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Traders Profit as Power Grid Is Overworked

By JULIE CRESWELL and ROBERT GEBELOFF AUG. 14, 2014

PORT JEFFERSON, N.Y. — By 10 a.m. the heat was closing in on the North Shore of Long Island. But 300 miles down the seaboard, at an obscure investment company near Washington, the forecast pointed to something else: profit.

As the temperatures climbed toward the 90s here and air-conditioners turned on, the electric grid struggled to meet the demand. By midafternoon, the wholesale price of electricity had jumped nearly 550 percent.

What no one here knew that day, May 30, 2013, was that the investment company, DC Energy, was reaping rewards from the swelter. Within 48 hours the firm, based in Vienna, Va., had made more than \$1.5 million by cashing in on so-called congestion contracts, complex financial instruments that gain value when the grid becomes overburdened, according to an analysis of trading data by The New York Times.

Those profits are a small fraction of the fortune that traders at DC Energy and elsewhere have pocketed because of maneuvers involving the nation's congested grid. Over the last decade, DC Energy has made about \$180 million in New York State alone, The Times found.

Across the nation, investment funds and major banks are wagering billions on similar trades using computer algorithms and teams of Ph.D.s, as they chase profits in an arcane arena that rarely attracts attention.

Congestion occurs when demand for electricity outstrips the immediate supply, sending prices higher as the grid strains to deliver power from distant and often more expensive locations to meet the demand. To help power companies and others offset the higher costs, regional grid operators, which manage the nation's transmission lines and wholesale power markets, auction off congestion contracts, derivatives linked to thousands of locations on the grid. When electricity prices

spike, contract holders collect the difference in prices between points from the grid operators. If the congestion moves in the opposite direction, holders pay the operators.

The contracts were intended to protect the electricity producers, utilities and industries that need to buy power. The thinking was that the contracts would help them hedge against sharp price swings caused by competition as well as the weather, plant failures or equipment problems. Those lower costs could reduce consumers' bills.

But Wall Street banks and other investors have stepped in, siphoning off much of the money. In New York, DC Energy accounted for more than a quarter of the total \$639 million in profits in the congestion markets between 2003 and 2013, The Times found. Some of DC Energy's biggest paydays involved Port Jefferson, a village 60 miles east of Manhattan. Because of the geography of the grid, moving power from one point to another means demand often briefly outstrips supply here.

"Why aren't we getting that money?" said Margot Garant, mayor of Port Jefferson. City officials, including the mayor, had not heard of DC Energy before they were told about it by The Times.

DC Energy — and its profits — are an unexpected result of the deregulation of the nation's electric grid. The idea behind deregulation was to eliminate old monopolies and create robust, competitive markets that would encourage investment and ultimately lower costs for consumers. But in most places, electricity bills have been rising, not falling. While fuel prices, taxes and fees have added directly to the costs, Wall Street-style traders have contributed in subtle ways by turning new markets, like the trading of congestion contracts, to their advantage, The Times analysis found.

The contracts have attracted big money: More than \$2 billion has been invested nationwide in the monthly auctions for contracts since 2011, according to Platts, a trade publication.

The Times examined 150,000 congestion contracts that have been auctioned since 2003 by the New York Independent System Operator, a nonprofit company that oversees the state's transmission network. Under deregulation, system operators manage the nation's transmission lines and run wholesale power markets where utilities like PSEG Long Island acquire power to sell to their

customers. Using data made public by the company, The Times cataloged who bought the contracts and at what prices, and how much money was subsequently won or lost.

The data show how congestion and these contracts led to big profits in Port Jefferson on May 30, 2013.

Capitalizing on Math

DC Energy had bet there would be trouble. That spring, its traders bought a number of congestion contracts at a monthly Nyiso (pronounced NIGH-so) auction. Those derivatives entitled the firm to collect the difference in power prices between multiple points on the Long Island grid, including between Port Jefferson and Northport, 20 miles to the west.

