Maryland's Electricity Crisis: Growing Demand, Shrinking Supply

This is the second of three planned messages dealing with Maryland electricity issues. As I related yesterday, I have spent countless hours over the course of the summer and fall informing myself about electricity issues. Until 7 months ago, I knew little more about electricity than I learned in my 9th Grade general science class. So I had a lot of work to do in order to be able to grapple with these issues intelligently. I'm still no expert, but I think I'm sufficiently familiar with the issues at this point to understand what's going on and to recommend some solutions.

Yesterday's message dealt with the proposed 70-mile transmission line that has provoked such controversy. Today, I will address the separate but related issue of Maryland's dire need to generate more electricity.

<u>Facts associated with Maryland's desperate need to generate more electricity</u>

1. Maryland currently imports 40% of its electricity. Our state only generates 60% of the electricity that it needs to provide power to its homes and businesses. This situation is on course to get far worse in the next decade.

2. Acting upon the mandates contained in the 2022 Climate Solutions Now Act, Governor Moore issued an Executive Order on June 4, 2024 that instructs his agency heads to phase out the purchase and use of fossil fueled furnaces. The Order does not contain a deadline for this to be accomplished; presumably the new regulations to be adopted by the Maryland Department of Energy will announce a deadline. The point here is that by whatever deadline is chosen, every building in Maryland, including every residence in the State will need to use electricity for heating. This will force Maryland homeowners, office and apartment building owners and businesses to spend vast sums of money to replace fossil fueled furnaces with electric heating. Of course, it will also greatly increase electricity usage in Maryland and cause the state to import far more electricity than otherwise would be the case.

3. Maryland law already requires the phasing out of sales of new internal combustion engine motor vehicles by 2035, just ten years from now, but Governor Moore's June 4, 2004 Order directs the State Department of Transportation to speed up the state's transition to electric vehicles. Of course, electric cars are more expensive than gasoline-powered cars, and only a small percentage of Maryland citizens have bought electric cars. So pursuant to the Governor's Order, people will be forced to pay more money for cars they don't want. Of course, when all of the cars on our road are powered by electricity, Maryland's electricity usage will dramatically increase, and the state will necessarily have to import yet more electricity from other states.

4. In the last session of the General Assembly, one of the Governor's legislative initiatives was to give incentives to businesses to locate data centers in Maryland. Quantum Loophole in Frederick County is the first firm to qualify for these incentives, but there will be others. As noted above, each data center uses massive amounts of electricity. So in this respect as well, Maryland is on course to consume massively increased amounts of electricity within the next decade.

5. Putting all of these factors together, once all of these Gubernatorial initiatives get up and running, Maryland is going to need far more electricity than at present. Unless our generation of power grows apace with our need for more electricity, we will be forced to import a much higher percentage than 40% of our electricity from other states. So is Maryland on track to generate enough additional electricity to satisfy our burgeoning need for electricity? The answer is an emphatic "no".

6. Talen Energy currently owns and operates two significant electric generating facilities in Maryland, the Brandon Shores plant and the Wagner plant, both located on the south shore of the Patapsco River in Baltimore Harbor out beyond the collapsed Key Bridge. Brandon Shores is capable of producing 1,707 MW of electricity annually, and Wagner is capable of producing 841 MW of electricity. Thus these two plants jointly are capable of producing nearly 2,550 MW of the state's total 11,161 MW of annual locally-generated electrical capacity, or nearly 23%. Talen planned to shut down both of these plants on December 31, 2024. To prevent that from happening, PJM has arranged to pay Talen vast sums of money to keep these plants open for the time being, with Maryland ratepayers paying the bill! If this funding stream ends and Talen closes these plants, Maryland would have to import far more than 50% of its electricity. Brandon Shores burns coal to generate electricity, and Wagner burns oil, so under the terms of the Climate Solutions Now Act, which the Maryland General Assembly passed in 2022, both Brandon Shores and Wagner are legally required to close down shortly. Again, when this happens, Maryland will have to import considerably more than 50% of its electricity.

7. Other electrical generating plants in Maryland are capable of producing 5,436 MW of electricity by burning natural gas. This constitutes nearly half of Maryland's total 11,161 MW of annual locally-generated electrical capacity. But Governor Moore's June 4th Executive Order implementing the Climate Solutions Now Act directed the Maryland Energy Administration to "establish a framework for a clean energy standard to achieve 100% clean electricity in Maryland by 2035". This Executive Order thus mandates that all of the State's natural gas electrical generating plants must close within just ten years. If that were to occur, along with the closure of Brandon Shores and Wagner, Maryland would have to import more than 70% of its electricity.

