

Via: Mail and E-Mail

PJM Board
PJM Interconnection, LLC
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Re: Comments of Atlantic Grid Holdings LLC on the Artificial Island Decision

PJM Board:

Atlantic Grid Holdings LLC (AGH) submitted proposed solution A2013_1-6A; namely, the Garden State Reliability Project (GSRP), in response to the Artificial Island Request for Proposals (RFP). On June 16th, the PJM management recommended PSE&G's 7K proposal (the "7K Project"). In our view, management's recommendation is flawed in several important ways. PJM has missed a perfect opportunity to build greater resiliency into the grid serving Artificial Island that will make this important nuclear station safer while avoiding the significant environmental impacts of the 7K Project. We urge the Board to carefully review this recommendation and send it back to the PJM staff for further analysis consistent with the comments below.

Overview

The 7K Project is a risky choice from a number of perspectives:

- For PJM it is risky because significant permitting hurdles mean that the project has a high likelihood of being rejected at the state and/or federal levels and a needed reliability solution will be substantially delayed because PJM has proceeded down a dead end. As discussed below, the New Jersey Board of Public Utilities (NJBPU) has submitted comments warning about the permitting risks of all of the preferred options, including the 7K Project, and pointing out that none of the preferred options took advantage of the opportunity to get a preliminary determination of permitting feasibility. The NJBPU warns that the protests, delays, and costs well above initial estimates for mitigation during construction that plagued the Susquehanna-Roseland project also may affect PJM's recommended solution "*especially given that a viable alternative exists.*"
- For the community around Artificial Island the 7K Project also is risky. The recommended solution does not provide black start support to help the grid serving Artificial Island to recover quickly in the event of a blackout. In addition, by placing the proposed new line alongside an existing key 500 kV circuit which crosses the Delaware River overhead, PJM has increased the opportunity for a simultaneous failure of both circuits. This is a risky design from a safety and resiliency perspective.

- And it is risky for the environment. The 7K Project will cross four federal and state areas protected for their important wildlife habitat and scenic value, cross approximately 59 water bodies, and potentially adversely impact four federally-listed and 30 state-listed endangered or threatened species. The NJBPU has cautioned PJM that this project is likely to face significant public protests due to these environmentally sensitive areas, yet PJM appears to have ignored or substantially underestimated these risks.
- Lastly, this decision is risky as precedent for future RFPs that should encourage innovative, well-engineered proposals and rigorous competition. In a typical RFP, a problem in need of fixing is published and competitors are invited to submit proposed solutions. The customer (PJM in this case) evaluates the proposals, disqualifies the ones that don't work, and makes a selection from the remaining qualified projects. But PJM's RFP was more like a "call for ideas." It appears that PJM took the proposals and then re-engineered a solution it liked best by mixing and matching pieces from different project proposals. The result is that PJM's recommended 7K Project looks almost nothing like the original 7K proposal submitted by PSE&G. Unfortunately, if this RFP sets the pattern for the future, PJM will discourage participants from spending time, money and engineering resources to develop innovative, well-engineered RFP responses. And ratepayers will lose when the robust, competitive process PJM hoped for fails to develop.

Likely Permit Delays Place the In-Service Date at Risk

There are strong signals that the 7K Project is likely to be a permitting "dead end" and that, if selected, the needed reliability solution will not be in service on time. The *Constructability Analysis* performed for PJM by GAI Consultants identifies significant environmental impacts and raises serious questions about the ability of PSE&G to obtain the required permits. GAI found that the 7K Project will cross approximately 59 water bodies, including the Delaware River, "a major waterbody crossing that will require coordination with multiple agencies and will involve protracted regulatory reviews and attract public interest."¹ The project also will cross approximately six miles of coastal wetlands, including the Supawna Meadows National Wildlife Refuge, the Abbotts Meadow Wildlife Management Area (WMA), and the Mad Horse Creek WMA, among other sensitive areas. In addition, "four (4) federally-listed and 30 state-listed endangered, threatened, or candidate species could potentially occur in the vicinity of the proposed route."²

Although GAI concluded that building the line "would most likely be feasible", their report is replete with comments about the likely complexity of the permitting process given the sensitivity of the impacted lands and public opposition, and the uncertainty this brings to the

¹ GAI Consultants, Inc., *Artificial Island-Red Lion 500kV Line Constructability Analysis at 4* (May 2014).