On that May morning, transmission lines near a power plant in Northport were down for maintenance just as the heat arrived. The Northport area had plenty of electricity for itself but could not send more to communities like Port Jefferson. So while prices in Northport climbed to more than \$129 a megawatt hour, prices in Port Jefferson jumped to \$324 — a boon for DC Energy, which held congestion contracts tied to price differences between the two points.

The derivatives were not primarily devised for Wall Street. But in New York and elsewhere, many power companies are smaller players in the market compared to Wall Street banks like Goldman Sachs, and trading firms like DC Energy.

It is unclear how much the activity in the markets, particularly by the banks, is speculation versus hedging on behalf of clients. Still, many of the most active participants are investment firms.

The utilities and power companies suggest they cannot win against trading outfits that employ math specialists, often called “quants,” to spot lucrative opportunities. With transmission contracts, there are tens of thousands of tradable combinations.

“The financial players have the resources, the smart people that discovered there is a great opportunity to make money here,” said Hany A. Shawky, a professor of finance and economics at the University at Albany who has studied the electricity markets. “The utilities are sometimes missing opportunities to hedge because of the competition coming in from financial players.”

Trading firms like DC Energy say they ultimately benefit consumers by bearing financial risks and fostering competition. They argue that power companies can hedge only if someone else is willing to speculate. Market forces, they say, can also help power companies determine where to invest in the grid.

“We believe this type of activity should cause prices to better reflect true costs and thus create a more efficient electricity infrastructure that should better serve the retail customer,” Andrew J. Stevens, a co-founder of DC Energy, said in an email. DC Energy executives declined to be interviewed for this article but answered questions by email.

For DC Energy, the derivatives seem close to a sure thing. Former employees said the executives had told staff members that the firm lost money for two months in its decade-long history. DC Energy bought the same Northport-Port Jefferson contracts on Long Island 47 times since 2005, earning \$2 million, The Times found.

Dr. Stevens said via email that the firm was involved in markets across the country. “We invest in hundreds of thousands of contracts across the marketplace,” Dr. Stevens said. “Any subset of these contracts in some subset of time will show gains, while another subset will show losses.”

Yet in places like upstate New York or Long Island, the market is so small, and the participants for certain contracts so few, that knowledgeable traders can collect rich rewards. Frank A. Wolak, an economics professor at Stanford who studies commodities, said the congestion markets created perverse incentives because profits rise when grid congestion becomes worse.

“If traders are making money, then consumers are paying more,” Mr. Wolak said. “The money that these guys are making has to come from somewhere.”

A Winning Record

Little outside the offices of DC Energy hints at its rarefied position in the American power industry. The offices, in an upscale area 17 miles from downtown Washington, are sandwiched between outposts of Hermès and Tiffany.

Like top Wall Street banks, DC Energy stocks its trading desk with graduates of elite universities. Most have backgrounds in science and engineering — a doctorate in chemical physics from Harvard, for example, or a master’s degree in artificial intelligence from Stanford — rather than in finance. Their job is to

develop computer-driven trading models to predict what will happen to electricity prices in different parts of the nation.

In this murky corner of the markets, DC Energy is powerful. Dean Wilde II helped found the firm in 2002; he is a business strategist and consultant who also heads Dean & Company, a corporate advisory firm housed in the same suburban offices. Mr. Wilde, who studied physics at Iowa State University and attended the M.I.T. Sloan School of Management, founded Dean & Company in the early 1990s after working for a management consulting company.

Mr. Wilde has given few interviews over the years and declined many requests to be interviewed for this article.

When it comes to trading in the electricity congestion market, few can touch DC Energy. While Wall Street banks like Morgan Stanley have placed bigger bets in New York, few have matched DC Energy's consistent, winning record. Just how DC Energy achieved it is a closely guarded secret. The firm requires employees to sign nondisclosure agreements, and former employees spoke on the condition that they not be named to avoid exposing themselves to lawsuits. These people attributed DC Energy's success to its focus on the engineering aspects of electricity trading — that is, on the physics behind how and where power flows on the grid.

Inside DC Energy, teams of six to eight analysts search through data for trends or disruptions before bidding on contracts through auctions held by the New York Independent System Operator and its counterparts elsewhere in the country.

