

## Valuing Fuel Security

### Problem Statement

In March 2017, PJM published an analysis of the reliability attributes associated with various future resource mixes. As PJM concluded in this report, PJM's current fuel portfolio is reliable, diverse and among the highest performing of those studied. It is well supplied with the required generator reliability attributes. The PJM system can remain reliable with the addition of more natural gas and renewable resources. However, an increased reliance on any one resource type introduces potential fuel security risks not recognized under existing reliability standards. Therefore, in April of this year, PJM initiated a study and published a paper entitled "Fuel Security Analysis," which outlined a 3 phase plan for investigating resilience, focusing on one of its most important elements, fuel security.

During phase 1, PJM stress-tested fuel delivery systems serving generation in the PJM region under plausible but extreme scenarios to identify when the system begins to be impacted and to identify the key study assumptions that trigger impacts to the grid.

The Phase 1 analysis was completed in December of 2018. While there is no imminent threat, fuel security is an important component of reliability and resilience – especially if multiple risks come to fruition. The findings underscore the importance of PJM exploring proactive measures to value fuel security ~~attributes~~, and PJM believes this is best done through competitive wholesale markets. In order to enhance the fuel security of the grid into the future, PJM believes market-based mechanisms for retaining or procuring ~~resources with~~ the necessary fuel ~~secure attributes~~security should be explored along with other mechanisms as determined through this initiative.

Therefore, PJM proposes the following items be addressed with this initiative:

1. Provide education on the fuel security study recently completed by PJM, work other ISO/RTOs are doing relative to fuel security, and additional relevant education, including NERC assessments, and activities, that may support this initiative.
2. Determine what it means from a PJM system and/or resource level, to be fuel secure.
3. Determine whether there is a quantifiable and/or locational requirement for fuel security in PJM.
4. Identify criteria to guide the selection of design alternatives that should be considered to ensure maintenance of any requirements identified in #3 above.
5. Where feasible and relevant, provide analyses and/or additional scenarios to support discussions, potential plausible future FERC/NERC reliability standards/guidelines, and for evaluating the potential impact of proposals to maintain any identified requirements.
6. Determine **potential mechanisms** to ensure and value fuel security in PJM and consider recommendations from relevant studies and assessments.

- ~~1. Provide education on the fuel security study recently completed by PJM as needed in addition to providing education on work other ISO / RTOs are doing relative to fuel security.~~
  - ~~2. Determine the definition of what it means to be fuel secure.~~
  - ~~3. Determine whether there is a quantifiable and locational requirement for fuel secure resources in PJM.~~
  - ~~4. Identify criteria to guide the selection of design alternatives that should be considered to ensure maintenance of any requirements identified in #3 above.~~
  - ~~5. Where feasible, provide analyses evaluating the potential impact of proposals to maintain any identified requirements.~~
- ~~Determine the mechanism to value fuel security in PJM.~~