



WASTE  
AUTHORITY

WA...TOO GOOD TO WASTE

# Strategic Waste Infrastructure Planning Project (SWIP)

Update

- Technology

Jill Lethlean

Manager

Waste Management Branch

Department of Environment Regulation

# Four elements

1. Planning and Approvals
2. Facilities and Sites
- 3. Technology**
4. Governance and Funding

## Aim of technology component

- Identify what types of waste and recycling infrastructure is required to achieve the waste diversion targets
- Estimate how much infrastructure is required to achieve the waste diversion targets

# What do we want from the technology?

- Reliable
- Flexible
- Provide sufficient capacity
- Good environmental performance
- Cost effective
- Be able to meet the waste diversion targets

# Processing technology categories considered

- Materials recovery facility (MRF)
- Mechanical biological treatment (MBT)
- Enclosed composting (including anaerobic digestion)
- Open windrow composting
- Thermal waste to energy (W2E)
- C&D recycling facility

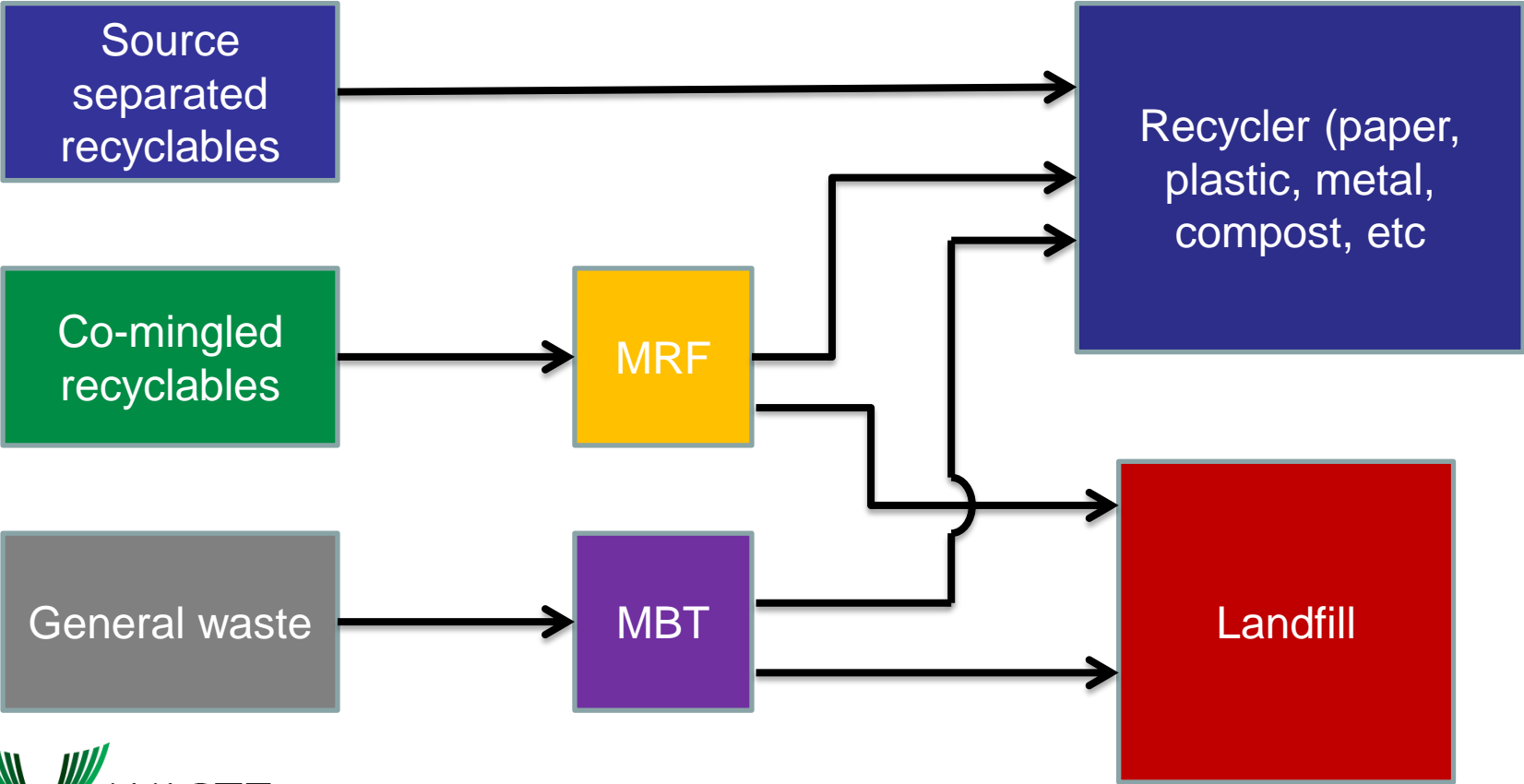
## System options – treatment of residuals