8. Why aren't Maryland's utilities or private entrepreneurs picking up the slack and developing additional electric generating facilities? Thanks to legislation passed during the Glendening Administration, Maryland's utilities are not permitted to own or operate electric generating plants. In order to comply with the law, they all sold their existing plants 25 years ago. As far as private entrepreneurs are concerned, Maryland's environmental laws are so draconian that entrepreneurs don't want to invest their money in electrical generating facilities in Maryland. As a result, even as nearly all of Maryland's existing electric facilities have closed, are in the process of closing or all fated to close, no new facilities are being planned.

9. At the turn of the 21st Century, Maryland was generating 11,956 MW of electricity per year, but once all of these closures occur, Maryland will only be able to generate only a small

fraction of that electricity per year.

10. The Climate Solutions Now Act was passed in 2022. There was no discussion on the floor of the State Senate at the time that the bill was being debated about the effect of data centers on the State's electrical needs. Bills that mandate long-term critical policy changes in a world in which unexpected events occur with startling regularity can have unexpected consequences. Just as in 2019, no one anticipated the pandemic, in 2022, no one anticipated the phenomenal growth of data centers in this region. By 2030, PJM anticipates that data centers, many of them using AI technology, will constitute 12% of PJM's summer peak electricity load, compared to just 4% today. So the State of Maryland now faces the mandated closure of most of its electrical generating facilities within the next ten years while, due to the explosive growth of data centers, the regional demand for electricity is skyrocketing.

11. When the Climate Solutions Now Act was passed, advocates confidently predicted that Maryland would produce sufficient electricity through renewable energy generation resources (i.e., solar and wind generating facilities) to replace old fossil fuel generating plants that the Climate Solutions Now Act required to shut down. The problem is that, despite these optimistic projections and despite years of assurances from environmental advocates that solar and wind will satisfy our energy needs, solar and wind energy production in Maryland currently only provide 4% of our electricity. The much ballyhooed wind project off of Ocean City has, you will excuse the pun, run into stiff headwinds and has not yet gotten off of the ground. The state's rural, agricultural communities strenuously fight all attempts to convert productive farmland into solar arrays. Therefore, the growth of renewable energy in Maryland has been moving forward with glacial slowness. There is no evidence showing that in just ten years, electricity produced by solar and wind will satisfy more than a small fraction of Maryland's electricity needs.

12. What about nuclear energy? Maryland's only nuclear facility is the Constellation Energy facility at Calvert Cliffs. It has operated safely for many years and provides Maryland with its cheapest electricity. But no new nuclear generating plants are planned. At both the state and national level, ever since Three Mile Island many decades ago, nuclear energy has been regarded as scary and dangerous, and the red tape preventing the development of new nuclear resources has been so all-encompassing that no new nuclear facilities have been built.

13. To summarize, within just ten years, Maryland's electrical generating capacity will nosedive even as our demand for electricity will dramatically increase. For a state which is already importing 40% of its electricity from beyond its borders (much of which is produced through natural gas, by the way), the prospect is for a radical increase in electricity imported from other states.

14. One might argue that Maryland can deal with this situation by just continuing to ramp up its importation of electricity from other states. There are three very serious problems with this

approach.

15. First, bringing in ever-increasing electricity from beyond our borders will necessitate the construction of more electrical transmission lines. The anguish caused by the new transmission line currently being proposed by PSEG will be just the tip of the iceberg. Remember that PJM's mandate is to make sure that no users in its region go dark, so it will need to contract for the construction of as many additional transmission lines as are necessary to deliver all of the additional electricity to Maryland that the state needs.

