

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The expansion of the service could accommodate a maximum of roughly 6,000 new dwellings and the makeup of which suburbs are chosen to participate will be developed in consultation with collection contractors.

EPSDD provided forecasts of additional dwelling to be occupied in the ACT from 2017 to 2047. These are adopted each year beyond 2020 to provide the forward estimate for the number of households to be serviced by the ACT. Low and medium density dwellings in the EPSDD forecast are treated as SUDs (i.e., likely having 240L kerbside bins) while “units” are treated as MUDs (i.e., likely having shared bulk bins).

Bin repair and replacement

[REDACTED]

- [REDACTED]
- [REDACTED]
[REDACTED]
- [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

FOGO Pilot

The FOGO Pilot is based on the current delivery model for the garden organics (green bins) service and the use of the Corkhills site at Mugga Lane for processing, along with existing garden organics processing, with some infrastructure modifications

Other assumptions are:

- That the indicative estimates on the Pilot from the current contractor are correct. When funding is assured and the Deed of Variation may be able to be negotiated (if required).
- Households will continue to receive a weekly FOGO collection, fortnightly (reduced) general waste collection and a fortnightly (unchanged) recycling collection.
- The Pilot is supported by an education and communications officer. This is funded to the contractor to address the kerbside bin communications and for Government (in NoWaste).
- \$60,000 per year has been allocated for waste audits to collect data from the Pilot
- Option 2, delivery of caddies and liners to MUDs can be completed in 2023-24 financial year. Caddies not delivered may need to be delivered in 2024-25 financial year



ACT
Government

Single Assessment Framework (SAF)

Business Case

Tier 1 (over \$50 million or High Risk)

Project Name:	ACT NoWaste FOGO Facility
Total Project Value (estimated) FY24- FY27:	██████ nominal, risk adjusted) including GST plus/\$██████ excluding GST PLUS \$██████ (O&M) including GST/\$██████ excluding GST Total \$██████ including GST/\$██████ m excluding GST
Capital Appropriation Requested FY24- FY27:	\$██████ m (nominal, risk adjusted) including GST \$██████ m (nominal, risk adjusted) excluding GST
Project Stage:	Planning
Risk Assessment (high/med/low):	Medium
Proposed Delivery Model:	DCMO
Requesting Directorate:	ACT NoWaste
Requesting Minister:	Chris Steel MLA
Business Case Advisors:	Arup

NOTE: This template should be completed using the accompanying SAF Business Case Guidance Notes.

Contact Officers

Contact Officer, Requesting Directorate

Reviewing Officer, Infrastructure Finance and Reform, Treasury (IFR):

Reviewing Officer, Major Projects Canberra (MPC)

Reviewing Officer, Finance and Budget Group, Treasury (FABG):

Sign Offs

Requesting Directorate:

Document in order to proceed

IFR

MPC:

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1. Executive Summary

1.1 Statement of Need

The Territory urgently needs a Food Organics and Garden Organics (FOGO) processing facility. The original fully justified business case was supported with a provisional allocation of funding in the 2022-23 budget. The provision of the funding was dependent on further information being provided on:

1. The co-funding contributions, Commonwealth funding, NSW Government and Industry Partner
2. Updated Milestones
3. Potential revenue streams from sale of finished product and services offered to other Councils
4. Risk in finding end markets for finished product.

Since the 2022-23 decision, TCCS has been successful in securing \$13 m in co-funding contributions from the Commonwealth Government through the 'Food Waste for Healthy Soils Fund'. The Commonwealth is contributing up to one third of the costs of the construction of the Facility. This funding, plus the intention to seek a co-contribution to the Facility from the industry partner of [REDACTED] million, has significantly reduced the Territories funding risk exposure from this project.

During 2022-23 TCCS, in partnership with Major Project Canberra, TCCS has commenced the procurement process for the design, construct, maintain and operate (DCMO) of the Facility. This planning has demonstrated that to model the potential revenue streams from the finished product (Q3 above) and investigate the end markets for the final product (Q4 above) a two-stage procurement process of a request-for-proposal (RFP) and then a request for tender (RFT) would be required. This is adding additional time to the delivery of this facility.

Other processes are required to deliver a project of this size and nature, and these are progressing such as the Environmental Impact Study (EIS) required for the construction of the facility at Hume. The EIS is due for completion in August 2023, which will include the individual studies and the community consultation. This process will end up being 18 months to complete. Similarly, the process to lodge and gain approval for the development and the full construction of the FOGO facility has been identified to be longer and has led to a delivery date in 2027.

TCCS is taking what possible measures to speed up the procurement process. The approach to market for a single-phase, Request for Proposal or Tender, would reduce this time. The Directorate has engaged Arup Australia, who is directly assisting to design and write some of the procurement elements, to speed up the process. Also, a project team with dedicated resources has been established.

However, the recent fire at the Materials Recovery Facility (MRF) in December 2022 has introduced new challenges that the same project team is currently addressing. The MRF manages the co-mingled (yellow-bin) waste stream for the Territory and the loss of this facility is a major set-back to locally sorting glass, metal and plastic material. The team is addressing the immediate needs of the procurement for the new MRF building alongside this FOGO facility. Both infrastructure projects are a priority for the delivery of waste outcomes in the Territory.

of an organic waste recovery facility to treat food and garden organic waste (**FOGO**) to produce a clean, high-quality compost. This requires the procurement of an in-vessel composting system (**IVC**). The facility is expected to treat up to 50,000 tonnes per annum of food organic and garden organic waste. This is based on the projection that there will be 42,000 tonnes of waste produced by ACT residents to be collected at kerbside, with the expectation that this will increase with population growth. The IVC facility is expected to have a CAPEX cost of [REDACTED] (FY21, real terms) of which [REDACTED] (FY21, real terms) is the infrastructure construction cost and [REDACTED] (FY21, real terms) is the external utilities connection allowance. Section 4.2.1 summarises the breakdown of total capital costs.

There is an opportunity for the ACT to use this compost in various applications such as landscaping of urban developments, parks and gardens, retail nurseries and sale for home gardening and landscaping, maintenance of sporting fields, rehabilitation and landscaping of transport corridors and other construction sites. Opportunities also exist for using the compost in agriculture and horticulture such as dairy pastures, orchards, broadacre cropping and viticulture, thus ensuring waste organics are dealt with in a truly circular way.

Currently, the ACT offers an opt-in household collection service and a free drop-off option for garden organics which are processing in open windrow at the Corkhill Brothers site at Mugga Lane. However, this existing operation cannot process food waste from a whole-of-ACT FOGO service through open windrow composting due to amenity risks – particularly odour. There are currently no facilities in the ACT which can process and recover FOGO material due to the putrescible nature and amenity risks posed by raw food waste. A separate services business case will be submitted to support the consolidation of ACT's current waste collection service contracts into a single collection contract, including the opportunity to replace the current garden waste collection service with a FOGO collection service. This business case provides an approximate budgetary impact to include FOGO bin collection into the overall household waste collections contract. These costs are provided to inform Cabinet of future potential budget impacts, but this funding is not requested at this time. Section 1.6 summarises the household collection contract and associated costs.

1.2 Project Solution

From the findings of the 2020 Directions Paper and Feasibility study, the proposed future solution for management of organic waste seeks to expand the existing opt-in garden organics collection to a mandatory food and garden organics service (FOGO) for households. This will require establishment of a dedicated processing facility, with the most appropriate technology having been identified as in-vessel composting (IVC).

The proposed service is expected to recover approximately 42,000 tonnes per annum of FOGO feedstock upon commissioning, made up of approximately 70% garden organics and 30% food organics. The facility will be sized for at least 50,000 tonnes per annum of processing capacity, and no major expansion works is expected on the facility within the first 15 years of a proposed 20-year operations contract.

1. Request for Proposal (RFP) from bidders which contains a detailed description of the ACT's needs, reflecting the project outlined in this Business Case; and
2. Request for Tender (RFT) from shortlisted bidders that considers any market feedback received during the RFP stage, to the extent permitted by procurement rules.

This process is reflected in the project programme at Appendix D and based on consultations between NoWaste and MPC.

1.4 Funding Approval Sought

1.4.1. Type of funding sought

☐ Feasibility*
☐ Concept design
☐ Detailed design (note only where D+C has been justified)
☐ Full Business Case
☒ Delivery/Construction

*regardless of dollar value of the feasibility funding being sought, it is the estimated total value of the project which guides which Tier the project is considered under.

1.4.2. Cost Estimate

Benchmarking analysis has been used to estimate the capital and operating costs of the project. Benchmarks included:

- Recent tenders for a comparable project in NSW
- Publicly available information on domestic and international in-vessel composting facilities

The primary estimated costs are reflective of the feasibility stage of the project. Costs will be refined throughout the project lifecycle, particularly as contractor tenders are returned with fixed prices and other quotes for primary elements are received by the ACT Government. Estimated capital and operating costs excluding risk adjustments are shown in

Table 1 and Table 2. Table 3 shows the operating cost for the first full year of operation. Approval to proceed with undertaking the Environmental Impact Statement (EIS) process and early preparation of term sheet for engagement of a contractor is now confirmed to progress the project from the feasibility phase to next stage. This is allowing for activities such as planning approvals, legal advisory, financial advisory. An allowance of [REDACTED] is allocated for project support during preparation of procurement specification, procurement evaluation and final contract negotiations.

Table 1: Capital Costs

Values are based on the 2021 Financial Model prepared by ARUP.

Item	Value (\$ FY21, real)
Development capital costs	[REDACTED]
Project support costs	[REDACTED]

			traditional government procurement
Capex	████ uplift in overall capex	████ of the initial capex risk is allocated to Government	████ of the capex risk is allocated to Government
Opex	████ uplift in annual opex	████ of the initial opex risk is allocated to Government	████ of the opex risk is allocated to Government

1.4.4. Cost to Government

The assessment has identified an opportunity to deliver at lower cost to government by employing the DCMO instead of traditional government procurement. The Public Sector Comparator (PSC) reflects the cost of government delivery and consists of the raw capital and recurrent costs, and project risks, including both those that could be transferred to private sector through a DCOM model, and non-transferrable risk.

The risk-adjusted net present cost to government under the DCMO model amounts to █████. Table 5 shows the breakdown of net present costs to government.

Table 5: Net present costs to government under DCMO and PSC

DCMO	Value (\$, Discounted)	PSC	Value (\$, Discounted)
Risk-adjusted capital	████	Risk-adjusted capital	████
Risk-adjusted recurrent costs to	████	Risk-adjusted recurrent costs to	████
Net present cost to government	████	Net present cost to government	████

As shown in Table 6, the preliminary results of the analysis shows a █████ saving for Government if the project is procured as a DCMO.

