

Kerbside Recycling and the Container Deposit Scheme



Office of
Local Government



Introduction

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Office of Local Government



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Project Overview

- To support councils access refunds from the eligible containers collected via kerbside recycling, by:
 - Assessing the impact of the CDS on MRFs
 - Contextualising CDS revenue and wider viability issues
 - Modelling various revenue sharing arrangements



Questions and Feedback

- Representatives from OLG and EPA to collate and answer questions
 - Send in your questions as we go
 - Q&A session at the end
 - FAQ's will be published
- Exit Survey



Overview of the CDS

Alex Young, Director, Community &
Behavioural Change, Container Deposit
Scheme Branch

NSW Environmental Protection Authority



Office of
Local Government



Refund sharing arrangements for the CDS

- Phil Manners, Director, The Centre for International Economics
- Anne Prince, Director, Anne Prince Consulting





Overview of the project

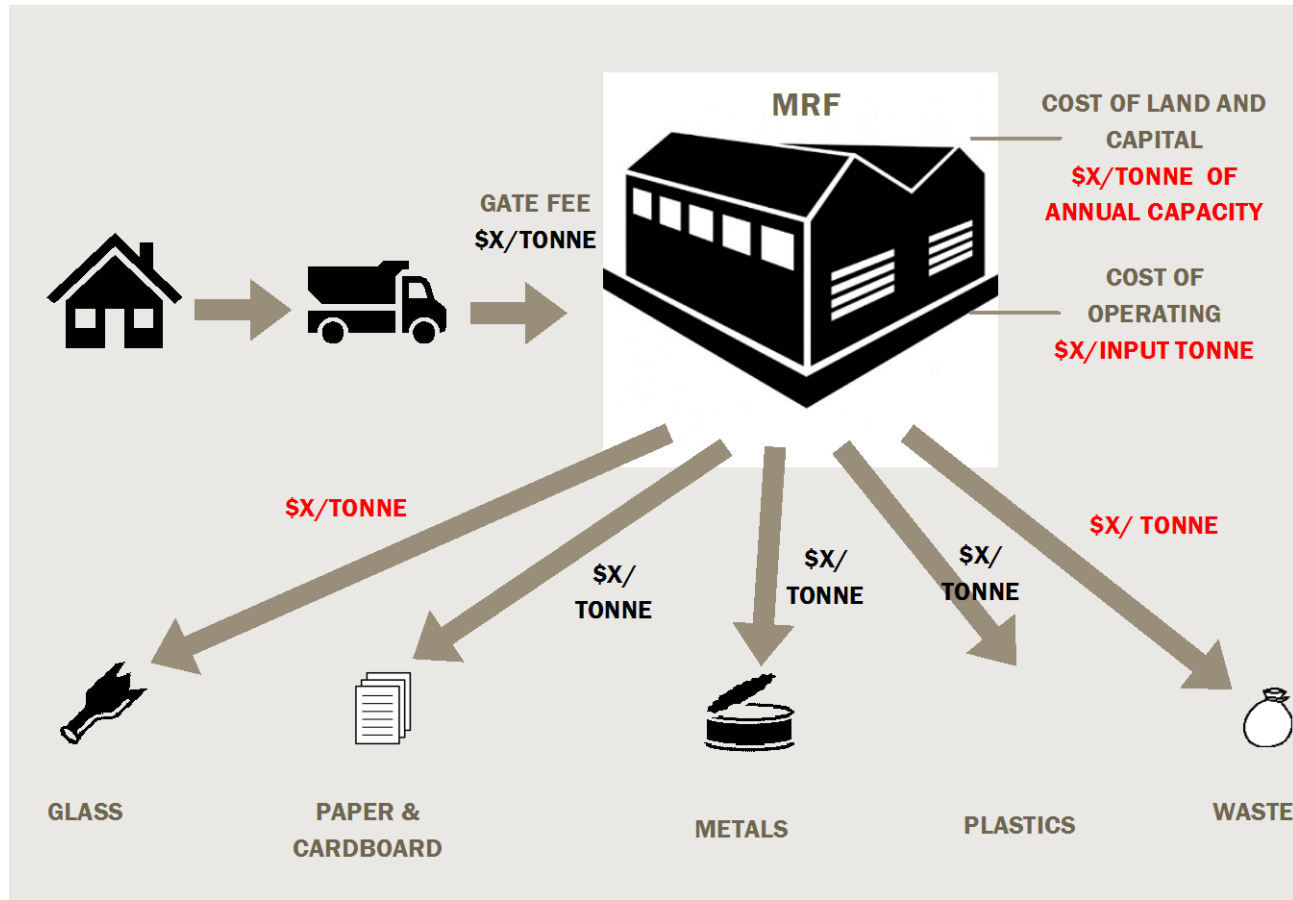
- Advise NSW OLG on refund sharing arrangements that would maintain MRF profitability at the same level as would occur without the CDS
- Broader viability of MRFs is not explicitly part of this project, but is a consideration



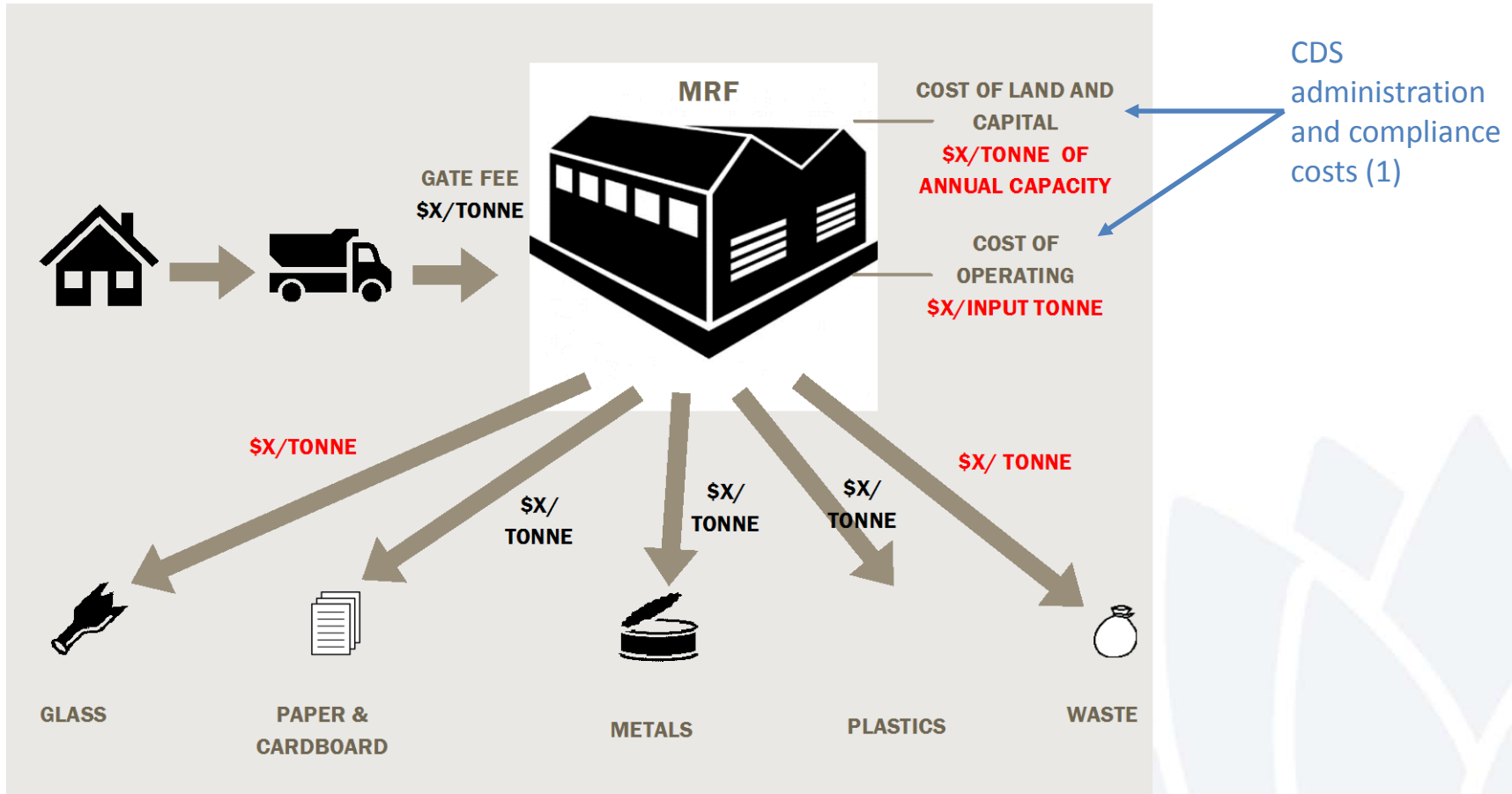
Impact of the CDS on MRFs

1. Direct costs of the Container Deposit Scheme on MRFs, such as administrative and compliance costs
2. Changes in material volumes and composition
3. Other impacts of the Container Deposit Scheme on MRFs, such as impact on available markets
4. Revenues from container refunds

