Metropolitan Policy Program at BROOKINGS

For immediate release
May 16, 2017

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Diminishing venture capital investment in clean energy technologies opens opportunities for renewed focus across public and private sectors

Washington, DC — The Brookings Metropolitan Policy Program has released a new report detailing recent national trends concerning venture capital (VC) investment in clean energy technologies (cleantech). The new analysis provides a breakdown of recent VC trend data across 15 cleantech subsectors within the overall cleantech industry, as well as analysis of the city-by-city breakdown of VC investment.

The report, "Cleantech venture capital: Continued declines and narrow geography limit prospects," by Devashree Saha, a senior policy associate and associate fellow at Brookings, and Mark Muro, a senior fellow there, examines trends in VC investment in various cleantech categories from 2001 to 2016, using highly detailed data for U.S. states and large metropolitan areas. These numbers provide a fresh picture of what's happening in the cleantech industry and raise concerns about the breadth and durability of present industry momentum.

The report highlights four key findings:

- **U.S. cleantech venture investment has declined sharply since 2011;**
- **Cleantech VC investment is disproportionately concentrated in a few metro areas with just four metros (San Francisco, San Jose, Boston, Los Angeles) accounting for more than half of all such investment;**
- **Cleantech VC investment is biased towards late-stage deals and a few technology areas, with energy efficiency, solar, and transportation attracting more than half of the funding; and**
- **Corporations and corporate VCs are filling in some of the gap left by traditional VC but may not be enough.**

In addition to the report's findings, Saha and Muro describe how the federal government, states and localities, and the private sector can each play important roles in cleantech VC investment going forward. Specifically, several suggestions for public and private sector VC cleantech investment are highlighted throughout the report by Saha and Muro, including:

- Instead of radically reducing or eliminating an array of cleantech programs, the federal government needs to continue to support programs like the Advanced Research Projects Agency-Energy (ARPA-E) and the U.S. Department of Energy (DoE) loan guarantee program (LGP) that can increase the odds of survival of early-stage business ideas into commercialization. "Shutting down or cutting federal supports for cleantech innovation and commercialization would be extremely ill-advised at a moment of shakier momentum," said Brookings' Mark Muro.

- States and localities have the opportunity to implement locally-focused clean energy investment and/or enterprise development funds that provide formal business development and investment support for local clean energy startups to address persistent funding gaps and increase business opportunities. Regions can also support innovation and commercialization by working to develop vibrant cleantech ecosystems that include locally relevant cluster organizations, networking hubs, and incubators and accelerators.

- There is no doubt that corporations, corporate VCs, and new networks of private investors are going to need to play a larger role in financing start-ups. The emergence of these newer types of models in the financial industry—with their longer time horizon, incentive structures, and mission-based investment strategies—highlight their potential to offer a steady stream of committed investment capital to the cleantech sector.

"Overall, the nation has relied too much on VC to supply the full range of cleantech finance, and now we need to readjust," said Muro. "It's going to take a collaboration of new models, new actors, and also government to keep U.S. clean energy finance vibrant," he added.

The cleantech VC report is a companion piece to an earlier research publication that the Brookings Metropolitan Policy Program published last month on patenting trends across various cleantech categories. Together, the two publications assess the status of the U.S. cleantech innovation enterprise, both nationally and regionally, as it is unfolding across various technology areas and the nation's diverse metropolitan areas.

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