Table 6: Risk adjusted cost of delivery, PSC vs. DCMO

	PSC	DCMO
Risk-adjusted NPC cost to Government	████	████

There are two main drivers that causes the price differential between PSC and DCOM:

1. Different discount rate is used between PSC and DCMO

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This Business Case seeks funding for the -2023-24 and 2024-25 financial years for the development costs for the FOGO Facility – including a portion of the design development capex required to progress the project from the feasibility phase to construction. This allows for activities such as planning approvals, Front End Engineering Design (FEED), procurement, legal advisory and financial advisory. This Business Case, other than the Financial Impact summary at table 7, reflects the full FOGO Facility costs and analysis.

Table 7: Preliminary financial impacts summary (\$nominal FY 2023-24)



*O&M cost has been estimated for 4 month in 26-27, 27-28 the cost is estimated to be [REDACTED] per annum (indexed [REDACTED])

**Offsets from industry are dependent on the RFP

***depreciation is [REDACTED] per annum, depreciation will apply from 27-28 onwards

This funding profile would see the FOGO facility completed and ready to commence operations from March 2027. This would allow city-wide FOGO collection services to commence in Q2 2027. While this is later than the government's commitment in the *ACT Parliamentary and Governing Agreement (PaGA)*, the launch of the FOGO pilot in Belconnen combined with the progressive construction of the FOGO facility would provide a clear demonstration of progress during 2022-23. Delaying a

In order to ‘*Encourage reduced waste and improved resource efficiency in new development and support continued reduction of the ACT’s ecological footprint*’¹ (action 3.6.2 of the ACT Planning Strategy 2018) additional funding is likely to be required to deliver best practice waste collection services to multi-unit developments, both new and existing.

In addition, the cost of providing waste collection services is likely to require an increase in operational funding due to increasing population and expected increases in service rates during the contract re-negotiation. The current rates for general landfill waste and recycling collections were negotiated in 2013, and service expectations have changed over this time and are expected to be reflected in somewhat increased rates.

All of these actions deliver on commitments in the *Parliamentary and Governing Agreement for the 10th Legislative Assembly*, the *ACT Climate Strategy 2019-2025*, and delivers resource recovery targets for the ACT.

1.6.1. Method of delivery

It is currently proposed the consolidated household waste collection service be delivered under a contracted model using a performance-based services contract with a single principal contractor partnering with appropriate sub-contractors. This aligns with the current delivery model.

An initial market engagement has informed components of the collection service including zero emission waste vehicles, the FOGO collection service, depot sizing and placement, options for collections in a growing and more densely populated city, and the charter of procurement values. A single-phase open tender will be released in Q1 2023.

1.7 Stakeholder engagement

In preparing this business case, ACT NoWaste and its advisors have prepared various preliminary documents, participated in internal workshops and carried out market soundings. This includes:

1. Directions Paper in June 2020 that considered a range of high-level options for processing technology and feedstock for treating household FOGO waste and delivery model options.
2. Feasibility Study in November 2020 that investigated the preferred solution.
3. ILM Workshop that focused on the themes and needs to be addressed by the infrastructure solution.
4. Market sounding with potential contractors around solutions (throughout 2020)
5. Market sounding with financiers and operators around delivery model solutions (November-December 2021)
6. Various Workshops with Treasury and MPC throughout 2020 and 2021 in respect of delivery model and procurement approach.

A version of this business case was presented in May 2021, and 2022, and the business case has been updated following feedback and further information.

¹ https://www.planning.act.gov.au/__data/assets/pdf_file/0007/1285972/2018-ACT-Planning-Strategy.pdf

impacts of organic waste to the community and create value from the output. The objectives of the project are to:

- Meet the commitment under the ACT Climate Strategy 2019-2025 “to introduce food and garden waste collection for all households (including multi-unit dwellings) from 2023, and support with an education program from 2020”
- Move the ACT towards the 90% resource recovery target (by 2025) set in the Waste Strategy – it is estimated that FOGO will contribute to an approximately 4% contribution to this target
- Deliver new organics processing infrastructure within the ACT, converting FOGO material into useful compost products
- Support carbon neutrality of the waste sector
- Help redirect from landfill c.50% of available organic material in the domestic (currently 37% organic composition in red bin) and commercial waste stream, and
- Engage with the local community to drive behavioural change.

The introduction of the ACT Waste Management Strategy in 2011 has created a goal of improving resource recovery and a carbon neutral waste sector. It sets out a strategy of ‘reduce and reuse’ to achieve resource recovery rates of over 90% by 2025. Since the introduction of this strategy there are continued shortfalls in achieving these goals, accelerating the need to create a direction towards organic waste recovery.

The 2018 Waste Feasibility Study Roadmap recommended the implementation of a composting facility within the ACT that is capable of processing both food and garden organics. This identified that there was a clear opportunity to significantly reduce the volume of food waste from households that ends up in landfill.

More recently a directions paper prepared in June 2020 considered a range of high-level options for processing technology and feedstock for treating household FOGO waste. The subsequent Feasibility Study of these options issued in November 2020 has further led to the development of this business case. This business case summarises the approach taken to select the preferred option, and details the economic, financial, and commercial assessment, as well as preferred procurement approach.

2.1.2. Site identification

Site selection

For the purpose of the business case, ACT NoWaste is proceeding on the basis that the facility will be built at a site within the Hume Resource Recovery Estate precinct. In 2017 Pitt & Sherry undertook a Stage 1 Site Selection Investigation within the ACT and surrounding NSW local government areas for the placement of an organics recycling facility with up to 300,000tpa processing capacity. Outcomes of the investigation identified areas of suitable land within surrounding NSW local government areas offered potential sites for an organics recycling facility. However, further analysis by ACT NoWaste excluded these sites from further investigation on the ground of transport greenhouse gas emission not meeting the Territory’s net zero emission targets and complexities with NSW planning and approvals pathway. Other strategic consideration of an ACT facility for the long term included

ACT NoWaste has identified a viable project site with a footprint that enables growth over time to treat up to 70,000 tpa of FOGO feedstock. It is key to note that the anticipated delivery model, DCMO, has the flexibility to consider supporting a service contract structure that could include a different location, depending on its ability to achieve best outcomes for the ACT Government.

2.1.4. Scope of services

This scope of services includes the delivery of a FOGO processing facility, specifically an IVC facility, delivered through a DCMO. The proposed services include:

- Design and construction of a fit for purpose IVC facility.
- Long-term private sector operations and maintenance of the IVC facility.
- The production and sale of compost output from the processing facility for meaningful land rehabilitation.

This Business Case has been prepared on the basis of the Territory developing a greenfield organic waste processing facility.

2.1.5. Project Assumptions and Dependencies

Financial and economic modelling conducted to support this business case has assumed the following key parameters:

- Total capacity of 50,000 tpa
- A project term of 21 years, comprising a one-year construction term and 20-year operating period
- The project would be developed on ACT NoWaste's identified site, with the site to be provided to the project developer for a peppercorn rent for the duration of the project term
- For the purpose of the value for money analysis, a DCMO delivery model, integrating the construction and operations into one contractual arrangement with a project developer
- Revenues from the sale of compost produced at the facility to be realised by the project developer, and a resultant reduction in the subsidy required from government, with the developer to bear all sales volume risk, and
- A guaranteed volume of feedstock at 42,000 tpa.

The key interdependency for this business case is the collection services required to provide the necessary feedstock for the FOGO facility. The business case for FOGO collection services is separate to this funding proposal and will detail a cost increase due to additional green bin collection which is expected to offset the red bin collection reducing in frequency to fortnightly collection. The costing accounts for a mandatory FOGO collection, increasing from the current opt-in green bin service of around 55% take up rate, to 100% in 2024. A summary of the household service contract is at Section 1.6. The collections business case aims to continue to be rolled out across Canberra, achieving full FOGO coverage from late 2024.

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Disclaimer: This review does not represent an endorsement or agreement by the signing officer as to the contents of the section or a certification that the work was correctly performed.

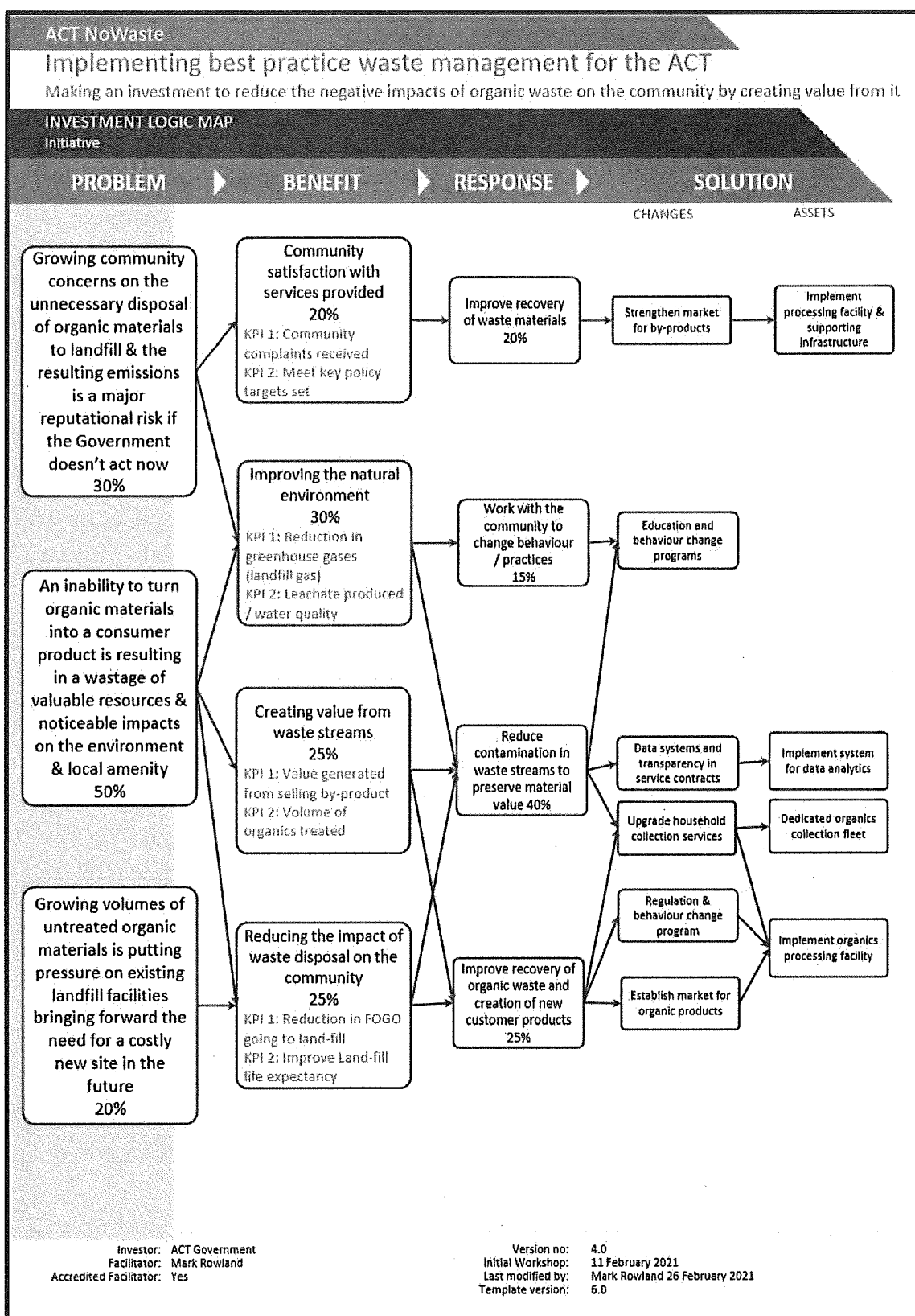


Figure 1: Investment Logic Map

doing the right thing and saving the planet. These responses and level of community engagement show the support, urgency and expectations for the government to execute actions centred on climate change.