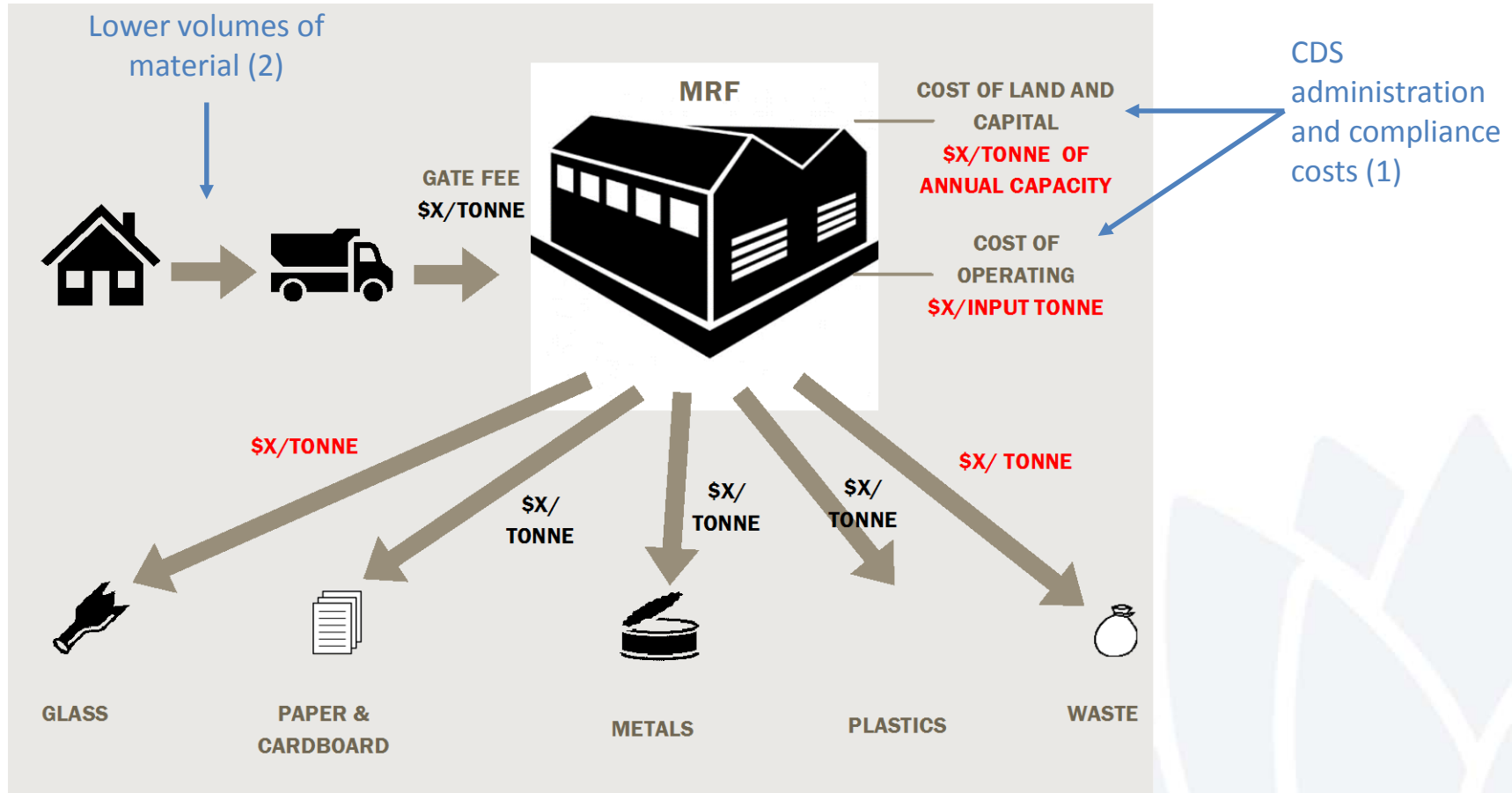
MRF financial model to estimate impacts



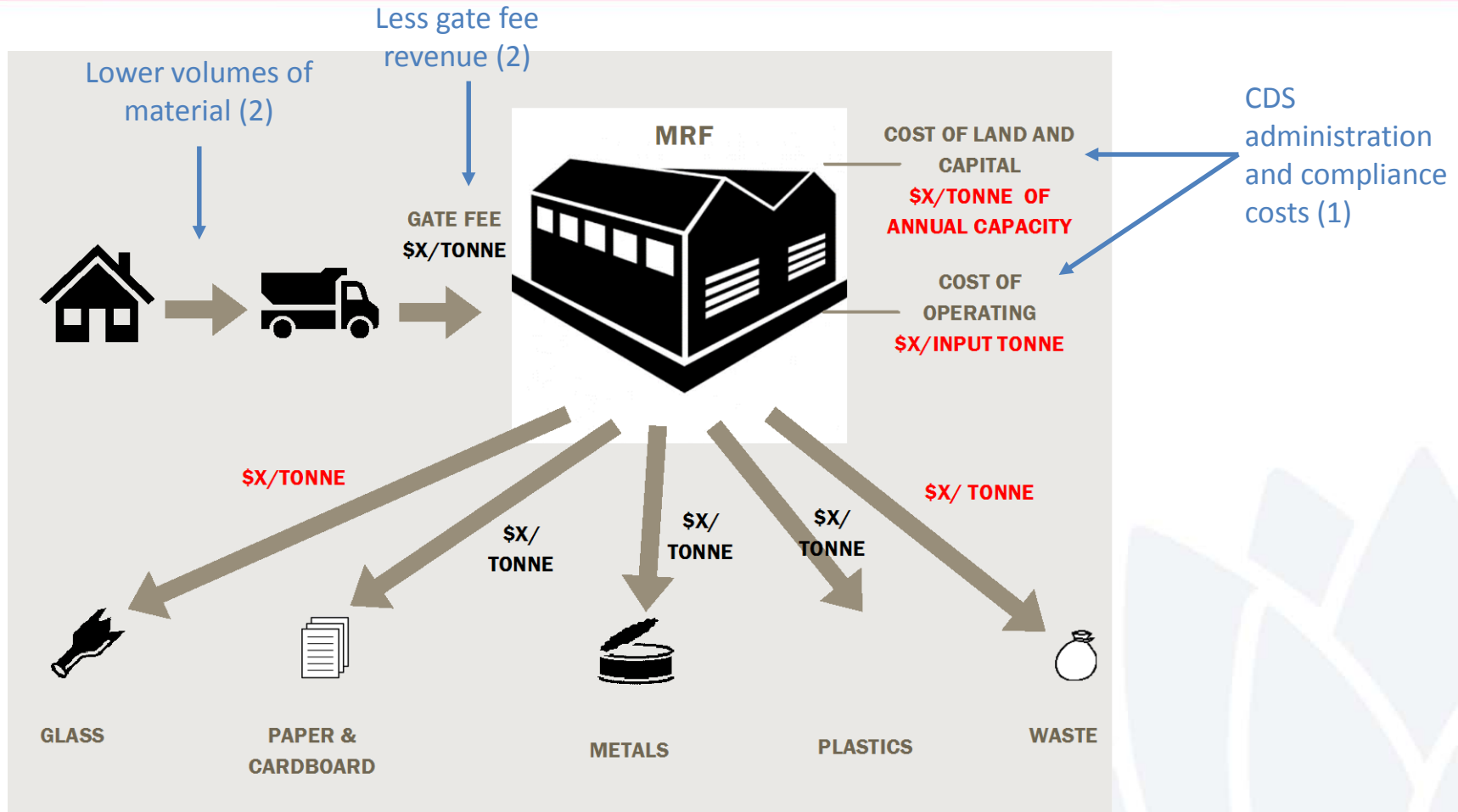
MRF financial model to estimate impacts



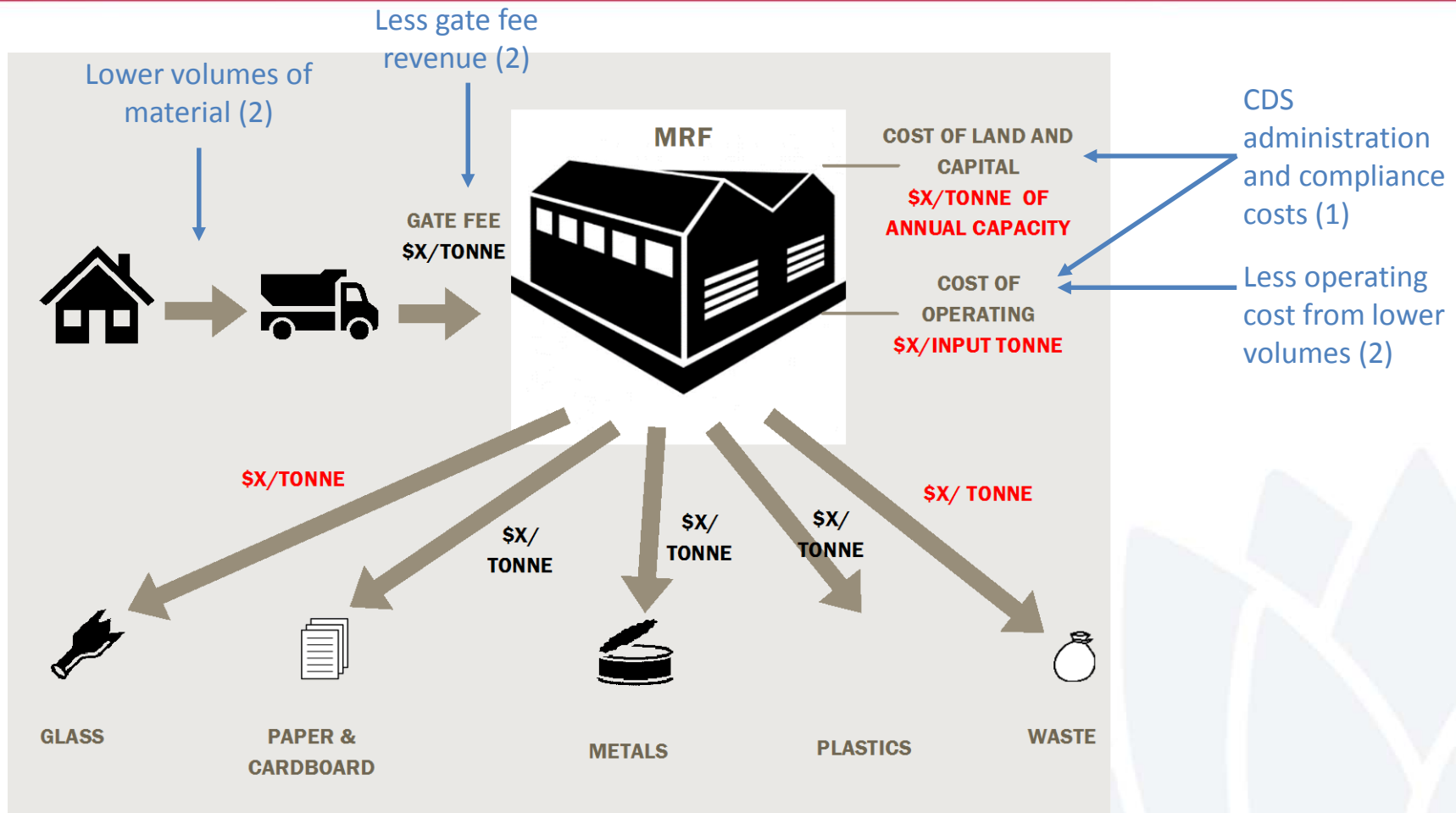
MRF financial model to estimate impacts



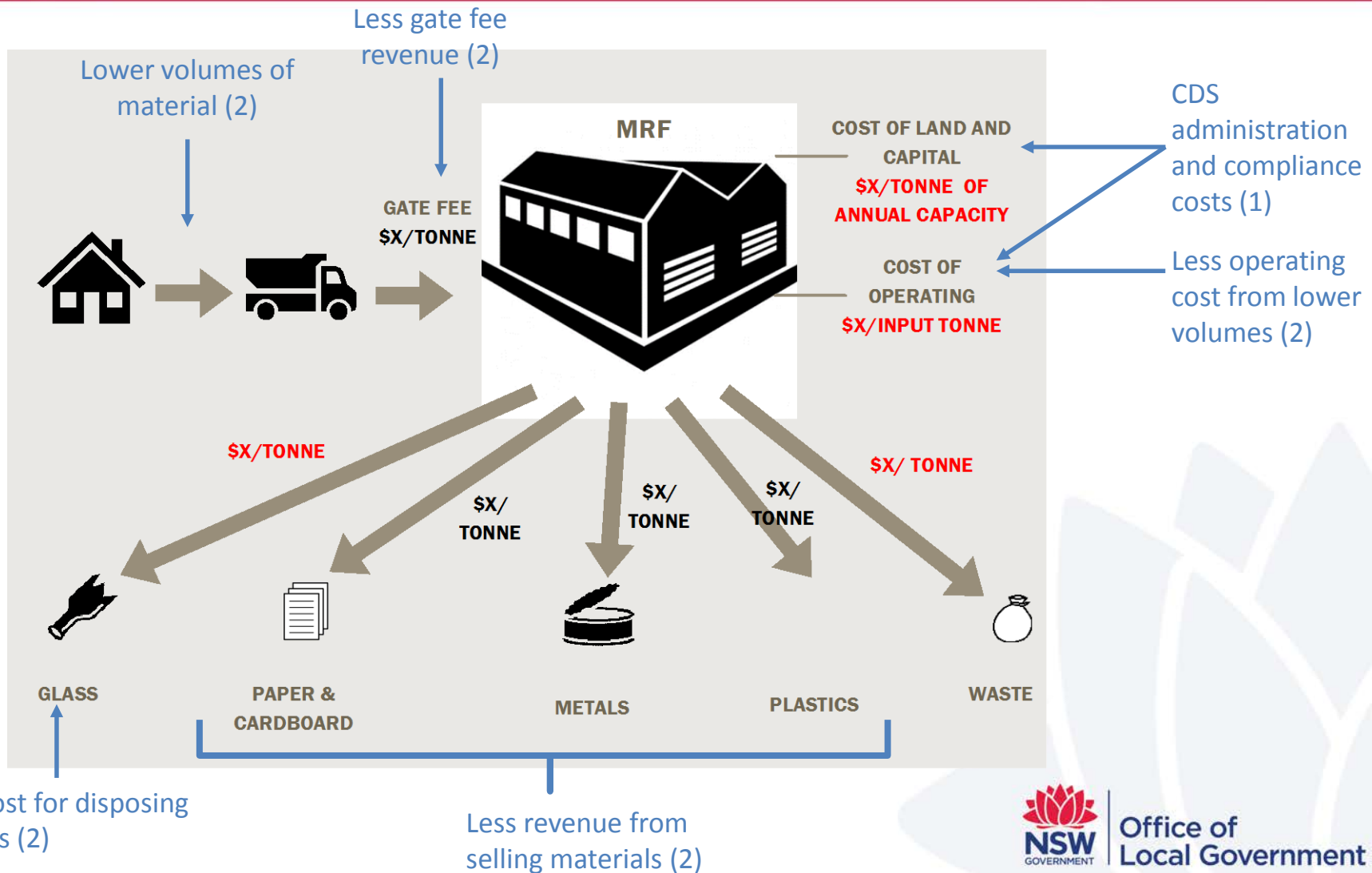
MRF financial model to estimate impacts



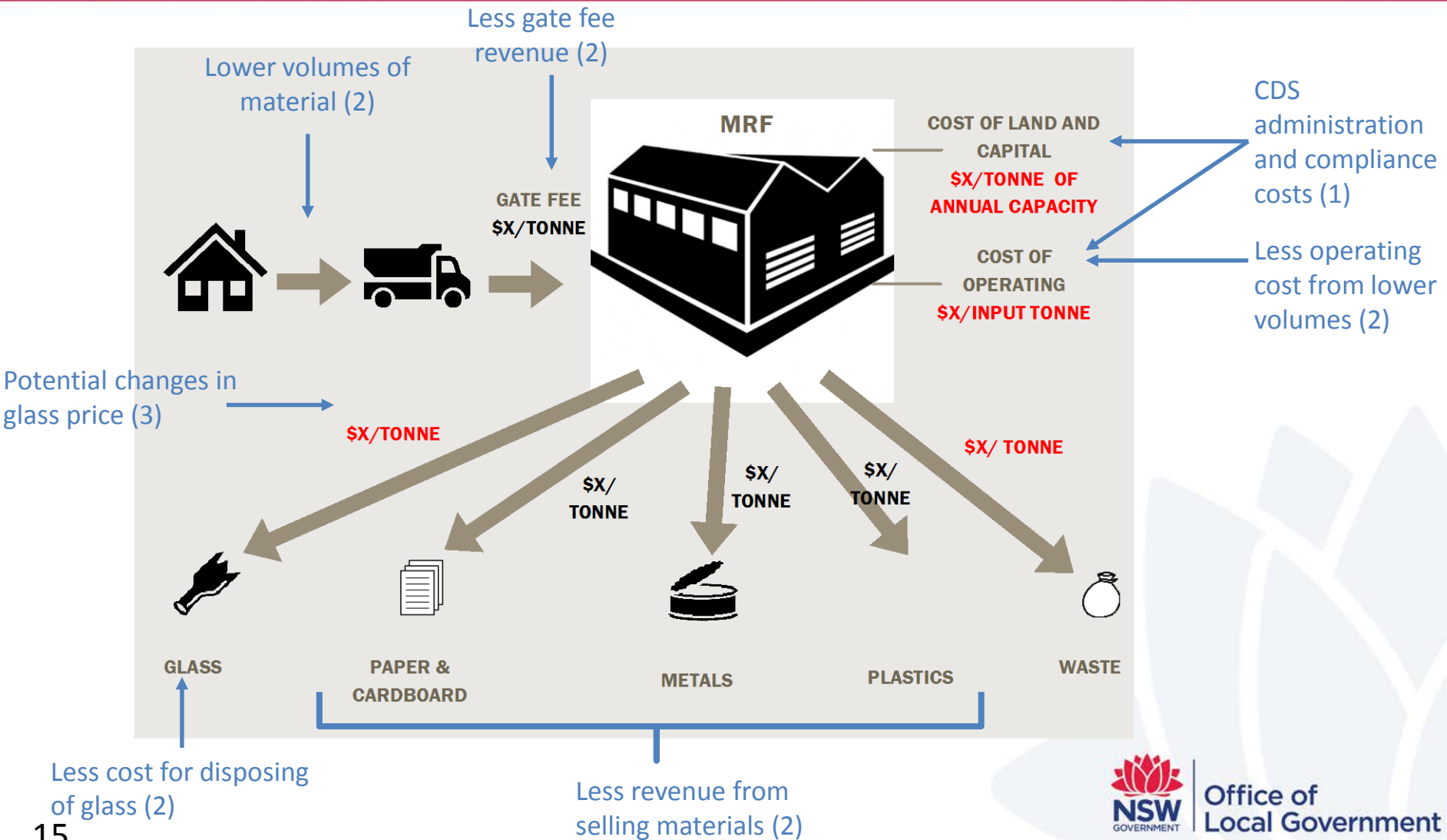
MRF financial model to estimate impacts



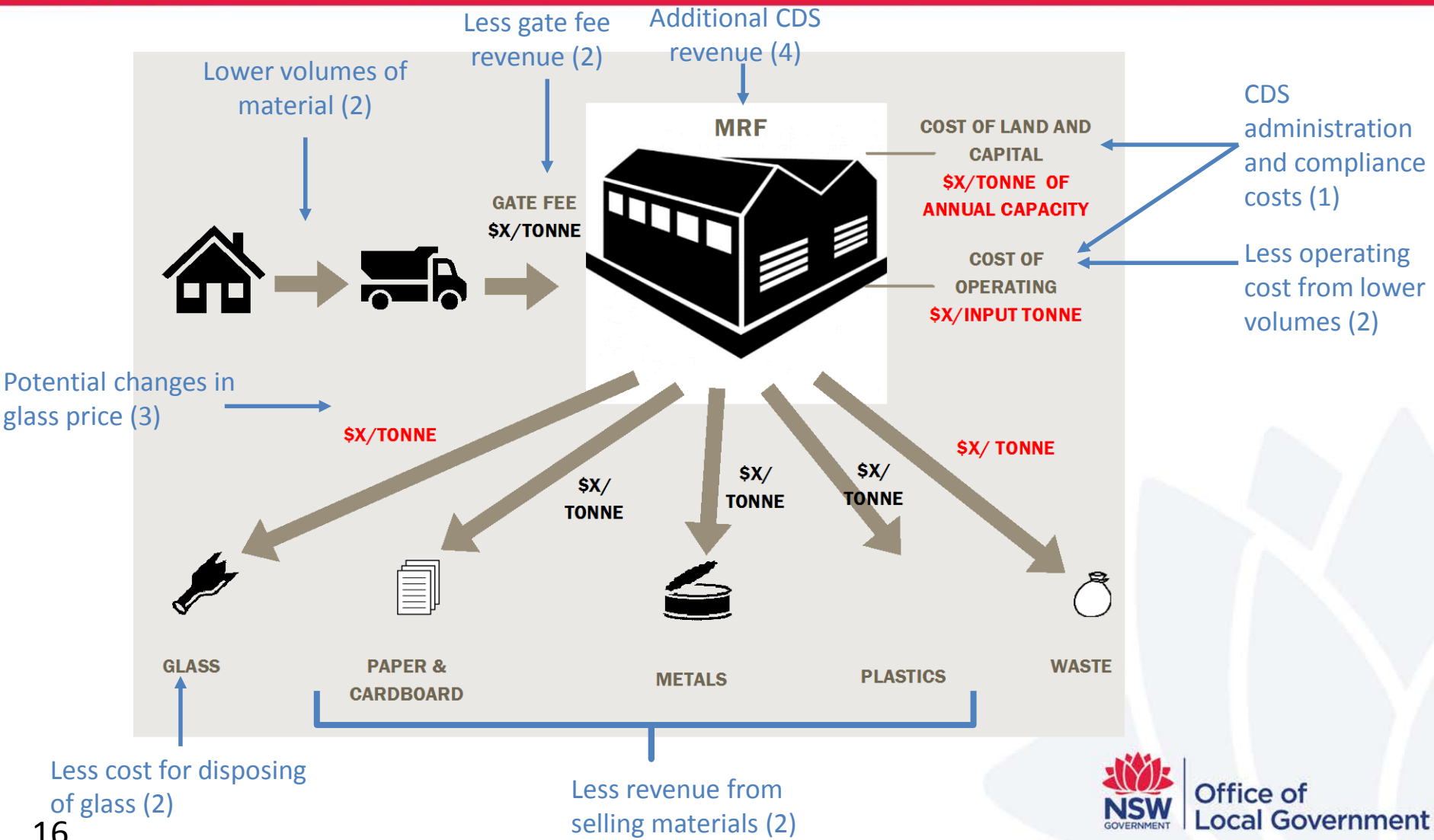
MRF financial model to estimate impacts



MRF financial model to estimate impacts



MRF financial model to estimate impacts



1. Direct costs for MRFs

Activity	Is this a new activity
Measure the quantity and source of materials received at a MRF	No, except for designating any scheme material (i.e. material that has already received a refund)
Measure the quantity delivered from the MRF, by output material type	No
Report monthly (within 14 days from the end of the month) the number of eligible containers delivered from the MRF by output material type (Method 2 only)	Yes
Prepare claim for refund each quarter	Yes
Assistance and facilities for the sampling auditor and their team	Yes
Prepare Annual Recycling Statement	Yes
Maintaining records supporting each claim for seven years	Yes
Pay for Independent Assurance Report	Yes
Assistance and facilities for any assurance initiated by the Scheme Coordinator	Yes
Assistance and facilities for EPA compliance audits or inspections	Yes

Source: NSW EPA 2017, Container Deposit Scheme: Material recovery facility processing refund protocol, July; The CIE and APC



1. Direct costs for MRFs

- Most administration costs are taken out before refund is provided to a MRF
- Estimates are uncertain as MRFs have yet to experience the CDS for a full year
- Expected to be less than \$5 per input tonne
- Highest estimates are around \$10 per input tonne



2. Changes in material volumes

- If recycled material is diverted from kerbside then this will reduce MRF volumes
- This reduces:
 - MRF gate fees
