Policy Implications of Greenhouse Warming: Mitigation, Adaptation, and the Science Base (1992)
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TABLE 6.3 Cost-Effectiveness Ordering of Geoengineering Mitigation Options

Mitigation Option	Net Implementation Cost	Potential Emission Mitigation (t CO_2 equivalent per year)
Low stratospheric soot	Low	8 billion to 25 billion
Low stratospheric dust, aircraft delivery	Low	8 billion to 80 billion
Stratospheric dust (guns or balloon lift)	Low	4 trillion or amount desired
Cloud stimulated by provision of cloud condensation nuclei	Low	4 trillion or amount desired
Stimulation of ocean biomass with iron	Low to moderate	7 billion or amount desired
Stratospheric bubbles (multiple balloons)	Low to moderate	4 trillion or amount desired
Space mirrors	Low to moderate	4 trillion or amount desired
Atmospheric CFC removal	Unknown	Unknown

NOTE: The feasibility and possible side-effects of these geoengineering options are poorly understood. Their possible effects on the climate system and its chemistry need considerably more study and research. They should not be implemented without careful assessment of their direct and indirect consequences.

Cost-effectiveness estimates are categorized as either savings (for less than 0), low (0 to \$9/t CO_2 equivalent), moderate (\$10 to \$99/t CO_2 equivalent), or high (>\$100/t CO_2 equivalent). Potential emission savings (which in some cases include not only the annual emissions, but also changes in atmospheric concentrations already in the atmosphere—stock) for the geoengineering options are also shown. These options do not reduce the flow of emissions into the atmosphere but rather alter the amount of warming resulting from those emissions. Mitigation options are placed in order of cost-effectiveness.

The CO_2-equivalent reductions are determined by calculating the equivalent reduction in radiative forcing.

Here and throughout this report, tons are metric.

COMPARING OPTIONS

Table 6.2 shows estimates of net cost and emission reductions for several options. It must be emphasized that the table presents the Mitigation Panel's estimates of the technical potential for each option. For example, the calculation of cost-effectiveness of high-efficiency light bulbs (one of the building efficiency options) does not consider whether the supply of light bulbs could meet the demand with current production capacities. It does not consider the trade-off between expenditures on light bulbs and on health