

Appendix 1

A simplified example is presented in Table 1 below to show potential scope 1 and scope 2 emissions for 2030 with and without the project (ARC). The emissions for electricity consumption are recalculated using a NSW grid emissions intensity factor of 0.18 t CO₂-e/MWh. For the scenario without the project, the equivalent emissions for 240,000 MWh of electricity are added, assuming this is sourced from NSW grid at 0.18 t CO₂-e/MWh instead of being produced by the ARC. The proponent will need to justify the emission factors used in their assessment.

The emission savings (negative change) as a result of the project are shown, with the most significant saving obtained from the reduction in fugitive methane (due to less waste landfilled because it is redirected to the ARC). The analysis shows that the project results in an increase in emissions, rather than a net reduction as reported in Table 6.5 of the greenhouse gas assessment. The emissions saving from substituted electricity is no longer a saving, as the grid intensity is less than the project emission intensity for electricity generation.

Table 1: Future estimated scope 1 and 2 emissions using the 2030 NSW grid emission intensity

Source	Emissions (t CO ₂ -e/annum)		
	2030 – no ARC	2030 - with ARC	Change
Combustion: diesel (Bioreactor)	2,739.0	1,817.9	-921
Combustion: diesel (MBT)	413.5	413.5	0
Combustion: diesel (ARC)		1,639.1	1,639
Combustion: petrol (Bioreactor)	7.2	4.8	-2
Combustion: petrol (MBT)	30.2	30.2	0
Combustion: ethanol (MBT)	0.0	0.0	0
Combustion: petroleum oils (Bioreactor)	4.2	2.8	-1
Combustion of landfill gas	7,771.6	5,537.3	-2,234
Flaring of landfill gas	1,113.1	793.1	-320
Fugitive emissions of landfill gas	205,302.1	146,274.6	-59,028
SF6 emissions	3.0	3.0	0
Thermal treatment of residual waste for electricity (ARC)		146,891.3	146,891
On-site transport of residue to encapsulation cell		84.3	84
Purchased electricity (Bioreactor)	931.0	617.9	-313
Purchased electricity (MBT)	884.1	884.1	0
Purchased electricity (ARC)	0.0	201.6	202
<i>Equivalent emissions if 240,000 MWh is sourced from NSW grid at 0.18 t CO₂-e/MWh</i>	43,200		
Total	262,399	305,196	42,797

Finally, it is noted that the emission calculation for purchased electricity (MBT) in Table 6.2 and Table 6.3 of the greenhouse gas assessment should be checked, as the results do not match the reported consumption estimates (kWh) in Table A.11.