 - MRF operating costs, and
 - MRF revenues or losses from commodity sales
- Estimates of diversion vary widely
 - 82% in South Australia
 - 5%-40% for NSW
- Will have to wait for actual data



2. Changes in material volumes

- Estimates of financial impact close to zero if diversion is similar across different materials
 - removing glass is particularly helpful for a MRF
- Worst case for MRF would be ~\$5 per input tonne impact



3. Other possible negative impacts

- Changes in commodity prices received
 - unlikely for traded commodities such as metals, paper and plastics
 - potential for impacts on glass prices, although many MRFs are already receiving low prices for glass
 - a change in glass use could add ~\$6 per input tonne to a MRFs costs

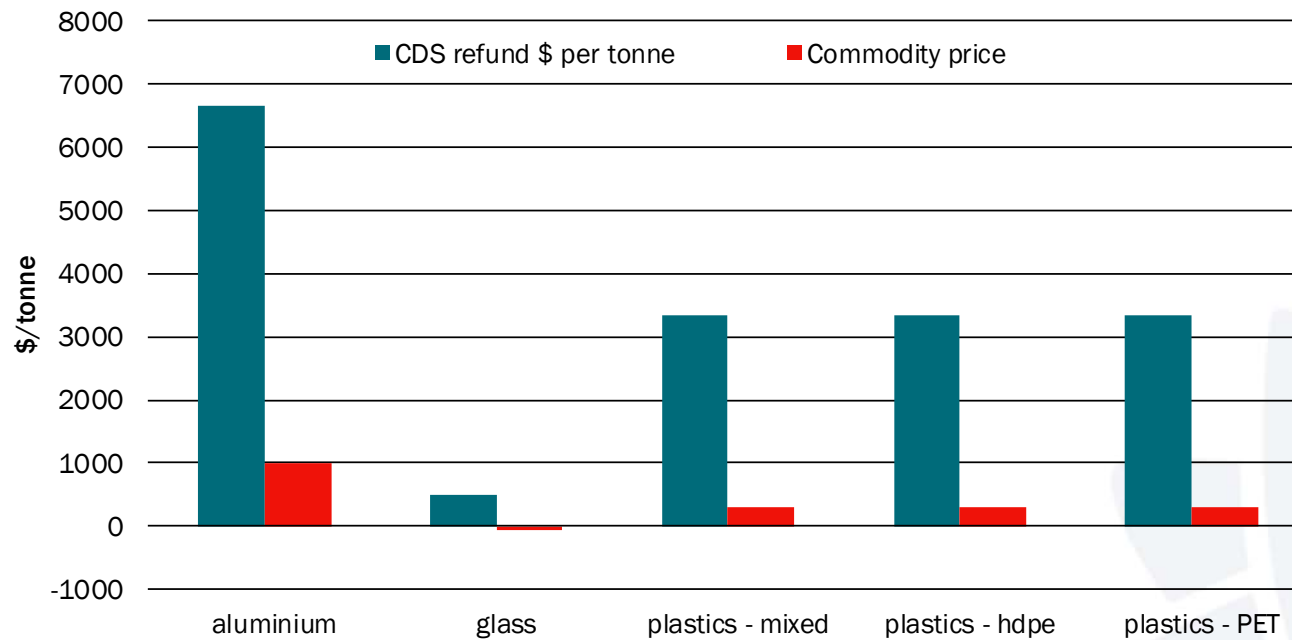


4. Revenue from the CDS

- Revenue if all containers in NSW recycled
~\$400m/year
- Containers through MRFs
 - Based on material volumes and composition through MRFs ~\$100m/year
 - Based on Return and Earn assumptions for Dec-Feb, extrapolated to year ~\$187m/year

4. Revenue from the CDS

- Eligible containers worth far more from CDS than their commodity value





4. Revenue from the CDS

- How much of MRF material is containers?
- Initially in the order of 1500-2000 containers per input tonne into MRFs on average
 - likely to decline over time
- ~ CDS revenue of \$150-\$200 per input tonne
 - CDS revenues likely to be higher than MRF existing revenues (gate fees plus commodity value)



Current commodity market conditions for MRFs

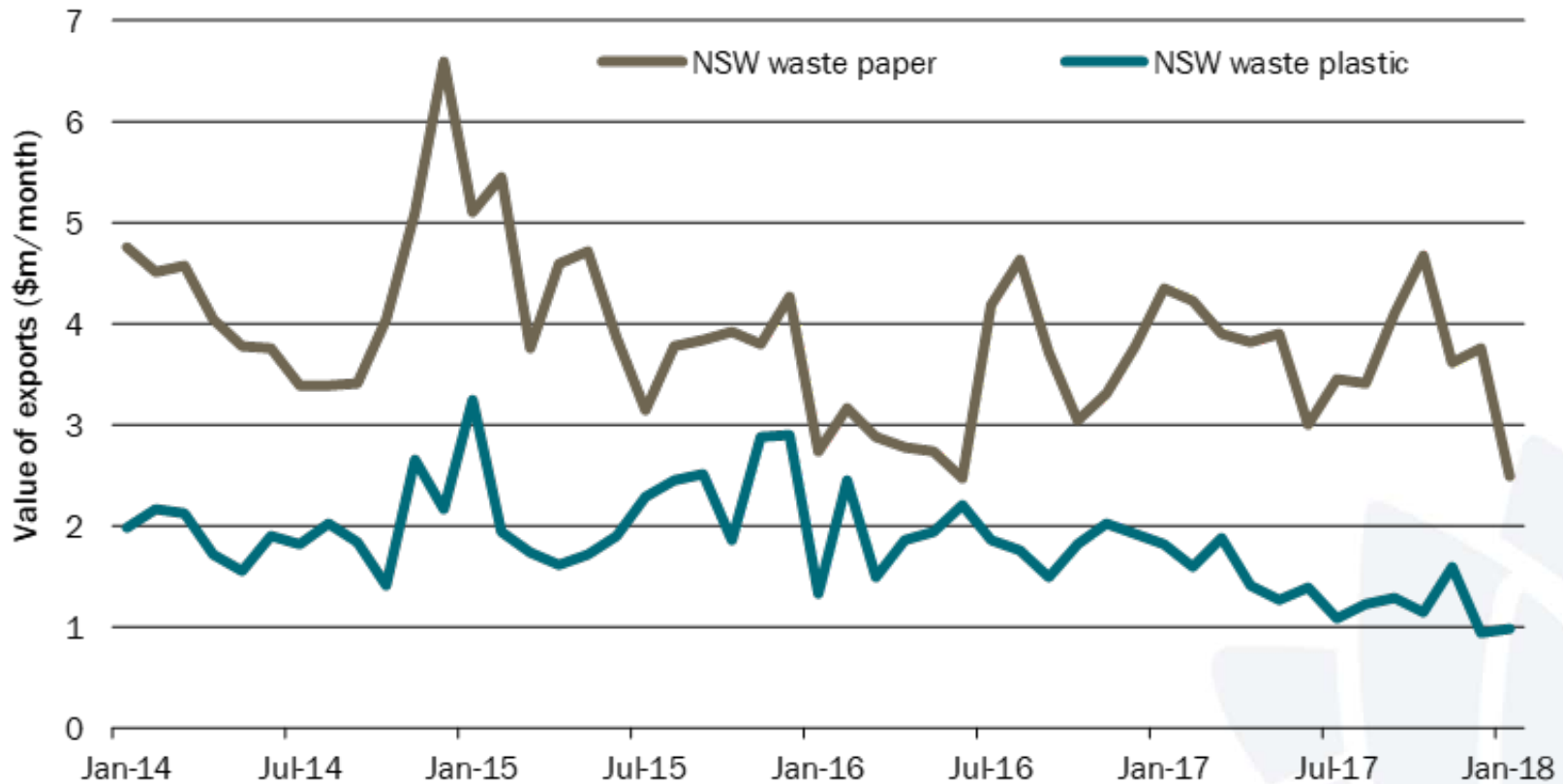
- Commodity market conditions are important because:
 - they may constrain recycling of material
 - broader viability of MRFs is a contextual issue in any renegotiations of contracts that happen at the same time as refund sharing agreements
- Recycling markets are currently stressed
 - limited options and lower prices received for recycled glass
 - import restrictions on recycled plastics and some paper to China



