

# Jeremy Grantham, Movie Stars Back Climate Moonshots Through Small Nonprofit

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by Ben Steverman

When a plant, paper mill, or other industrial facility needs to separate different chemicals, it typically uses a lot of heat—processes that pump gigatons of carbon dioxide into the atmosphere. Shreya Dave, 32, and Brent Keller, 30, were graduate students at the Massachusetts Institute of Technology when they had an idea for a membrane that could do the job without all that energy use.

David Snyder, 33, with a fresh Ph.D. from Northwestern University, came up with a cheaper and cleaner way to extract lithium, an element in great demand thanks to a boom in electric vehicles and other technologies that rely on lithium batteries.

These might be billion-dollar business ideas that could help arrest global warming. They also might never work. Figuring that out could take a decade or more, a time frame and risk level that turns off the deepest-pocketed capitalists. The result is that potential businesses with unproven, capital-intensive technologies can face a brick wall. Venture capital firms fund apps and software, not the new industrial innovations that will be needed to de-carbonize the world.

A small, six-year-old nonprofit thinks it has an answer. Some of the richest people and most influential philanthropists in the U.S. seem to agree. So far, Prime Coalition – whose seven full-time employees worked, until the pandemic hit, out of a WeWork in Cambridge, Massachusetts – has raised \$76 million and counting for early-stage climate startups.

The source of this capital is unique: charitable vehicles like foundations and donor-advised funds, along with wealthy people who don't mind risking some money to fight climate change. Prime's backers include legendary investor and environmentalist Jeremy Grantham, Hollywood actors Will Smith and Jada Pinkett Smith, billionaire Orion Hindawi, the Packard Foundation, the Hewlett Foundation, and the Sierra Club Foundation. Nicole Systrom, wife of Instagram co-founder Kevin Systrom, is a board member.

Climate activism and dire warnings from scientists have convinced many investors that there might be money to be made on climate change. So far, however, the vast majority of dollars has flowed to proven technologies like solar, wind, and electric vehicles. A lack of government action on climate change is a "big problem" for startups with innovative technologies, said Bruce Usher, a professor and co-director of the Tamer Center for Social Enterprise at Columbia University. "It's hard to invest in early-stage companies if you don't know where the government stands on your industry in the future."

To be eligible for Prime funding, startups must have the potential to mitigate a half gigaton—or 500 million tons—of CO<sub>2</sub> or the equivalent emissions by 2050. To make that easier to calculate, Prime helped develop software—called CRANE and unveiled this year—that anyone can use to estimate the long-term climate effects of technology innovations.

The idea for Prime came from its 35-year-old founder and executive director, Sarah Kearney. In grad school at MIT, she learned about a little-used part of the U.S. tax code that allowed foundations to use some of their endowments as "program-related investments."

"I was very surprised that it was a tool that was relevant for foundation grantmakers and that I had never heard of it," she said. While sometimes used to fund affordable housing, PRIs were almost unheard of in the world of scientific research.

With initial funding from four wealthy families, including the Smiths, she launched Prime in 2014 with the goal of leveraging the money sitting in U.S. foundations and other charitable vehicles -- more than \$1 trillion at the beginning of 2020.

Kearney spent years clearing away bureaucratic barriers that were dissuading philanthropists, and especially their cautious lawyers. In order to use charitable money, Prime needed to document that investments wouldn't otherwise be made by commercial investors. But Kearney also wanted to show that startups could eventually attract private capital and become thriving businesses that would later make a major impact on climate change.

Working deal by deal, Prime funded 10 startups with \$24 million from 54 families and organizations from 2015 to 2018. Along the way, Kearney had help from Matthew Nordan, 45, a veteran investor, formerly of the venture capital firm Venrock, who had grown frustrated by the difficulty of funding early startups aimed at climate change.

After the early 2000s tech bust, many venture capital firms, looking for the next big thing, briefly piled into energy and “cleantech” startups. That boom ended in “abject failure,” Nordan said. “You can’t approach trying to build large industrial companies the same way that you try to spin the roulette wheel on the next Instagram.”

Those losses scared many private investors away from climate-focused startups for more than a decade. VC firms steered money to digital startups with shorter timelines and wider potential profit margins.

Entrepreneurs like Snyder—with his plans to revolutionize lithium extraction—had to look for money among wealthy angel investors, who didn’t necessarily know the first thing about energy or climate. “You talk to 50 people and you hope that one person in the audience understands what lithium is and why it’s important,” he said.

In 2018, after years of facilitating investments on a deal-by-deal basis – a laborious process for everyone involved – Prime tried launching a fund. Prime Impact Fund, with Nordan as managing director, would operate a little like a venture capital firm. Rather than prioritizing investment returns, however, the fund team would focus on making an impact on climate change.

The initial goal was to raise \$20 million. This month, Prime Impact Fund officially closed with \$52 million from 76 investors, including family offices, foundations and individuals. It was topped off with \$5 million from the John D. and Catherine T. MacArthur Foundation, which has championed the concept of “catalytic capital” that Prime represents. Added to the \$24 million in investments Prime previously facilitated, the new fund brings Prime’s total fundraising to \$76 million.

One of Prime’s skills is making it easy for rich people to get involved, said John Balbach, director of impact investment at the MacArthur Foundation. “It’s a way for new investors to dip their toe in the water and see the power of this type of investing,” he said.

The fund has already invested \$9.1 million in eight companies, including Via Separations, Dave and Keller’s membrane startup. Prime’s \$1 million last year helped the company triple its permanent staff, to nine, and let the founders, who are engineers, hire chemists to prepare for tests of its membrane at a paper mill this summer.

Lilac Solutions, Snyder’s lithium-extraction startup, got \$800,000 from Prime in late 2018. “That money allowed us to move from a small chemistry lab into a larger industrial facility,” he said. By February, Lilac raised \$20 million in Series A funding from more conventional investors. It’s on track for a pilot project in the western U.S. later this year.

Other Prime-funded startups include: Verdox, a carbon capture company; Treau, which has designed a low-carbon air conditioner; Sublime Systems, which is trying to de-carbonize cement; and Clean Crop Technologies, which aims to reduce food waste.

While Kearney and Nordan speak frequently about the “valley of death” facing early startups with unproven technologies, their next idea is to help startups survive another deadly phase -- when, later in their lives, companies need capital to build their first plants. This fund would raise much more money by using charitable dollars – willing to accept more risk – to lure private investors by making them eligible for higher potential returns.

The idea makes sense to Columbia’s Usher. “If you just rely on philanthropic dollars, there are not enough dollars out there,” he said. “You need to blend the two somehow.”

Of the first 10 startups backed by Prime, one has failed and seven have raised subsequent financing at higher valuations. “That’s an indication that there really are needles in the haystack,” Nordan said, among companies that are “a little bit too early and a little bit too risky for conventional investors.”

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