Summary of Key Scheme Metrics to Assist with April 2018 and Q1 2018 True Up Calculations

1. Introduction

The invoice generated on 1 June 2018 contained two types of true up calculation:

i. A monthly true up associated with adjustments for the difference between the forecast and actual container collections by the Network Operator; and

ii. A quarterly true up associated with adjustments for the difference between the forecast and actual container volumes shipped for recycling by Material Recovery Facility Operators (MRFs).

This paper is designed to provide suppliers with an overview of the key inputs used to calculate the true up adjustments that may be present on your June invoice.

2. Monthly True Up Adjustments

2.1 The total costs of the scheme for the purposes of the April Network Operator True Up were:

Container Material Type	Cost ($) Apr 2018
Aluminium	10,111,361
Glass	8,359,071
HDPE	194,964
PET	7,363,708
Liquid Paper Board	772,478
Steel	7,724
Other Plastics	2,455
Other materials	3,589
Total	**26,815,351**

2.2 April Non-Volume Provisions

In the previous true up paper, we noted that an allowance had been made for exports in the April period. This allowance was for 5% of the forecast supply volume. For consistency, a final provision has been included in the April monthly true up for an additional 2.5% to bring the total allowance to 7.5% in line with all other months. This provision is applied across all containers supplied and is known as a non-volume cost.

The MRFs are paid based on their volumes shipped for recycling. Based on the difference between the volumes entering the MRFs and the number of containers claimed for Q1, Exchange for Change has identified a potential stockpile of 10.3 million containers recovered, but not shipped by the MRFs. To ensure sufficient funding is available to pay the MRFs when these containers are sent for recycling, a provision has been made during the monthly true up.

The value of these provisions is summarised in the following table:

Non Volume Costs	Cost ($) Apr 2018
Provision for Exports	712,762
MRF Stockpile Provision	936,198

These provisions are included within the costs shown in the table in section 2.4.

2.3 The total containers supplied by all suppliers in April were:

Container Material Type	Volume Apr 2018
Aluminium	80,685,805
Glass	72,481,110
HDPE	2,543,182
PET	68,408,421
Liquid Paper Board	15,081,421
Steel	76,570
Other Plastics	40,614
Other materials	26,083
Total	**239,343,206**

2.4 Actual prices per container type for April

As stated earlier, the actual prices per container are not used to calculate the cost of the scheme to each first supplier. They are a by-product of the calculations and are wholly dependent on the total volume of containers of each type supplied into the NSW market during the month.

The table below shows the actual container pricing based on the costs calculated for April based on the actual container volumes reported for April at the time the true up calculation was generated.

Container Material Type	Price per Container Apr 2018
Aluminium	$0.1253177173
Glass	$0.1153275816
HDPE	$0.0766615377
PET	$0.1076432916
Liquid Paper Board	$0.0512204818
Steel	$0.1008795473
Other Plastics	$0.0604587111
Other materials	$0.1376181211

If the volumes reported for April are subsequently adjusted by suppliers, the rates will change, however, the total cost of the scheme will not. You may still see an adjustment to your individual contributions if your relative market share changes due to these volume adjustments.

2.5 The total number of containers collected during the month of April by collection stream and in total were as follows:

Container Material Type	Network Operator Actual Volume Apr 2018	*MRF Operator Forecast Volume Apr 2018*	*True Up Container Volumes Apr 2018*
Aluminium	36,750,651	*29,625,806*	66,376,457
Glass	26,219,127	*28,622,358*	54,841,485
HDPE	1,141,440	*1,735,999*	2,877,439
PET	24,843,370	*26,642,168*	51,485,538
Liquid Paper Board	1,087,291	*4,395,440*	5,482,731
Steel	30,361	*58,488*	88,849
Other Plastics	654	*18,886*	19,540
Other materials	14,694	*7,301*	21,995
Total	**90,087,588**	***91,106,445***	**181,194,033**

Italicised figures contain estimates as the eligible container factors (conversion factors) for Q2 have not been published by the Ministerial Advisory Committee. The estimates above are based on the Q1 factors.

2.6 True ups for multiple months

As noted in previous newsletters and true up summaries, the NSW CDS permits suppliers to alter their historic volumes at any point in time, currently without a sunset date.

Consequently, the total supply volume in a given month may change resulting in an adjustment to the market share of all suppliers as each supplier's relative contribution to the total supply volume changes. The June invoice contained a true up for each scheme month for which actual volumes have been reported by suppliers.