1. MBT producing “compost-like organics” (CLO)
2. MBT producing refuse-derived fuel (RDF) for W2E
3. No MBT, residuals straight to W2E
4. No MBT, no W2E – residuals straight to landfill

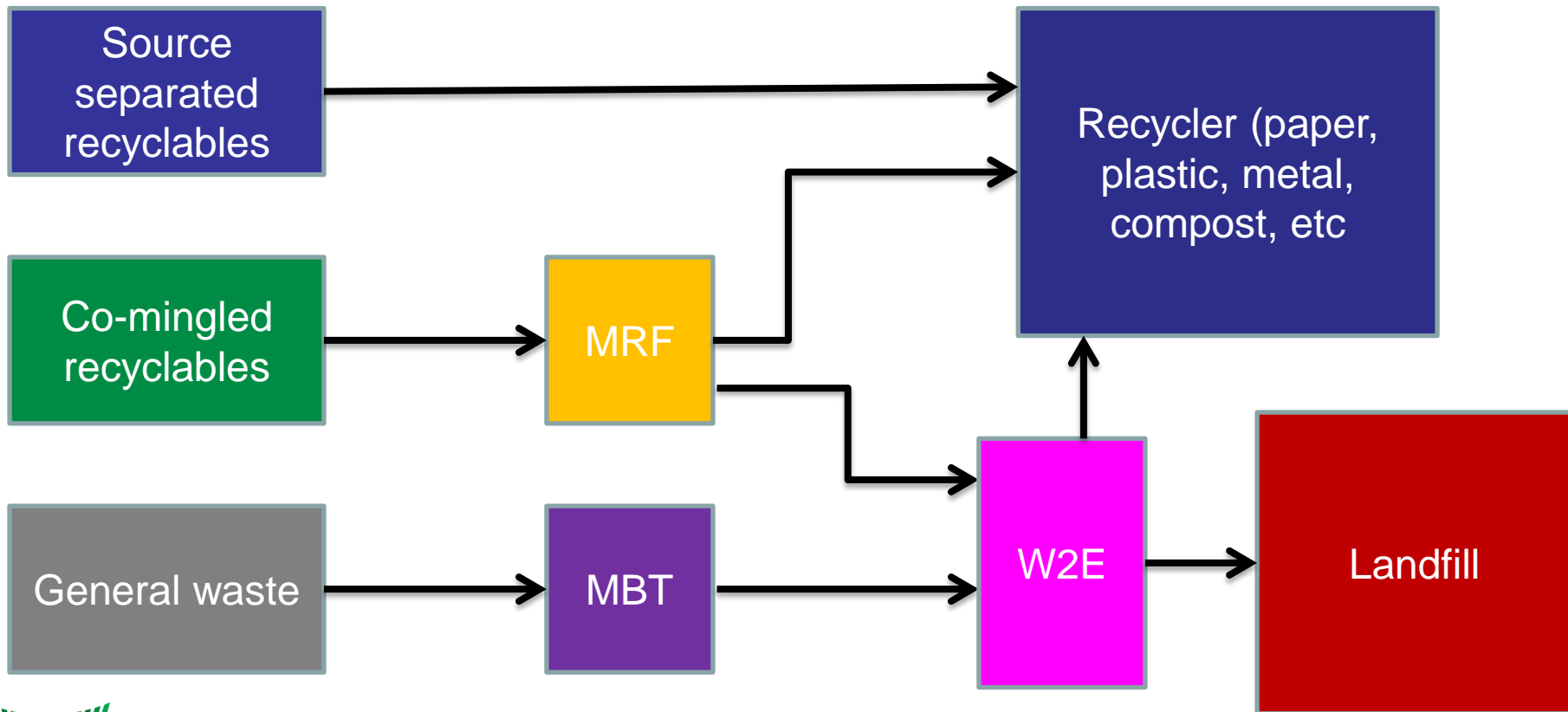
Each option includes:

