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# To boost solar, the US should use more carrots and fewer sticks

BY JOHN PAUL HELVESTON, OPINION CONTRIBUTOR - 11/10/22 12:30 PM ET

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AP Photo/Rick Bowmer

*Workman with Power Shift Solar put solar panels on a house Wednesday, Aug. 10, 2022, in Salt Lake City.*

As world leaders gather this week in Egypt for the United Nations Climate Change Conference, or COP27, extreme weather events like hurricanes, heat waves and drought continue to increase in intensity and frequency.

low-carbon energy technologies that are critical for averting the worst consequences of climate change.

Solar photovoltaics is a prime example. In the last decade (2010 – 2021), the price of solar modules has dropped 88 percent, making solar cost-competitive with fossil fuels in many parts of the world. That's a remarkable success story, one made possible by the decades-long free flow of goods, talent, and capital across multiple countries involved in the solar industry.

My collaborators and I have been studying this phenomenon for years, trying to understand the cost of erecting barriers to international cooperation when it comes to the development and deployment of technologies like solar photovoltaics. In a study we recently published in Nature, we use historical deployment and price data in the U.S., Germany and China — the three largest solar-deploying countries — to model the cost savings from global cooperation.

We estimate that tens of billions of dollars have been saved in solar deployment over the past decade thanks to global supply chains (\$24 billion, \$36 billion, and \$7 billion in the U.S., China and Germany, respectively). Had these countries adopted nationalistic trade policies that limited cross-border learning over the same period, solar panel prices in 2020 would have been significantly higher — 107 percent higher in the U.S., 83 percent higher in Germany and 54 percent higher in China. We also estimate that solar module prices could be 20-25 percent higher in 2030 than expected if extreme barriers are erected going forward.

Over the past decade, U.S. policy has drifted in a more nationalistic direction as concerns over China's dominance in the solar supply chain have risen. But U.S. policymakers should be careful to build upon — not reverse — the successes of the past. The recently passed Inflation Reduction Act takes several important steps in the right direction, such as reinstating the investment tax credit for solar and additional tax credits for utility-scale solar development. The bill also contains subsidies designed to help shoulder some of the high costs U.S. companies are likely to face as they establish themselves in the low-carbon energy technology market. These policies are critical for bolstering demand for solar.

Yet, the bill also attaches requirements to some of these incentives, including requirements to source components, and in some cases, raw materials from the U.S. or U.S. allies. These restrictions could limit learning in other parts of the solar industry and could result in overall lower solar deployment.

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thousands of solar sector of jobs between 2019 and 2020.

Indeed, the U.S. has an enormous opportunity to innovate further downstream in installation and grid management. Compared to manufacturing — a mature and increasingly automated sector where U.S. gains are limited — these downstream sectors are still relatively young and, because they can't be offshored, have considerable potential for job growth and innovation. According to the [2021 National Solar Jobs Census](#) published by the Interstate Renewable Energy Council, manufacturing accounts for just 13 percent of jobs in solar compared to 66 percent in project development and installations.

This does not mean the U.S. should abandon solar manufacturing. U.S. efforts to increase domestic solar manufacturing are investments worth making — the world will need more supply to meet the scale of deployment necessary for climate goals, and more solar manufacturers add resiliency to disruptive events such as pandemics and conflicts. As a [world leader in R&D investment](#) necessary for technological breakthroughs, the U.S. could very likely lead in developing (and potentially manufacturing) next-generation solar technology. But the U.S. should not penalize firms for buying low-cost, high-quality panels from abroad, not when cost is still a barrier to greater solar adoption.

There is a Chinese idiom that has a close analogy in the English-speaking world: 同舟共济 (tóngzhōugòngjì), which roughly translates to “same boat, work together.”

The last [Intergovernmental Panel on Climate Change \(IPCC\) report](#) made clear that our time is running out. Low-carbon energy technologies are critical for reducing our greenhouse gas emissions, and nations like the U.S. and China must find a way to address their geopolitical differences while simultaneously cooperating to combat climate change.

*John Paul Helveston is a professor at the George Washington University's School of Engineering & Applied Science. His area of expertise includes understanding the factors that shape technological change, with a particular focus on transitioning to more sustainable and energy-saving technologies.*

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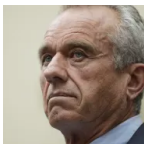
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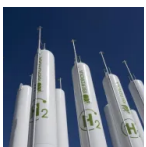
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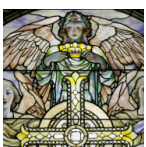
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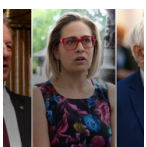
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