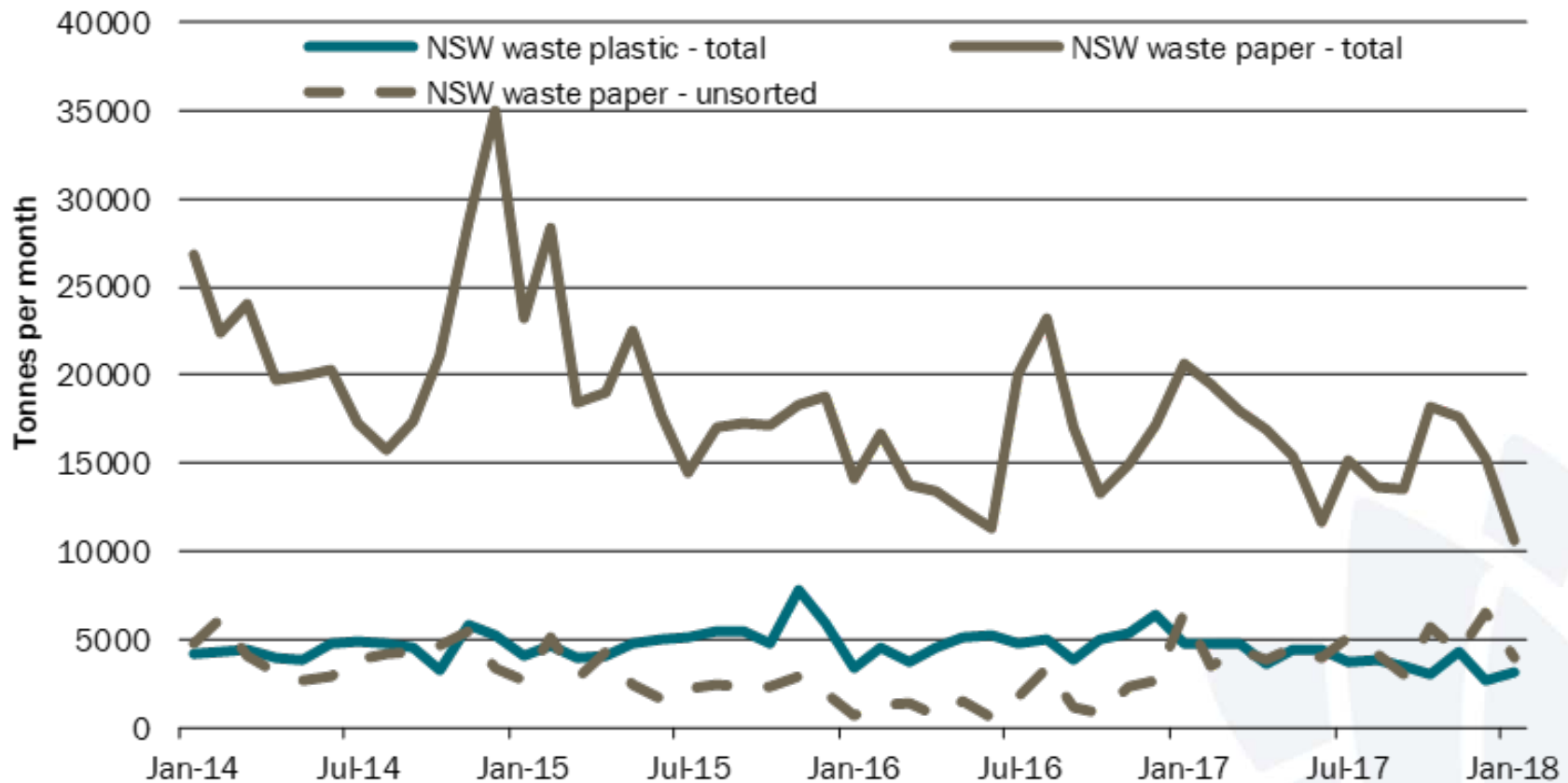
Commodity price changes

- Glass – \$14-\$32 per input tonne impact on MRFs (not recent)
- Other
 - paper and plastics prices have declined, particularly very recently
 - evidence of movement of plastic and paper waste exported from NSW to other locations instead of China (up to December 2017)

