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Clean Energy Entrepreneurs Face More Obstacles in U.S.

By **KEITH BRADSHER**, *New York Times*

With erect posture and clear gray eyes, Chuck Provini still looks like the Marine who graduated from the Naval Academy in 1969 and was repeatedly decorated for bravery in Vietnam.



He fumes at strangers who call him a traitor for agreeing to manufacture in Zhuzhou, China, a new solar panel production device that his company developed in the United States.

“I love my country,” said Mr. Provini, chief executive of 10-employee Natcore Technology in Red Bank, N.J. “It makes me crazy that I’ve got countries that want to do things with us, but not here.”

Mr. Provini acknowledges that further refinements are needed to the technology, which involves replacing a costly furnace in the manufacture of solar panels with a room-temperature process. But his experience in trying to commercialize it highlights the challenges that clean energy entrepreneurs face in the United States — and the opportunities that await in China.

American venture capitalists are the main source of money for many clean energy start-ups because most commercial banks are leery of lending to businesses with no proven revenue. But venture capitalists are reluctant to make long-term financial commitments, Mr. Provini said, and want clear timetables for when they can get their money back with a profit.

“They want to come in, make a killing and get out,” said Mr. Provini, who spent most of his career on Wall Street, including as president of Ladenburg Thalmann Asset Management.

He said he spoke with a Congressional aide and visited a Washington law firm, Baker Botts, seeking advice on government assistance. But available grants came with too many restrictions, and were hard to find and apply for, Mr. Provini said. What Natcore really wanted was money for its own research and help finding joint-venture partners with the right technology.

Investors in Brazil, Taiwan and particularly China were more interested, he said.

Dr. Andrew Barron, a Natcore co-founder who developed much of the technology as a professor at [Rice University](#), spent two months at the University of Wales a year ago. There, Bin Chen, a research fellow from Zhuzhou, spoke to him during a shared car ride.

Dr. Chen called his father back home, who put him touch with He Jianbo, the deputy director of Zhuzhou's development zone.

Mr. He quickly invited Mr. Provini to Zhuzhou, rented him a hotel room, lined up local partners and put together a deal.

Natcore owns 55 percent of the joint venture and licenses the technology for sale in China only, while putting up only 15 percent of the money for the venture, which has a tax exemption for at least three years.

"I feel what China is doing is taking chances on new technologies, investing relatively small amounts of money understanding that some of those technologies will blossom," Mr. Provini said.

Matt Rogers, an adviser to the United States energy secretary, said his department had many grants available of all sizes, and that the competitions for them effectively identified companies that investors might also want to finance.

"We have the best technology," Mr. Rogers said. "I think we have the best manufacturing here in the United States."

But many Chinese clean energy executives are skeptical, saying that the United States was losing its lead even in the production of the sophisticated factory equipment needed to make solar panels, and now retained an advantage only in the earliest stages of research.