Landfills

Global abatement potential in 2020 and 2030 is 560 and 612 $MtCO_2e$, respectively. The top 5 emitting countries (United States, China, Mexico, Malaysia and Turkey) account for 24% of total abatement potential in the landfill sector. Abatement potential is uniformly split between top 5 countries with the exception of the United States. The difference between the United States and other top 5 emitters reflects that the analysis was limited to abatement at smaller landfills not already subject to federal regulation that requires the collection and combustion of LFG gas generated at large landfills.

The results of the MAC analysis are presented in Table 1 and Figure 1 below by major country and regional grouping at select break-even prices in 2030. In addition, Figures 2 and 3 present the United States and Global MAC curves in 2010, 2020 and 2030. The maximum abatement potential reported in Table 1 includes reductions achieved through waste diversion alternatives (e.g. composting, anaerobic digestion, paper recycling, mechanical biological treatment, and waste incineration) for countries outside the U.S. and EU. These alternatives have breakeven prices typically above $100/$tCO_2e$, which fall outside the range of breakeven prices presented in subsequent MAC curve figures. It is important to note that MACCs presented in Figures 1, 2, and 3 do not capture the maximum abatement potential presented in Table 1.

The MAC analysis results show that approximately 137 $MtCO_2e$, or 15% of global baseline CH_4 emissions from landfills, can be cost-effectively abated by adopting mitigation and avoidance options. If additional incentives for emissions reductions (e.g., tax incentive, subsidy, or carbon price) above the zero break-even price were available to landfill operators, emission reductions could be cost-effectively achieved.

Table 1: Abatement Potential by Region at Selected Break-Even Prices ($/tCO$_2$e) in 2030

Country/Region	Break-Even Price										
	−10	−5	0	5	10	15	20	30	50	100	100+
Top 5 Emitting Countries											
United States		2.4	2.4	2.4	9.0	11.7	17.3	17.3	17.3	23.8	37.0
China	1.9	1.9	2.7	9.0	10.3	13.8	13.8	13.8	13.8	19.1	30.0
Mexico	2.5	5.3	13.7	13.7	13.7	17.7	17.7	17.7	17.7	23.7	36.1
Malaysia	2.2	7.8	9.0	9.0	9.0	9.0	12.5	12.5	12.6	17.8	28.5
Turkey	1.3	1.5	1.7	7.1	10.3	11.1	12.1	13.6	14.3	14.5	14.6
Rest of Region											
Africa	5.1	5.1	5.1	9.3	24.2	28.5	38.9	38.9	39.4	54.9	86.9
Central & South America	5.6	10.5	17.7	20.8	21.3	21.6	27.7	27.8	27.9	37.4	57.5
Middle East	4.0	4.6	8.7	22.9	23.5	26.2	28.5	29.8	30.4	41.0	63.1
Europe	20.2	28.3	42.5	61.5	71.3	74.6	76.6	77.4	77.6	79.2	82.3
Eurasia	0.5	1.5	4.9	12.1	16.4	21.1	21.9	21.9	22.1	30.1	46.7
Asia	8.4	13.2	24.9	38.3	42.2	44.0	54.1	54.5	54.6	72.6	108.7
North America	1.5	1.6	4.1	8.6	10.6	13.3	13.6	13.7	13.8	14.8	21.1
Total	**53.2**	**83.8**	**137.3**	**214.7**	**261.8**	**292.8**	**334.7**	**339.0**	**341.6**	**428.9**	**612.4**