ACT Government Climate Change Strategy and Waste Feasibility Study

Recognising community concerns, the ACT's *Climate Change Strategy 2019-25* includes actions to avoid and manage waste supported by a set of ambitious, yet achievable goals. The actions in Goal 6 (Waste Avoidance and Management) identified opportunities to reduce overall emissions from organic waste treatment.

The value of resources and embodied energy in waste is a missed economic opportunity, as indicated in the National Waste policy, Australia,⁵ and its management attracts significant community interest. For example, community engagement and support for the development of the ACT Government Climate Change Strategy played a major role in shaping its actions and targets. A total of 226 suggestions were put forward by the community regarding waste matters with over 92% focused on diverting organic waste from landfill for beneficial re-use.⁶

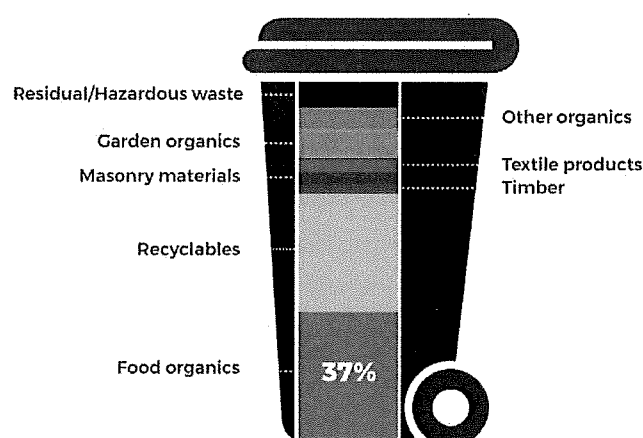
Similarly, there were various suggestions related to managing landfill waste, providing incentives for households to reduce organic waste, implementing a ban on food wastages by commercial and industrial sectors, and lowering Australia's emissions profile.

A 2014 audit estimated that around 35% of household general waste is food and 10% is garden waste. Food organics represents the single largest proportion of waste in household garbage bins. Emissions from landfill in 2017-18 were 60.7 kt CO₂ -e, representing 2.2% of total emissions. From 2020, once electricity emissions are near zero, waste treatment is predicted to account for 4% of emissions.⁷

⁵ Australian Government, *National Waste Policy*, 2018 retrieved from <https://www.environment.gov.au/system/files/resources/d523f4e9-d958-466b-9fd1-3b7d6283f006/files/national-waste-policy-2018.pdf>

⁶ ACT Government, *ACT Climate Strategy Engagement Report*, July 2018

⁷ ACT Government, *ACT Climate Change Strategy 2019 – 25*, 2019

Figure 3: Typical red-bin content¹⁰

Waste disposed of at landfill can produce toxic chemicals that are harmful to soil, whereas composting has proven to be a safer method of waste management subject to feedstock quality. The by-products of composting contain compounds that can be transformed into biofertilizers and soil amendments. Composting also protects ground water from pollution such as leachate that results from landfilling.¹¹ This can help reduce health and environmental impacts.

As such, the better management of organic waste is an opportunity to move from a linear economy to a circular value chain model. This lost value was assessed in a study conducted for the Environment Protection Authority (EPA),¹² which found the economic and environmental value of waste increases as the proportion of organic processing does. There is also an opportunity for increased employment opportunities, with the National Waste Policy, 2018 report¹³ estimating the following figures.

Table 10: Estimated value of waste to the economy

Item	Value
Value of Waste management services	\$ 12.6 Billion per annum
Sales of recovered materials	\$ 2.9 Billion per annum
Waste related activities adds a total value to the economy	\$ 6.9 Billion per annum
For every 10,000 tonnes of waste recycled	9.2 jobs created

¹⁰ ACT Government, *Overview: A roadmap to improved resource recovery, Waste Feasibility Study*, 2018 retrieved from https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.act-voursay/files/3015/2582/3028/WFS_overview.PDF

¹¹ MDPI, *Waste management through composting: challenges and potentials*, 30 May 2020 retrieved from <https://www.mdpi.com/2071-1050/12/11/4456>

¹² Environment Protection Authority (EPA), *Organic waste economic values analysis*, 2002

¹³ Australian Government, *National Waste Policy*, 2018 retrieved from <https://www.environment.gov.au/system/files/resources/d523f4e9-d958-466b-9fd1-3b7d6283f006/files/national-waste-policy-2018.pdf>

Emissions have increased to a level of +21% in 2018, making the 2020 target of -40% difficult to achieve. To meet the ambitious targets of 50 – 60% by 2025, further action is essential. This requires government to work closely with communities and businesses to find new ways to reduce emissions.

Timing Considerations

The ACT government has some of the most aggressive emission targets observed across Australia and globally, with the Territory targeting net zero emissions by 2045. Landfill life, community concerns, and government commitments creates a timing impetus to move the project forward particularly given this project aligns with the government's strategy of reducing its net emissions.

Additionally, the following targets and commitments are driving factors for investing in organic waste processing:

- The ACT Emission Reduction Strategy, as mentioned in Problem 2, to reduce approximately 60% of current greenhouse gas emissions by 2025
- The ACT Government commitment, under the ACT Climate Strategy 2019-2025 "to introduce a food and garden waste collection for all households (including multi-unit dwellings) from 2023, and support with an education program from 2020"
- The need to move the ACT towards the 90% resource recovery target (by 2025) set in the Waste Strategy
- Election commitments as per the ACT Labor policy reform, Item 9.2: "Roll out a household food waste collection service by 2023, starting with a pilot program in Belconnen"
- UN SDG Target 12.3, which calls for halving per capita global food waste at retail and consumer levels, and
- National Food Waste strategy to halve food waste by 2030

3.2 Benefits

3.2.1. Benefits to be delivered

The project presents the ACT with an opportunity to develop and implement innovative solutions to an evolving waste market in Australia and leverage learnings from overseas and across the country.

The ILM process identified four key benefits from best practice waste management in the ACT, these are outlined below.

Benefit 1: Community satisfaction with services provided

One of the issues identified by the ILM is the growing awareness of the community towards the need for more sustainable waste disposal practices. The community in the ACT is generally educated and transient, and is seeking better resource recovery solutions, similar to what they have experienced in other states. The proposed approach, being higher in the waste hierarchy, will recognise and respond to their concerns.

amendments or natural fertilisers, in turn creating revenue opportunities. These opportunities are higher in the waste hierarchy, as shown in the figure below.

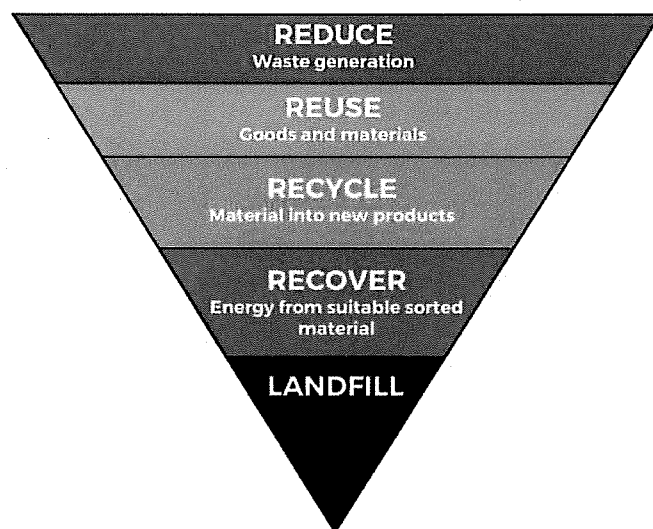


Figure 5: The Waste Hierarchy

Additionally, as outlined in the 2018 Roadmap to Improved Resource Recovery (Figure 6), diverting organics from landfill helps set the path to achieving the Territory's 90% resource recovery target.

Table 11: Benefits Realisation table

Benefits	Response	Solution	Key Performance Indicators (KPIs)
Community satisfaction with services provided	Improve recovery of waste materials	1. Strengthen market for by-products 2. Implement processing facility & supporting infrastructure	KPI 1: Community complaints / feedback KPI 2: Meet key policy targets set
Improving the natural environment	Work with the community to change behaviour / practices	1. Education and behaviour change programs	KPI 1: Reduction in greenhouse gases (landfill gas) KPI 2: Leachate produced / water quality
Creating value from waste streams	Improve recovery of organic waste and creation of new customer products	1. Regulation & behaviour change program 2. Establish market for organic products 3. Upgrade household collection services 4. Implement organics processing facility	KPI 1: Value generated from selling by-product KPI 2: Volume of organics treated
Reducing the impact of waste disposal on the community	Reduce contamination in waste streams to preserve material value	1. Dedicated organics processing facility 2. Data systems (including data analytics) and transparency in service contracts 3. Implement system for data analytics	KPI 1: Reduction in FOGO going to landfill KPI 2: Improve Landfill life expectancy

3.3 Alignment to Government policies

Diverting food waste from landfill is an important priority for the ACT government and is reflected in commitments around waste and resource recovery as well as the climate change policy. The ACT Government has identified diversion of food and garden organics from landfill as a key action to achieve resource recovery and emissions reduction targets, as reflected by the Parliamentary Agreement Policies. The Parliamentary Agreement Policies reinforces ACT Government's commitment to deliver an organic waste processing facility for households and business, and

Table 12: Project alignment with key planning policies

Policy	Alignment with project and ability to enhance current ACT Policy or deliver new ones
ACT Climate Change Strategy 2019-2025, The Environment, Planning and Sustainable Development Directorate	ACT Climate Change strategy 2019 – 2025, produced by The Environment, Planning and Sustainable Development Directorate which is a directorate of the Australian Capital Territory government, defines a goal: Goal 6. Waste Avoidance and Management to reduce emissions from waste treatment by three main actions: 1. Introduce food and garden waste collection for all households (including multi-unit dwellings) from 2023, and support with an education program from 2020. 2. Develop and consult on a scheme for requiring large organic waste producers such as hospitality and food retail businesses to have a separate organic waste collection mechanism. 3. Identify opportunities to reduce emissions from organic waste treatment including sewage such as through the use of anaerobic digestion and composting and investigate potential sites for organic waste processing. This business case and its implementation align well with the goals and actions of this strategy. It helps achieve these goals by the timeframes set out by the Strategy.
2018 Waste Feasibility Study Roadmap and Recommendations, Prepared by ACT NoWaste, ACT Government	The Roadmap recommends initiatives to move closer to 90% resource recovery through best practice waste management. The targets that align with this project are: Group 1 – Roadmap recommendations states Diverting organics from landfill with subgroups: • Implement a kerbside food and garden organics (FOGO) collection service aligned with the existing green bin roll-out program • Identify a site and establish an organics processing facility to process both food and garden organics

