

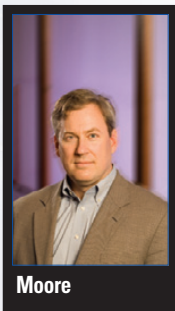
Acorn banks on smart grid

Interview Acorn Energy CEO John Moore and you will be presented with a copy of *The Bottomless Well*.

The book takes aim at conventional wisdom regarding energy conservation and consumption. (See accompanying story).

It also serves as an introduction to Acorn's philosophy of tapping into what Moore sees as a lucrative niche in the current energy environment - the grid that carries electricity throughout North America, rather than "big energy" projects that may be far riskier.

Moore sees a new architecture emerging along the grid, with cities becoming energy buyers and various forms of technology easing peak demand and perhaps storing energy. He also compares the current state of a grid to a cell phone system without the ability to provide two-way communication. Making the grid smarter through computerized adjustments in operations of equipment and even



Moore

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An efficient, fragile system

The Bottomless Well

Peter W. Huber & Mark P. Mills

Basic Books

Be prepared to think differently about the world of energy, after reading *The Bottomless Well*.

The provocative book takes a look at the sweep of human history, adds in some math and science and clearly states its case that civilization will continue to consume more energy.

At first glance, their predictions seem dismal. But in reading further, Huber, who works for the Manhattan Institute and Mills, a physicist and CEO of a Washington Beltway technology company, show how the waste that comes from the consumption and generation holds the key to future gains.

A key example of that waste is laser technology that consumes and wastes a lot of electricity, but admirably performs tasks that range from surgery to printing out documents. Lasers use a lot of electricity. So does the computer that is used to write this review. All are useful and make our lives better and generate heat that energy-guzzling fans and air-conditioners have to dissipate. The authors also take note of the da Vinci surgical robot, now at work at Wilmington's St. Francis Hospital and

running on coal-fired power.

Shortages of various types of energy pop up from time to time, accompanied by technologies that improve efficiency and leave room for more consumption.

The roots of the current situation date from the 1970s when an oil shortage strained prices and led to temporarily lower consumption.

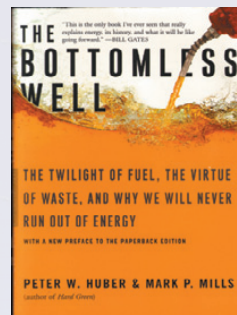
The savings led California to decide that it did not need to build additional generating capacity.

Little did the planners realize that the personal computers developed in the northern part of the state would populate offices and homes. In unleashing great efficiencies, the PCs thirst for power contributed to the state's power shortages and price spikes in recent years. King Coal, with all

of its drawbacks, ends up generating more than half of the nation's power.

That brings us to the electrical power grid, an impressive creation that strains to meet the demand. That's where local investor and Acorn Energy CEO John Moore sees a sweet spot.

The grid is ruthlessly efficient. And with efficiency and full capacity comes no room for error. A tripped switch in Canada or Ohio can leave millions in



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Stories and design by Doug Rainey

Mighty oaks of future?

CoalLogix, Inc.: This company was formed with the acquisition in November of SCR Tech by Acorn Energy for \$9.6 million.

SCR Tech is the leading provider of services and technologies that reduce nitrogen oxide emissions at coal-fired power plants.

The purchase is based on the belief that the U.S. will continue to rely on coal plants, which currently supply more than half of electricity generated in the U.S.

dsIT: The company's sonar technology allows owners of fossil fuel infrastructure, such as oil rigs, pipelines and oil terminals to protect their investments at a small fraction of their replacement cost. The company was awarded a \$7.5 million sonar project for the Israeli Ministry of Defense.

Local Power: The company convinced San Francisco to buy electricity from other suppliers and gives the city the leverage to demand wider use of alternative fuels. Acorn Energy has a small stake in the company, with the

option to buy more.

Paketeria: The German company formed a retail concept that promotes savings in logistics and transport, two of the largest consumers of fuel worldwide. Paketeria's network of owned and franchised stores has doubled to 70 locations since Acorn invested in the company in 2006. The company provides green services by delivering mail by bicycle and offering recycling services like eBay merchandising and toner cartridge refilling. It recently purchased a company that allows retail consumers to choose their own electricity supplier.

EnerTech Capital III: A Strategic Partnership. EnerTech Capital is an energy technology venture fund management company. Acorn has committed to invest \$5 million over their Fund III's ten-year life. EnerTech is the second largest shareholder in Comverge after Acorn. They have been in business for over 15 years and have reviewed over 11,000 energy technology business plans.

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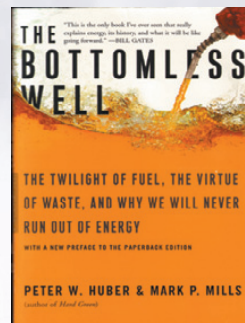
the dark. It is also a one-way system that is poised to become smarter in responding to supply and demand.

Already, it is taking the form of switching equipment that can delicately respond to spikes in demand. Moore and Acorn Energy won big on an investment in a company that makes such equipment for utilities.

Tiny switches and robots will soon perform such tasks on in-home networks tied to item with an electric plug. Plug-in hybrid vehicles could store and feed power back into the grid. The wild card that gives the authors some trouble is global warming.

It is unclear whether the authors buy the arguments of global warming opponents, but clearly realize that change is coming.

Their solution is nuclear power. Some environmentalists are not ruling it out either, given the fact that coal still accounts for nearly half of all electric power



generation. As for wind power and solar energy, both are showing major gains in efficiency, but perhaps not faster than atomic energy.

The authors note that lasers could produce a breakthrough uranium enrichment that would lead to improved efficiency in nuclear power.

The authors leave us with an optimistic view of the future. Then again, if global warming accelerates, we will need all the power we can get to keep the rising level of seawater out of our homes and businesses.

- Doug Rainey