To protect the scheme from false reporting, all suppliers must sign annual statutory declarations at the end of the financial year confirming the volume of containers first supplied into NSW. These declarations will be tested during supplier audits to ensure that the volumes declared to the Scheme Coordinator are accurate and any adjustments can be justified.

In addition to changes made by existing suppliers, when new suppliers join the scheme and provide their volumes, this may also lead to a change in the total volumes reported in a given month. Similarly, when existing suppliers exit the market, their historical volumes will cease to contribute to forecast volumes.

2.7 Restated "unit prices" for previously reported periods

Several suppliers have expressed an interest in being able to determine a unit price for the quarter for each container material type to coincide with the Q1-18 quarterly true up.

Previously we have outlined that an actual "unit price" is only valid at the point in time at which it is calculated due to the possibility of changes to the total supply volumes and as such it is not used when calculating true up calculations. Rather, your contribution towards the scheme costs is calculated by multiplying your market share at the time of the calculation by the total cost of each container material type as relevant to your business.

While not used to calculate the true up adjustments in your invoice, the following table has been provided so that you are able to create a "unit price" should you wish to do so for the four months comprising Q1-18. Please note that these prices will vary from those previously presented for the same periods as they are based on the actual volumes in the portal at the time that the June invoice was generated.

Container Material Type	Price per Container Dec 2017	Price per Container Jan 2018	Price per Container Feb 2018	Price per Container Mar 2018
Aluminium	$0.0533705150	$0.1176195612	$0.1051930650	$0.1006165321
Glass	$0.0436674441	$0.0927462551	$0.1021868303	$0.0919810547
HDPE	$0.0444971086	$0.0784630214	$0.0632487310	$0.0759117019
PET	$0.0470440508	$0.0967978353	$0.0930958770	$0.1028830619
Liquid Paper Board	$0.0577980810	$0.0606443254	$0.0602852018	$0.0595162914
Steel	$0.0334773217	$0.0516374789	$0.0957614046	$0.0576641021
Other Plastics	$0.0935987567	$0.0588034735	$0.0902116287	$0.0930650234
Other materials	$0.0448214272	$0.0350147652	$0.7134175899	$0.0639773240

2.8 Restated volumes for previously reported periods

The restated volumes used to determine all unit prices referenced in this document are as follows:

Container Material Type	Volume Dec 2017	Volume Jan 2018	Volume Feb 2018	Volume Mar 2018
Aluminium	133,427,931	77,660,074	82,281,763	108,177,665
Glass	127,018,973	84,786,348	65,949,233	93,184,412
HDPE	6,547,486	4,861,449	6,751,857	6,718,335
PET	116,743,273	75,580,005	74,072,680	83,221,830
Liquid Paper Board	14,221,107	19,687,204	15,274,877	16,254,466
Steel	178,975	215,477	103,910	243,415
Other Plastics	47,584	72,532	60,677	51,629
Other materials	18,535	49,914	46,897	32,799
Total	**398,203,864**	**262,913,003**	**244,541,894**	**307,884,551**

These volumes are the volumes that were stored in the reporting portal when the June invoice was generated.

3. Quarterly True Up Process

The quarterly true up process focuses solely on the difference in the forecast costs associated with the MRF collections and the cost for the actual containers claimed by the MRFs in their quarterly processing claims. These calculations are quarterly calculations and focus on quarterly totals.

As noted in section 2.2, MRFs are paid when they ship the eligible containers to a recycler. In ordinary operation they will usually have stock on hand as they collect enough containers to fill a shipment. This means that there is typically a lag between when the containers were supplied to the market and when they are shipped for recovery creating the potential for a mismatch

between supply volumes and the costs associated with that supply when presented on a monthly basis.

For those suppliers that have expressed an interest in attempting to determine monthly "unit prices", the tables in this section have been extended to show the values mapped back to each month in addition to the quarterly values shown in the rightmost column of each table. Please note that the containers being claimed by the MRFs may not have been supplied in the same month that the claim is made.

Due to the nature of the quarterly true up process the provision for stock on hand has been taken up in the monthly process to ensure that the quarterly true up deals only with the cost variance between forecast and actual containers shipped and claimed by the MRFs for the quarter.