² *Id.* at 5.

project schedule.³ Unfortunately, as the NJBPU observed in its comments, GAI did not take advantage of the pre-application permit review offered by the New Jersey Department of Environmental Protection (NJDEP) which could have highlighted the environmental impacts and provided a preliminary determination of permitting feasibility. If GAI had followed this process its report might well have raised stronger cautions. Additional time for PJM to consult with the NJDEP and the NJBPU regarding environmental and permitting concerns is warranted. Additional attention to the NJBPU's comments (below) would be particularly useful because they reference the Susquehanna-Roseland project which in recent years experienced many of the same challenges that the 7K Project is likely to encounter:

We are concerned that the Red Lion 500 kV Option will specifically impact the Supawna Meadows National Wildlife Refuge (NWR) in Pennsville, NJ; the Alloway Creek Watershed Wetland Restoration Site and the Abbots Meadow Wildlife Management Area in Elsinboro, NJ; and the Mad Horse Creek Wildlife Management Area in Salem, NJ.

The Supawna Meadow NWR is managed by the US Fish and Wildlife Service. The still under construction Susquehanna to Roseland (S-R) 500 kV transmission line was significantly delayed due to the process associated with obtaining permits and approvals for a crossing of federal lands. Even though the project was one of those selected for "Rapid Response" by the federal Department of the Interior, and placed on an accelerated permitting schedule, it was still delayed three years beyond the initial in-service date.

At the same time, the impact of the S-R line on state lands along an existing right of way resulted in protests, delays, and costs well above initial estimates for mitigation during construction. The same may be true of the proposal to site transmission lines across the three NJ environmental management areas, especially given that a viable alternative exists. PJM's analysis of the five projects in the Red Lion 500 kV Option group recognizes negative impacts for all as to wetlands and land permitting, but only "some impacts" as to public opposition. In our experience, that is an optimistic view of the likely public response to these projects.

Given that "a viable alternative exists" as noted by the NJBPU, the 7K Project is a risky choice for ratepayers, the environment, and PJM. The 7K Project may never receive the required permits and the much-needed fix for the Artificial Island stability problems is unlikely to be in service when needed.

³ See e.g., id. at 6. "Given the physical and jurisdictional extent of the Artificial Island-Red Lion 500kV Transmission Line Project, involving two (2) states and multiple federal, state, and local regulatory agencies, effective interagency coordination and scheduling will be an overriding factor for successfully securing the necessary governmental approvals."

A Missed Opportunity to Improve Safety and Make the Grid Serving Artificial Island More Resilient

At over 3,800 MW, the three-unit Artificial Island nuclear complex is one of the largest nuclear facilities in the United States. It is a major mistake, therefore, to ignore the opportunity presently before PJM to make Artificial Island substantially safer and more resilient through the selected transmission solution. The 7K Project misses this opportunity because it provides no black start capability and it increases Artificial Island's exposure to common mode failure risks.

Artificial Island relies on batteries and diesel generators to power critical systems, including cooling for reactor cores, immediately following scrams and also when a blackout of the grid unexpectedly happens. Speeding the recovery of the nuclear units and the grid is essential to reduce the period when the plant must rely solely on its back up systems. Our GSRP proposal would improve Artificial Island's access to offsite power to support critical systems and provide a valuable extra margin of public safety. In the event of a blackout affecting the AC grid at Artificial Island, GSRP's HVDC converter connected to the plant's switchyard would continue to provide power as long as the HVDC converter at Cardiff 50 miles away was connected to a live grid. Inexplicably, PJM management's recommendation gives no value to this important benefit, nor does any other proposed project provide this benefit.

A hallmark of prudent engineering is that systems are designed to minimize the consequences of a failure. NRC regulations state that the transmission network serving a nuclear plant switchyard should have two physically independent circuits that are designed to minimize to the extent practical the likelihood of their simultaneous failure.⁴ Though separate rights of way are not required, where practical they are clearly preferred to minimize simultaneous failures.

