

Modernizing New York's energy system

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Any reasonably objective observer of the energy business can see the desperate need for change in our energy system. In the past week or so, we've seen political instability threaten supplies of oil from the Mideast as Iran seized a British oil tanker. Here in New York City we saw a blackout last weekend on the west side of Manhattan and planned

outages due to the heatwave in Brooklyn and Queens last night. And in a piece of good news, we can celebrate New York Governor Andrew Cuomo announced agreement to build a major wind energy facility off of Long Island. According to [the Wall Street Journal's](#) Jimmy Vielkind and Russell Gold:

"New York state officials on Thursday announced two new wind projects in the Atlantic Ocean totaling 1,700 megawatts—double the amount of generation capacity the state had been seeking and enough electricity to power 1 million homes. Equinor, a Norwegian company, will develop an 816-megawatt project 14 miles southeast of Manhattan. The Sunrise Wind project, a joint development of the Danish firm Ørsted A/S and Massachusetts-based Eversource Energy, will produce 880 megawatts in leased waters 30 miles east of Long Island... A representative for the governor said the state is still negotiating final contracts with the companies, which will include total project costs and a specific rate of state subsidy."

I'll be interested to learn more about the rate of subsidy and analyze its impact on energy prices since the development of new energy infrastructure like all infrastructure requires public investment. Typically, the cost of public investment in infrastructure is disguised. The costs of New York's roads are included in your state income tax, sales tax, and gasoline taxes. Some roads, like the Thruway, charge tolls, but most road fees are indirect. Those taxes and the infrastructure they support are a subsidy to the companies that manufacture motor vehicles since you wouldn't buy them if there was no place to drive them. The cost of the new LaGuardia airport will emerge in our airline ticket prices since most of those costs are unsubsidized, but I am certain the new roadways and other parts of the project will be paid by our tax dollars. So please, let's dispense with the idea that there is a truly free market anywhere. We have a mixed public-private economy, we just pretend we don't have one.

As the recent blackout and smaller power outages during the weekend's heatwave indicated, New York's electric grid is old and in need of modernization. Microgrids knitted together into Smartgrids should replace the early and mid-twentieth century system now in place. We waste enormous amounts of energy and our energy grid is too interconnected and vulnerable to interruption given our great dependence on energy in every aspect of our daily lives. A computer-controlled, but decentralized energy grid, would be more efficient and resilient than the current system. The issue is how do we pay for it? And how do we ensure that the investment in the grid is not destroyed by disruptive technologies?

The good news is that Governor Cuomo and his energy team understand all of this and are moving whenever they see an opportunity to modernize the energy system. I suspect that it wasn't just his desire to show Bill de Blasio up or pick on Con Edison that prompted his criticism of Con Ed's performance after the recent blackout and heatwave outages. It was an opportunity to focus the public's attention on the need to invest in our energy system. It appears to me that he is attempting to connect the ambitious greenhouse gas reduction goals he recently approved, to the operation of the state's energy system.

The wind deals signed last week will enable New York to generate 10% of its electricity by wind within the next decade. That alone will not provide the greenhouse gas reductions called for by the state's new law. A major source of reduction will be through energy efficiency. A more modern energy grid along with more energy-efficient buildings will also be a major source of greenhouse gas reduction, easily equaling the contribution of wind. The targets will not be reached without the widespread replacement of the internal combustion engine by electric vehicles. This may also require public subsidy in its early stages. The rapid adoption of electric vehicles and the emergence of a charging station business will require public subsidies. Given enough time, the

market would do this without government aid, but we don't have that time if we are to prevent catastrophic levels of global warming.

Still, it is clear to me that radical replacement of the old energy system with a new one will not happen without new technology in solar receptors and energy storage. Solar arrays and batteries need to get smaller and cheaper. The private economic benefit in advancing these technologies would be enormous. Wind, geothermal, efficiency and hydropower all have a role to play, but solar needs to be a more prominent part of New York's mix. Unlike California, New York doesn't have large areas of sun-drenched desert for solar energy farms. Our solar power will need to be more widely distributed and could threaten the business model of the modern electric utility without public subsidies. Just as people have disconnected from cable TV and landline telephones, someday they may be able to disconnect from the grid- or at least reduce their dependence on it. Con Edison's creditors should probably be nervous about that possibility. That is why the state's electronic grid must be seen as a critical piece of public infrastructure.

While technological change is unpredictable, our growing need for energy is easy to predict. Its provision is as essential as water, sewage and waste removal and must at some level be seen as a public good that the government is responsible for assuring. Profitable but ethical relations with private firms in the energy business needs oversight and careful attention. The private sector plays a central role in New York's energy system, and the state needs to keep these companies interested but also keep them honest.

The development of the technology needed for more widespread, decentralized and inexpensive use of solar energy and energy storage is a critical piece of the energy puzzle. Watching the 50th anniversary of the Apollo Eleven moon landing this past weekend, I was again struck by the ability of this country to work together to reach ambitious technological

and organizational goals. Over 400,000 people and a significant part of our GDP was devoted to America's space program. The economic benefits of that project need not be repeated here, but the goal of rebuilding America's energy system would have a massive impact on our economy's efficiency. Sadly, given the state of our national politics, we will need to move more incrementally in places like New York and California to patch together a decarbonized [energy](#) system.

Wind projects such as the ones that will soon be built in New York have an important role to play in changing our [energy system](#). A more concerted effort to construct microgrids ought to also be considered. Energy saved is a form of revenue generation. The state must develop a means for utilities to monetize those savings and bring our electric grid out of the twentieth century

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