3.1 Forecast Cost of MRF Claims

The following table summarises the forecast costs by container material type and by month:

Container Material Type	Cost ($) Dec 2017	Cost ($) Jan 2018	Cost ($) Feb 2018	Cost ($) Mar 2018	Cost ($) Q1-18
Aluminium	5,644,608	4,518,887	3,571,406	4,562,915	18,297,815
Glass	4,315,779	3,833,965	3,013,083	3,923,519	15,086,346
HDPE	288,601	252,838	217,032	274,786	1,033,256
PET	4,487,151	3,998,632	3,222,040	4,119,190	15,827,012
Liquid Paper Board	750,289	747,473	594,383	607,771	2,699,915
Steel	6,122	7,810	7,770	8,690	30,392
Other Plastics	6,470	6,180	4,825	4,341	21,816
Other materials	699	635	31,865	327	33,526
Total	**15,499,720**	**13,366,418**	**10,662,404**	**13,501,538**	**53,030,079**

3.2 Actual Cost of MRF Claims

The table overleaf summarises the actual costs by container material type and by months:

Container Material Type	Cost ($) Dec 2017	Cost ($) Jan 2018	Cost ($) Feb 2018	Cost ($) Mar 2018	Cost ($) Q1-18
Aluminium	1,535,908	2,382,355	1,717,656	2,114,159	7,750,077
Glass	4,145,645	4,769,895	3,715,989	3,829,747	16,461,276
HDPE	96,569	122,830	111,849	109,424	440,671
PET	2,080,909	2,713,404	2,545,633	2,340,574	9,680,520
Liquid Paper Board	70	72	58	58	258
Steel	-	-	-	-	-
Other Plastics	-	-	-	-	-
Other materials	-	-	-	-	-
Total	**7,859,101**	**9,988,555**	**8,091,185**	**8,393,961**	**34,332,803**

You will note from the table above that not all material types were claimed by the MRFs in the quarter and as such Steel, Other Plastics and Other materials have no cost associated with them.

You will also note that the actual cost of Glass was higher than the forecast. A second MRF protocol was approved late in the quarter for bottle crushing operators, which increased the volume of glass claimed as volumes for these facilities had not been included in the original forecast volumes.

3.3 Net adjustment to supplier contributions

As with monthly contributions, unit rates are not used to determine adjustments for suppliers, it is the difference between the costs in tables 3.1 and 3.2 multiplied by the market share of the supplier for the quarter.

Container Material Type	($) Dec 2017	($) Jan 2018	($) Feb 2018	($) Mar 2018	($) Q1-18
Aluminium	- 4,108,700	- 2,136,532	- 1,853,750	- 2,448,756	- 10,547,738
Glass	- 170,134	935,930	702,907	- 93,772	1,374,931
HDPE	- 192,032	- 130,008	- 105,183	- 165,362	- 592,585
PET	- 2,406,242	- 1,285,228	- 676,407	- 1,778,616	- 6,146,492
Liquid Paper Board	- 750,219	- 747,401	- 594,325	- 607,713	- 2,699,658
Steel	- 6,122	- 7,810	- 7,770	- 8,690	- 30,392
Other Plastics	- 6,470	- 6,180	- 4,825	- 4,341	- 21,816
Other materials	- 699	- 635	- 31,865	- 327	- 33,526
Total	**- 7,640,619**	**- 3,377,863**	**- 2,571,218**	**- 5,107,576**	**- 18,697,276**

A negative number indicates a credit to suppliers, a positive number represents an additional contribution from suppliers.

For the purposes of allowing suppliers to create an effective cost per container by material type, the table above can be divided by the restated container volumes shown at 2.3 to create a unit price adjustment for the quarterly true up.

Division by the values in table 2.8 creates a common denominator and allows the values shown in the table at 2.7 to be added to the table above to create an effective “unit price” for the quarter.

Please note that any values derived using this method will only be valid at the time the June invoice was run and any changes to supplier volumes will render any figures derived using this method invalid.

Unit prices also fail to consider external factors such as seasonality, the availability of collection points, timing differences between containers being supplied and when they are shipped for recycling and the maturity of the scheme. As such we caution against relying on these figures when making pricing decisions. For these reasons we do not believe it is appropriate to publish the true up figures in this format.

3.4 MRF Collection Volumes

The costs provided in the tables above are driven by the number of containers claimed by the MRFs during the quarter. The forecast volume is an input to the calculation of the advanced contribution prices published each month by the Scheme Coordinator.

These forecasts are then entered into the portal to provide a reference point for the true up calculations.