“The message that was portrayed was, by doing this trading, we are making the markets more efficient,” said a former employee. “But there were people who got disillusioned and left because many of them aren't finance people to begin with, and the focus is on making money and boosting the company's bottom line.”

DC Energy goes to great lengths to protect its winning formula. After one of its top traders, Jason Miller, left for Saracen Energy, another trading firm, DC Energy sued. The reason was that Saracen, based in Houston, had begun playing the New York congestion market, just like DC Energy. DC Energy said Mr. Miller violated confidentiality and noncompete agreements he had signed, and misappropriated trade secrets.

A lawyer for Mr. Miller, who denied all of the allegations against him in court documents, declined to make him available for comment.

Kevin Kelley, the president of Saracen, said in an emailed statement that Saracen's increased activity in the New York market was because of the hiring of three traders last year, including Mr. Miller. He added that Mr. Miller had not used any proprietary information of DC Energy's to trade for Saracen's benefit.

"Saracen also entered the Long Island congestion contracts markets for the first time as a result of Mr. Miller's background and experience with these markets while at DC Energy," DC Energy said in its lawsuit, filed in federal court in the Eastern District of Virginia in January. Saracen, DC Energy claims, made \$1 million last November and December on Long Island — profits that came at DC Energy's expense, the suit contends. "DC Energy had emerged as the only consistently profitable trader in the congestion markets on Long Island," the suit says.

Risk of Manipulation

A major concern for federal regulators is that congestion contracts are one way to manipulate electricity prices. While trading by financial players is legal and DC Energy has not been accused of any wrongdoing, the Federal Energy Regulatory Commission has since 2012 proposed penalties or reached settlements with three large banks and several investment firms, accusing each of manipulation of some type.

In one of the cases, Louis Dreyfus Energy Services, an energy trading company, began buying contracts linked to the grid around Velva, N.D., where winds off the prairie spin the turbines of a wind farm, in spring 2009.

First, Xu Cheng, an employee at Louis Dreyfus Energy, which at the time was partly owned by a J. P. Morgan hedge fund, placed a bet that congestion would drive up electricity prices. Then, FERC later charged, Louis Dreyfus set out to make sure those bets would pay off. Trading in another corner of the electricity market, a second trader created the impression that congestion was hitting the Velva area, the commission concluded. Mr. Cheng had examined just such a situation in his doctoral dissertation at the University of Illinois at Urbana-Champaign, noting that traders could "make extra profit by creating nonreal congestion."

The payoff for Louis Dreyfus was a quick \$3.3 million in profits.

The commission smelled trouble and began to investigate. In February, Louis Dreyfus agreed to pay \$7.4 million to settle allegations that it had manipulated

prices. As is often the case in such settlements, the firm neither admitted nor denied wrongdoing.

The commission has been trying to crack down in the electricity market lately, but for years it has been outmaneuvered by the traders it is supposed to police.

Shaun D. Ledgerwood, a former economist for the commission's Office of Enforcement and specialist on market manipulation, said that when he joined the commission in 2008, only a handful of people were analyzing possible manipulation in electricity markets. Today, that group is part of the Division of Analytics and Surveillance, which has more than 50 employees. The enforcement office has grown to about 200 people from 60 in the last 10 years or so, said Dr. Ledgerwood, who is now a consultant.

"Today, the FERC is getting access to important data on a more regular basis," Dr. Ledgerwood said. "The goal is to get the data in real time."

A spokesman for the commission declined to comment for this article.

But some observers fear the commission's actions could discourage activity by financial players who they say are critical to the markets.

"They are making enforcement decisions that are striking at the basic core of the market's design," said William W. Hogan, a professor at the John F. Kennedy School of Government at Harvard and the intellectual father of congestion contracts. Dr. Hogan has been an outspoken critic of the commission's recent manipulation investigations and has defended some of the firms that have come under scrutiny.

Back on Long Island, Mayor Garant of Port Jefferson has been urging the owner of the Port Jefferson and Northport plants to modernize them to reduce electricity costs. It has not done so.

"We, the ratepayers, should be getting the benefit of these congestion contracts, not some speculators," Ms. Garant said.

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