

Action needed to manage climate change risks -- new report

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Warning that the risk of dangerous climate change impacts is growing with every ton of greenhouse gases emitted into the atmosphere, a National Research Council committee today reiterated the pressing need for substantial action to limit the magnitude of climate change and to prepare to adapt to its impacts. The nation's options for responding to the risks posed by climate change are analyzed in a new report and the final volume in America's Climate Choices, a series of studies requested by Congress. The committee that authored the report included not only renowned scientists and engineers but also economists, business leaders, an ex-governor, a former congressman, and other policy experts.

"The goal of the America's Climate Choices studies is to ensure that climate decisions are informed by the best possible scientific knowledge, analysis, and advice, both now and in the future," said committee chair Albert Carnesale, chancellor emeritus and professor, University of California, Los Angeles.

The new report reaffirms that the preponderance of scientific evidence points to human activities -- especially the release of carbon dioxide and other [greenhouse gases](#) into the atmosphere -- as the most likely cause for most of the global warming that has occurred over the last several decades. This trend cannot be explained by natural factors such as internal climate variability or changes in incoming energy from the sun. The report adds that the impacts of climate change on human and natural systems can generally be expected to intensify with warming.

While it recognized that climate change is inherently a global issue requiring an international response, the committee focused on the charge from Congress to identify steps and strategies that U.S. decision makers could adopt now. A coordinated national response to climate change, which the country currently lacks, is needed and should be guided by an iterative risk management framework in which actions taken can be revised as new knowledge is gained.

"America's response to climate change is ultimately about making choices in the face of risk," noted committee vice chair William L. Chameides, dean of the Nicholas School of the Environment, Duke University, Durham, N.C. "Risk management strategies must be durable enough to promote sustained progress yet sufficiently flexible to take advantage of new knowledge and technologies."

Substantial reductions of greenhouse gas emissions should be among the highest priorities in the national response, the committee said. Although the exact magnitude and speed of reductions will depend on how much risk society deems acceptable, it would be imprudent to delay taking action. The committee cited many reasons for not waiting, including that the faster emissions are reduced, the lower the risks. And because the effects of greenhouse gases can take decades to manifest and then persist for hundreds or even thousands of years, waiting for impacts to occur before taking action will likely be too late for meaningful mitigation. Beginning emissions reductions soon will also lower the pressure to make steeper and costlier cuts later. "It is our judgment that the most effective strategy is to begin ramping down emissions as soon as possible," Carnesale said.

State and local efforts currently under way or being initiated to reduce greenhouse gas emissions are potentially quite significant but unlikely to yield outcomes comparable to what could be achieved with a strong federal effort, according to the committee. It said the most efficient way

to accelerate emissions reductions is through a nationally uniform price on greenhouse gas emissions with a price trajectory sufficient to spur investments in energy efficiency and low-carbon technologies. Having such policies in place is crucial to guide investments in energy infrastructure that will largely determine the direction of greenhouse gas emissions for decades to come.

The committee deemed the risks of sticking to "business as usual" to be a much greater concern than the risks associated with a strong response. Most policy responses could be reversed if they prove to be more stringent than is needed, but adverse changes to the climate system are difficult or impossible to undo. It also said that uncertainty in projecting the severity, location, or time of climate change impacts is not a reason for inaction. On the contrary, uncertainty about future risks could be a compelling reason for taking action given that abrupt, unanticipated, or more severe impacts could occur.

Aggressive cuts in greenhouse gas emissions would reduce the need for adaptation but not eliminate it, the committee emphasized, urging the nation to mobilize now to reduce vulnerability to climate change impacts. While adaptation planning largely occurs at the state and local level, the federal government should help coordinate these efforts and develop a national adaptation strategy.

In addition, the federal government should maintain an integrated portfolio of research programs aimed at increasing understanding of the causes and consequences of climate change and developing tools to limit climate change and adapt to its impacts. The government also needs to take the lead in collecting and sharing climate change information to ensure that pertinent knowledge is used to inform decisions. Public and private sector engagement through broad-based deliberative processes is essential as well. These processes should include transparent analyses of climate change information, an explicit discussion of uncertainties, and

consideration of how decisions will be affected by differing personal values.

Because emissions reductions in the U.S. alone will not be adequate to avert dangerous climate change risks, U.S. leadership needs to remain actively engaged in international climate change response efforts, the committee emphasized. If the U.S. pursues strong emission reduction efforts, it will be better positioned to influence other countries to do the same. Given that [climate change](#) impacts elsewhere in the world may affect U.S. interests, it would also be prudent to help enhance the adaptive capacity of other nations, particularly developing countries.

Provided by National Academy of Sciences

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