

Experts discuss strengths and weaknesses of the Green New Deal

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Eighty-six years ago, President Franklin Roosevelt delivered his first inaugural address to a nation mired in the Great Depression. Promising to "wage a war against the emergency," Roosevelt hinted at the New

Deal to come: an unprecedented series of massive public programs and projects intended to put America back to work.

In an echo of the past, the Green New Deal resolution drafted by Rep. Alexandria Ocasio-Cortez of New York and Sen. Edward J. Markey of Massachusetts labels climate change a "direct threat to the national security of the United States" and calls for the conversion of all U.S. power to clean, [renewable energy sources](#) and the creation of millions of green jobs, among other objectives. Supporters enthusiastically embrace the idea of a 10-year mobilization to reduce [carbon emissions](#) in the United States. Still, critics deride the plan as hopeless government overreach short on details and financial realism.

Stanford Report spoke with Sally Benson, co-director of the Precourt Institute for Energy; Rob Jackson, chair of the Global Carbon Project; and Mark Jacobson, director of Stanford's Atmosphere/Energy Program, about the Green New Deal's strengths and weaknesses. Jacobson's research has provided state- and national-level roadmaps for transitioning all [energy](#) sectors to 100 percent clean, renewable energy and storage. Jackson published a recent op-ed in The Hill about the plan. Benson was co-author of a 2018 paper highlighting "particularly difficult to decarbonize" parts of the energy system. While the scholars have diverse opinions about the fastest, most likely to succeed and lowest cost pathway to deep decarbonization, they agree on the urgency and importance of the issue.

What components/details would a well done final Green New Deal (GND) have?

Benson: Given the urgency of reducing emissions, we should pursue a strategy of "everything that works." Now is not the time to take solutions off the table. Specifically, carbon dioxide capture, utilization and

storage, and nuclear power should be considered, in addition to renewable energy resources. In California, for example, decarbonizing the electricity sector with renewables only would cost about two times more than when you include CCS [carbon capture and storage] and nuclear power. Our results are consistent with many global studies, such as those described in the Intergovernmental Panel on Climate Change reports, showing that including some amount of CO₂ capture and storage reduces the overall costs of deep decarbonization. I would also like to see the U.S. reach out to and partner with other countries to share knowledge about cost-effective deep decarbonization strategies. We don't have time to waste with false starts and ineffective approaches to decarbonization.

Jackson: We'd set a national path to net-zero emissions in the electric-power sector and work hard to decarbonize the tougher transportation and industrial sectors. The GND should also reduce methane and nitrous oxide emissions from agriculture and industry. It doesn't need to pick winning technologies. Solar, wind, hydro, nuclear, even fossils with carbon capture and storage could play a role, with most of the gains coming from renewables.

Jacobson: A GND should be based on transitioning all energy to 100 percent clean, renewable and zero-carbon wind-water-solar energy. This includes not only electricity, transportation, heating and cooling, but industry, agriculture and other energy use. Wind-water-solar excludes new nuclear power plants, fossil fuels with carbon capture, biofuels and capturing CO₂ from the atmosphere aside from forestation. Such technologies increase air pollution, global warming, energy insecurity and other social costs compared with wind-water-solar. At least 37 papers among 11 independent research groups find that the electric grid can stay stable at low cost with at or near 100 percent wind-water-solar.

What are the most important reasons/benefits of a

GND?

Jackson: Is saving the planet reason enough? I hope so. If not, how about the tens of thousands of Americans who die unnecessarily each year from coal-fired power plants and our vehicles, the two deadliest sources of air pollution in the country?

Jacobson: Such a transition will eliminate 62,000 air pollution deaths per year in the U.S, saving taxpayers \$600 billion a year. Climate costs savings to the world due to reducing U.S. emissions would be \$3.3 trillion a year. These savings would continue for 100 years. The transition would create 2 million net jobs over those lost in the U.S.

