



**IURC Request to Indiana Electric Utilities
regarding Advanced Transmission Technologies**

As you may be aware, Senate Enrolled Act (SEA) 422 from the 2025 legislative session requires the Indiana Utility Regulatory Commission (“Commission” or “IURC”) to conduct a study on advanced transmission technologies (“ATTs”). The Commission is requesting your input, comments, ideas, research, and any relevant information you would like to provide regarding ATTs, including responses to the questions below developed by Electric Power Engineer, LLC (“EPE”) who will be drafting the study report.

Please provide your responses no later than June 3, 2026. Thank you!

Transmission Planning SME

1. What are the key challenges the utility faces in its transmission system, such as transfer limits, transmission constraints, load center areas, etc.?

WVPA response:

Challenges include an aging transmission infrastructure, capacity constraints due to growing load, and large load interconnections and the effect they have on the transmission system.

2. How does the utility coordinate transmission system upgrades with neighboring utilities in case of affected system?

WVPA response:

WVPA participates in the MISO MTEP and PJM RTEP processes and coordinates through those processes to propose and finalize system upgrades for affected systems. We also meet with neighboring utilities on a regular basis to ensure coordination.

3. How does the utility coordinate transmission system upgrades that are derived from diverse assessments, (e.g., reliability-driven projects based on transmission reliability assessments) and policy-driven projects informed by economic or generation deliverability evaluations?

WVPA response:

WVPA submits projects, regardless of origination, through the applicable MISO and/or PJM processes. WVPA relies on MISO and PJM coordination processes to ensure a reliable and cost-efficient solution is reached.

4. When multiple facilities are overloaded, does the utility assess whether the facilities belong to the same corridor before choosing mitigation strategies? If so, how does corridor grouping influence the utility’s solutions?

WVPA Response:

Yes, when multiple overloads are identified in a common area or “corridor”, WVPA will evaluate if a single solution can mitigate multiple constraints. WVPA prioritizes executing the most cost-effective solution that ensures reliability for our members.

5. How does the utility coordinate and integrate mitigation plans initiated by steady-state, short-circuit, and stability assessments?

WVPA response:

WVPA participates in the MISO MTEP and PJM RTEP processes and leverages those processes to coordinate and integrate mitigation plans.

6. What is the utility’s timeline for conducting transmission assessments to comply with NERC TPL-001-5.1?

WVPA response:

WVPA participates in the MISO MTEP and PJM RTEP study process timelines to comply with the standard.

7. What unique assumptions underpin the reliability assessment base cases, including factors such as load projections, transfer limits to neighboring systems, and transmission constraints?

WVPA relies on the MTEP and RTEP model building processes to produce reliability assessment base cases. MTEP and RTEP models are built through a collaborative annual process that combines stakeholder-submitted transmission, generation, and load data with regional reliability and economic planning assumptions.

8. For which potential future violations does the utility propose mitigation plans? For example, are plans developed for violations forecasted to occur in 2, 5, or 10 years?

WVPA response:

For both RTO regional and local planning criteria, WVPA identifies mitigation plans for constraints that occur in and persist through the 10-year planning horizon.

9. What methodologies and criteria are used to identify transmission system violations and develop mitigation plans? (e.g., emergency ratings compared to continuous ratings)?

WVPA response:

For RTO regional planning criteria, please refer to MISO BPM-020 and PJM Manual 14B, both of which are available publicly on the respective RTO’s website. WVPA also maintains its own local planning criteria which are available publicly through MISO’s website.

10. Are there any documented records of limiting factors for line ratings and transformer ratings, such as jumpers and disconnect switches? If yes, are the limiting factors taken into consideration while developing mitigation plans?

WVPA response:

WVPA maintains facility ratings for all BES facilities that identifies the limiting element. These elements are taken into consideration when developing mitigation plans.

11. What is the regulatory process for proposing and approving of the proposed mitigation plan?

WVPA response:

WVPA participates in both the MISO MTEP and PJM RTEP processes for proposing and approving mitigation plans.