Figure 1: Marginal Abatement Cost Curve for Top 5 Emitters in 2030

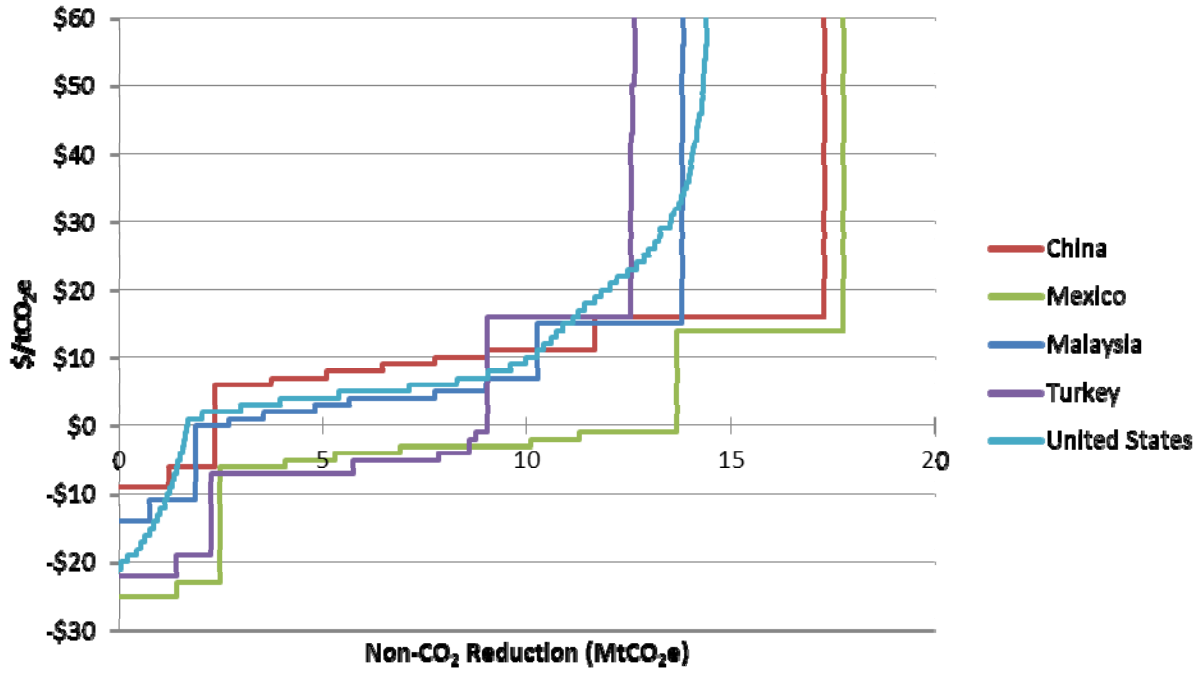

Figure 2: United States Marginal Abatement Cost Curve in 2010, 2020, and 2030

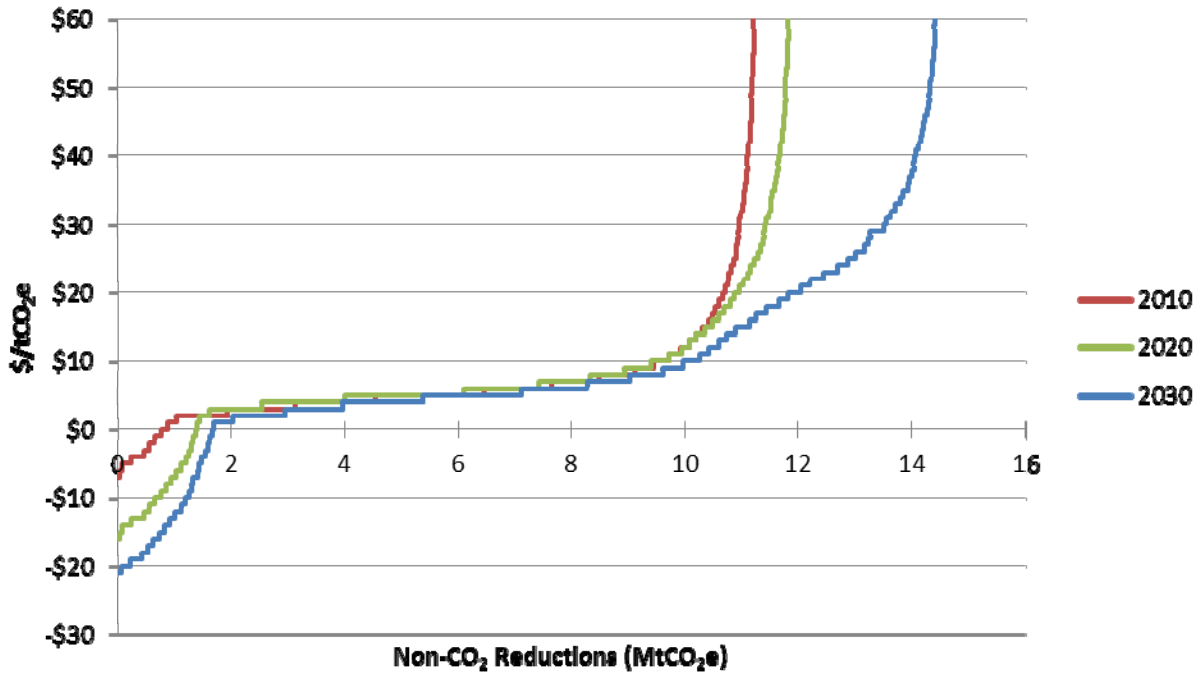

Figure 3: Global Marginal Abatement Cost Curve in 2010, 2020 and 2030