Policy	Alignment with protect and ability to enhance current ACT Policy or deliver new ones
Australia's Climate Change Strategy, Department of Industry, Science, Energy and Resources	program encourages the community to live a more sustainable lifestyle by offering a range of tools such as food waste audits, meal plans and shopping list templates, portion planners, setting optimum fridge temperature, food storage tips and further such practical resources to reduce food waste at the source i.e. households. As 26,000 tonnes of household food waste goes to landfill every year, the campaign aims to educate and raise awareness to reduce household organic waste that goes to landfill. The program will cease 30 June 2021. The Federal Climate Change Strategy is a national strategy to act on climate change, and is informed by the Foreign Policy White Paper, Australia's Aid policy and the Sustainable Development Goals. Specifically, Strategy 4.3 - Supporting business and industry to innovate and adopt smarter practices and technologies emphasises the need for new industries, practices and technologies that are more sustainable, particularly in the management of resources. The introduction of an organic waste processing facility endorses the adaptation of smarter waste practices along with a sustainable approach towards waste management, particularly when compared to landfilling.
National Food Waste Strategy, Department of Agriculture, Water and Environment	The National Food Waste Strategy is a framework for action towards the reduction of food waste. The main aim of this strategy is to halve Australia's food waste by 2030. It includes the following priority areas that align with organic waste processing, including: Priority 2 – Business Improvements Outcome – Improvement and adoption of technologies, processes, and actions to avoid and reduce food waste. This focuses on: Identifying areas for improvement

Policy	Alignment with project and ability to enhance current ACT Policy or deliver new ones
	Principle 4: Better Manage Material Flows to Benefit Human Health, The Environment and The Economy. • <i>Strategy12 – Reduce Organic Waste: Reduce organic waste, including garden and food waste, by avoiding their generation and supporting diversion away from landfill into soils and other uses, supported by appropriate infrastructure</i> By treating waste as a valuable resource through the diversion of organics from landfill and its resultant recycled organics this reduces environmental impacts of landfill. This contributes to improving Human Health, the Environment, and the Economy.
Parliamentary Agreement Policies 2020 <i>Agreement between Labor party and Greens, represents the parties' shared commitment to serve people of ACT</i>	
Policy Issue 1 - The Government will seek advice on the best way to facilitate the outcomes contained in the Government's Waste Strategy to locate waste processing facilities in Hume.	References to Hume in the ACT Waste management Strategy 2011-2025 focus on developing the Hume Resource Recovery Estate (HRRE), and co-locating resource recovery facilities within HRRE. Previous attempts to attract private sector waste processing businesses to HRRE are documented in the HRRE Master Plan 2012 but have not been successful. As a result, land remains undeveloped in HRRE as of 2020. This vacant land has been identified as the confirmed location for Material Recovery Facility (MRF) upgrades and the preferred location for the FOGO processing facility, which is consistent with the intended use of HRRE to co-locate resource recovery operations.
Policy Issue 2 - Planning review process to improve and simplify the ACT's planning system	Land use planning is raised as a key issue for waste infrastructure in the Solid Waste Implementation Plan (SWIP). However, the objectives of the Planning Review as stated in the Parliamentary Agreement appear to focus on the quality, affordability, sustainability and community consultation and involvement for residential development. This will not necessarily

Policy	Alignment with project and ability to enhance current ACT Policy or deliver new ones
Greens policy platform - Set targets in ACT Government procurement for zero waste consumption and minimum amounts of recycled content	The SWIP advocates government procurement of recycled content as an important lever for supporting investment in resource recovery infrastructure that is not directly controlled by the ACT Government, particularly C&D recycling.

Strategic Option 2: Ongoing participation and support to the national food waste initiatives

Managing food waste is at the forefront of the Australian Government's agenda. Strategic dialogue is occurring at all state, territory, and local levels on promoting food waste outcomes, standards, and reducing greenhouse gas emissions. The ACT Government aims to continue to be an active member of the Working Group for the National Food Waste Strategy, contributing to the commitment to cutting the amount of food in Australia by half by 2030. This was agreed by ministers at the November 2016 Meeting of the Environment Ministers (MEM).

Strategic Option 3: Implementation of kerbside FOGO collection service which is aligned with the existing GO bin rollout program

Having an additional kerbside FOGO collection service provides an opportunity to significantly reduce the tonnes of food waste from households currently disposed of to landfill. This has significant benefits, something that was highlighted by a number of submissions from a 2017 market sounding.

The introduction of a FOGO collection service would require significant community engagement together with a comprehensive education program to ensure community buy-in for 'at source' sorting of food organics. This would also include longitudinal education campaigns, which need to be launched well ahead of full roll out as well as staged and maintained over a period of time.

FOGO services have been implemented in 38 local councils in Victoria and 26 in NSW. Other jurisdictions that have successfully implemented FOGO services include Albury, Parkes-Forbes-Bathurst, Lismore, Ballina, Grafton, Orange, Wodonga, Indigo Shire, Wangaratta, Benalla, Strathbogie Shire and Moira Shire.

At this stage, collections are being considered through a parallel business case.

Strategic Option 4: Establishing a composting facility within the ACT that is capable of processing both food and garden organics

In vessel composting is proven, simple, scalable, practical and quick to both develop and operate. There is considerable expertise in the market for offering composting facilities which can be procured through a range of commercial contracts. The ACT Government can contract to supply a minimum volume of waste, collected through the FOGO service, for processing.

This would require the need to develop a compost market which can be supported by the ACT Government contracting to purchase back a minimum quantity of compost that can be used in ACT parks and gardens or sold to the public.

- ACT does not operate waste facilities and all operations for basic recycling at drop-off centres (RDOCs), waste transfer stations and the Material Recovery Facility (MRF) are carried out by contracted entities. Technical maturity and commercial maturity of technologies in the Australian context influence the risk to facility operators and cost implications for ACT.
- The territory governance structure gives ACT direct control over provision of some public services (waste, transport, health, education), and regulatory control over private operations in the waste and resource recovery sector. The ACT intends to maximise the opportunities presented by this governance structure.
- ACT land ownership creates potential opportunities to align strategic planning, efficient development approvals and risk-reduction through contract negotiations in relation to waste facilities. Where appropriate, the ACT intends to maximise the benefits of government land ownership for siting of waste facilities and efficient, cost-effective infrastructure delivery.
- ACT has a responsibility to provide value for money in its services and contracts.
- The ACT can control costs by reducing uncertainty and risk to the processing operation wherever possible.

The detailed benchmarking and analysis of Australian and International Case Studies of FOGO Waste Treatment Facilities was completed as part of the Feasibility Study. Key issues examined included technology, rollout, contamination and compost outlets. This was used to help define options, typical size of projects, level of contamination expected and the potential for the creation of a compost market

The following sites were investigated as part of the validation exercise.

- Tweed Shire Council, NSW
- Bega Valley Shire Council, NSW
- Snowy-Monaro Regional Council, NSW
- Bunbury-Harvey Regional Council WA
- City of Sydney food waste collection trial for MUDs
- Corkhill Bros ACT
- Sacyr Compost Facility, Victoria
- UK experience with organics

Example results of the benchmarking is summarised in Table 13 below, with details of all case studies used included in Appendix F.

Table 14 outlines the project solutions considered. Technologies and outcome-led options have been listed, focusing on household organics, however, some options have been included are flexible for the future integration of commercial waste.

Table 14: Project Solutions Analysis

Scenario	Status	Rationale
In-vessel composting Household FOGO only Approx. 45,000 tpa	Preferred	Meets ACT key objectives while controlling risks through: - Mature technology - Projects delivered in Australia - mature delivery and operational experience - Good environmental and amenity performance - Amenity performance and capability supports reasonable proximity to sensitive receptors, potential to reduce transport costs and emissions - Evidence of strong market demand for quality compost
Dry anaerobic digestion Household FOGO only	Not preferred	Significantly higher capital and operational costs. Clean energy produced by anaerobic digestion (AD) must attract a premium to justify the more intensive processing. Alignment to decarbonisation directions for both gas and transport has been explored. While potential applications exist, reliance on other stakeholders and current valuation of renewable energy in various forms does not clearly support investment in AD.
Open windrow of aerated static pile Household FOGO only	Not preferred	Lower cost but higher amenity risks, particularly when food waste is present. Requires larger buffer zone to sensitive receptors, less ability to control odour.

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Scenario	Status	Rationale
Co-processing clean green waste or woody waste streams with household FOGO	Not preferred	Commercially inefficient. Green waste and woody waste such as forestry residues can be successfully recovered through less costly methods such as open windrow composting, due to lower environmental and amenity risks. Would undermine existing, successful processing operations for clean green waste. Approx. 45,000 tpa household FOGO is adequate for a typical and efficient IVC operation.
Attraction of commercial food waste streams for co-processing with household FOGO (either AD or IVC)	Not preferred Can be accommodated in future	Expected household FOGO tonnage is adequate for an efficient and cost-effective processing operation. Arup recommend that the facility be sized to accept approximately 45,000 tpa of ACT kerbside organic from 2023, to minimise uncertainty and risk in the initial tender. Provision for expansion can be supported in the land tenure and tender specifications. ACT cannot direct commercially collected waste volumes. These would have to be attracted on a commercial gate fee basis. A range of other organics processing outlets already exist for some commercial food waste streams and preserving diversity and competition in this space is desirable. Reliance on these tonnages within baseline throughput would increase uncertainty and commercial risk regarding the scale of processing. Food waste streams from sources such as hospitals, schools, offices and food businesses pose different contamination risks and operational challenges. Reliance on these streams would very significantly increase the work required in stakeholder education and engagement to control contamination. This may not be achievable within the timelines required for household FOGO commencement. This approach strikes a more appropriate balance between securing suitable processing infrastructure for household FOGO and investigating opportunities to improve organics diversion in other sectors.
Design of AD or IVC to accept organic feedstocks from other LGAs	Not preferred	The ACT does not require additional feedstock to achieve a viable and efficient scale of processing for FOGO organics.

3.4.4. Base Case

The Base Case assumes that the ACT Government does not introduce compulsory household FOGO collection and processing facility. In this case the ACT would continue only using an opt-in service for green waste, and food waste in the general rubbish bin. Additional options include the provision of information and/or minor funding to support community gardens and home composting for enthusiastic members of the community.

