

Following are four suggestions for studies that PJM might do for the fuel security analysis.

- **Pipeline exposure.** Delineation of pipelines within PJM, and how many units are served in various regions. What units are dependent on a single line and are potentially exposed to a single pipeline outage.
- **Inventory of fuel including dual-fuel units.** Which units have dual-fuel capability. How many MWs and days could they operate at full and minimum loading if the primary fuel was disrupted?
- **Long outages or long weather conditions.** PJM may already be doing this one: Analysis of fuel supply outages lasting longer than a week.
- **Supply chain Risk Assessment.** For all the delivered fuel sources (gas, oil, coal, and maybe nuclear), what are the risks associated with all of the upstream supplies? Both capturing the details related to procurement and establishing a real time PJM capture of fuel source as a percentage of generation, both locally and system wide. This knowledge would inform PJM operations of the real time fuel dependencies including unknowingly shared fuel and/or interdependent fuel infrastructure sources.
  - Example. What if 30% of the coal units were reliant on deliveries from a single barge line or a single river or rail source or coal is on mined site vs. delivery from Wyoming.