16. Second, just like Maryland, other states in this region are also under serious pressure from their environmental activists to close down all of their electrical generating plants which burn fossil fuel. Even as Maryland closes down its fossil fuel generating facilities and needs to import an increasing percentage of its electricity, other states are doing the same thing and, like Maryland, will find themselves in a position in which they also need to import an increasing percentage of their electricity. Coupled with the explosive growth of data centers across the PJM region, this is threatening to produce a region-wide shortage of electricity. In the current year, PJM has over 16,000 MW of excess capacity. By contrast, in the 2025-2026 year, PJM estimates that its excess capacity will only be 500 MW. At this rate, by 2026-2027, PJM will suffer from a deficit of electricity systemwide. Indeed, PJM has publicly announced that "a capacity shortage may affect the PJM system as early as the 2026/2027 delivery year". This is a careful way of stating that in just two years, the PJM system may experience brownouts and blackouts. In such a circumstance PJM will have to turn to other regions of the country to find enough electricity to prevent brown-outs and blackouts. Of course, this assumes that other regions of the country have enough surplus electricity to export some of it to the PJM region. This assumption is probably inaccurate because in recent years, PJM has had to export electricity to other regions in order to cover electricity shortfalls in those areas.

17. Third, and perhaps most significantly, Maryland's increasing reliance on other states to supply us with electricity will come at a significant cost to Maryland residents. This is due to the "capacity market" run by PJM. Each PJM member that provides electricity to consumers, including utilities such as BG&E which serves central Maryland, must contractually arrange to acquire enough power from suppliers to meet demand, not only for today and tomorrow but for the future. Members secure these resources for the future through the PJM capacity market, which, through periodic auctions of electricity, pairs utilities needing power with suppliers capable of providing the power needed to meet predicted energy demand for three years into the future. The capacity market auctions conducted by PJM are governed by the laws of supply and demand. When demand rapidly increases, as at present, and supply is constrained, as at present, the price of capacity market electricity skyrockets.

18. The most recent capacity auction occurred last July. Given the high anticipated demand and limited anticipated supplies of power, it was not surprising that the price paid by BG&E for its capacity power in last July's auction shot up to $466 per MW-day, a 600% increase! BG&E's price will be the highest price paid by any utility in the entire PJM

system. These higher costs will be passed through to BG&E's customers starting on June 1, 2025. Current expectations are that an average BG&E customer will experience a $300-$432 annual increase in the customer's electricity bills during the 12-months following June 1, 2025. PJM anticipates that in its next capacity auction, the costs of capacity electricity will rise even higher, perhaps much higher. In other words, Maryland's failure to satisfy its electrical needs through local generation of electricity and its reliance on the capacity market will hit every single Maryland family and every single Maryland business in their pocketbooks each time they receive their monthly electrical bills. Many Maryland consumers are going to be very upset when they start to receive these markedly higher monthly bills.

19. It is not an exaggeration to conclude that Maryland's energy situation is dire today and threatens to become catastrophic within a very short period of time. Because new generating facilities take a long time to plan, get permitted, construct and put into operation, it is inevitable that Maryland residents and our business community will be saddled with massive increases in their electric bills starting this coming June and then only getting worse and worse in the following years until this problem is addressed and solved.

Conclusions:

1. Currently, Maryland only imports 40% of its electricity.

2. Due to an Executive Order promulgated by Governor Moore, Maryland is fated to greatly ramp up its use of electricity in the next ten years, and the Moore Administration is encouraging the growth of data centers in Maryland that will consume vast amounts of electricity.

3. Due to the 2022 Climate Solutions Now Act, most of Maryland's existing electrical generating facilities are required to close within the next ten years.

4. Renewable energy (wind and solar) only provides 4% of Maryland's electricity needs and is unlikely to come even close to satisfying the state's electricity needs within the next ten years.

5. No new nuclear energy facilities are being planned in Maryland.

6. By law, Maryland's utilities are not allowed to own electrical generating facilities.

7. Private entrepreneurs have no interest in investing money in Maryland to build or operate electrical generating facilities.

8. Based on Maryland's current trajectory, it is likely that within ten years, Maryland will be importing 70% of its electricity.

9. The increased reliance on out-of-state electricity to satisfy Maryland's growing need for electricity will result in the construction of more transmission lines, will risk blackouts and brownouts in the future and will cause the monthly electrical bills of Maryland homeowners and businesses to go through the roof. As of June 1, 2025, the average Maryland family will see an annual increase in its electrical bill of between $300 and $432, with further increases in store as Maryland is forced to import ever increasing amounts of electricity from other states.

Tomorrow morning, I will send you my third and final message in this string. It will provide details about the six pieces of legislation that I will be promoting in the 2025 General Assembly Session.

-Chris West