A path to achieve a net-zero greenhouse gas economy

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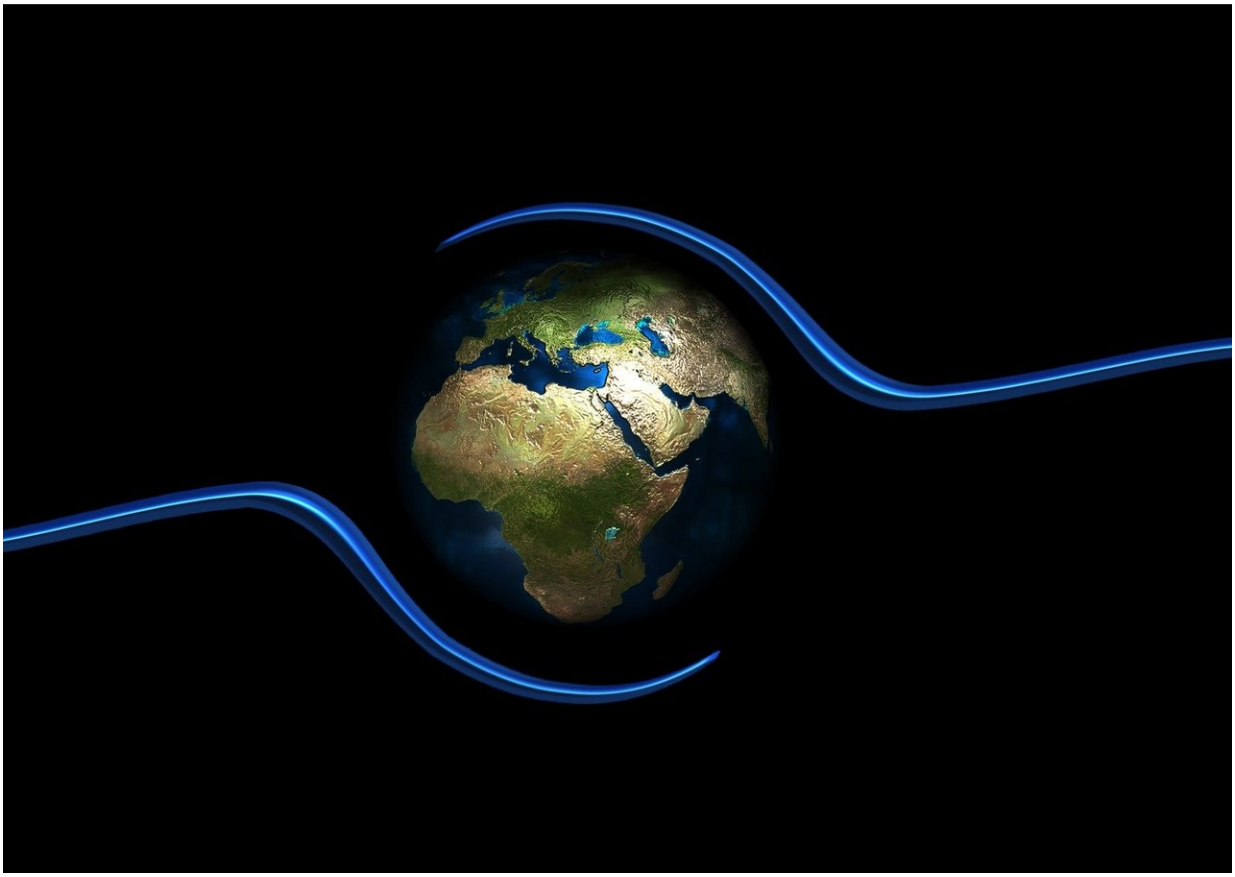

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Anew report co-authored by 68 scientists from more than a dozen institutions—including the University of Pennsylvania—offers a first-of-

its-kind high-resolution assessment of carbon dioxide (CO_2) removal (CDR) in the United States.

"Roads to Removal: Options for Carbon Dioxide Removal in the United States" charts a path for the United States to achieve a net-zero greenhouse gas economy by 2050—ensuring the nation's climate security and resilience by cleaning up Earth's atmosphere and addressing the root cause of climate change.

The report provides an integrated analysis of the CDR techniques and resources that are currently available, along with the costs that will be incurred on the path to net-zero.

"This report shows that to achieve the billion-ton scale of carbon dioxide removal needed by 2050 to achieve net-zero goals, the United States must use all removal methods available—oceans, forests, cropland soils, biomass and minerals and chemicals through direct air capture—to make it happen," says Jennifer Wilcox, principal deputy assistant secretary for Fossil Energy and Carbon Management at DOE.

Wilcox is currently on leave from Penn, where she leads the Clean Energy Conversions Lab, an affiliated lab of the Kleinman Center for Energy Policy.

Included in this analysis is a chapter dedicated to the transportation of CO_2 and biomass, written by researchers from Wilcox's lab: Peter Psarras, Hélène Pilorgé, Maxwell Pisciotta, Diamantoula Giannopoulos, and Alina Ho.

"Historically transport has almost been forced because we've been focused on point-source capture. And the storage basins aren't movable," says Psarras, who currently leads Wilcox's lab.

"What's beautiful about CDR is we have liberty about where to site things. The best transport option we have found is—none at all. Co-locate these with storage basins, so we can take transport out of the picture. Take those risks and costs out of the picture. We think communities would be very supportive of that."

More information: Roads to Removal: Options for Carbon Dioxide Removal in the United States: roads2removal.org/

Provided by University of Pennsylvania