

Unfortunately, we have found an error in the net cradle to grave GHG emission calculation of CCS-enabled cases in Table 7 and figure 10. The error was double counting sequestered CO₂ in the net cradle to grave calculations. Since we considered a carbon credit for using biomass, net sequestered CO₂ emissions were not supposed to be considered in the net emission calculations. This error affects the figure 10 and last two lines of Table 7 for BGTL/FT/CCS, BGTL/DME/CCS, BGNTL/FT/CCS and BGNTL/DME/CCS cases. With this correction, BGTL/DME case with CCS remains the only plant with net negative GHG emissions.

This error does not affect the conclusion and message of this paper, since the CCS enabled cases were already shown to be economically infeasible. This correction shows that enabling CCS does not add significant environmental benefits to these plants. The corrected Table 7 and Figure 10 are shown below.

Table 7. Cradle to grave GHG emissions of the plants for 85% capacity.

GHG emission (tCO ₂ e/yr)	BGTL/ FT	BGTL/ FT	BGTL/ DME	BGTL/ DME	BGNTL/ FT	BGNTL/ FT	BGNTL/ DME	BGNTL/ DME	GNTL/ FT	GNTL/ DME
CCS used?	Yes	No	Yes	No	Yes	No	Yes	No	No	No
Nuclear heat used?	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Direct GHG emissions	287,400	1,234,500	230,340	1,411,900	254,670	892,890	173,790	882,780	469,790	458,050
Cradle-to-plant-gate-entrance GHG emissions	-1,503,100	-1,518,800	-1,521,000	-1,527,100	-923,300	-785,690	-790,480	-792,580	206,380	196,760
Net sequestered	-985,740	0	-1,123,060	0	-596,890	0	-664,430	0	0	0
Plant-gate-exit-to-grave GHG emissions	1,273,700	1,275,100	724,160	724,160	1,238,000	1,239,300	808,040	818,970	1,455,000	938,470
Net Cradle-to-grave GHG emissions	57,894	1,115,200	-566,480	733,300	569,380	1,416,800	191,350	979,450	2,131,100	1,593,300
Net Cradle-to-grave GHG emissions (gCO ₂ e/GJ _{HHV})	4,406	84,780	-47,719	58,548	44,583	110,753	13,497	65,908	142,069	94,009

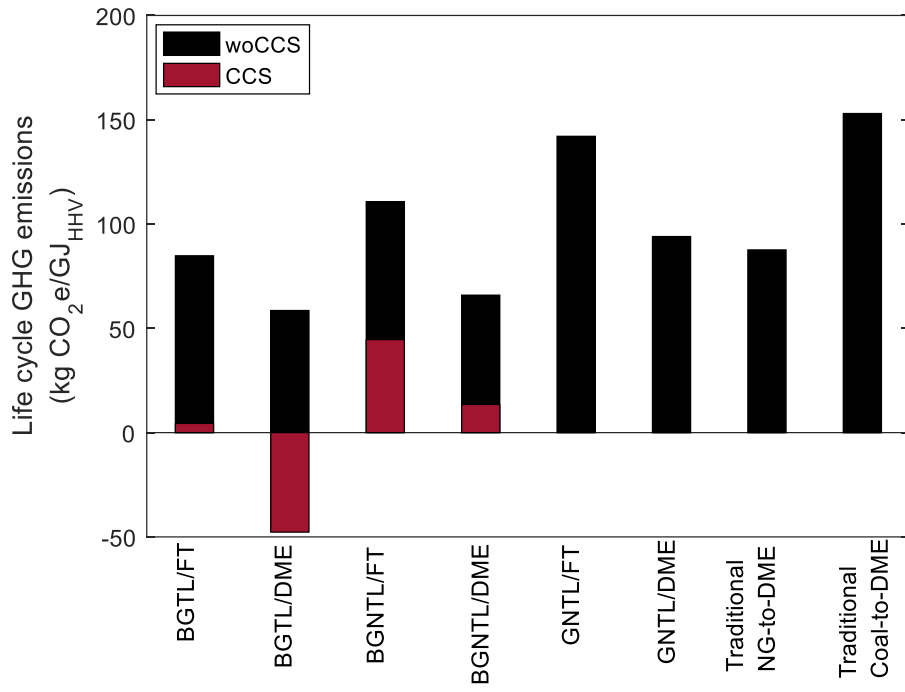


Figure 10. Life cycle GHG emissions of the different cases.