

July 15, 2020

To: Governor Phil Murphy
NJ TRANSIT Board Members

The Don't Gas the Meadowlands Coalition has analyzed NJ TRANSIT's Combined Final Environmental Impact Statement/Record of Decision Appendix D – Scoping Alternatives Analysis. In their appendix, NJ TRANSIT attempts to demonstrate that renewable energy and storage technologies are not capable of providing the power, resilience and other attributes required for the NJTRANSITGRID TRACTION POWER microgrid. Attached is our detailed analysis effectively disputing NJ TRANSIT's claims. NJ TRANSIT's analysis suffers from many flaws. A summary of our major conclusions is presented below:

- Overall, it does not utilize an engineered total solution that combines the synergies of multiple types of energy/storage to develop an optimal solution. Instead, it looks at each renewable energy technology in a “stove-pipe” fashion in order to find ways to demonstrate it is not feasible. Stove-pipe approaches produce much higher costs than necessary as they rely on single technology solutions to provide peak power.
- It does not consider any hybrid mix of renewable energy sources or a hybrid solution comprised of renewable energy with emergency backup fossil fuel generation. Such hybrid microgrids are state-of-the-art in the industry and have been demonstrated to be highly cost-effective solutions that provide reliable and resilient solutions when commercial power is not available. As stated in our analysis paper, hybrid design “makes it more feasible and profitable to use renewable energy and storage while offering better economics than traditional gas-only power generation.”
- It ignores recommended techniques for reducing step loads and power peaks. As recommended by NJ TRANSIT's own consultant, Jacobson, reducing peak power demands is an extremely effective means of reducing costs by avoiding the need to build excess capacity.
- These three flaws (stove-pipe use of technology, no consideration of a hybrid approach and a lack of peak power reduction techniques), produced a worst-case scenario that no engineer would ever design. Apparently, this is the only way NJ TRANSIT can disprove the viability of renewable energy and storage technologies. This is not a professional, best practice approach and must be rejected by NJ TRANSIT management and Governor Murphy.

In addition to this fatally flawed approach, other problems with the analysis include:

- Its costs for solar power generation are based on data from 2012 and prior years for estimating the efficiency and cost of solar power when it is widely acknowledged that these factors are improving every year. As a result it grossly over estimates

both the space required and cost of solar panels. In addition these costs are based on averages across diverse projects whose conditions may or may not apply to a solution specific to this project.

- It utilizes cost studies for storage that include only stand alone systems instead of using lower costs from the synergies of co-located integrated storage and power systems which are stated in NJ TRANSIT's source reference to be more effective. It also ignores recent improvements in storage costs due to containerization efficiencies.
- It ignores real estate it currently owns as viable locations for solar panels as well as large open areas and lagoons just north of the Koppers Coke peninsula as potential sites for solar panels. The hybrid model solution proposed in our paper shows much less need for space as well as much less need for battery capacity than NJ TRANSIT's estimates.
- It makes false statements indicating the size of the potential PV-plus-energy-storage system required would be larger than any others in existence, while one is being constructed now that would be 65% larger than the size required by NJ TRANSIT.
- NJ TRANSIT tries to demonstrate it will use renewable energy by citing the potential to burn bio gas, which is much dirtier than natural gas, will not reduce greenhouse gas emissions and would be even worse for the health and welfare of local residents.
- It ignores the potential to use tidal power from the adjacent Hackensack River.

In short, we believe that design of the optimal solution, (a hybrid microgrid using renewable energy, storage technologies and backup emergency fossil fuel or tidal power) is simply an engineering and economic challenge to determine the best mix of these capabilities. NJT's approach clearly has not been to look for an engineered solution to maximize the use of renewable energy. Instead, it has used "worst engineering practices" to find ways to demonstrate it is not feasible. This is clearly not a professional, best practice approach.

Instead of undertaking futile unprofessional efforts to prove what cannot be done, NJ TRANSIT must undertake a feasibility study (similar to the Sandia study of 2014) of a hybrid microgrid primarily utilizing renewable energy and storage technologies, current best-cost estimates and best energy system design practices. Without such a comparative analysis, and even setting aside all environmental concerns, NJ TRANSIT is not acting as a good steward of its Federal and NJ grant monies. The public must also have ample opportunity to provide input into the parameters of the study. Governor Murphy must order a halt to all work on the NJ TRANSITGRID project until such a study has been completed.

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