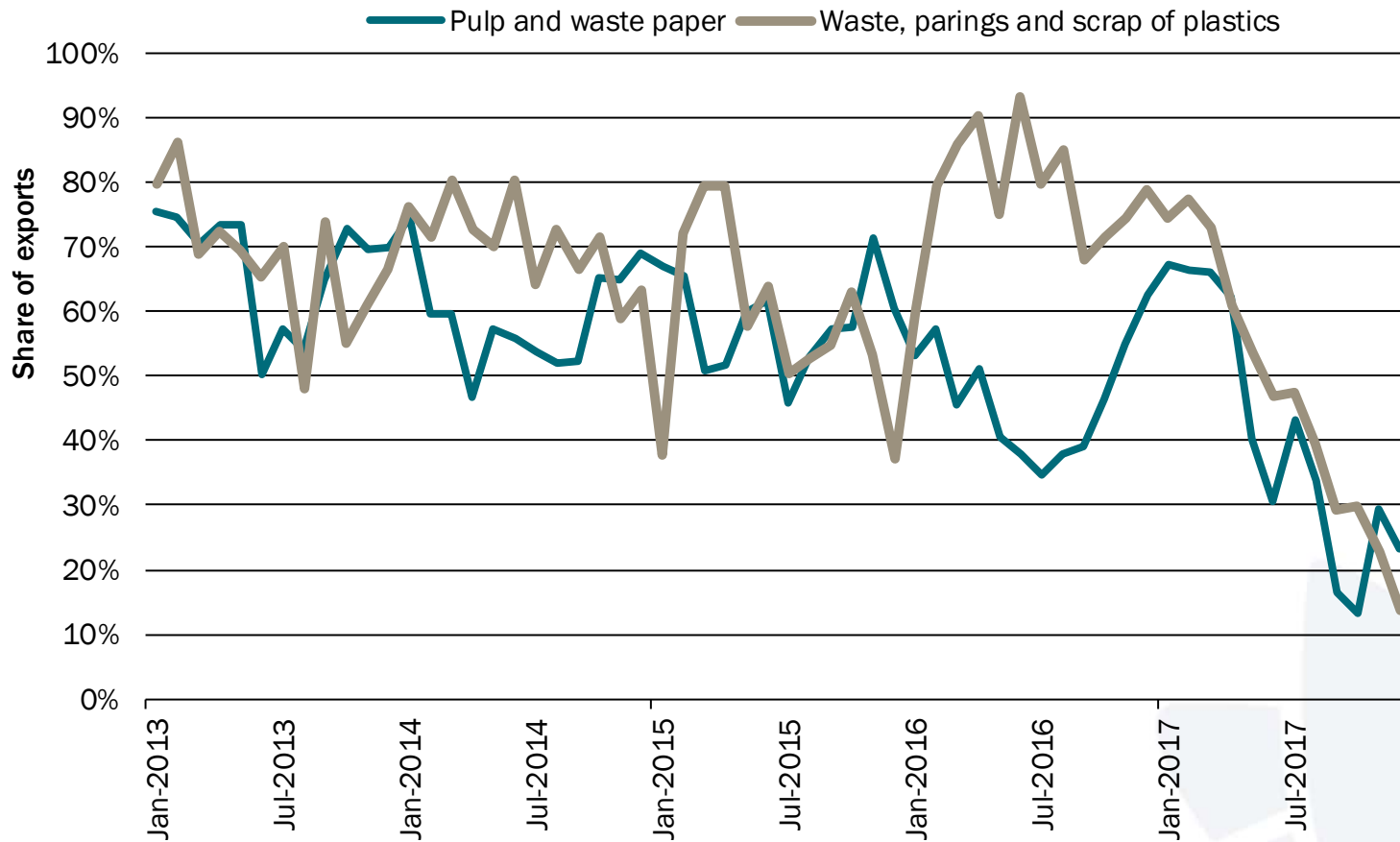
Waste exports from NSW



Waste exports from NSW

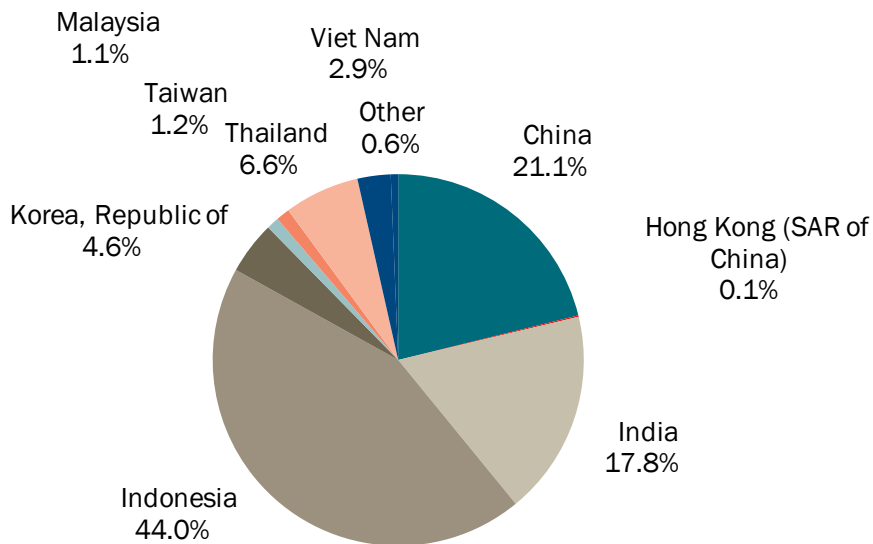


Share of waste exports from NSW to China and Hong Kong

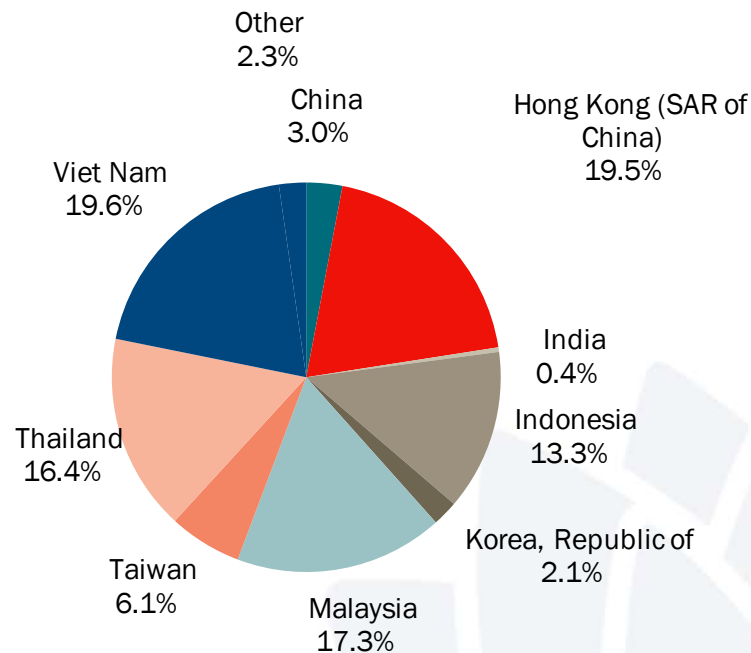


Export destinations over last quarter of 2017

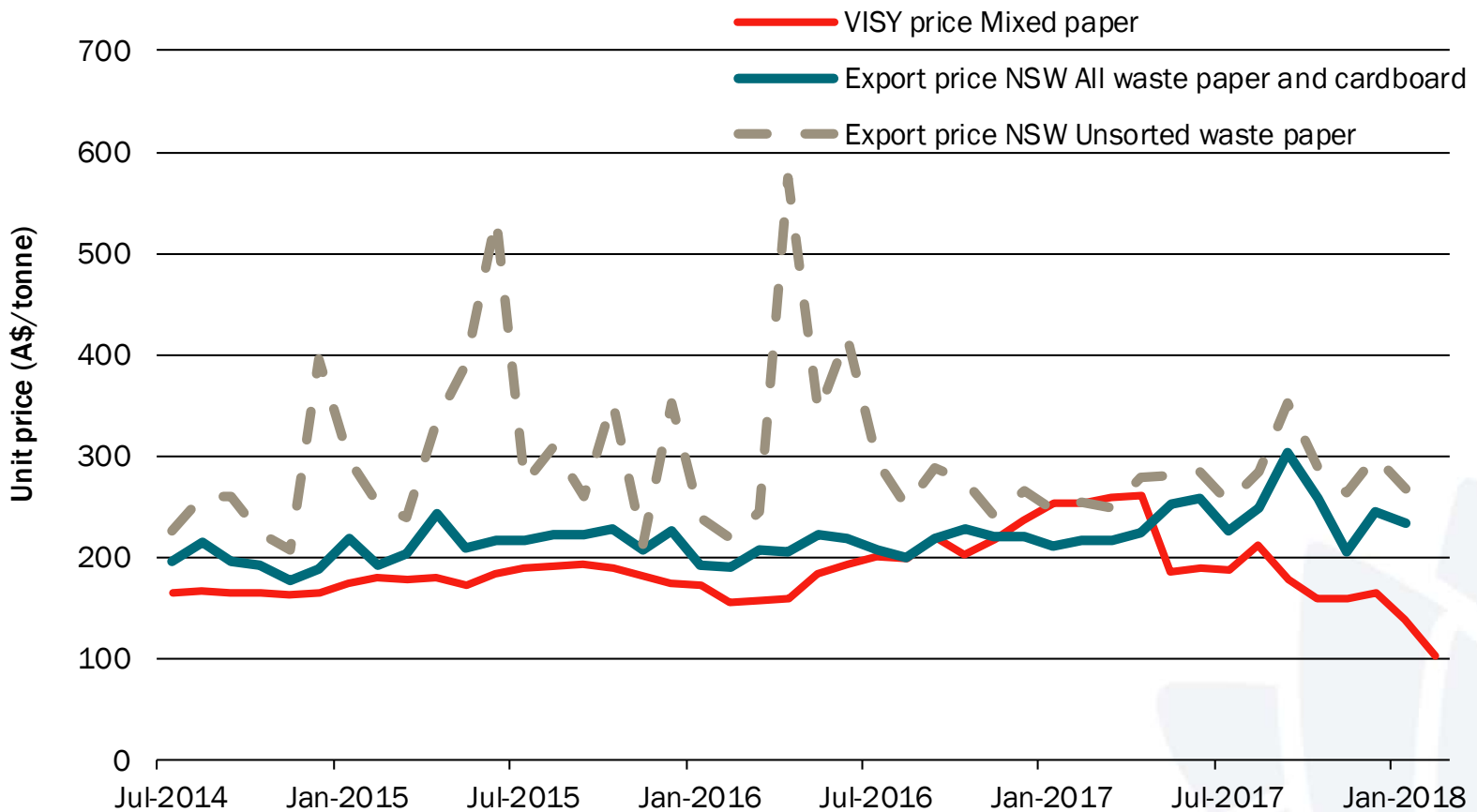
Pulp and Waste Paper



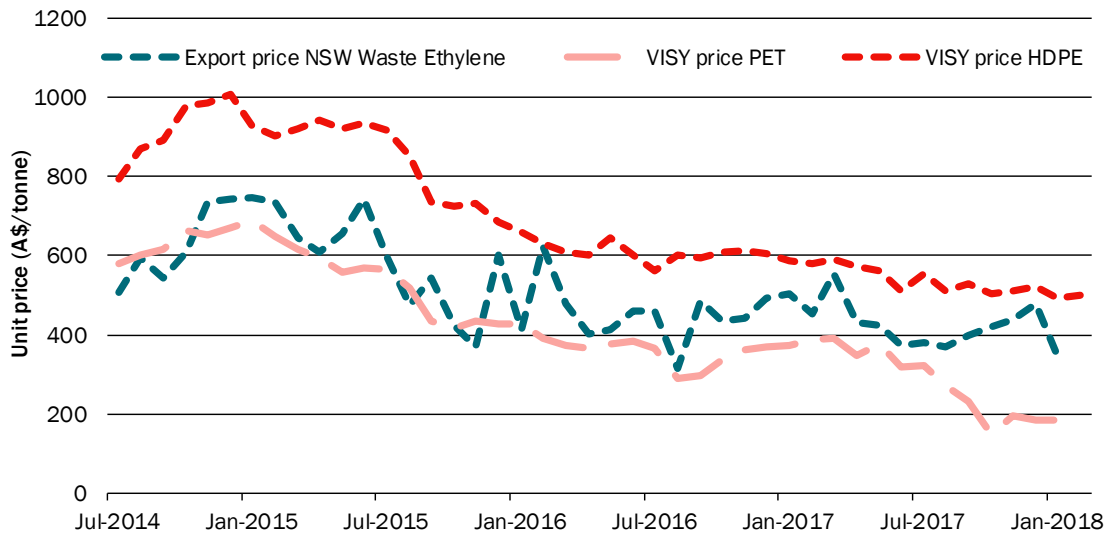
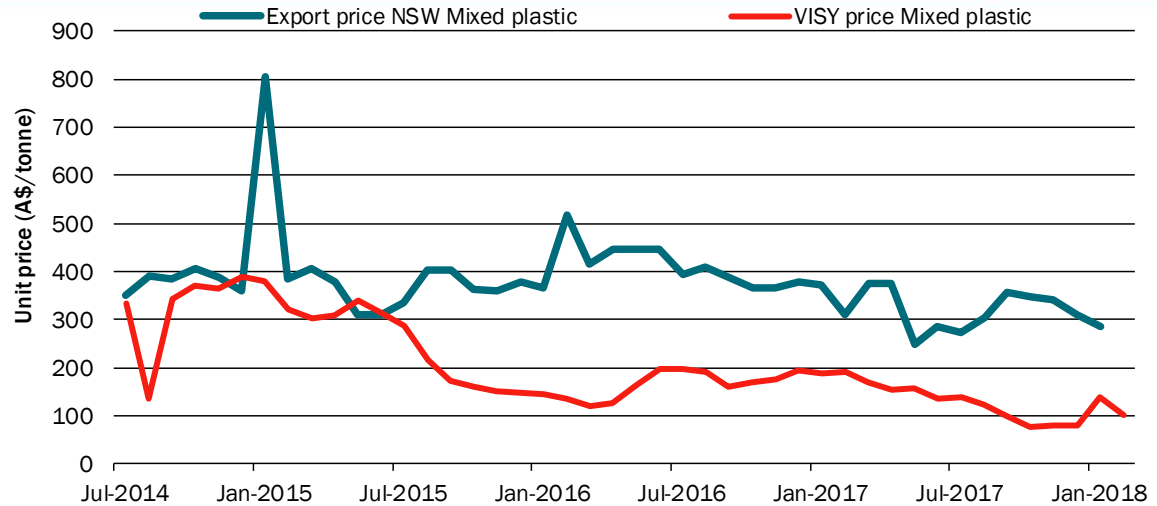
Plastic



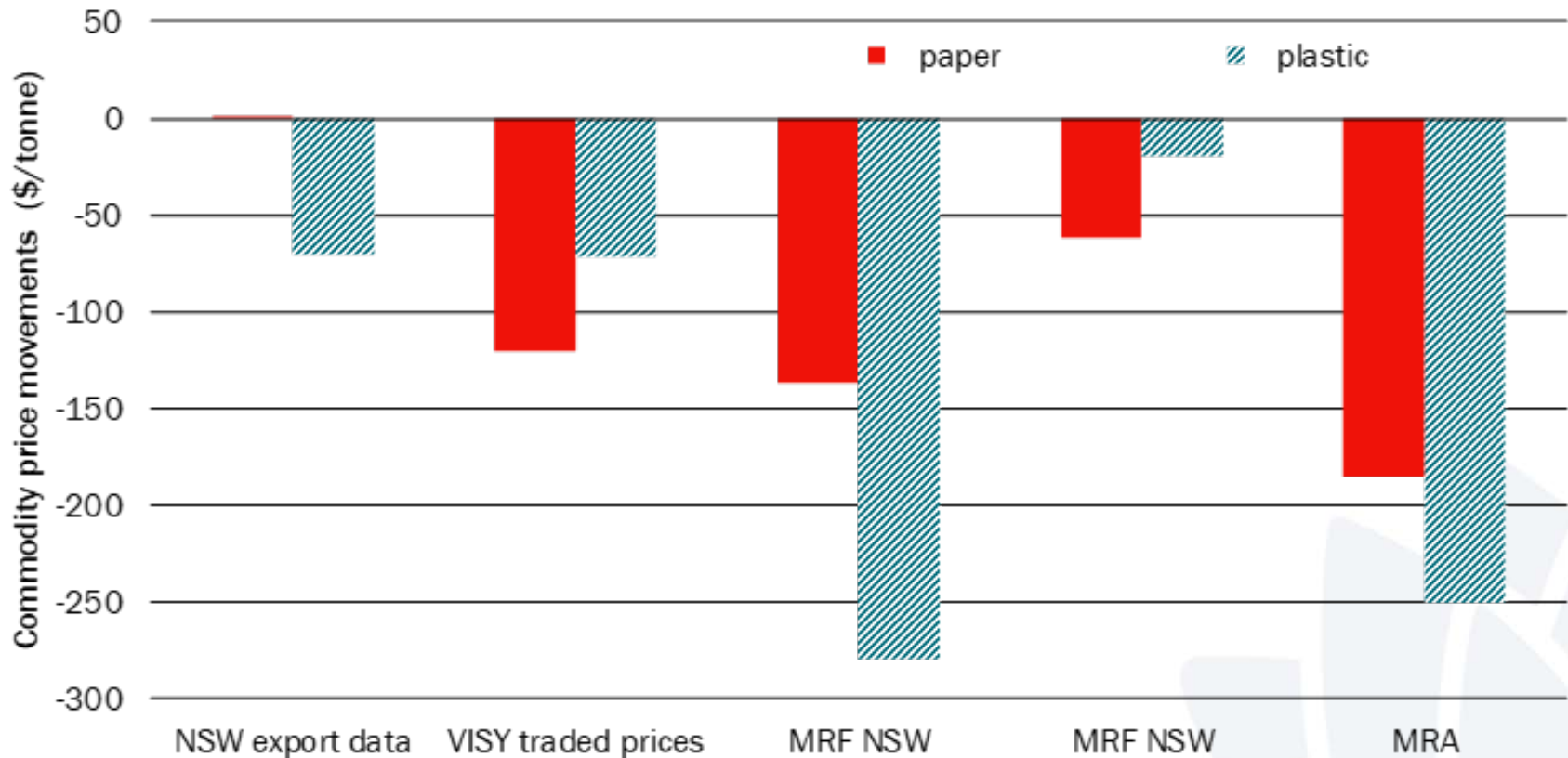
Prices for Paper



Prices for Plastic



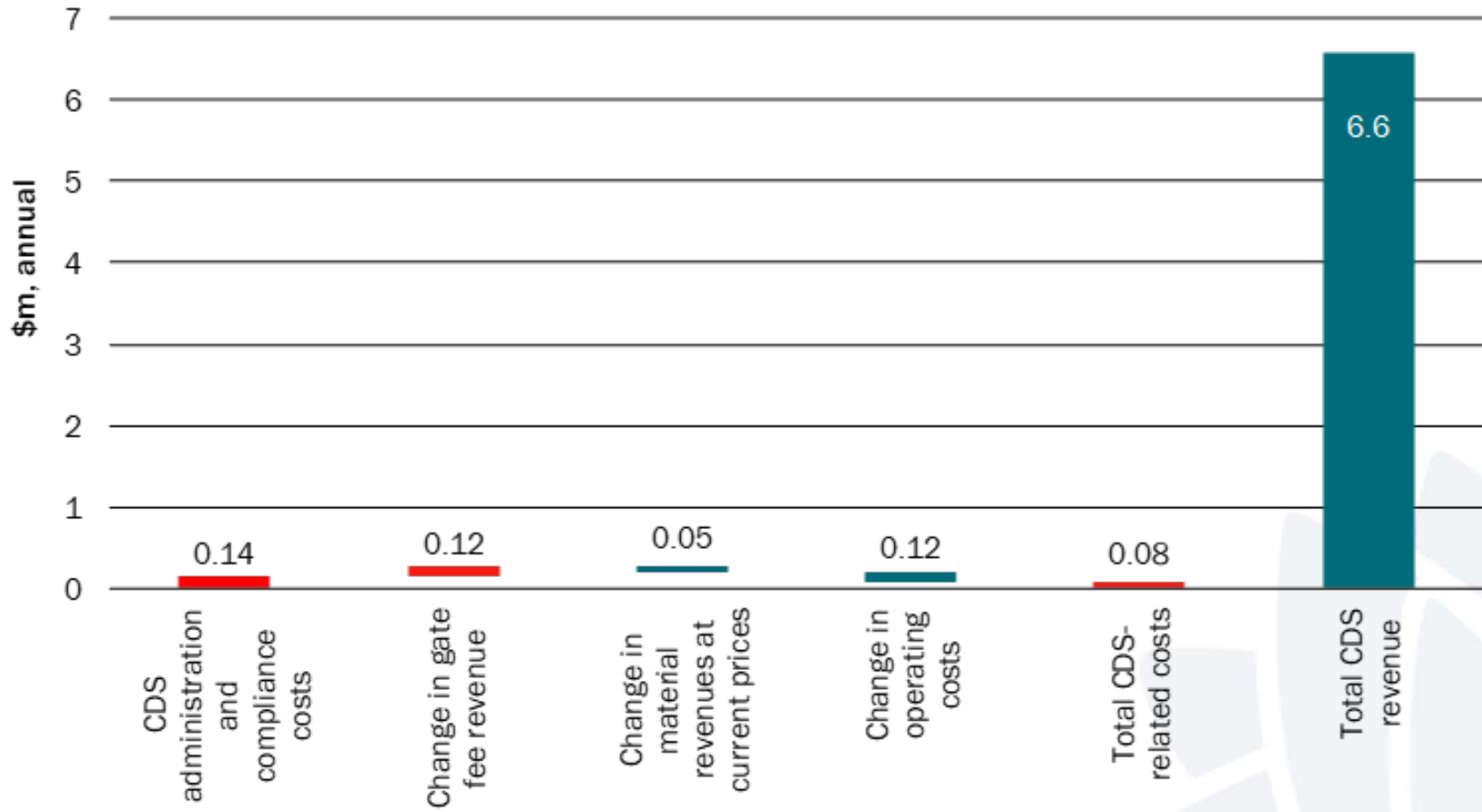
Changes in commodity prices 2016/17 to current