12. What is the utility's approach to prioritizing transmission projects?

WVPA response:

WVPA prioritizes projects based on the overall system reliability impact and compliance with applicable NERC standards. Metrics that WVPA utilizes to determine system reliability impact include total load impact, number of customers impacted, and load restoration capability. Additional engineering judgement may be applied on a project-by-project basis that can impact prioritization.

13. What planning restrictions exist within the utility's system, such as proximity to sensitive facilities and specific areas with or challenging land acquisition?

WVPA response:

Land acquisition has proven to be a challenge due to loads trying to locate in highly developed areas, or community concerns for certain types of load customers. In addition, we have run into challenges routing around airports and difficult geological terrain.

14. Has the utility implemented alternative transmission technologies in the past? If so, what were the outcomes?

WVPA response:

WVPA has not implemented any ATTs to date. However, we are currently considering ATTs such as advanced conductors and STATCOMs for projects currently in the design phase.

15. What initial screening criteria or engineering judgment do you use to decide whether an advanced transmission technology ("ATT") is worth evaluating?

WVPA response:

WVPA reviews the power flows and system constraints to determine the most cost-effective solution that ensures reliability and compliance with applicable NERC standards. ATTs are considered as part of that evaluation.

16. Do you have preferred or commonly used mitigation technologies (e.g., advanced conductors, tower lifting), or are all options evaluated equally?

WVPA response:

All options are evaluated equally.

17. What are the common practices the utility uses to mitigate transient (dynamic) stability issues?

WVPA response:

Although none have been implemented to date, WVPA has evaluated the use of STATCOMs, SVCs, and other dynamic reactive power devices to mitigate transient stability issues.

18. What are the common practices the utility uses to mitigate voltage stability issues, including post contingency voltage recovery, reactive margin, etc.?

WVPA response:

Although none have been implemented to date, WVPA has evaluated the use of STATCOMs, SVCs, and other dynamic reactive power devices to mitigate voltage stability issues. WVPA has consistently utilized fixed and switched shunt capacitors for voltage support.

19. When voltage issues are identified, are they typically addressed with local reactive support, or do they trigger broader system-level planning studies?

WVPA response:

Depending on the severity of the voltage issue, the issue is either addressed locally, or a broader system level review is performed.

20. How does the utility determine the need for additional reactive power support?

WVPA response:

WVPA explores the need for additional reactive power support to maintain power factor and mitigate violations of regional and local planning criteria.

21. What challenges exist in estimating the costs of ATTs?

WVPA response:

WVPA's largest challenge in estimating the cost of ATTs is inexperience.

22. What are the utility's environmental permitting requirements for transmission upgrades?

WVPA response:

Transmission upgrades require a review of local, state and Federal agency requirements pertaining to a proposed project and develop a Permit Matrix that identifies applicable permits, approval, and surveys that are anticipated for a transmission line upgrade project. The process involves a desktop review, permit matrix, surveys, permit applications submittals and approvals to permit implementation and close-out.

Assessment can include but are not limited to the following:

- wetland delineation (floodplain and floodway mapping and identification/Army Corp of Engineers or 401/404 Water Quality permits)
- cultural resource analysis
- endangered species review
- Stormwater Pollution Prevention Plans
- erosion and sediment control permitting
- drainage board permitting
- laydown yard design and permitting
- mitigation and restoration planning for environmental impacts

Other permitting that is assessed for transmission line upgrades that are not specifically environmental related can include:

- State DOT permitting
- railroad permitting
- county highway department
- pipeline crossings
- FAA Notice Criteria Tool and case submittals

23. What is the typical timeline for permitting a new transmission project?

WVPA response:

Permitting a new transmission project is variable and can range based on complexity and number or types of permits. Due to the variability of seasonal blooming of threatened or endangered species for identification or land access for surveys each project should include at least a year to obtain permits.

24. How does the utility handle land acquisition challenges for new transmission corridors?

WVPA response:

For new transmission corridors, WVPA engages in completing a route study, reviewing existing conditions and identifying potential factors that could make the corridor challenging, including:

- Natural Resources such as lakes, streams, wetlands, or protected habitats.
- Existing developed areas and future land uses, including planned developments.
- Community facilities such as schools, hospitals, places of worship, cemeteries
- Historic resources and landmarks
- Feedback from stakeholders and the public.