- enclosed and open composting of source-separated organics
- sorting through a MRF of co-mingled recyclables
- source-separated and mixed C&D recycling facilities

# System Option 1 – MBT to CLO

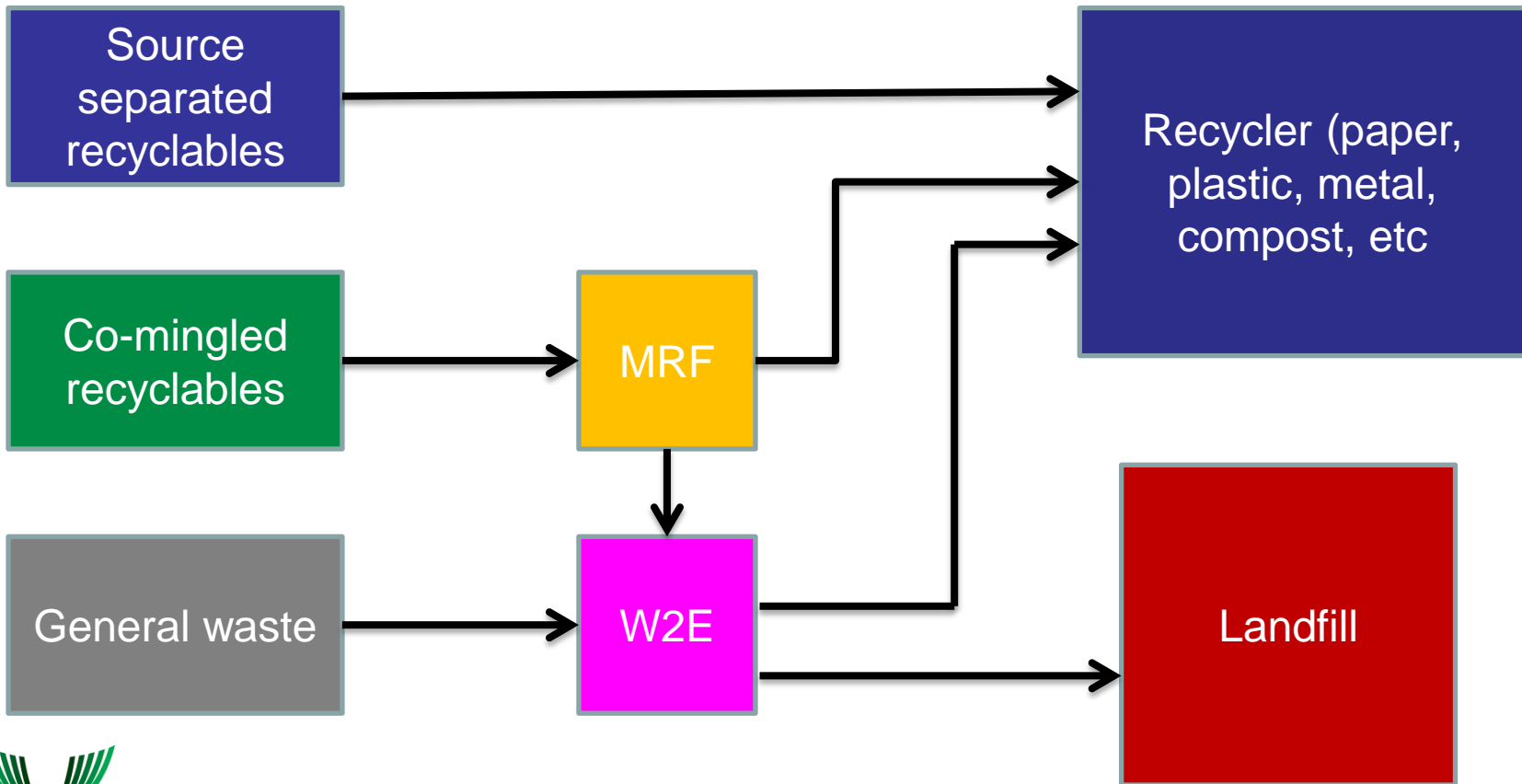


# System Option 2 – MBT to RDF

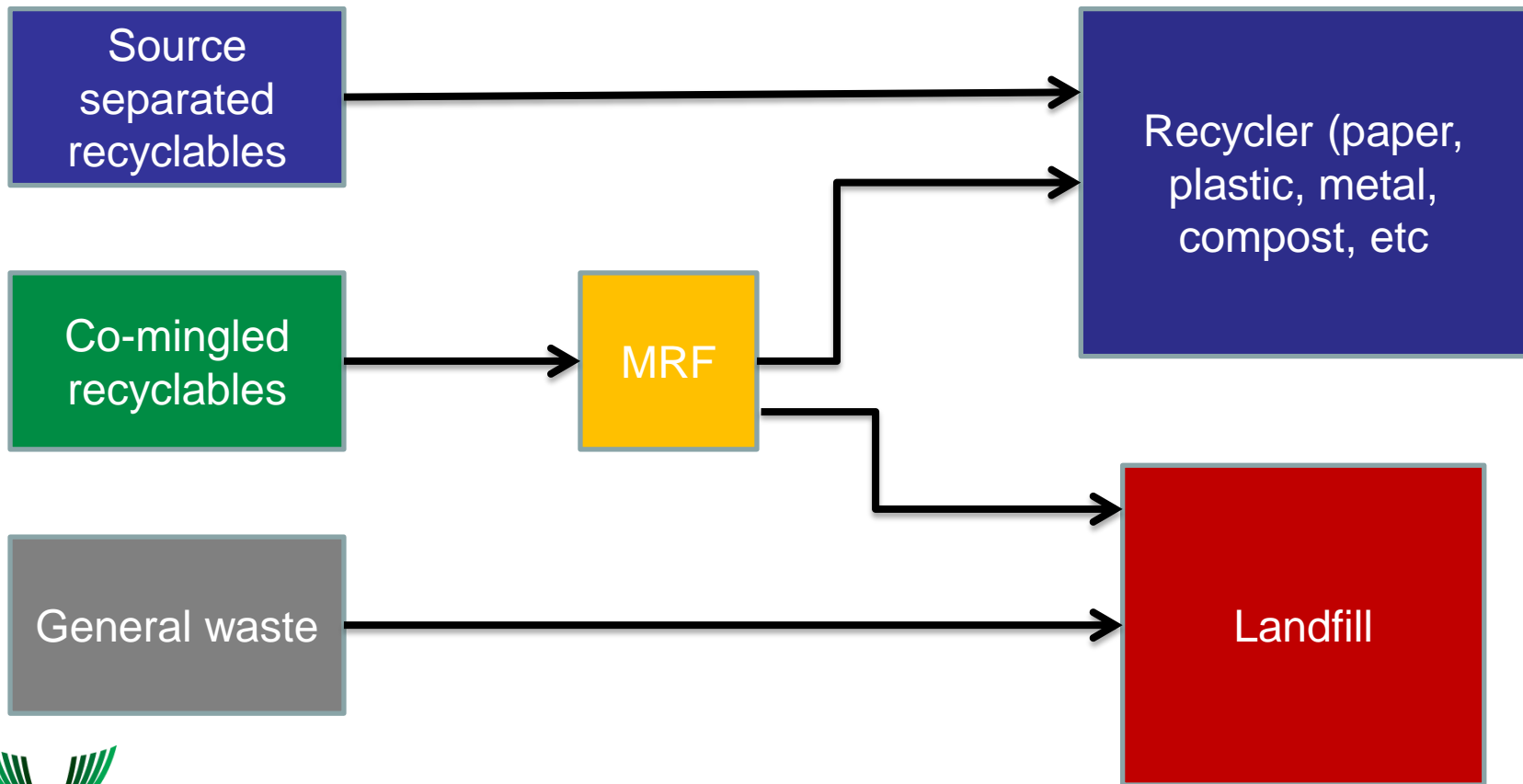




# System Option 3 – Residuals to