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Subject:	Fwd: REPLACING GASOLINE CONSUMPTION WITH ELECTRICITY IN NEW ENGLAND
Date:	Friday, September 07, 2018 1:39:09 PM

All,

SUMMARY DF ARTICLE
http://www.windtaskforce.org/profiles/blogs/replacing-gasoline-consumption-with-electricity-in-new-england

Electrifying the NE transportation sector would result in significantly increased load and generation on the NE grid

EVs Charging: RE proponents claim EVs would be charged at night, and that it would "flatten the demand" curve. In reality, peak demands would occur at night, instead of during the day.

- NE monthly average travel is about 130.593/12 = 10.88 billion miles; summer monthly maximum about 10.88 x 1.14 = 12.41 b miles, winter monthly minimum about 10.88/1.14 = 9.55 b miles. Daily averages, such as for a holiday weekend, likely would vary more than 14% from the annual average.

- If the EVs were charged 24 hours/d, the NE grid load increase during that peak month would be an average of 8232 MW. The new gas turbine capacity would be about 9879 MW, at a turnkey capital cost of $14.8 billion, plus $billions more for grid expansion and new LNG terminals or pipelines from Pennsylvania.

- If the EVs were charged 8 hours/d, the NE grid load increase during that peak month would be an average of 24697 MW. The new gas turbine capacity would be about 29636 MW, at a turnkey capital cost of $44.5 billion, plus $billions more for grid expansion and new LNG terminals or pipelines from Pennsylvania.

- That would be a significant increase of the normal nighttime demand of about 12000 MW. The normal daytime peak demand is about 22000 MW, and about 24500 MW during the late afternoons of hot summer days.

- The existing gas turbine capacity (which by now would include the gas turbines needed to replace nuclear) definitely would not be sufficient to provide that new nighttime demand and electricity.

- Future heat pumps would impose very significant additional demand increases of daytime demand during hot days in summer (likely already with peak demands), and additional increases of winter demand during cold days in winter.

- The winter demand increases due to EVs + heat pumps, would severely stress NE generation capacity and fuel supply, and the NE grid. In fact, NE generation capacity and almost all NE high voltage and distribution grids would be completely inadequate.

- It would be financially unfeasible to use storage, as the turnkey capital cost of one TWh of storage systems (as delivered to the HV grid) would cost about 1 billion kWh x $400/kWh = $400 billion. Even as future battery costs would decrease, the rest of the turnkey system costs likely would not. See Appendix and URLs.

http://www.windtaskforce.org/profiles/blogs/wind-and-solar-conditions-in-new-england
http://www.windtaskforce.org/profiles/blogs/a-very-expensive-offshore-wind-energy-folly-in-new-england

NOTE: In 2017, the entire load on the NE grid was about 121.50 TWh, of which 78.8 TWh was provided by low-cost domestic gas and nuclear. To generate an additional 56.97 TWh for charging EVs with highly subsidized, expensive, unreliable, variable, intermittent wind and solar would be a huge physical challenge, especially during summer when wind is minimal for months (just look out the window), and during winter when solar is minimal for months. See Appendix.

NOTE: RE proponents in Massachusetts and New York are opposing additional gas lines to provide additional low-cost gas from Pennsylvania. They say we will temporarily (?) use Russian and Middle East LNG at 3 times the price until wind and solar are built out (during future decades?).
http://www.windtaskforce.org/profiles/blogs/new-england-governors-statement-on-regional-energy-affordabilit-1