The 7K Project parallels the existing critical Circuit 5015 connecting Hope Creek and Red Lion for its entire length and therefore increases Artificial Island's exposure to simultaneous, "common mode" failures. Presently, two 500 kV circuits exit Artificial Island and run parallel and in very close proximity for over 40 miles to the New Freedom substation. This configuration raises the risk that a single cause could disable two critical circuits. If the 7K Project is approved, the same mistake will be repeated and four critical 500 kV circuits will occupy only two narrow paths for a significant distance. The risk of a failure is not hypothetical. In 1987, an oil tanker lost navigational control and collided with the tower in the Delaware River that supports Circuit 5015, knocking the line down. Repair efforts took more than half a year to complete. Management's recommendation would double up on this same collision risk — not minimize it. Additional risks worthy of consideration based on recent history are sabotage, ice storms, airplane strikes and flooding.

Increasing the risks of common mode failures, as the 7K Project would, is not prudent when other alternatives are available. Our GSRP proposal, for example, would employ a buried

⁴ NRC Regulations, General Design Criteria – 17 states in relevant part: *"Electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent circuits (not necessarily on separate rights of way) designed and located so as to minimize to the extent practical the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions."*

HVDC transmission circuit placed in public road rights of way. GSRP would provide a storm-protected buried circuit to Artificial Island that is a practical approach to minimizing the plant's exposure to simultaneous failures.

The LDV was Used to Give PSE&G an Unwarranted Preference

From our perspective as a participant and observer of the process it appears that management's recommendation has placed too much weight on the Lower Delaware Valley Transmission System Agreement (LDV) because it provides for usage of existing right of way along the recommended project path. This agreement between JCP&L, PSE&G, Delmarva Power & Light (DP&L), Atlantic City Electric (ACE), and PECO dates back to 1977. It contains the terms and conditions under which the parties agreed to construct and jointly own certain high voltage 500 kV transmission facilities in the Lower Delaware Valley designed in large part to interconnect certain nuclear facilities including Peach Bottom and Salem.

It is noteworthy that GAI's *Constructability Analysis* found that, in total, federal and state land crossings account for approximately 47 percent of the overall Red Lion to Hope Creek transmission line length and that expansion of the right of way width by as much as 200 feet would be required. Given the large public lands component of the right of way, a 37-year old agreement among incumbent utilities covering an existing line has no relevance to the feasibility of obtaining permits on state and federal lands for a new transmission line. The LDV agreement should not influence the selection of one project over another since all of the proponents of projects on this route must undertake challenging permit processes to gain the permission to use these federal and state public lands for a new transmission line.⁵

Moreover, the NJBPU's comments clearly stated that New Jersey law does not prohibit construction of transmission by non-incumbent operators. Accordingly, PJM should not provide a preference to incumbent utility proponents simply because they may have certain rights to existing rights of way. GSRP's HVDC circuit, for example, would be buried beneath roads in public rights of way and, accordingly, it can be built without access to overhead right of way or the need to fight the time-consuming, costly battles that accompany higher towers and the land clearing required for widening rights of way to accommodate an additional circuit.

Process Flawed by PJM's Decision to Selectively Modify Proposals

PJM's RFP process was critically flawed in several respects. Management substantially "rehabilitated" proposals that, as submitted, did not meet the technical requirements of the

⁵ The LDV agreement describes the present Circuit 5015 between Red Lion and Hope Creek as one of the LDV facilities owned in common by the parties to the LDV agreement. This circuit is defined in Schedule 1 of the LDV agreement as a 500 kV circuit running from the Delaware-New Jersey border approximately 13 miles to Artificial Island, including the associated right of way. Notably, PHI (through DP&L and ACE) also is a party to the LDV agreement and, together with Exelon, had proposed a Red Lion to Salem circuit that was very similar to the 7K Project. With minimal re-engineering by the PJM staff, the PHI/Exelon proposal could have been made equivalent to the 7K Project. As a common owner of Circuit 5015, PHI is just as entitled as PSE&G to use the Circuit 5015 right of way to build a new Red Lion to Hope Creek line. The LDV agreement provides no reason for the PJM staff to favor PSE&G's 7K Project over the PHI/Exelon proposal, and as noted above, it provides no reason to favor incumbent utilities over independent transmission project proponents.

solicitation. In particular, PJM modified proposals that initially failed the technical review to allow them to qualify. Some proposals were modified more than others, and others were not modified at all, raising significant questions about why PJM discriminated in this manner and the fairness of the process.