W2E



# System Option 4 – No MBT, no W2E



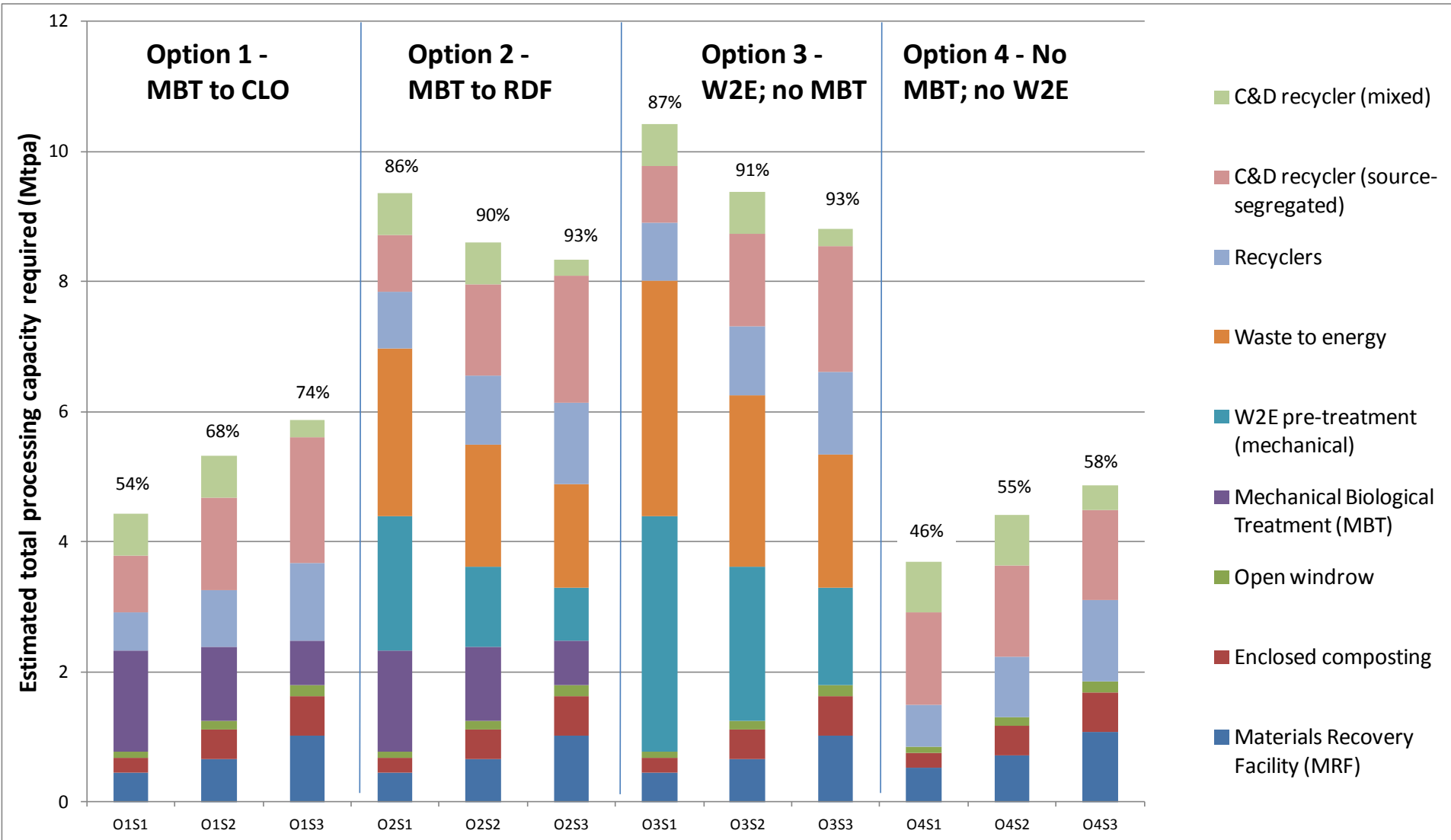
# Sensitivity analysis

Scenario 1 – High waste generation and low source-separation (30%)

