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Q&A

Venture Firm Studies Future Of Energy

Facing Complex Issues

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Six months after the fact, many people are still in the dark about what really caused the power blackout in the Northeast and Midwest.

"Since Aug. 14, there's been a tendency to look for simple solutions to very complex problems," said Maurice Gunderson, a managing director of Nth Power, a San Francisco-based venture firm that invests in energy-related businesses.

Gunderson and Nancy Floyd, the firm's other co-founder and managing director, say the public still doesn't realize the blackout happened because the national power grid's been starved of new investments the past 20 years.

Problems that take years to develop don't just disappear, energy experts warn. Merely replacing old lines and generators or firing bad workers won't do the job.

Any new resources, they say, would be piled onto a shaky, bottleneck-filled grid that may soon collapse again.

What makes a difference over the long term, they say, are new types of energy regulation and energy-generating technology. Gunderson

and Floyd say this will lead to more efficient power generation and transmission at lower cost.

Such technology includes online systems that let engineers continually monitor what's happening with transformers and other key equipment. Another approach involves building smaller and more efficient generating systems closer to cities or factories. These plants also could run on waste gases given off by sources like municipal dumps.

Gunderson and Floyd say these new power technologies will make money for the companies that develop them. They say this also makes these businesses good investment bets. Nth Power has invested in a number of firms with innovative power technologies. In some cases, Gunderson and Floyd also sit on the boards of the portfolio companies, giving them an even better view of their prospects.

They talked to Investor's Business Daily recently about the future of energy technology.

IBD: *What was the biggest issue exposed by last summer's blackout?*

Gunderson: The Aug. 14 blackout was a series of problems that were decades in the making. It was the result of underinvestment in the grid for the last 20 years.

IBD: *How did this underinvestment affect the power industry?*

Gunderson: The hodgepodge of old and new power systems made it costly to add new equipment.

For every million dollars spent on new generating or transmission equipment, a utility had to spend another \$200,000 wiring it to an antiquated grid where old and new components didn't fit well. That led to a grid filled with bottlenecks and dogged by undercapacity. It's also neglected in terms of modernization of data collection and control.

IBD: *Where's the focus of most efforts to fix the grid?*

Gunderson: The power industry is concentrating on the modernization issue. They want to create a "smart," automated grid where power can be routed to weak spots. But the fundamental weaknesses with respect to capacity restraints are still there.

IBD: *Does this mean more blackouts are on the way?*

Floyd: Summer is not far away. The recent Northeast cold spell also stressed the system. Winter blackouts are more than possible.

Gunderson: If a blackout happened now, you could have people freezing to death.

IBD: *What are some of the long-term technologies that could fix the power grid?*

Gunderson: Advanced monitoring devices that distribute generating resources closer to the areas where power's

consumed. There's also technology that helps consumers conserve power during peak periods. This helps shore up the rest of the system.

IBD: *Can you give examples of companies that make these technologies?*

Floyd: One is Serveron Corp., a private maker of real-time monitors for transformers in Bend, Ore. Their technology lets utilities track what's happening in their systems and to predict degradation in their equipment.

IBD: *Who's using their monitoring system?*

Floyd: Cinergy Corp., a Midwest utility, Arizona Public Service, Southern California Edison and the U.S. Army Corps of Engineers, to name a few.

IBD: *What's another company?*

Gunderson: Another is STM Power, a private maker of distributed generation systems located close to consumers that runs on low-grade fuels. The gas running the generators is from farms or municipal garbage dumps or are byproducts from factory operations. The gas is usually a mixture of methane and other gases that can be burned.

IBD: *How does STM's generating system run on this gas?*

Gunderson: STM has a so-called Stirling engine that runs on any heat source if it meets certain requirements.

IBD: *Is this power-generation tech already being used?*

Gunderson: Yes. It's being used in different parts of the world.

(Continued)

IBD: *How can you reduce the power that consumers use at home?*

Floyd: A firm called Converge in Florham Park, N.J., provides technology that lets utilities institute what's called demand reduction programs.

IBD: *How does that work?*

Floyd: Part of it involves paying consumers a fee, say \$20 a year, to have a device installed in their homes. This device can shut down, say, the compressor on your

air conditioner for five to 10 minutes at peak use periods. The device also keeps the fan in the AC going so your house doesn't get hot.

It sounds strange to have a utility pay you to shut off your air conditioner briefly during peak hours. But it pays off for the utility in the long run. Diverting power at critical moments protects the grid and lets the utility cut power consumption and serve more customers.

IBD: *How does this reduce*

power consumption?

Floyd: If 10,000, 100,000 or more homes participate, there's a considerable energy saving that can be routed to other parts of the grid.

IBD: *What are some public companies you've invested in that are developing these technologies?*

Floyd: One is Capstone Turbine. It makes distributed generating equipment. Another is Distributed Energy Services Corp. It specializes in systems that distribute

power more efficiently. This company recently acquired Northern Power Systems, a Vermont firm that makes micro-generating grids for homes and factories.

IBD: *What about energy-related software developers?*

Floyd: There's Itron Inc., a Spokane, Wash.-based firm that makes advanced metering systems for energy management. It has a suite of software products that manage electric, gas and water utilities.