Online Supplement

Reexamining the economics of aerosol geoengineering

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Abstract

This online supplement provides important analysis that would not fit in Bickel and Agrawal (2012), hereafter BA, due to the journal's word and page requirements.

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Fig. S1 adds to GTK's analysis reported in BA by presenting the cumulative discounted total costs under each of their scenarios. Immediately apparent is that the cumulative costs of GTK's aborted GEO program are less than the costs of BAU, assuming GEO causes no additional damage. This suggests that adding GEO to a BAU policy could be better than BAU even if the GEO program is later aborted. It is also interesting to note that the discounted total costs of an aborted GEO program are lower than optimal abatement through 2150—almost 100 years after the GEO termination date.
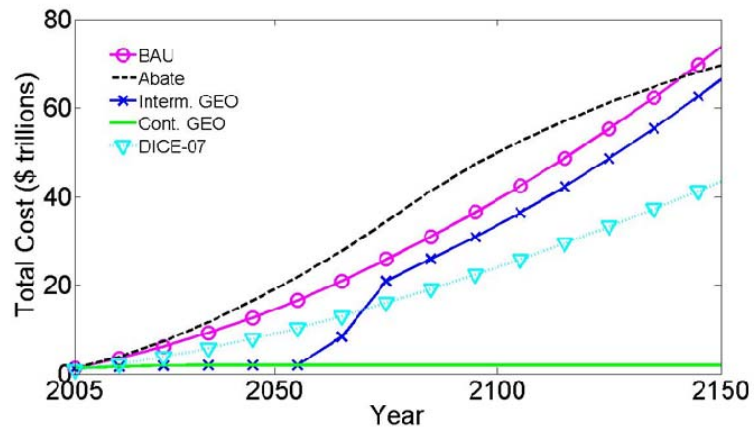

Fig. S1 Cumulative discounted total costs of climate change (abatement costs plus climate damages) for BAU (circles), abatement (dashed line), intermittent geoengineering (crosses), and continuous geoengineering (solid line). These results are based on best-guess inputs (not averaged over all 6300 SOW) and neglect potential economic damages due to aerosol geoengineering forcing. Cumulative damages under an aborted GEO strategy are lower than BAU and optimal abatement (through 2150).

Fig. S2 presents a schematic decision tree representing GTK's framing of the aerosol geoengineering decision. GTK equate a decision to deploy GEO with a decision to pursue BAU.
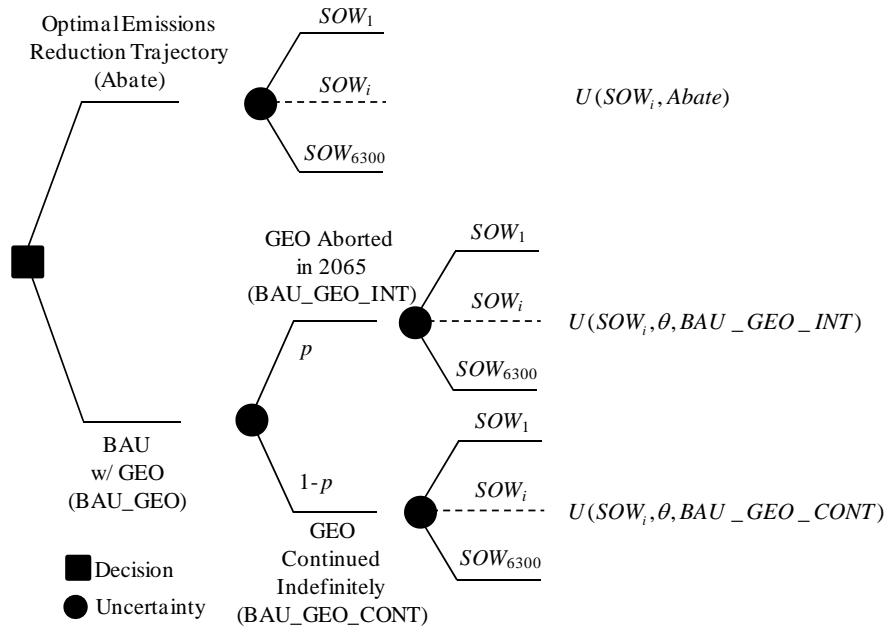

Fig. S2 Schematic decision tree detailing GTK's framing of the aerosol geoengineering deployment decision. Choosing GEO requires selection of BAU in the GTK framework.

Fig. S3 presents a schematic decision tree representing GTK's framing of the aerosol geoengineering decision. GTK equate a decision to deploy GEO with a decision to pursue BAU.
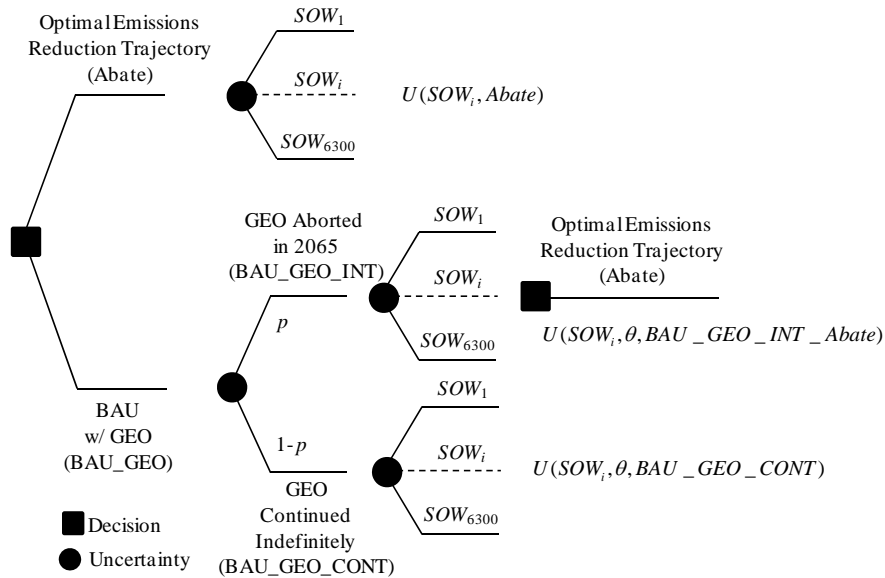

Fig. S3 Schematic decision tree for GEO decision that allows society to respond to an aborted GEO program by implementing abatement.