Benson: The Green New Deal is sparking an important and necessary conversation around the urgency of climate change. It's a catalyst for a plan that will put us on an accelerated path to decarbonization. That starts with putting a price on carbon to incentivize industry to reduce emissions and unleash market forces to drive the best approaches to scale. Beyond these market forces, the government should step up funding of research, maintain regulations that drive energy efficiency and lead modernization of the electricity grid.

What are the biggest potential problems/weaknesses of a GND?

Jacobson: There is no technical or economic weakness, but social and political opposition is formidable. The fossil fuel industry has a lot at stake, and they sow doubt and oppose all legislation that will phase them out. The intent of the GND as originally written is to "transition off of nuclear and fossil fuels as soon as possible," so the nuclear folks will try to oppose it as well. In addition, many people don't care one way or the other and just don't want to change their current lifestyle, so it is hard to

encourage them to change.

Jackson: Trying to do too much and accomplishing too little. The GND is right to couple climate action to poverty because poorer people are already bearing the brunt of climate's costs. However, this coupling could make action more difficult. Many Democrats may see social change as necessary. Many Republicans may not. I don't want those differences to keep us from cleaner energy and improved energy efficiency.

Benson: The biggest potential problem would be broadly deploying technologies that aren't yet sufficiently developed. We need to move as quickly as we can with technologies that are ready to go, like wind and solar power, and continue to develop other critical components of a deeply decarbonized energy system like large-scale weekly to seasonal energy storage.

What would have to happen in American politics and society for a GND to pass?

Jackson: There's tremendous energy on the Hill for green energy and social change. Today's politics differ vastly from the first New Deal, though, when one party controlled both the White House and Congress. We aren't clawing our way out of a Great Depression, either. We do face a global climate crisis, and our youth understand the urgency. Because the first New Deal arrived in many bills, not one, the GND will too. I think we'll see narrower bills with bipartisan sponsors, such as a national clean energy standard for electric power. Heartland voters in states like Texas, Iowa and Oklahoma share a lot with coastal voters in embracing cheap wind and solar power. I suspect we'll see newer incentives for energy efficiency, electric vehicles, and carbon capture and storage technologies, as well.

Jacobson: People need to realize how financially and job-beneficial the GND is.

Approximately how much would it cost to institute a GND, and how could we pay for it?

Jacobson: Rather than increasing costs, the GND reduces costs substantially. The upfront capital cost of a 100 percent wind-water-solar electric power generation system is about \$9.5 trillion. However, this cost is spread out over many years and will pay itself off over time through electricity sales.

Further, a wind-water-solar system uses half the energy as a fossil fuel system and also eliminates health and climate costs due to fossil fuels. As such, U.S. consumers will pay only \$1 trillion per year in energy costs with the GND, whereas under a fossil fuel system, they will pay \$2 trillion per year in energy costs and \$600 billion per year in air pollution health costs, and will incur \$3.3 trillion per year in global climate costs due to U.S. emissions, for a total economic cost of \$5.9 trillion per year. Thus a wind-water-solar system costs society one-sixth that of a fossil fuel system.

Jackson: No one can answer what it would cost because no specific agenda exists. To pay for it, a price on carbon emissions would help. A fee and dividend would price pollution, giving companies financial incentives to cut emissions. To have much chance politically, though, it may need to be revenue neutral, redistributing the funds to taxpayers. That redistribution is where social change could occur, but then again it wouldn't pay for other aspects of the GND.

Benson: It depends on what the GND becomes. We can take many actions today with low or no cost. For example, in many cases it is less

expensive to use natural gas instead of coal for producing electricity, and more efficient cars and appliances can actually save money for consumers when you consider the total cost of ownership. Adding renewable power to the grid can also be cost effective, such as all of the wind power added in the Midwest and Texas and solar power in the Southwest. Within the next decade, owning an electric car is likely to be cost-competitive with a gasoline-powered car. On the other hand, comprehensive approaches for completely decarbonizing transportation and industry are not available today. R&D is needed to drive down [costs](#) for decarbonization technologies.

Provided by Stanford University

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