Additionally, the ACT Government are trialling FOGO for 5,000 households to:

- a.) deliver a service that replicates and tests a recommended industry collection model;
- b.) successfully engage the community on the future FOGO collection service;
- c.) gather data and lessons learned to inform the city-wide rollout;
- d.) process the collected materials into a beneficial reuse product; and
- e.) successfully lead into the city-wide rollout of household FOGO collections.

Investigations are underway to determine whether this could be achieved at the existing garden organics collection site at Mugga Lane. This however cannot be scaled up to a large scale. This maintains the status quo and would not progress any of the objectives or policy guidance for the ACT Government. However, this option would also not impose any additional costs.

3.4.5. Recommended Project Solution

Preferred Project Solution

- In-vessel composting
- Household FOGO

In-vessel composting focusing on ACT household FOGO feedstock is the preferred option for the procurement process. In-vessel composting focusing on ACT household food and garden organics delivers on ACT objectives for resource recovery and emissions reduction, while managing environmental and commercial risks through the use of mature, controlled processing technology with a track record of project development in Australia. The ACT does not require additional feedstock to achieve a viable and efficient scale of processing for FOGO organics, however it is anticipated that the size of the facility may enable an operator to attract quantities of commercial feedstock which will be complimentary to the operation. Whilst contamination will be a major focus for all feedstocks this will need to be managed appropriately depending on source. Different strategies will be required when contracting with commercial clients. Notwithstanding this, it is not anticipated to present any significant issues with respect to compost production and quality.

The Directions paper identified in-vessel composting as the preferred organics processing technology for the ACT, based on the objectives, constraints and risk appetite for the Territory. The value of renewable energy in various forms was investigated but found to be below the level which would be needed to justify more complex and costly dry anaerobic digestion options for FOGO material, while the lower level of control over odour and amenity in open-windrow composting was undesirable given the metropolitan context of the ACT and the Territory's desire to offer ACT-owned land as a potential site during the procurement process.

Table 15: Components of IVC project cost

	Components	Capex/opex	Comments
Development costs	• Design • EIS process requirements • Permitting and licencing, including both waste and environmental licencing conditions.	Factored into capex	Permitting risk borne by ACT for ACT-owned site although sometimes undertaken by developer and part of tendered scope of work.
Utilities	• Electricity – supply only • Water – supply only	Connections: Capex Consumption: Opex	Water storage and recycling onsite. Non-potable water supplies considered.
Civil Infrastructure	• Buildings – receival hall, processing sheds, site offices • Roads • Pavements • Weighbridges • Offices • Amenities • Lighting • Leachate tanks • Water Tanks • Fire Services • Biofilters / Air scrubbing	Capex Maintenance: Opex	
Fixed plant and equipment	• Shredders • Conveyors • Screens • Grinders • Composting tunnels • Fully enclosed maturation process area including air delivery systems	Capex Maintenance: Opex	Fixed components sized for maximum expected throughput.

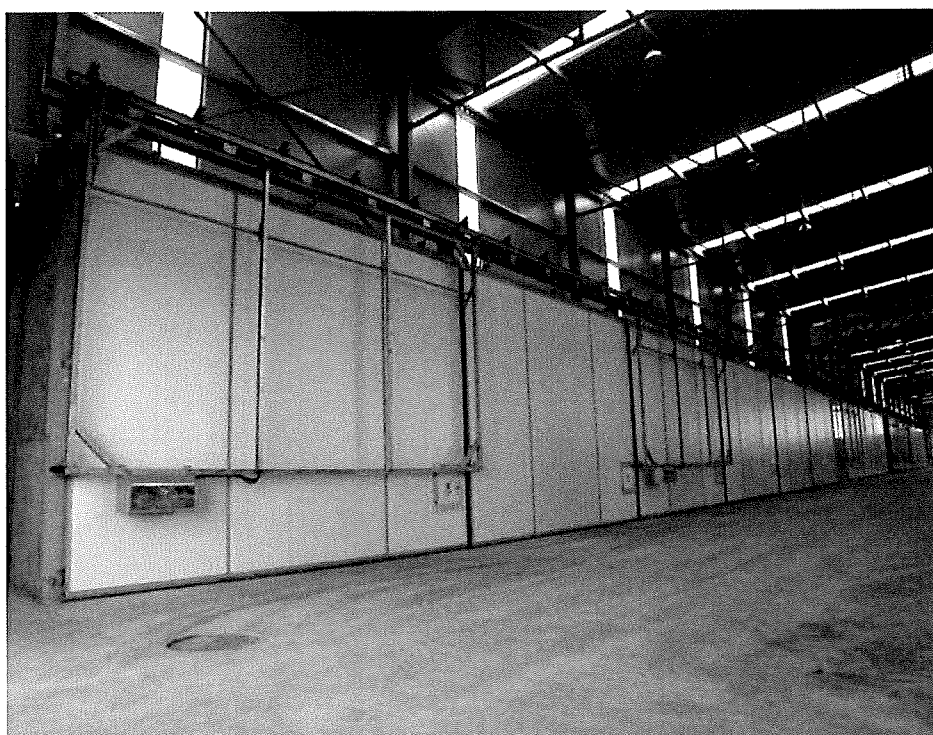


Figure 7: Example of a composting tunnel, external view. Image supplied by technology composting provider Christiaens



Figure 8: Example of a composting tunnel, internal view. Image supplied by technology composting provider Christiaens

4. Cost & Contingency

This section outlines the methodology and approach used to estimate capital costs, operating costs, project and delivery model contingency. The following chapter outlines:

- Benchmarking analysis that has been used to form the basis of estimated costs for the FOGO facility
- Detailed assumptions for capital and operating costs
- Approach undertaken to estimate project and delivery model contingency
- Overall Budget and funding strategy

4.1 Benchmarking Analysis

The capital and operating costs for the FOGO Facility have been estimated using a benchmarking analysis of the following:

- Recent tenders for a comparable waste project in NSW
- Publicly available information on domestic and international IVC facilities

The capital costs for this project are estimated to be █████ per tonne. This comprises development, construction, major maintenance, contingency costs as well as operator profit margin.

Operating costs amount to █████ per tonne, which consists of staffing, education, maintenance costs and operator profit margin. The public information market benchmarks used exclude staffing and insurance costs, therefore for the purpose of this benchmarking analysis we have excluded staffing and insurance from the project benchmarks. Operating costs excluding staffing and insurance for the facility is █████ per tonne, as show in Figure 11.

Capital costs are sensitive to build quality and the technology solution applied. The build quality presented in this business case is assumed to be best practice tunnel design and processing (highest amenity and limited impact). Based on our analysis and wider project experience, there are limited facilities in Australia with similar technology to compare as the market is simply less mature than overseas. This means that some benchmarks found are not as relevant to this project. In order to reflect the best-in-class technology, high quality solution and the context that an Australian company will be providing the integration works (which means high labour costs when compared to other countries), a higher cost estimation benchmark has been used. Figure 10 and Figure 11 shows CAPEX and OPEX rates on a per tonne basis for the FOGO capacity in comparison to the other benchmarks.

throughput in a smaller tunnel. This means lower overall construction costs, but the quality of the end product may not be as high.

- Parameters – Tenderers proposed slightly different methods of tunnel construction, flow rates of air and water, thus leading to variation in costing.
- Material quality – Different costs of processing equipment were proposed based on build quality and supplier.
- Contamination removal – Different configurations for contamination removal equipment (pre processing)
- General variance in company costing structures.

Company A's design solution was considered to align best with the design for this Project and therefore this Project was benchmarked against Company A's tender costs. Company B and C's cost structure was considered to be incomplete and unreliable, especially for OPEX, and therefore were not considered as reliable data points for consideration.

In addition to the tender information, a range of publicly available information were sourced to assess the range of capital and operating cost ranges on a per tonne basis. Key reports that were used include:

- Wrap, *Realising the value of organic waste* (2008)
- Arcadis, *Assessment of the options to improve the management of bio-waste in the European Union* (2009)
- ACT Government, *Economic Modelling of Options for Waste Infrastructure in the ACT* (2010)
Sustainability Victoria, *Biological Recovery of Organics* (2017)

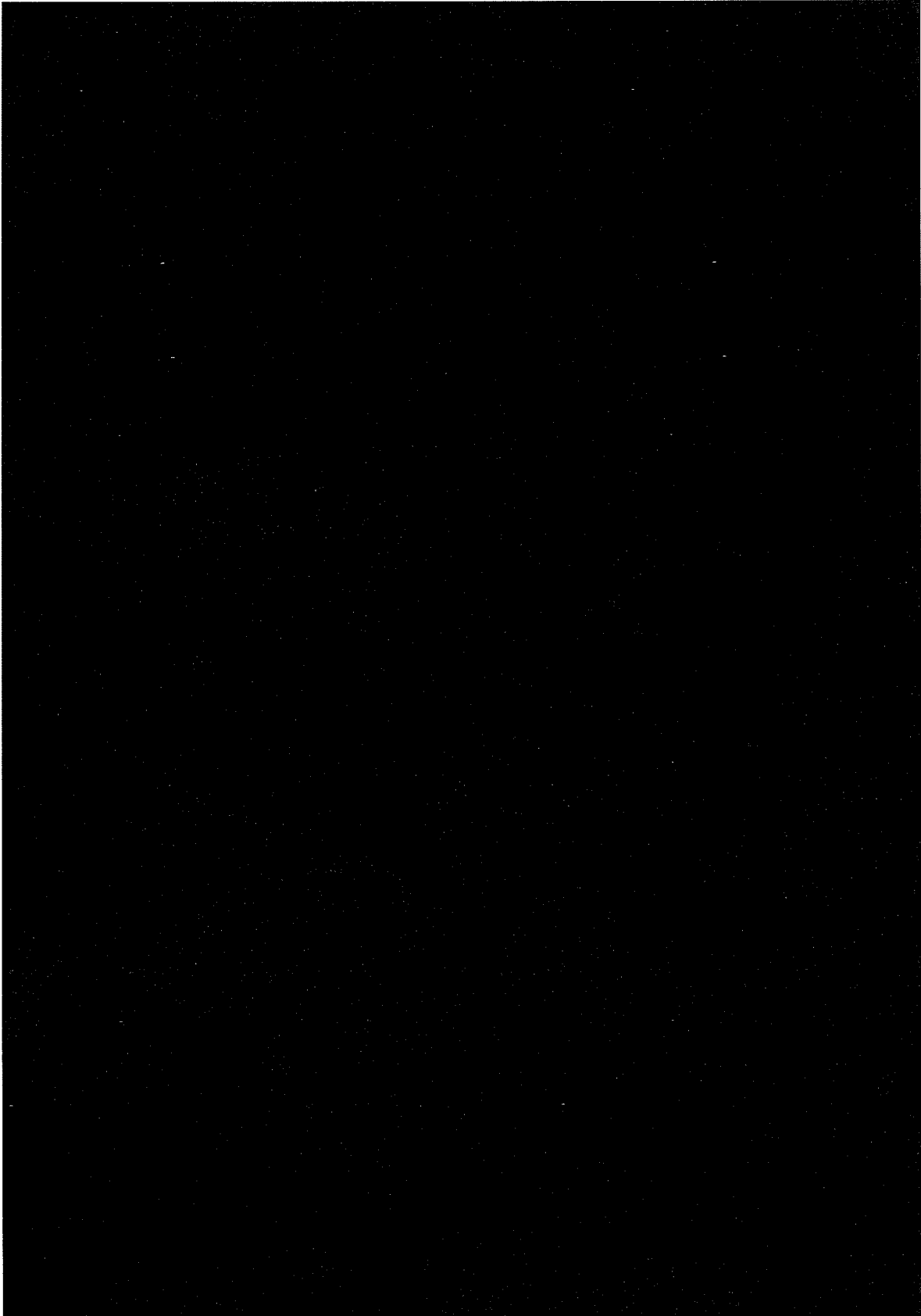
It is important to note that the parameters sought from publicly available information lacks sufficient transparency on the exact technology, build quality, and the majority of data points are from outside of Australia, and therefore cannot be accurately relied upon for appropriate comparison. The cost parameters of overseas facilities will be significantly lower than has been estimated for this project, as labour in Australia has approximately a premium of 30% to 40% in comparison to international benchmarks.