Model scenarios to show impacts

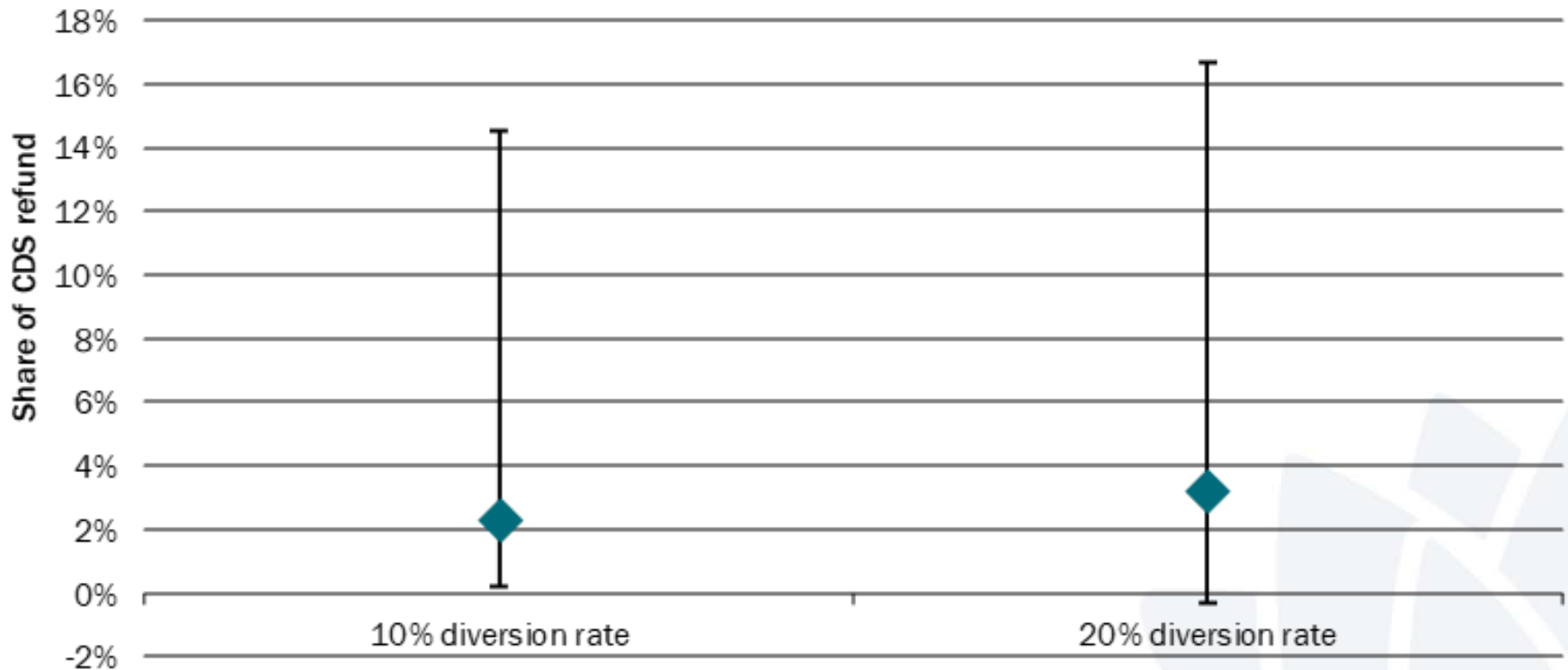


Covering CDS costs – hypothetical MRF



Covering CDS costs – actual MRFs

Revenue share to cover CDS impacts



Covering CDS costs – hypothetical MRF

Base case (no CDS)

\$m

Revenue	4.4
Operating costs	-7.2
Operating profit	-2.8
<i>Other information</i>	
Profit as a share of revenue (per cent)	-64%
Tonnes processed per year (000)	60.0
MRF CDS revenue as a gate fee equivalent (\$/input tonne)	

Covering CDS costs – hypothetical MRF

	Base case (no CDS)	With CDS and no revenue sharing
	\$m	\$m
Revenue	4.4	11.6
Operating costs	-7.2	-7.2
Operating profit	-2.8	4.4
<i>Other information</i>		
Profit as a share of revenue (per cent)	-64%	38%
Tonnes processed per year (000)	60.0	57.5
MRF CDS revenue as a gate fee equivalent (\$/input tonne)		125

Covering CDS costs – hypothetical MRF

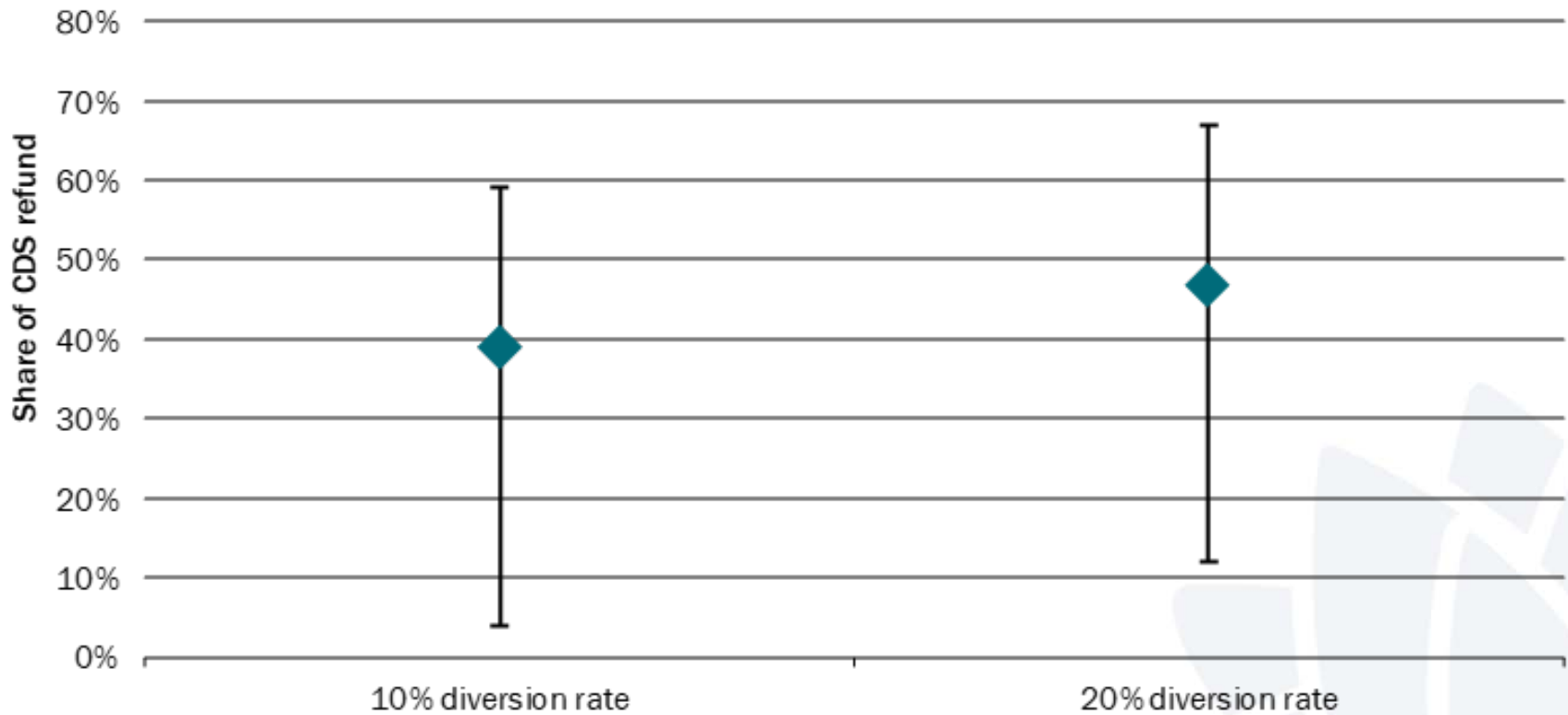
	Base case (no CDS)	With CDS and no revenue sharing	With CDS and revenue sharing @ 1.3%
	\$m	\$m	\$m
Revenue	4.4	11.6	4.4
Operating costs	-7.2	-7.2	-7.2
Operating profit	-2.8	4.4	-2.8
<i>Other information</i>			
Profit as a share of revenue (per cent)	-64%	38%	-64%
Tonnes processed per year (000)	60.0	57.5	57.5
MRF CDS revenue as a gate fee equivalent (\$/input tonne)		125	2

Covering CDS costs – hypothetical MRF

	Base case (no CDS)	With CDS and no revenue sharing	With CDS and revenue sharing @ 1.3%	With CDS and revenue sharing @ 50%
	\$m	\$m	\$m	\$m
Revenue	4.4	11.6	4.4	7.6
Operating costs	-7.2	-7.2	-7.2	-7.2
Operating profit	-2.8	4.4	-2.8	0.4
<i>Other information</i>				
Profit as a share of revenue (per cent)	-64%	38%	-64%	5%
Tonnes processed per year (000)	60.0	57.5	57.5	57.5
MRF CDS revenue as a gate fee equivalent (\$/input tonne)		125	2	63

Operating viability – actual MRFs

Revenue share for viability



Viability if the gate fee is varied +\$60/tonne - hypothetical MRF

- A revenue share of 50% is equivalent to a \$63 increase to the gate fee.
- To address viability - Proportion of CDS revenue; or higher gate fee; or a combination

	Base case (no CDS)	With CDS and no revenue sharing	With CDS and revenue sharing @ 50%
	\$m	\$m	\$m
Revenue	7.7	14.8	10.7
Operating costs	-7.2	-7.2	-7.2
Operating profit	0.5	7.6	3.6
<i>Other information</i>			
Profit as a share of revenue (per cent)	6%	51%	33%
Tonnes processed per year (000)	60.0	57.5	57.5
MRF CDS revenue as a gate fee equivalent (\$/input tonne)		125	63



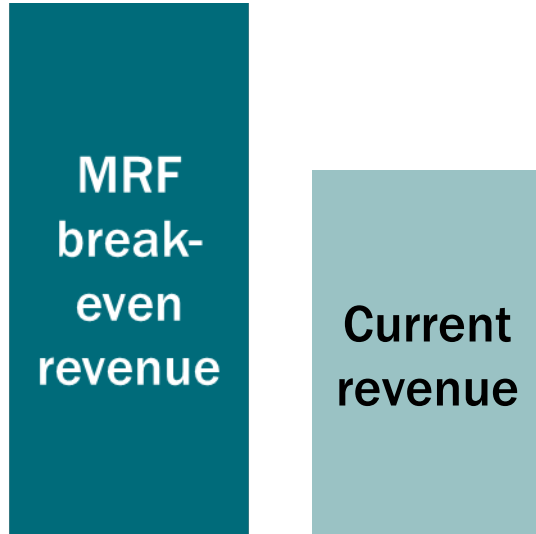
Putting together the different impacts

MRF
break-
even
revenue

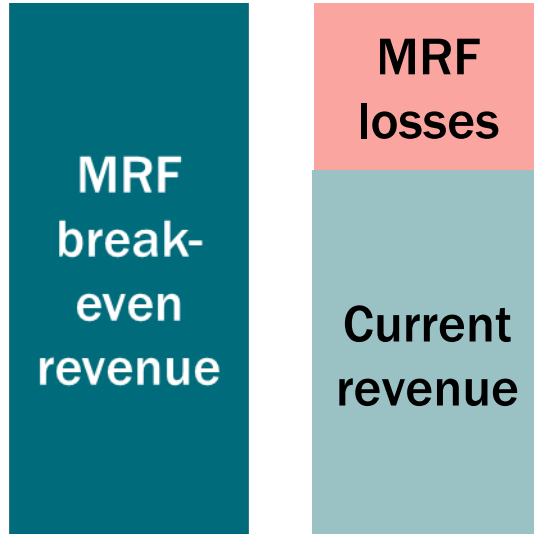


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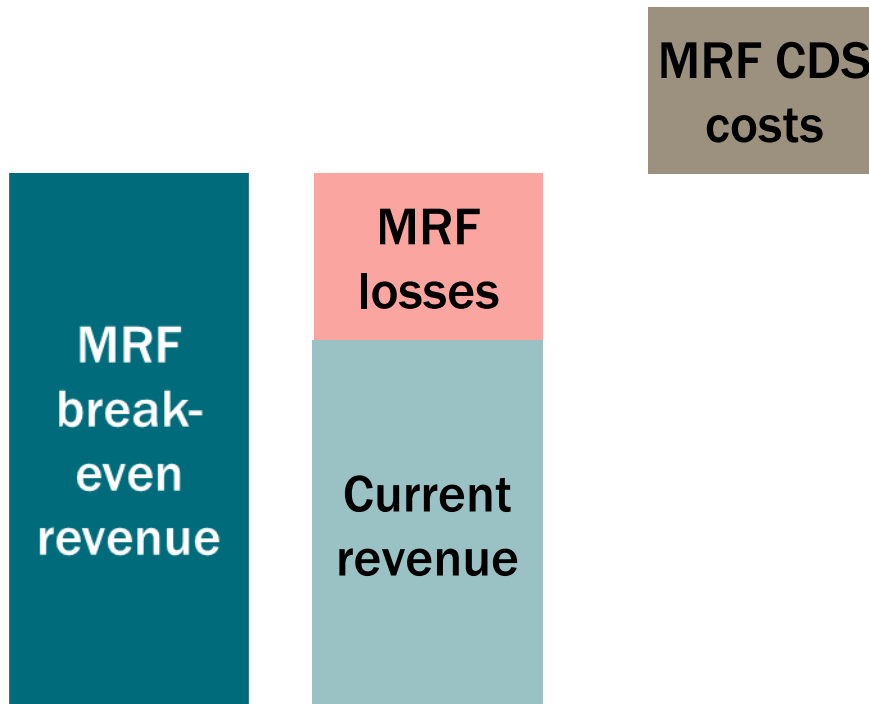
Putting together the different impacts



