

Ensuring Energy 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 energy security risks not recognized under existing reliability standards. Therefore, in April of 2018, PJM initiated a study and published a paper entitled "Fuel Security Analysis," which outlined a 3-phase plan for investigating resilience, focusing on one element, 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, energy security is an important component of reliability and resilience – especially if multiple risks come to fruition. PJM found that in extreme scenarios the more the grid was stressed, the more important resource type and fuel supply characteristics, location of any fuel supply disruption, and demand response became. The findings underscore the importance of exploring proactive measures to ensure current and future energy security in PJM. Stakeholders believe this is best done through a comprehensive approach based on competitive wholesale markets and rigorous cost benefit analysis. In order to ensure energy security into the future, stakeholders believe market-based mechanisms for retaining or procuring resources with the necessary attributes should be explored along with other mechanisms as determined through this initiative. All options should be considered, and both attributes and costs must be recognized. Therefore, stakeholders propose the following items be addressed with this initiative:

1. Provide education on the fuel security study recently completed by PJM as needed. In addition, provide education on work other ISO / RTOs are doing relative to fuel security.
2. Provide education on demand response, renewable resources, energy storage, and other alternative options that play a role in ensuring energy security.
3. Provide education, including, work other ISO / RTOs are doing relative to energy security.
4. Determine the definition of what it means to be energy secure, including aspects of fuel supply characteristics, location of the fuel supply, roles of demand response and demand side management, location and characteristics of non-fuel generation (e.g., renewable and energy storage resources), and other alternative options that can ensure energy security in the coming years.
5. Identify key attributes and requirements to determine components of energy secure resources (e.g., quantity and location) or other energy secure alternatives in PJM.

6. Identify criteria to guide the selection of design alternatives that should be considered to ensure maintenance of any attributes or requirements identified in #4 above.
7. Provide analyses evaluating the potential cost impact of proposals to maintain any identified attributes or requirements and the potential impact if no action is taken. As part of this analysis the probability level of risk for all options should be included.
8. Determine whether additional mechanism(s) are needed, and if so which one(s), to ensure energy security in PJM.