Due to the high build quality and best in class technology proposed for this project, there is insufficient relevant benchmarks that can be used and therefore a higher benchmark in comparison to the tenders and public information has been sought. Detailed assumptions underlying the capital and operating costs are discussed in Section 4.2.

4.2 Preliminary Cost Estimate

4.2.1. Capital Costs

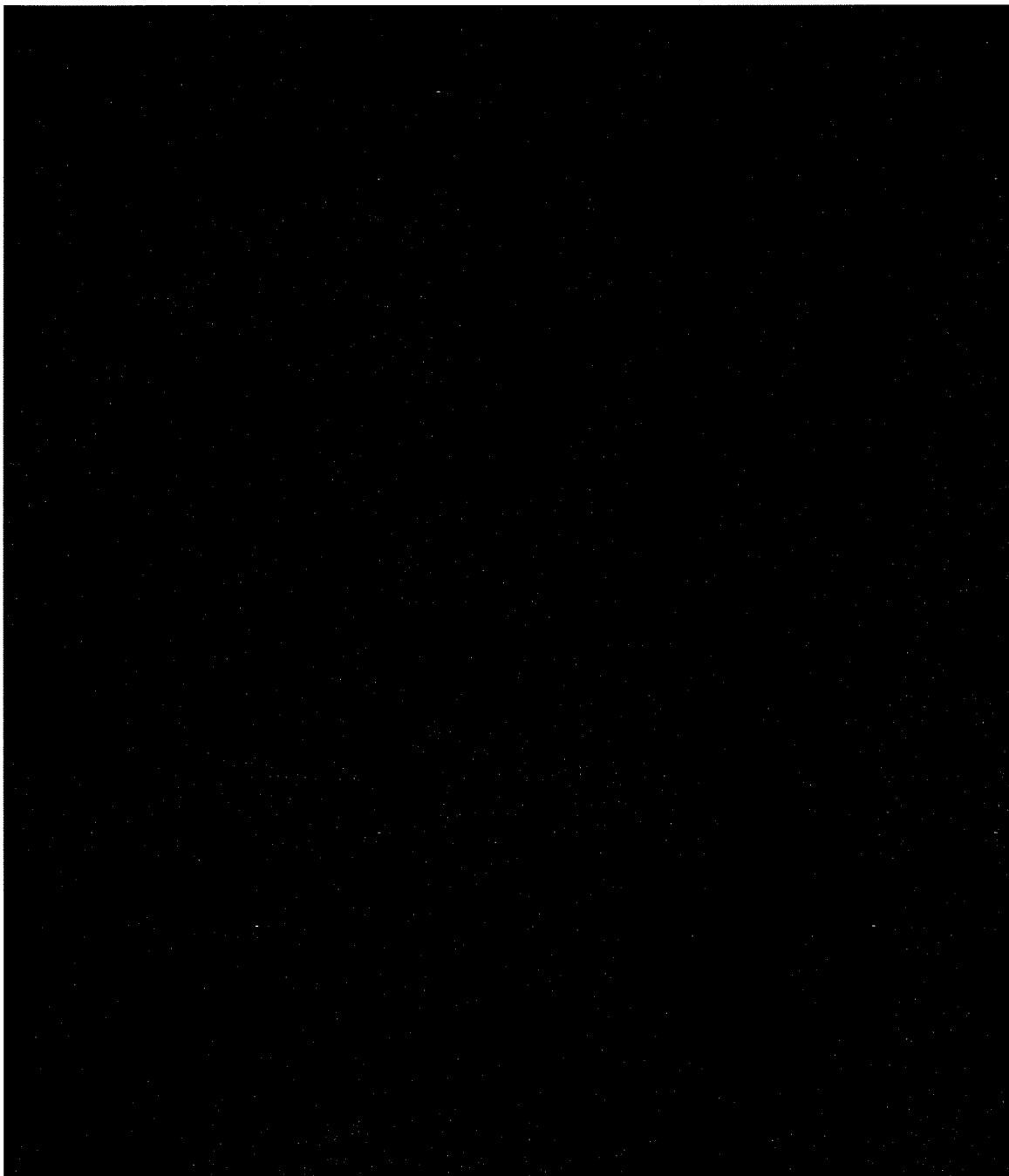
The estimated capital costs (excluding risk adjustment) for the project are summarised in Table 16.



Project operational costs are the costs incurred in the day-to-day operations and maintenance of the facility. The table below sets out each of these parameters alongside a broad description as to how they were devised.

The costs are preliminary and would be firmed up through the tender process within the contracting methodology with a fixed price scoping approach to O&M services. Note that lifecycle maintenance has been included in the capex section of this report.

Table 20: Detailed assumptions for operational costs

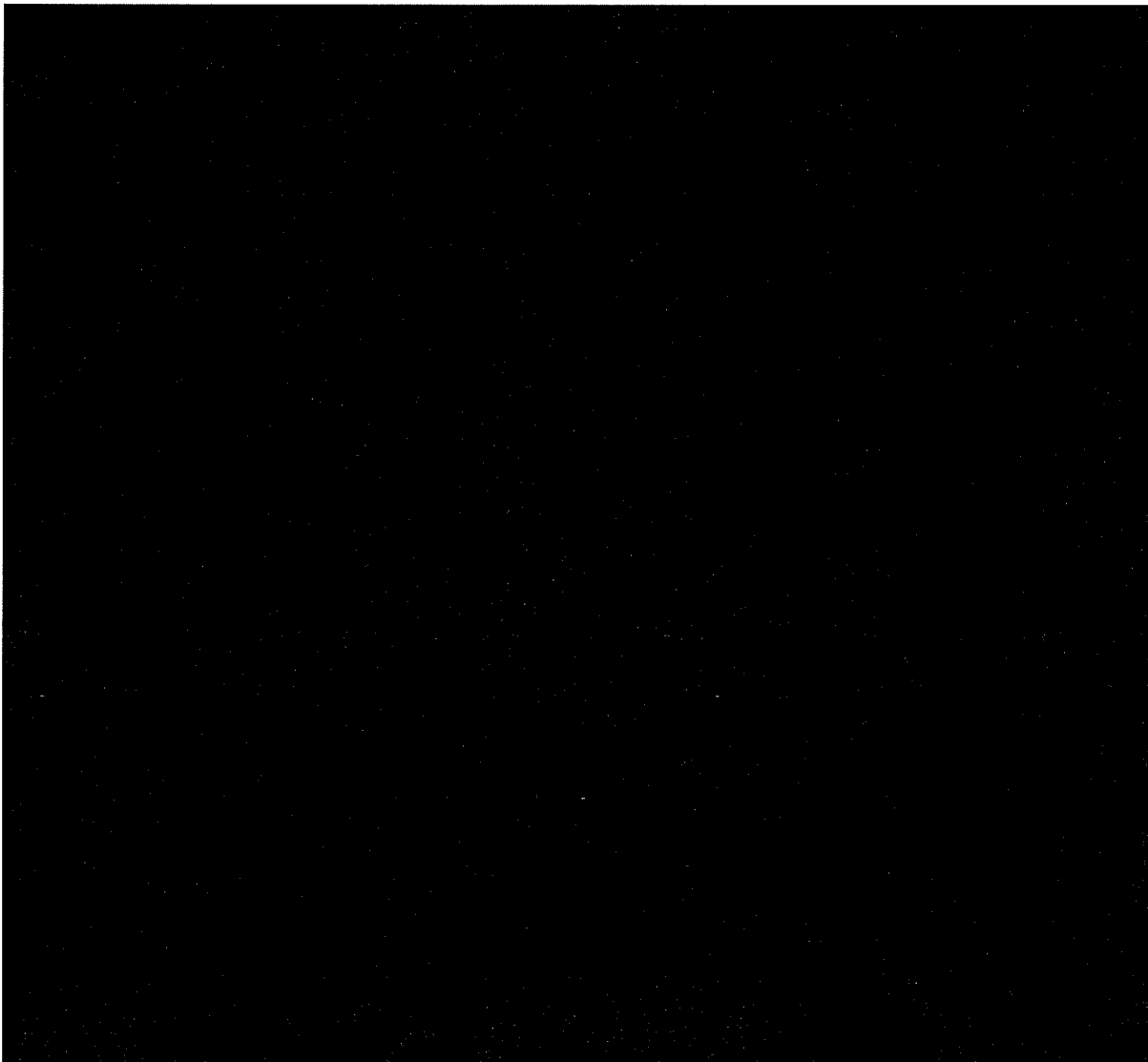


Contingent risks are generated from the outputs of the risk register (Appendix C) which involves a qualitative and quantitative assessment of each risk. This assessment provides a likelihood and severity rating for each risk based on assumptions and credible scenarios which is then used to develop the inputs into the Monte Carlo simulation.

The development of the risk register was conducted by key stakeholders and project group members to ensure that all risks are captured, likelihood and impact are calculated, and potential mitigation strategies considered.

A total of 35 risks were considered in the risk register, 15 have been quantified through the Monte Carlo simulation. The quantified risks assessed through the Monte Carlo assessment are summarised in the table below. Additionally, whether the cost or revenue drivers are impacted by the risk has also been identified.

Table 21: Risk quantified through Monte Carlo simulation



4.4 Budget / Funding Strategy

This section sets out the budget impacts of the preferred option. A budget impact statement analyses the budget impact of the proposed project (savings and costs) and implications for the Directorate including additional staff, equipment or any financial impacts on other Directorates that are not included in the financial model.