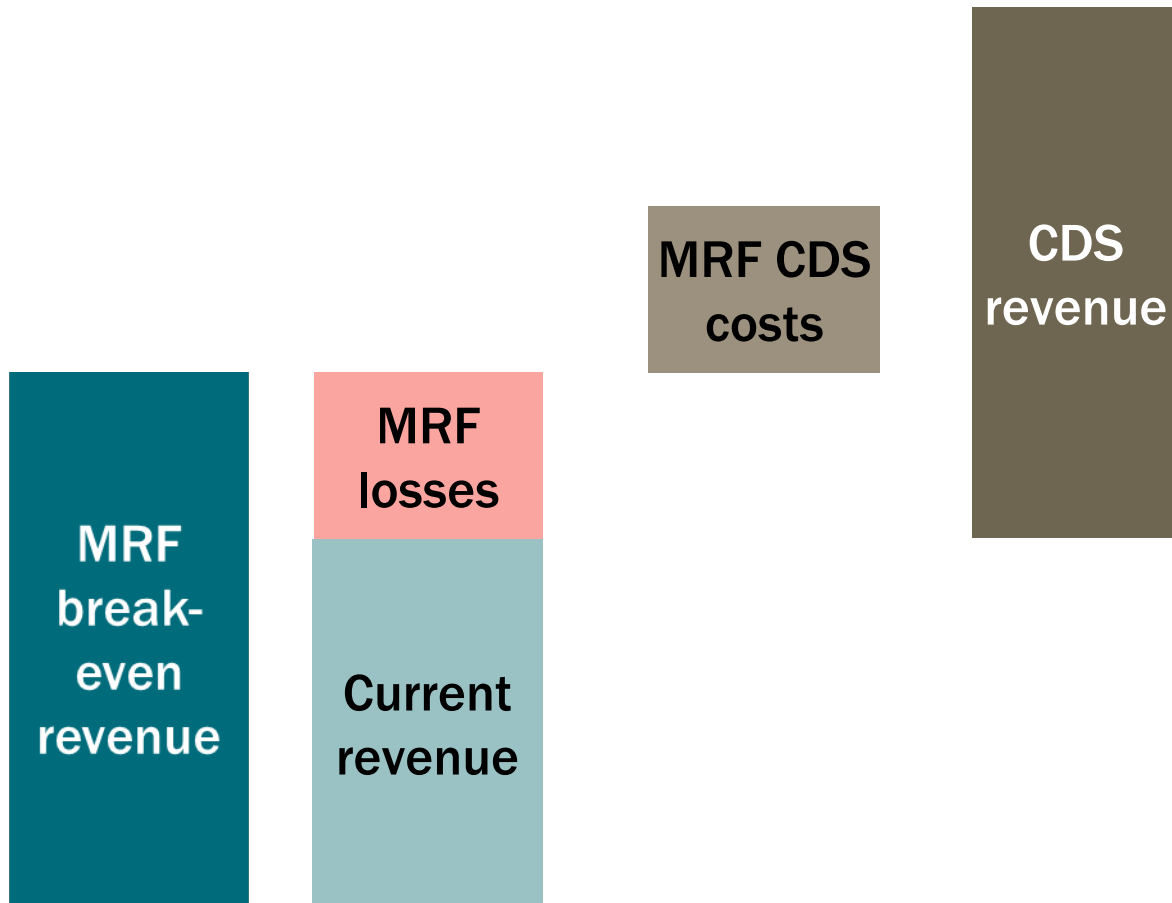
Putting together the different impacts



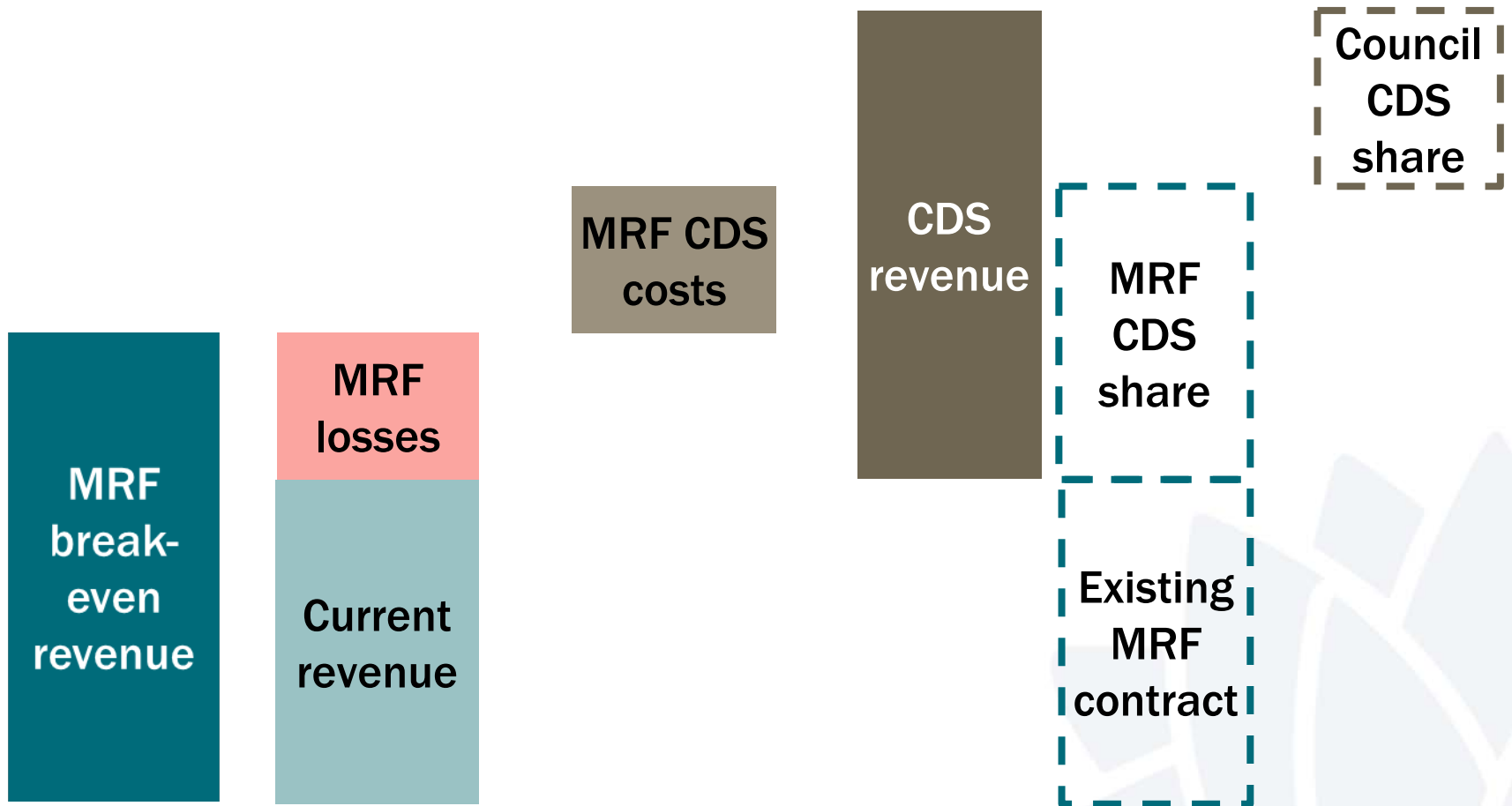
Putting together the different impacts



Putting together the different impacts

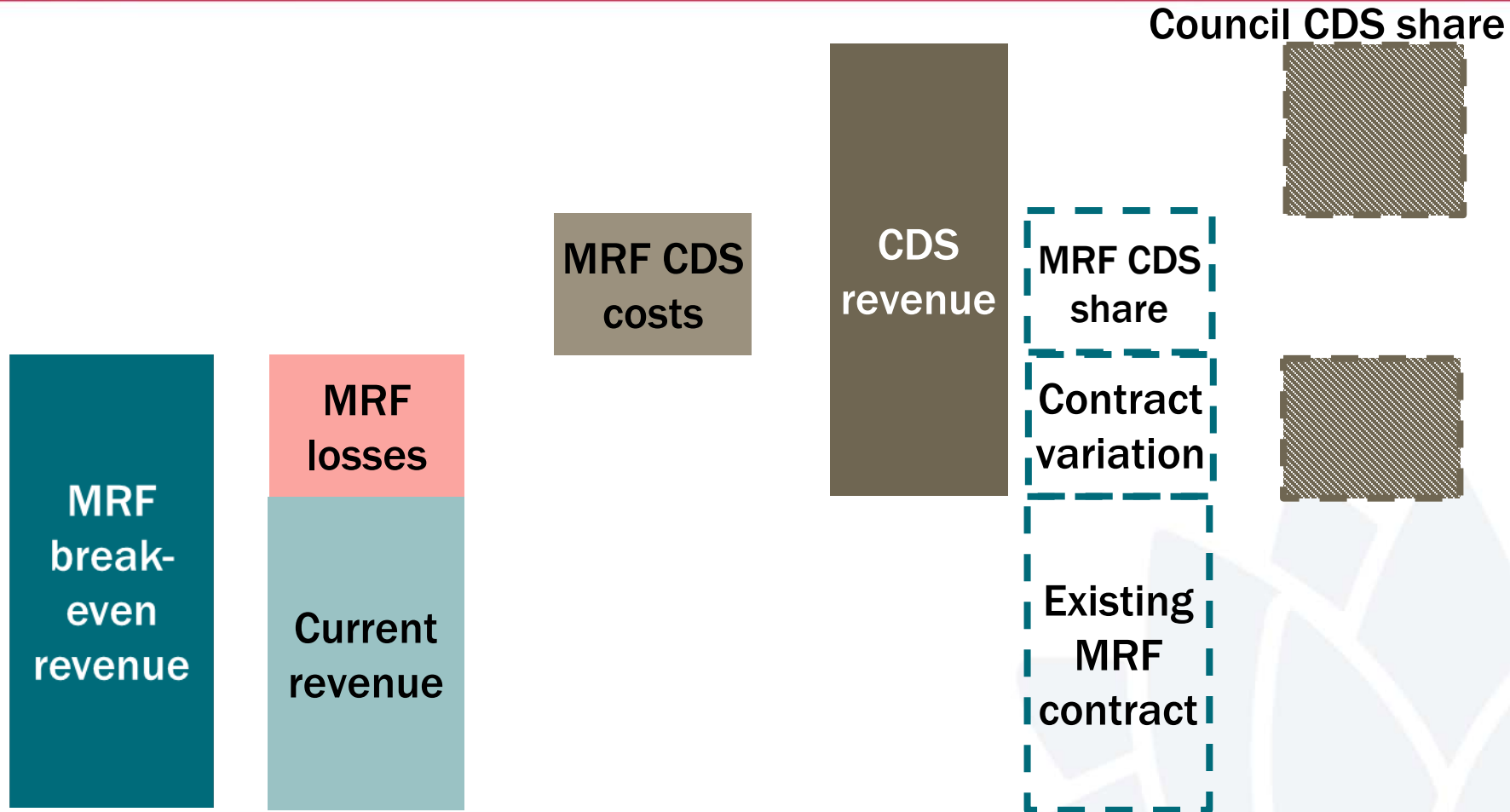


Putting together the different impacts

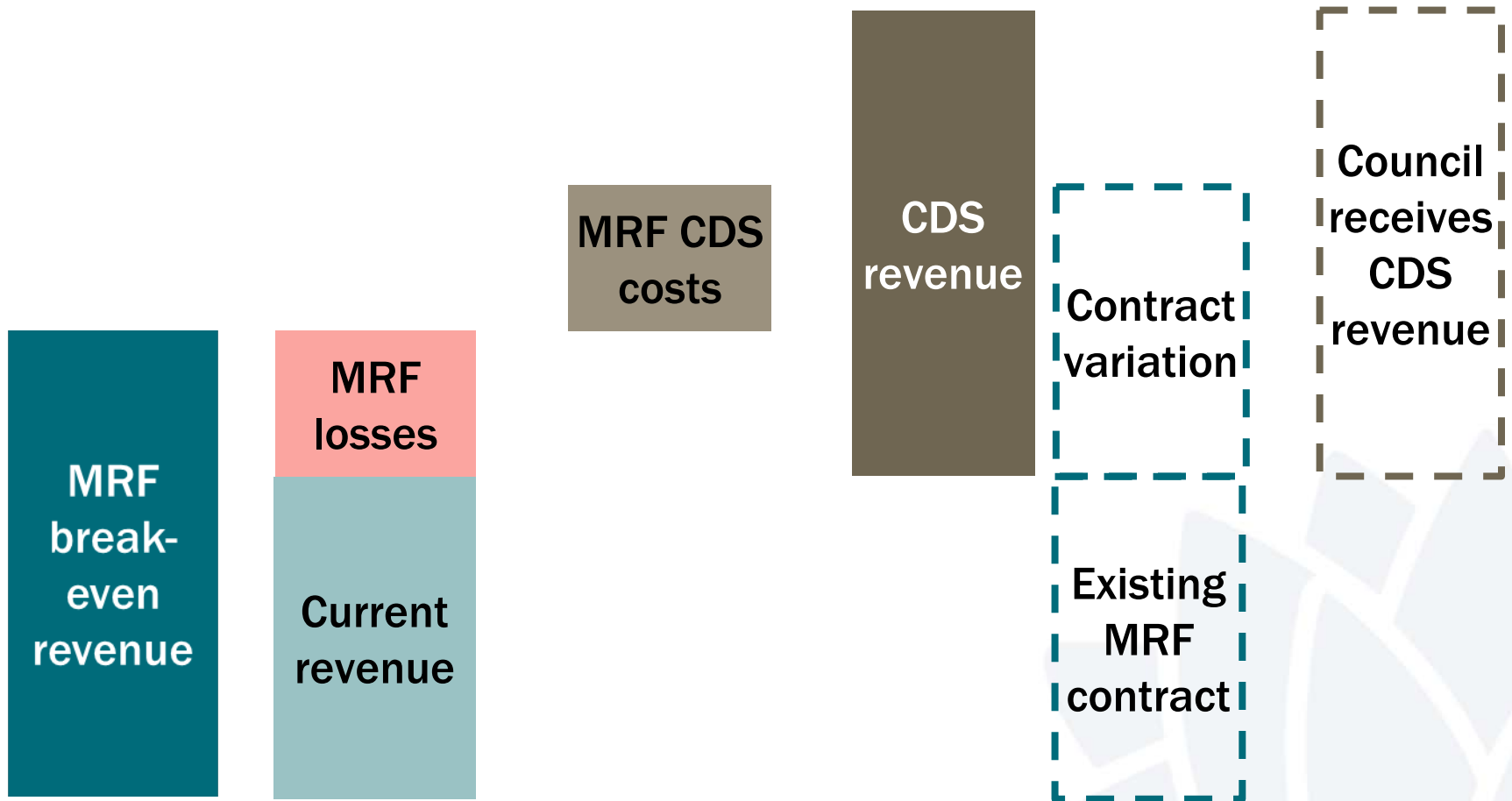




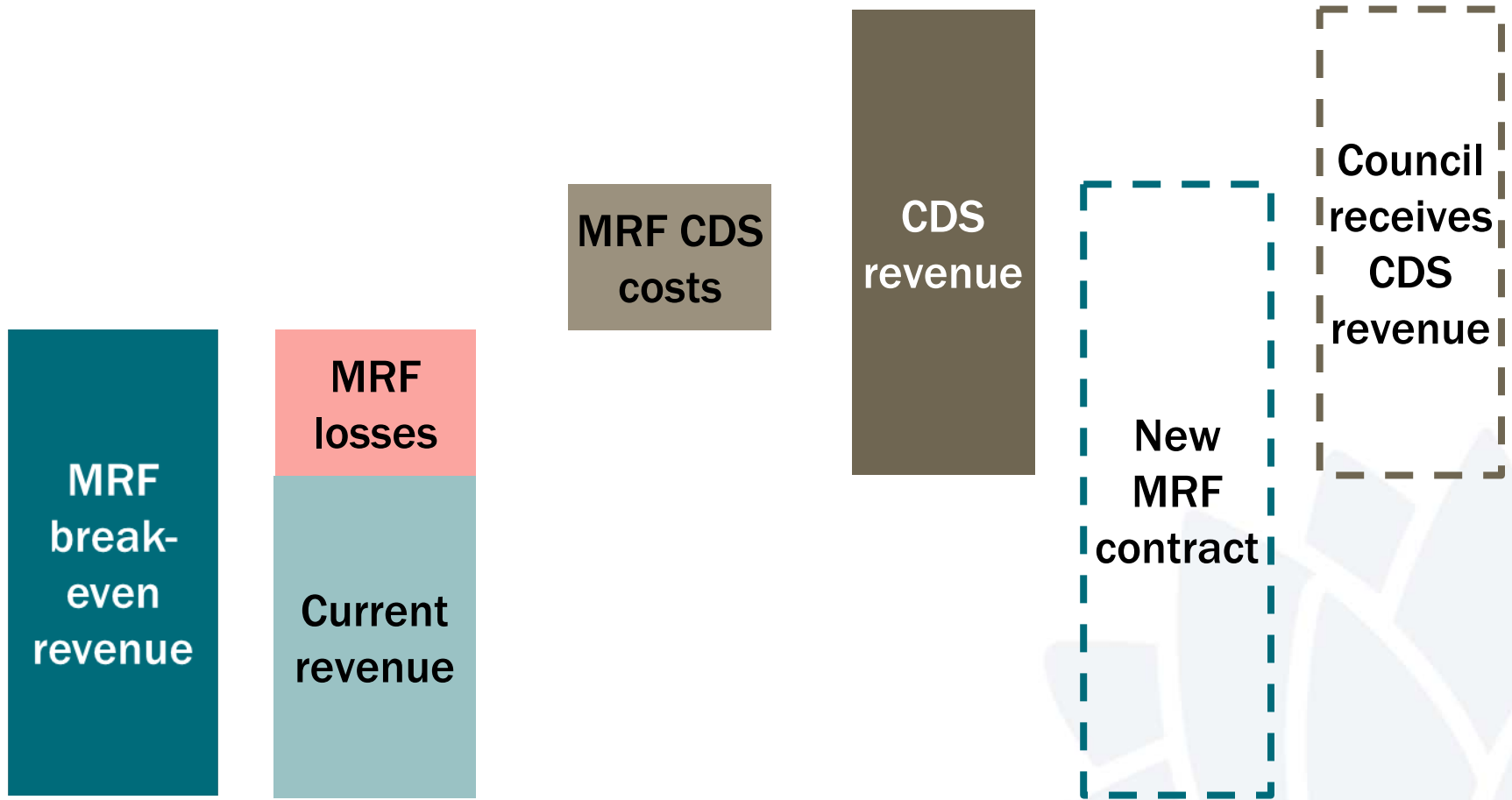
Putting together the different impacts



Putting together the different impacts



Putting together the different impacts





Conclusions

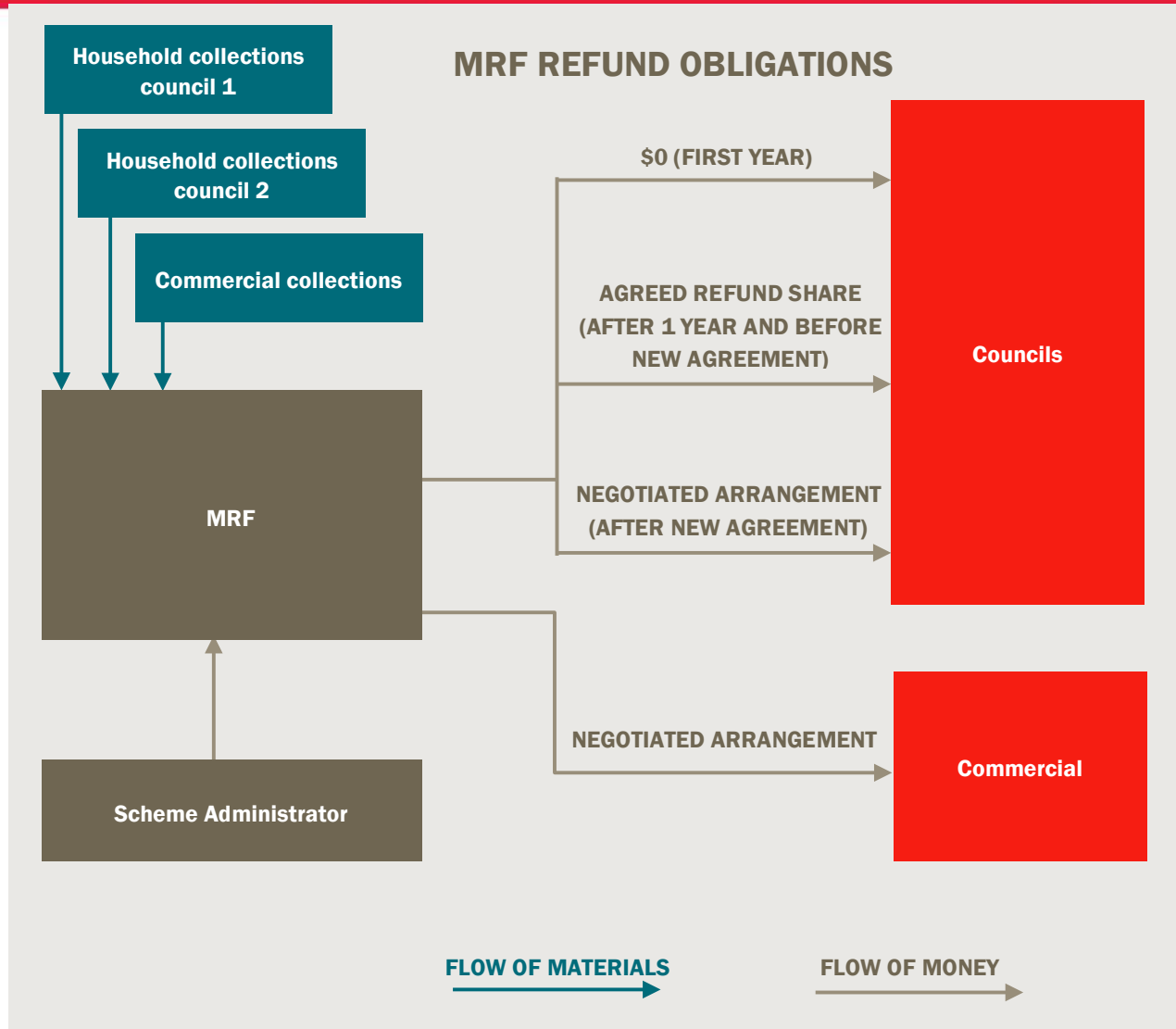
- Typically ~5% of revenue or less required to cover CDS costs
 - higher for small MRFs (up to 10%)
 - higher again if MRF seeks to count containers directly (15%)
- Much higher shares of CDS refunds to make a MRF viable at current commodity prices
 - this does not have to be done through CDS
 - the viability issues appear to be very different for different MRFs
 - the extent to which viability concerns will persist is difficult to know



Other Issues

- Transparency – refund share of what
 - see next slide
- Set share or a protocol/process
- Contract risk sharing
- What if material is not recycled
- Disability service providers

Refund sharing obligations for MRFs



Model tools - verification

Reconciliation of MRF revenue and council refund provided

NSW EPA eligible container factors	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Weighted average
Aluminium	80000	80000	80000	80000	80000
Glass	2000	2000	2000	2000	2000
Mixed plastic - all	8000	8000	8000	8000	8000
Separated plastics					
HDPE	4000	4000	4000	4000	4000
PET	20000	20000	20000	20000	20000
Mixed plastic remainder	4000	4000	4000	4000	4000
Council input tonnes per quarter	2500	2500	2500	2500	10000

Does council input tonnes above include paper and cardboard?	Yes
Use state average or own MRF composition	State-wide

Composition of MRF outputs by tonnes	Specific MRF	State-wide	Used
	% of outputs	% of outputs	% of outputs
Aluminium		0.7%	0.7%
Glass		33.8%	33.8%
Mixed plastic - all		8.1%	8.1%
Separated plastics			
HDPE			0.0%
PET			0.0%
Mixed plastic remainder			0.0%
Paper and cardboard		47.4%	47.4%
Other metals		2.3%	2.3%
Waste/residual		8.7%	8.7%
Total (should equal 100%)	0.0%	100.0%	100.0%

Refund per container (cents)	10
Exchange for Change administration costs (% of CDS revenue)	5%
Council refund share (% of revenue returned to MRF)	50%

Council refund

	\$m, for period
Estimated total CDS revenue from council materials	1.58
CDS revenue after removing Exchange for Change costs	1.48
CDS revenue for council	0.74
CDS revenue for MRF	0.74

INSTRUCTIONS FOR USE

Enter inputs in these cells

Comments show where data is from

This shows the approximate CDS refund for the council

