

Transparency and Consistency in End of Life Planning

The electric utility industry is faced with making decisions about transmission assets that have reached the end of their operational lives. In PJM, a good amount of the transmission infrastructure is older than 50 years.

In 2018, a majority of the Baseline and Supplemental Projects proposed had end of life drivers. According to PJM data, this was 80.4% of the Supplemental Projects (\$4.61B) and 53% of the Transmission Owner (TO) criteria Baseline (FERC Form 715) Projects (\$1.5B). 2018 RTEP total proposed spend was \$7.8B. Overall, a little over 78% of 2018 proposed projects had “end of life” as a driver.

Additionally, there is an unprecedented number of generation interconnection projects in the PJM queue. The large number of Supplemental Projects and the inherent uncertainty surrounding the Supplemental Projects contributes to significant time delays in PJM generation queue retools.

Once PJM Transmission Owners have determined that infrastructure is no longer cost effective to maintain, whether to replace, when to replace, and with what to replace transmission assets at the end of their lives becomes a planning determination. The PJM Transmission Owners have stated that replacing aging infrastructure is a matter of addressing reliability concerns. However, two essential ingredients are missing today in the PJM end of life planning process:

1. Once the PJM Transmission Owners have determined an asset has reached the point of needing to be replaced, how is that asset’s criticality and relative priority amongst its assets determined; and,
2. Whether the aging facility should be replaced and with what to best meet the infrastructure needs of the next 50 – 100 years?

Bringing these facilities into the normal PJM transmission planning environment will greatly improve certainty, consistency and increase transparency.

Some TOs have developed sophisticated systems and models to assess aging infrastructure. Based on field inspections, equipment testing, outage history, etc., these TOs utilize a probabilistic approach to identify risk of facility failure and the relative priority this asset has to the rest of its system. These models enable the TO to justify continued maintenance versus replacement decisions for many years in to the future.

Although this information is readily available, TOs have so far refused to provide the output of aging infrastructure models to stakeholders as part of the M3 process. As such, stakeholders are unable to replicate the results of these planning studies. Additionally, as solutions to aging infrastructure needs are brought forward as Supplemental Projects, planning is conducted solely by the TO, with PJM conducting a minimalistic ‘do no harm’ assessment only.

Some TOs have memorialized end of life criteria in their FERC Form 715, making this PJM RTEP baseline criteria. While making end of life criteria PJM RTEP baseline criteria avails stakeholders with more information than the M3 process, there is no vetting of the end of life criteria among stakeholders to determine reasonableness or consistency with best practices and there is no existing process to resolve such concerns with Transmission Owner FERC Form 715 criteria.

While the incumbent TO properly plays a major role in the planning for new/replacement facilities in its Zone, the process needs to be broader and more inclusive and the decision-making more transparent. Most importantly, transmission planning for replacement of integrated transmission facilities needs to be part of a regional plan that



Problem/Opportunity Statement

includes the local plan, to meet the needs of a cohesive network whose expansion and enhancement benefits all users of the grid for the next 50 to 100 years.

Stakeholders need to have more confidence that PJM and the TOs are proposing the most cost-effective transmission solution for the future and that competition is not being unduly thwarted. Development of Operating Agreement Language for PJM end of life criteria, as well as improvements in transparency, consistency and clarity, will provide a significant improvement to, and reduce uncertainty, in the RTEP, including the Local Plan. Operating Agreement language is required to ensure that the entire PJM stakeholder community will have meaningful input into how end of life planning should occur.