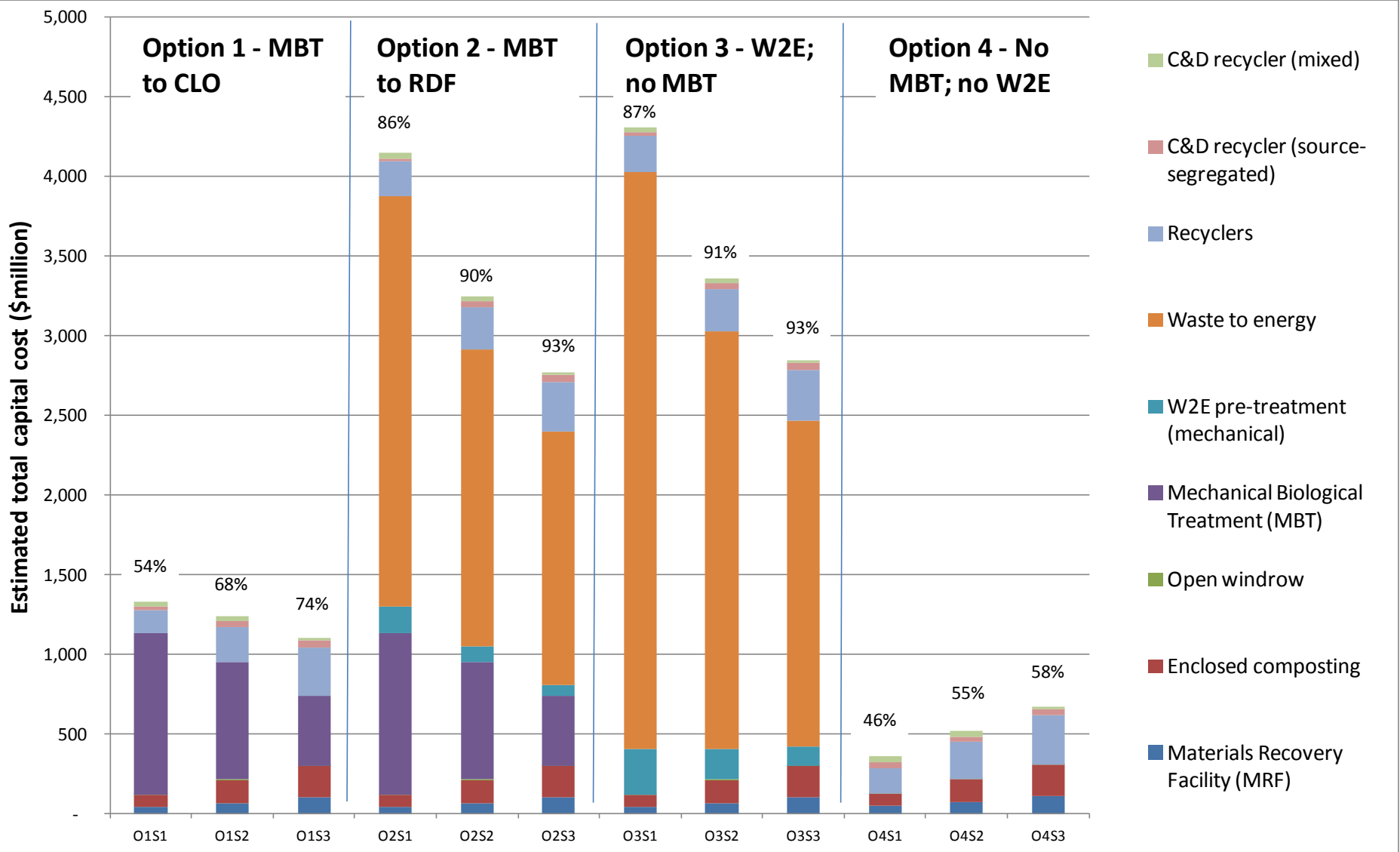
Scenario 2 – Medium waste generation and medium source-separation (50%)

Scenario 3 – Low waste generation and high source-separation (70%)