The worksheet is protected with the password: TheCIE

Model tools - scenarios

Scenario assumptions

MRF and modelling assumptions

Choices	
Revenue share to MRFs - for Scenario 4	50%
Use mixed plastics - segregated or total	Total
Share of operating costs that are variable, excluding waste disposal and transport costs (%)	50%
Commercial MRF activities	
Include in analysis	No
Allow commercial rates to adjust in response to CDS	Yes
CDS refund to MRFs (cents/container)	10
CDS refund to MRFs (cents/container, after subtracting	9.5

Container Deposit Scheme impacts

Material flows	Share of output	Share of containers	Change in commodity
	materials	diverted from MRF	price because of CDS
	Per cent	Per cent	\$/tonne
paper and cardboard	47.4%	0%	0
aluminium	0.7%	20%	0
other metals	2.3%	0%	0
glass	33.8%	20%	0
plastics - mixed	6.1%	20%	0
plastics - hdpe	0.0%	20%	0
plastics - PET	0.0%	20%	0
other	0.0%	20%	0
waste	9.7%	0%	0

CLICK to
Update Refund Share for
Profit Neutrality (Scenario 3)

CLICK to
Run Sensitivity Analysis

Ok to run

Model tools - scenarios

Key results

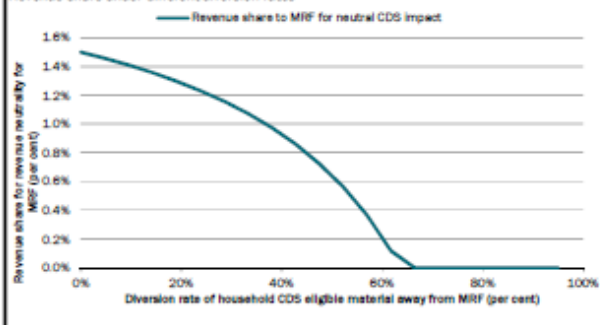
Impact on MRF of CDS (annual, \$m unless noted otherwise)

	Base case (1)	With all CDS refunds going to a MRF (2)	Profit neutral, with 1.3% of CDS refunds going to a MRF (3)	50% of CDS refunds going to a MRF (4)
	\$m	\$m	\$m	\$m
Revenue	4.3	11.5	4.3	7.9
Operating costs	-7.2	-7.2	-7.2	-7.2
Operating profit	-2.9	4.4	-2.9	0.7
Profit as a share of operating cost (%)	-40%	61%	-40%	10%
Tonnes processed per year (000)	60.0	57.3	57.3	57.3
CDS to MRF as a gate fee equivalent (\$/input tonne)		128	2	64
Note: CDS revenue assumes all CDS eligible materials are recycled				
	\$m	\$m	\$m	\$m
CDS revenue to all councils served by MRF	0.0	0.0	7.2	3.7
CDS revenue to specific council	0.0	0.0	1.1	0.5
Revenue share that leaves MRF profits equal				1.3%

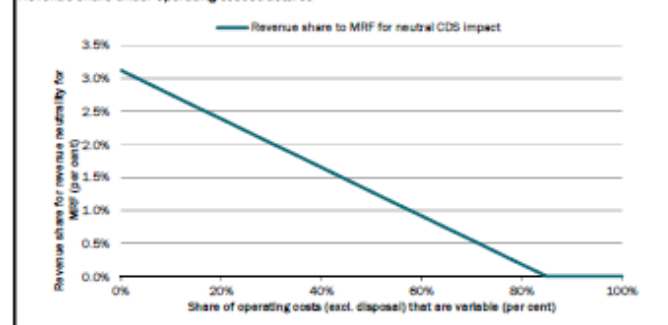
Statement of CDS costs and revenues (annual, \$m)

	\$m	% of revenue	Per input tonne
1. Direct CDS administration and compliance costs	-0.14	-1.9%	-2.3
2. Volume changes for kerbside			
Change in gate fees	-0.13	-1.8%	-2.2
Change in material revenues at current prices	0.04	0.6%	0.7
Change in operating costs	0.13	1.8%	2.2
Change in disposal costs	0.00	0.0%	0.0
3. Changes in market prices	0.00	0.0%	0.0
Total CDS-related costs	-0.09	-1.3%	-1.6
CDS revenue (council and commercial)	7.32	100.0%	121.9

Revenue share under different diversion rates



Revenue share under operating cost structures





Your Questions





Next Steps





Thank you for your participation

Further information can be found at:

www.olg.nsw.gov.au/content/container-deposit-scheme



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