At the end of the quarter, the difference between forecast volume and the volume actually collected and claimed by the MRFs determines the value of the true up.

The following tables set out the container volumes used to generate tables 3.1 and 3.2.

3.4.1 Forecast Volumes for Pricing

Container Material Type	Volume Dec 2017	Volume Jan 2018	Volume Feb 2018	Volume Mar 2018
Aluminium	62,090,686	49,707,753	39,285,468	44,285,952
Glass	47,473,570	42,173,612	33,143,910	38,458,059
HDPE	3,174,608	2,781,217	2,387,353	2,435,943
PET	49,358,657	43,984,950	35,442,437	38,955,604
Liquid Paper Board	8,253,182	8,222,200	6,538,212	4,701,679
Steel	67,346	85,906	85,475	80,875
Other Plastics	71,175	67,979	53,076	23,678
Other materials	7,693	6,981	350,510	2,863
Total	**170,496,916**	**147,030,598**	**117,286,442**	**128,944,652**

3.4.2 Forecast Volumes Entered in Portal

Container Material Type	Volume Dec 2017	Volume Jan 2018	Volume Feb 2018	Volume Mar 2018
Aluminium	62,090,686	49,707,753	39,285,468	50,192,062
Glass	47,473,570	42,173,612	33,143,910	43,158,709
HDPE	3,174,608	2,781,217	2,387,353	3,022,641
PET	49,358,657	43,984,950	35,442,437	45,311,091
Liquid Paper Board	8,253,182	8,222,200	6,538,212	6,685,476
Steel	67,346	85,906	85,475	95,588
Other Plastics	71,175	67,979	53,076	47,748
Other materials	7,693	6,981	350,510	3,599
Total	**170,496,917**	**147,030,598**	**117,286,441**	**148,516,914**

3.4.3 Actual Containers Shipped for Recycling

Container Material Type	Volume Dec 2017	Volume Jan 2018	Volume Feb 2018	Volume Mar 2018
Aluminium	17,039,866	26,430,628	19,056,241	23,455,174
Glass	45,993,433	52,919,109	41,226,664	42,488,734
HDPE	1,071,184	1,362,484	1,240,686	1,213,781
PET	23,082,805	30,098,852	28,237,827	25,963,181
Liquid Paper Board	780	800	640	640
Steel	-	-	-	-
Other Plastics	-	-	-	-
Other materials	-	-	-	-
Total	**87,188,068**	**110,811,873**	**89,762,058**	**93,121,510**

As noted in section 3.2, there are no volumes reported against Steel, Other Plastics and Other materials. No factors were published for Steel and Other materials rendering any volumes zero for the purposes of scheme costs.

Other Plastics is actually a Mixed Plastics fraction under the MRF Protocol comprising PET, HDPE and other plastics. To correctly apportion costs back to the original container material types, the volumes in Other Plastics have been mapped back against PET and HDPE and are included in the totals shown in table 3.4.3.

3.4.4 System Error affecting Quarterly True Up

As can be seen from the tables 3.4.1 and 3.4.2 above, the forecast volumes used for pricing and the values entered in the portal are correct to +/- one container for December, January and February. In March a change to the system resulted in the portal values incorrectly reflecting the March volumes used for pricing.

This error was identified and captured as part of the June post invoicing review. The effect of this error has been to overstate the contribution collected from suppliers as the pricing was calibrated to collect enough revenue to cover the costs associated with 128.9 million containers, whereas the portal has assumed revenue has been collected to cover the costs associated with 148.5 million containers.

Table 3.1, based on the assumption of 148.5 million containers, assumes that $53.0 million has been collected by the Scheme Coordinator, whereas, the actual figure is $51.2 million. This means that when table 3.1 was deducted from table 3.2 to determine the size of the true up (table 3.3), the true up was overstated by $1.8 million.

To ensure that this funding is correctly returned to the scheme account, Exchange for Change proposes to spread this recovery over quarter 3 by including an adjustment for these volumes in the advanced contributions for August and September 2018.

For the avoidance of doubt, suppliers have not been disadvantaged by this system error. In fact, suppliers have been undercharged for the period due to the overstated true up adjustment. The adjustment we are proposing to make will be spread over quarter 3 and is intended to restore the Scheme Account balance to the level it would have been at, but for the error.

4. Further Information

Should you have any queries in relation to the information contained in this paper, please e-mail us at info@exchangeforchange.com.au.