Under a DCMO, the government will finance the project in full. Payments to the contractor, which include a profit margin, will be made according to an agreed schedule. Separate schedules will be in place for the construction and operational phases of the project but included in the same contract.

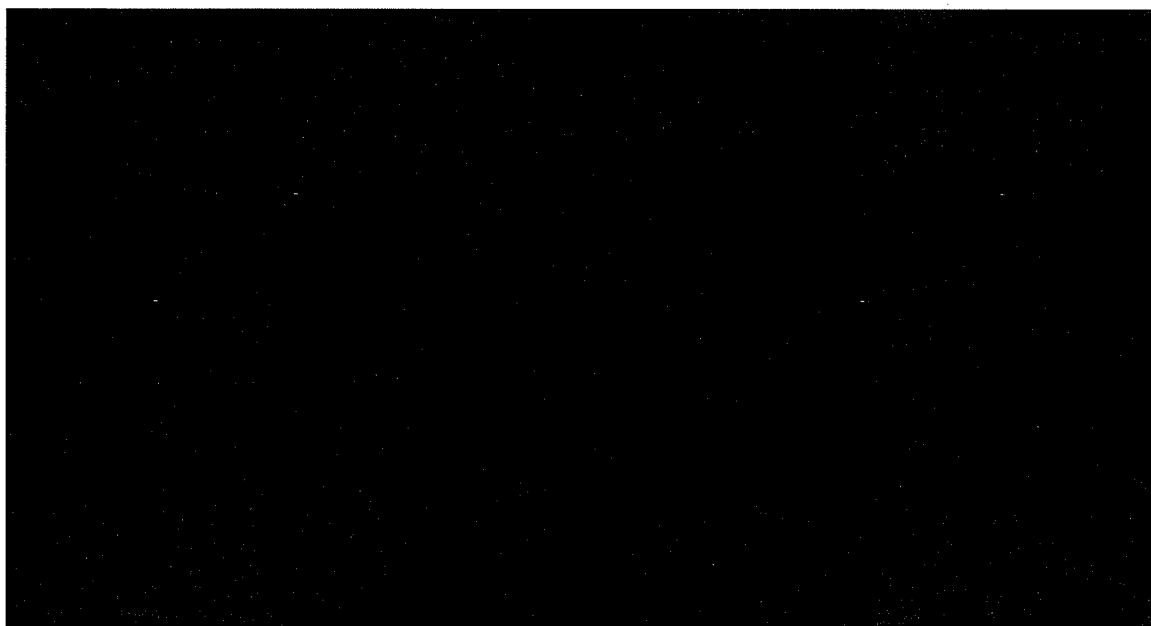
Capital payments are assumed to commence on 1 April 2022 prior to construction to enable the contractor to complete design and planning works. Capital payments will continue until the end of the construction period. Funding has been provided in the 2021-22 Budget to undertake the Environmental Impact Statement (EIS) process and early preparation of term sheet for the DCMO procurement.

Similarly, payments to the contractor will be made during the operating period according to an agreed schedule. These payments will continue until 2044, the end of the operating period. The exact schedule for payments will need to be negotiated with the contractor.

Government lawyers and/or external lawyers will also be required. Cost associated with other technical advisors required for the development of the project are included in the project capital costs. Once operational, staffing impacts will be minimal and only required to ensure contractor performance and compliance as well as to facilitate payment.

The following preliminary financial impact summary is for a DCMO delivery.

Table 23: Preliminary Financial Impacts Summary (\$)



5. Economic Analysis

The project realises a number of benefits, including economic, social and environmental benefits. To capture these an analysis' have been undertaken.

- Cost Benefit Analysis
- Social Analysis
- Environmental Analysis
- Wider Economic Benefits

The following table summarises the key project benefits, with only the economic benefits assessed quantitatively.

Table 25: Project Benefits

Category	Benefits
Economic Benefits (CBA)	• Reduced Greenhouse Emissions • Delayed landfill investment • Reduction in leachate treatment costs
Social Benefits	• Employment • Health and wellbeing
Environmental Benefits	• Methane emissions reduced • Improved water quality • Enhanced soil quality
Wider Economic Benefits	• Improved agriculture productivity • Contribution to the circular economy

Table 27: CBA Key Parameters

Element	Category
Discount year	FY 2021
Discount rate	■
Price base year	FY 2021
Operations start date	1 August 2024 (DCMO)
Evaluation Period	30 years

5.1.1. Methodology

Reduced Greenhouse Gas Emissions (GHGs)

The project's ability to reduce GHGs, particularly methane was assessed using the National Greenhouse Accounts Factors for landfill and the biological treatment of solid waste. GHGs were measured as the incremental benefit of the FOGO facility above or below the base case, landfilling the waste. It was assumed for the economic analysis that feedstock would comprise approximately 70% garden organics and 30% food organics.

The social cost of carbon (SCCC) has been assumed as \$20/tonne, taken from the ACT Government Climate Change Strategy 2019-2025, and seen as an appropriate value given the project represents a Government initiative to reduce emissions. The social cost of carbon has been adjusted over the operating period of the FOGO facility to consider the expected increase in the willingness to pay for carbon initiatives in the future, and the need to maintain zero net emissions. Using taking the mid-point of \$65 / tonne reported in RepuTex modelling of the carbon offset price in 2040 (assumed to \$30-100/tonne), a YOY growth rate of 6.4% to the cost of carbon has been applied.²⁰ As there is some uncertainty in this, sensitivities have been included in the economic analysis of the future price of carbon,. Both \$30 and \$100 per tonne have been tested.

The base case calculates the methane (MH₄) emissions using the conversion factors summarised in Table 28 below. It also assumes that 75% of methane is captured. This capture rate is assumed to be appropriate as insufficient information is available on the landfill. Additionally, it is difficult to estimate the capture rate over the whole of life of a landfill facility, and therefore a 75% capture rate is considered the most reasonable measure based on technical advice.

²⁰ReputTex Energy, 2020, CO2 offset price of \$30-\$100/t in 2040 for Australia to reach and maintain net-zero emissions. Retrieved: <https://www.reputex.com/research-insights/co2-offset-price-of-100-t-for-australia-to-reach-and-maintain-net-zero-emissions/>

landfill development. Based on the proposed FOGO facility capacity, it has the potential to defer the need for a new landfill by five years by 2050.

This value of delayed investment is captured through discounting the landfill remediation and capital costs when incurred in 2050 or 2055. The cost of landfill closure has been taken from the 2009 Department of the Environment, Water, Heritage and the Arts paper on landfill costs, originally sourced from the WMAA National Landfill Division in 2006. Cell development has been used as a proxy of cell treatment during closure and rehabilitation, which has been added to capping and aftercare, bringing the total cost of closure to \$11 / tonne (2006). The total volume of feedstock has been used as proxy of total tonnes remaining in the Mugga Lane Landfill. It is key to note that this is not the total capacity of the landfill, as this is not provided, however, is used as a proxy to understand the potential economic value of delay.

Table 30: Estimated costs for large best practice landfill in Australia (Source: Waste Management Association of Australia (WMAA) National Landfill Division in PC 2006 and WCS unpublished)

Type of cost	Cost per tonne of waste (WMAA) - \$2006
Cell development	\$6.5
Capping and rehabilitation	\$2.5
Aftercare	\$2
Total Cost	\$11
Volume treated	
Volume	40,000 tonnes

Reduction of leachate

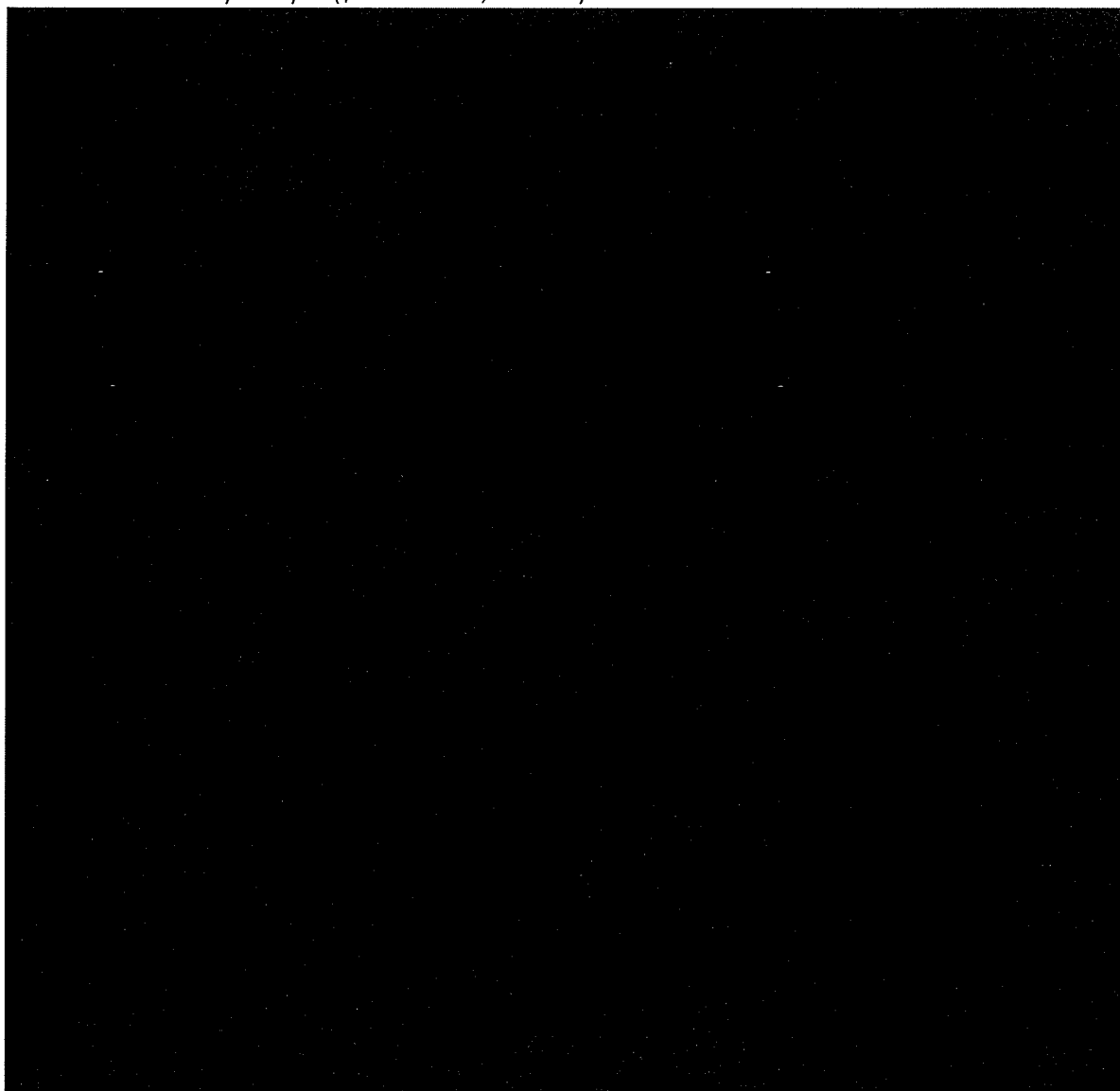
Leachate is a liquid that passes through solid waste, that has been contaminated by a range of compounds or toxins, including organic waste, which creates significant externality costs.²¹ By re-directing compost from landfill, this environmental impact can be mitigated and cost reduced. The external cost of leachate has been taken from the 2006 Australian Productivity Commission Report, accounting for the risk that leachate will damage human health and the environment. This external cost has been taken as \$1 per tonne (2006) and escalated to 2021 values for the economic analysis.