Evaluating these factors help determine the least impactful corridor for the transmission line. When acquiring land rights for these new corridors, additional challenges can be encountered when negotiating with individual landowners, including landowner opposition to the project, discrepancies in valuation of property between the landowner and utility, or mitigation of damages to the property that may occur as part of the project. While WVPA focuses on voluntary acquisition of land rights from property owners, it ultimately could pursue acquiring challenging properties through eminent domain based on the public need of the project.

25. Under what conditions does the utility consider RAS as a mitigation strategy?

WVPA response:

WVPA participates in the MISO MTEP and PJM RTEP processes and would work through those processes to determine if a RAS is a preferred strategy.

26. What types of facilities or system conditions are considered critical, where topology changes or flow control solutions are restricted?

WVPA response:

Critical areas are determined and coordinated through MISO and PJM processes.

27. How does the utility evaluate the complexity of RAS solutions compared to conventional upgrades?

WVPA response:

WVPA does not have any RAS on its system. WVPA evaluates RAS vs conventional solutions as we would any other alternatives choosing the solution that provides the greatest reliability benefit for the cost.

28. Is there flexibility to modify mitigation plans, such as substituting transmission line upgrades with new substations?

WVPA response:

Yes, there is flexibility to modify mitigation plans.

29. What is the procedure of cost allocation to the interconnection requests in a cluster study?

WVPA response:

This is addressed through the applicable MISO and PJM processes.

30. What is the procedure of cost allocation for load interconnection requests?

WVPA response:

This is addressed through the applicable MISO and PJM processes.

System Protection SME

31. How does the utility evaluate the impact of new generation and transmission upgrades on system protection settings?

WVPA response:

All transmission upgrades or new generation added to the transmission system would also be added into our short circuit models. As a part of PRC-027 utilities are regularly verifying that their models are accurate, that all settings development follows a formal process, that each utility is coordinating with other affected utilities, and are regularly reviewing their systems and protection settings. With the current PRC-027 requirements, new generation and transmission upgrades would be reviewed and any necessary protection scheme changes would be implemented.

32. What are the protection constraints that should be taken into consideration when implementing alternative transmission technologies?

WVPA response:

Time to integrate is the biggest constraint for implementing new or alternative transmission technologies. Adding any of these technologies into the system will take time to properly model, and then to properly develop settings and schemes to appropriately protect the system.

Future Outlook and ATTs Constraints

33. What regulatory or environmental barriers could impact the adoption of ATTs?

WVPA response:

The primary regulatory concern impacting the adoption of ATTs for WVPA is MISO and/or PJM approval. Many ATTs are still cost prohibitive compared to more traditional transmission technologies and may be opposed by larger MISO/PJM members whose end customers would ultimately absorb more of the cost through rate impacts than WVPA members. From an environmental perspective, WVPA service territory can experience both extreme winter and summer conditions. Doubts remain whether ATTs such as APFCs or DLRs can ultimately be as effective under extreme weather conditions as more traditional solutions.

34. What lessons has the utility learned from past transmission projects that could inform future decisions?

WVPA response:

Having yet to utilize any ATTs, there are not many lessons learned for WVPA to draw on. We expect this to change as we are currently considering advanced conductors and dynamic reactive power support devices to support large load projects.

35. Please list any initial concern that limits the implementation of the ATTs listed below in the utility's territory. For instance: (1) transmission switching might not be allowed near certain facilities; (2) tower lifting is not feasible in some areas or voltage levels due to environmental, regulatory, or pole structure constraints.

- Advanced Conductors
- Advanced Power Flow Control Devices (APFC)
- Static Synchronous Compensators (STATCOMs)
- Static VAR Compensators (SVCs)
- Synchronous Condensers
- Transmission Switching Technologies
- Tower Lifting Techniques
- Voltage Source Converters (VSCs)
- Dynamic Line Ratings (DLRs)

WVPA response:

WVPA's initial concerns towards the implementation of ATTs are cost, unfamiliarity, RTO approval, and regulatory compliance impacts.