For example, the group of proposed 500 kV projects are so similar that it is difficult to determine what factors led PJM management to recommend PSE&G's 7K Project above the others. As originally proposed, the 7K Project cost over \$1 billion and it included a lengthy 500 kV circuit connecting the New Freedom and Deans substations (in central and northern New Jersey, respectively). As the RFP process progressed, however, PJM modified the 7K Project substantially to make it into the "winner." PJM made changes totaling \$769 million, by eliminating the New Freedom to Deans line, eliminating a connection between the Hope Creek and Salem switchyards, reconfiguring the substation interconnections at Red Lion, and adding static var compensators (SVCs) at New Freedom to make PSE&G's initial \$1.066 billion 7K Project into the recommended 7K Project with an estimated cost of \$297 million. In short, PJM eliminated facilities accounting for over 70% of the project's original proposed cost (from over \$1 billion to under \$300 million) — which resulted in a recommendation to the PJM Board that only faintly resembles PSE&G's original project proposal. And this is all the more troubling because PJM could have made less extensive changes to several of the other proposed projects to bring them in line with the configuration of the 7K Project recommended to the PJM Board, yet PJM did not take that route.

The RFP process also gave short shrift to practical permitting hurdles — contrary to recent FERC direction. FERC recently required PJM to consider as a threshold issue state laws, regulations and agency orders that affect project and project sponsor selection to avoid a situation where time and resources are spent on projects or sponsors that will not be able to get necessary state approvals.⁶ As noted above, the NJBPU submitted a letter to PJM advising them that proposals like PSE&G's 7K Project are likely to either be substantially delayed or unable to get state permits, yet the NJBPU's caution was disregarded.

Conclusion

Management's recommendation is seriously flawed. It is highly unlikely that the 7K Project will obtain the required permits and be constructed by the desired in-service date — which raises a significant reliability risk. Perhaps more importantly for the safety of the region surrounding Artificial Island, the staff's recommendation ignores a perfect opportunity to provide black start capability at the station. In addition, the 7K Project increases the risk of simultaneous failures that is heightened when critical circuits run in parallel for long distances. This vulnerability is already present due to the parallel routing of two 500 kV circuits between Artificial Island and New Freedom. There is no reason to introduce an additional vulnerability on the path between Artificial Island and Red Lion. The environmental cost of the 7K Project also is unwarranted given that alternatives such as GSRP have a dramatically lower impact. Finally, the RFP process was flawed by management's efforts to "re-engineer" some proposals to make them better, while ignoring others unfairly, and by undue reliance on the LDV agreement.

⁶ 147 FERC ¶61,128 P133 (May 15, 2014).

To correct these mistakes we ask the PJM Board to direct PJM management to extend the process, eliminate the flaws identified herein and start with a threshold examination of the likelihood of the proposed projects to receive necessary state and federal permits and approvals. Given the NJBPU's expressed concerns it would be best for the Board to withhold approval of any solution until such a determination of feasibility is obtained. As the FERC recently pointed out to PJM, the ability to get permitted at the state level is a "threshold" issue. We also ask the Board to direct management to complete the analysis that was short-circuited when the staff settled on a short list of projects. For the reasons stated here and in PJM's June 16, 2014 TEAC presentation, the projects on the short list fail the technical requirements and are otherwise problematic. We urge the Board to request a full evaluation of the remaining proposed solutions, including GSRP, on a fair and comparable basis.

Thank you for your attention and consideration.

Sincerely,



Robert L. Mitchell

President, Atlantic Grid Holdings LLC

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