5.1.2. Results

Table 31 summarises the results from the Cost Benefit Analysis. The economic analysis shows that the project is anticipated to create economic value for the Territory, with a BCR of **0.56** with a 7%

²¹ Australian Productivity Commission (2006), Waste Generation and Resource Efficiency

Table 32: Sensitivity Analysis (\$ Discounted, FY 2020)



5.1.4. Social Analysis

Studies regarding the social aspects of a circular economy, in this case employing a waste recovery strategy, have identified several social benefits. Employment being the primary impact on the community, followed by quality, wellbeing and willingness to pay for food composting.²²

Employment

Investment in the FOGO facility will create employment opportunities during construction and operations. Based on a 2009 NSW Treasury Paper, for every \$1m spent in Construction Trade

²² MDPI, *Addressing the Social Aspects of a Circular Economy: A Systematic Literature Review*, 24 September 2020

dwelling count forecast using EPSDD new dwelling occupancy projections 2018-2047. The WTP benefit would be realised on a per household basis, regardless of the number of occupants.

The number of households participating in the scheme is outlined in the table below.

Table 13: Number of households expected to be onboarded

Year	2024
MUD FOGO-onboarded Dwellings	6,063
MUD FOGO incremental onboarded Dwellings	3,832
SUD FOGO-onboarded dwellings	249,821
SUD FOGO incremental onboarded dwellings	116,490

5.1.5. Environmental Analysis

The implementation of this project positively impacts the environment through creating an activated waste sector. Benefits include:

Improved water quality

The primary method of waste disposal in ACT is landfill which has negative environmental impacts through leachate discharges, greenhouse gas emissions, loss of visual amenity, foul odours and harbouring of disease-carrying pests. The other alternative that is often used is incineration which can produce toxic emissions if not controlled properly. Preventing organic wastes going into landfill has the potential to reduce the potency of leachate infiltrating into the groundwater and impacting water quality.

5.2 Wider Economic Benefits

Wider economic benefits are the improvements in economic welfare that are not typically captured in a CBA. These benefits are generally difficult to quantify and have been presented qualitatively.

The FOGO processing facility along with the resultant recycled organics, should have a wide range of wider economic benefits that bring added value to the Territory, public and industry. These benefits are outlined in the sections below.

Improved agriculture productivity

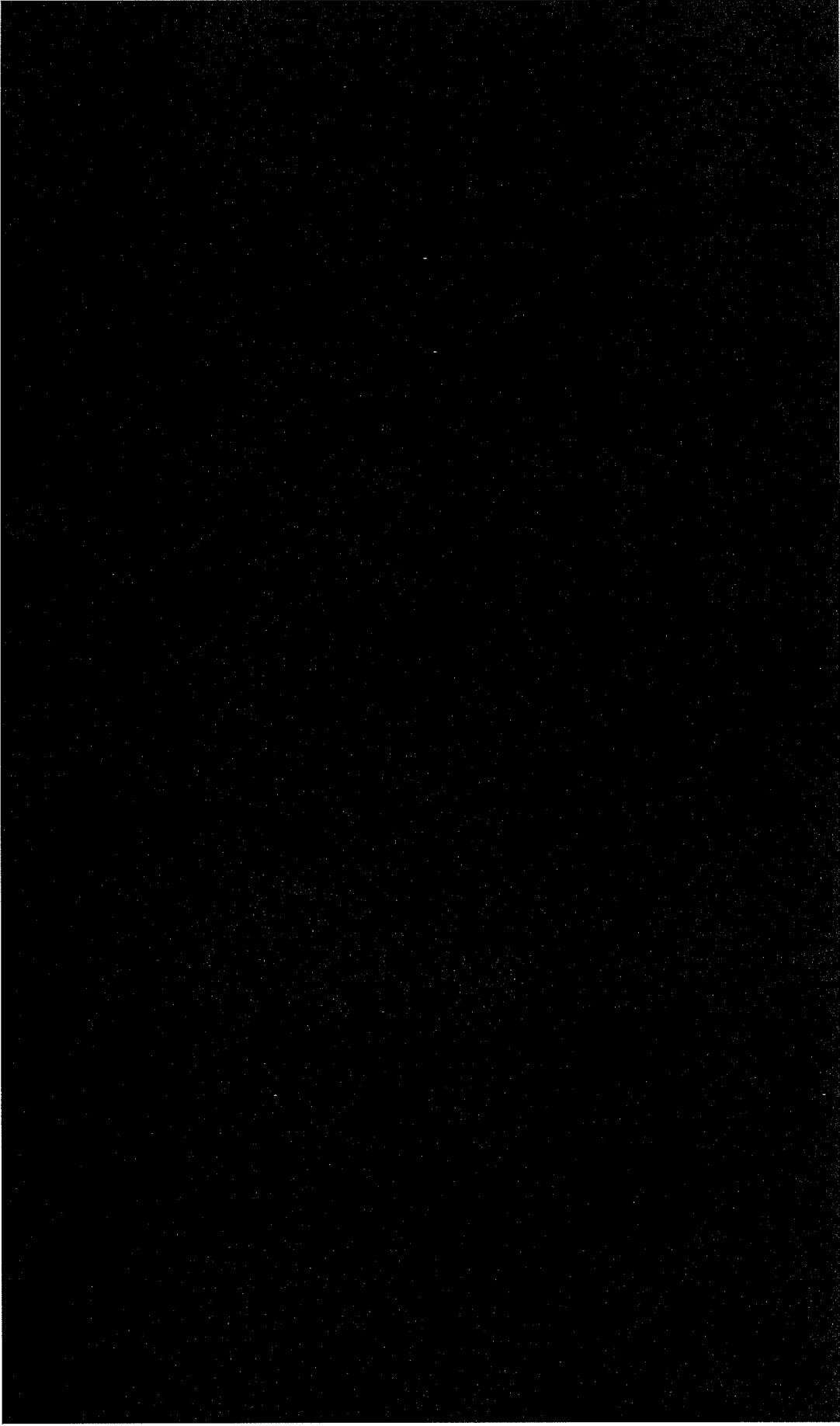
The benefits of organic compost for soils for agriculture crops and landscape maintenance far outweighs the use of synthetic fertilisers. Organic fertilisers have a greater capacity to hold and store nutrients, increasing soil fertility and as such soil organic carbon. Additionally, compost can aid in

Opportunity	Description	Real GDP (2047-48, present value \$million)	Employment (2047-48, FTE)
Food			
Nutrient recovery and recycling	Converting nutrients in organic waste into fertiliser	1,597	233
Biogas from organic waste	Converting organic waste to renewable energy	8,834	823
Water use efficiency	Improving the efficiency of water use	29,899	4,510
Food waste	Reducing waste in the consumption of food	37,141	-2,936

Figure 11: Circular opportunities in the food industry

Currently landfilling is used in the ACT is a linear approach in waste management. FOGO processing, managed effectively can be a part of the circular economy for food that helps rebuild soil health, recovers valuable resources, and provides feedstock for energy plants.

impacts and potential mitigations of the risks considered in the Risk Management Plan in Appendix E.





These commercial principles have been used in a Multi-Criteria Analysis that was the basis of selecting the preferred delivery model, as outlined later in this chapter. A description of each of these principles based on the *ACT Government Capital Framework, Draft Delivery Model Analysis Guidelines* is summarised in Table 34 below.

Table 34: Definition of key commercial principles

Commercial Principle	Description
Time to deliver	The extent of time required to prepare and procure the project, and commence operations.
Flexibility	Operational flexibility: the extent to which the delivery model enables the Government to retain flexibility in terms of the project's operational profile. Future scope changes: the extent to which the delivery model assists the Government in managing and implementing changes to the functional requirements of the project over time (both during the design and construction stage and subsequently).
Level of integration / Bundled services	The level of integration between construction, ongoing maintenance, and facilities management.
Level of risk transfer	The extent to which the delivery model facilitates a transfer or project risks from the Government to the private sector contractor.
Innovation and incentive	The existence of opportunities and incentives within the delivery model to drive innovation.
Output specification	The Project Team clearly understands the output requirements from the project and can readily measure outputs. The easier this is to define, the more suitable to complex, integrated models.
Cost and level of complexity for Government	Level of cost and complexity of the procurement process, both for the public sector and for bidders. Additionally, the costs to establish and maintain relationships between the parties and level of ongoing Government involvement.
Price certainty	The importance of price certainty to the project, associated with the project risk profile and need for flexibility.

The relative importance of each criteria and level of consideration when selecting the most appropriate delivery model is outlined in the table below. Note that this relative importance is quantified later in this chapter.

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Criteria	Description
Output Specification	The Output Specification would be limited to stipulating compliance with relevant environmental standards and the required waste feedstock level being pre-defined. This lends to a model which would not require detailed designs to be provided to bidders, particularly as there are options for bidders to deliver this project using various technology solutions or uses for produced compost.
Procurement cost and level of complexity for Government	This project requires balancing the need to leverage private sector know-how, capacity, and innovation potential, with minimising unnecessarily complex contractual arrangements. [REDACTED] This commercial principle is considered to have a medium level of importance given the project is small in scale and therefore less complex.
Price certainty	Price certainty is important for this project and is sought for most government projects. Given constraints in the ACT's current and future budgets, price certainty is of high importance for this project.

Data area	Key observations
	[REDACTED]
	[REDACTED]
	[REDACTED]
	[REDACTED]
	[REDACTED]
	[REDACTED]
Market Sounding - 2020	Soft Market Sounding was completed as part of the Feasibility Study with various established and reputable players in the FOGO market. Please see the section below for a summary of the findings of the market sounding.
Market Sounding to inform FOGO facility delivery model November-December 2021	The ACT undertook a market sounding in order to gain insights from the market before commencing the procurement process, specifically feedback on potential opportunities and constraints that should be considered in structuring the proposed procurement and associated delivery model. The market sounding process provided an opportunity for the market to input into the design of the project's commercial structure.

6.3.2. Market Soundings

Arup conducted a soft market sounding with various established and reputable players in the FOGO market. This included technology providers and facility operators with experience across a range of contractual models. Key findings have been anonymised to protect commercial-in-confidence information and are summarised in Table 38.

Table 38: Summary of soft market sounding findings