# Sensitivity analysis – required capacity



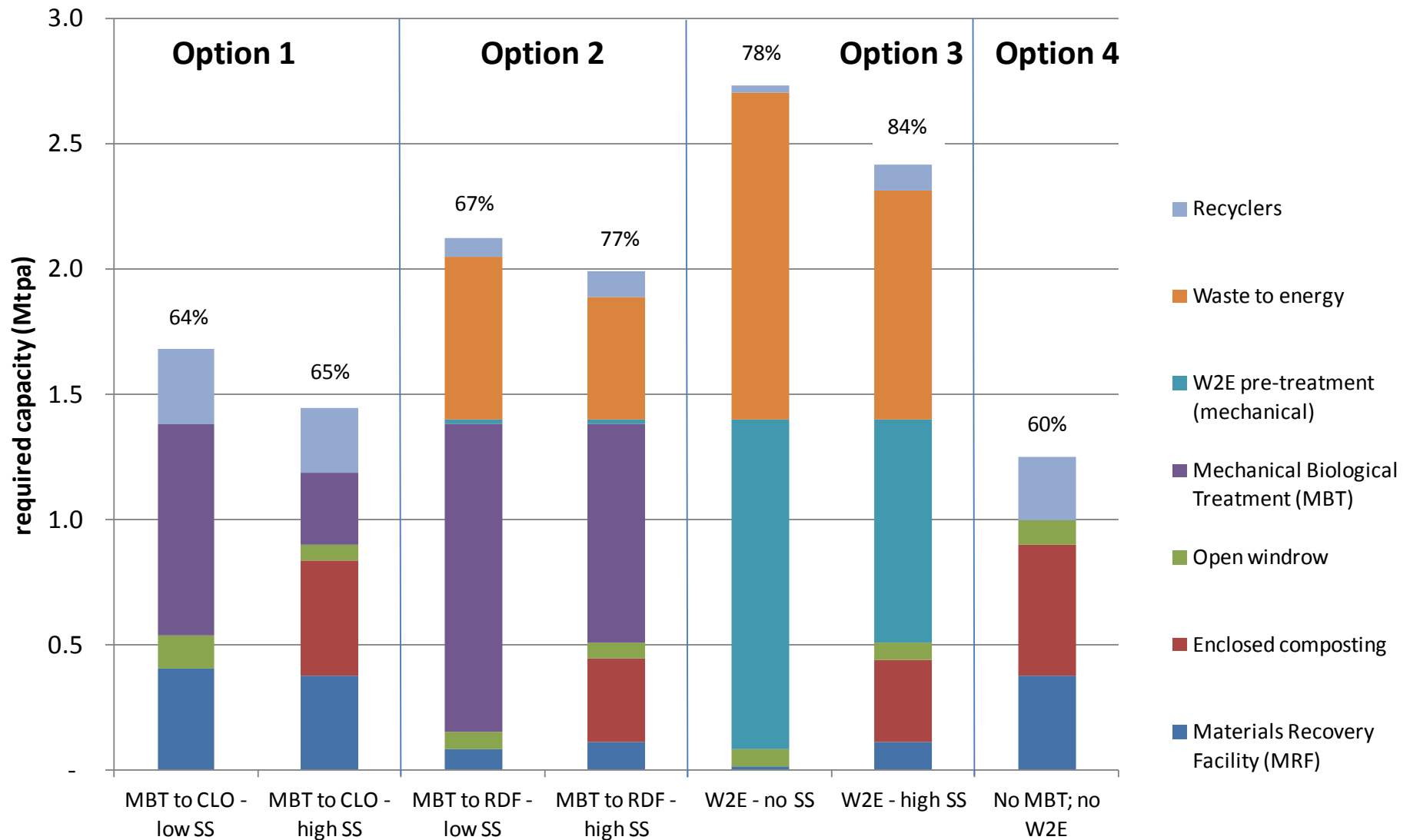
# Sensitivity analysis – estimated CAPEX (\$mill)



