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May the wind be always at your back

Man has been using wind to "power" things long before electricity was even conceived. As far back as 2000 BC, Egyptian boats were being driven along the Nile by wind. Eleventh century Persians in the Middle East used wind mills for food production. The Dutch used them to drain lakes and marshes. Settlers of the New World began using windmills to pump water for farms. Growing up in the Midwest, I remember seeing the windmills next to the cattle watering tanks (that may be the foundation of my fascination with them today!). I can't say exactly when the power of the wind became an indirect source (conversion to electricity vs. transfer of mechanical energy), but sometime in the 19th century we harnessed the wind and developed the ability to produce electricity. Scotland is credited with this accomplishment. The ability to do that was showcased at the 1890 World's Fair in Chicago. It is not surprising that farmers were instrumental in constructing small wind plants and we have now graduated to utility-scale wind farms that feed back into the electric grid.

The use/support for wind generation has gone through many up and down cycles. Most recently that has been driven largely by the access to reasonably priced oil. If accessible, wind fades into the back ground. It stands to reason the public will gravitate to cheaper. Here in lies the debate.

No one can argue that currently the existing grid is more reliable than a wind source. Storms, unplanned equipment failures, etc. can cause a power outage, but those are the exception. Mostly the typical grid is more reliable vs. wind, which blows when it blows and that is not likely to change any time soon. On an "oranges to oranges" cost comparison it is difficult to prove that wind energy is as cost effective. To incentivize use of renewables, there has been a plethora of programs to induce R&D and investment in wind capability. Considering the unpredictable reliability

of wind, there is an additional cost factor that needs to be incorporated: the capacity of the grid still must be maintained "in case" it is needed. However...

New York State has an aging infrastructure. To keep it up and running, investments are being made in that grid. There has been significant discussion about using a microgrid model as part of the solution (local power generation, distribution, and controls—like the grid only closer proximity improving efficiency and transmission reductions). Microgrids can integrate with renewable energy sources. Given that need for investment, it may be just the right time to be looking at a different way of managing the energy resources.

Not to mention the risks that are greatly exaggerated when nefarious attacks on a large grid can have devastating results. The focus on cyber security for our grid cannot be more important than it is today.

How might the risk be minimized if there wasn't one large grid, but instead several semi-independent micro-grids? Those conversations are taking place and clearly there is a role for wind generators to play.

Despite the low cost of energy at the moment, it would not be wise to take our focus off diversifying how we produce and deliver energy. That means continued support for R&D programs (such as NYSERDA) as well as encouraging entrepreneurship in this emerging technology field.