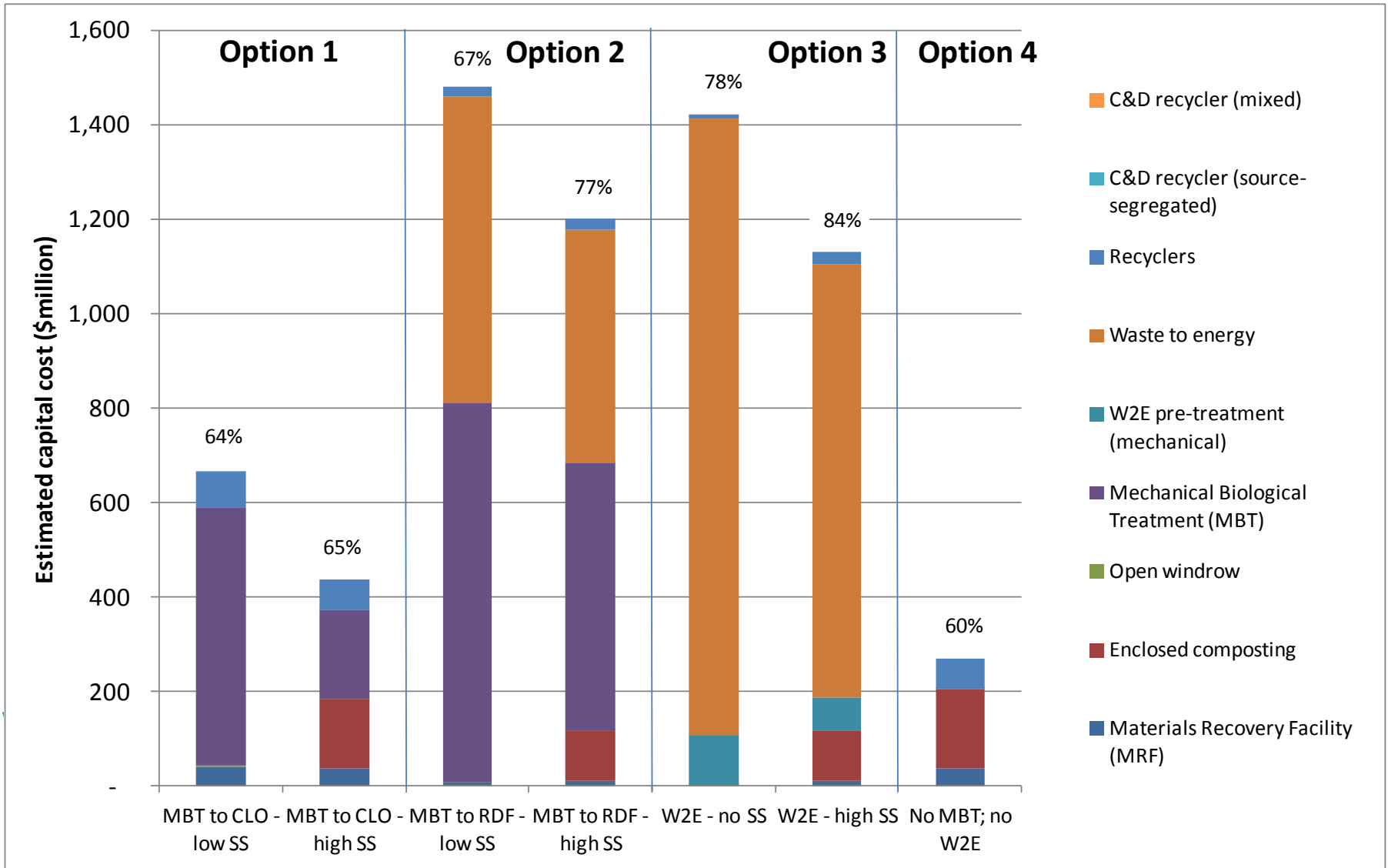
## Meeting the 2020 targets – MSW = 65%

- Option 1A – MBT to CLO; low source-separation
- Option 1B – MBT to CLO; high source-separation
- Option 2A – MBT to RDF; low source-separation
- Option 2B – MBT to RDF; high source-separation
- Option 3A – W2E; no source-separation
- Option 3B – W2E; high source-separation
- Option 4 – no MBT, no W2E; high source-separation

# Meeting the 2020 MSW targets - required capacity (Mtpa)



# Meeting the 2020 MSW targets - estimated CAPEX (\$mill)





# Number of facilities – MSW only

Option	MRF (150 ktpa)	Enclosed composting (50 ktpa)	Open windrow (100 ktpa)	MBT (150 ktpa)	Waste to energy (500 ktpa)	Putrescible LF (Mtpa)
1A) MBT to CLO - low SS	3	-	2	6	-	0.50
1B) MBT to CLO - high SS	3	10	1	2	-	0.48
2A) MBT to RDF - low SS	1	-	1	9	2	0.45
2B) MBT to RDF - high SS	1	7	1	6	1	0.33
3A) W2E - no SS	1	-	1	-	3	0.31
3B) W2E - high SS	1	7	1	-	2	0.22
4) No MBT; no W2E	3	11	1	-	-	0.55

# Number of facilities – All streams

Option	MRF (150 ktpa)	Enclosed composting (50 ktpa)	Open windrow (100 ktpa)	MBT (150 ktpa)	Waste to energy (500 ktpa)	Putrescible LF (Mtpa)
1A) MBT to CLO - low SS	8	-	2	8	-	1.82
1B) MBT to CLO - high SS	7	12	1	3	-	1.80
2A) MBT to RDF - low SS	1	-	1	13	7	1.20
2B) MBT to RDF - high SS	4	8	1	10	6	0.95
3A) W2E - no SS	2	-	1	-	9	0.94
3B) W2E - high SS	3	8	1	-	8	0.79
4) No MBT; no W2E	7	14	1	-	-	1.94

# Next steps

- Confirm existing capacity and estimate additional required capacity
- Estimate land requirements for each system option
- Full system cost estimates (collection, processing, disposal)
- Overall assessment of each system option

# Feedback

For more information and feedback:

Website: [www.wasteauthority.wa.gov.au](http://www.wasteauthority.wa.gov.au)

Email: [swipwg@der.wa.gov.au](mailto:swipwg@der.wa.gov.au)