



Advanced Transmission Technologies

Streamlining ATT Deployment Process

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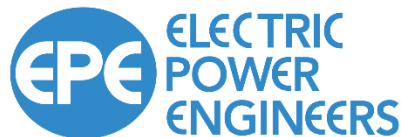
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1. Purpose and Context

The Advanced Transmission Technology (ATT) framework, thermal and voltage evaluation procedures, and associated screening tools developed in the earlier tasks provide Indiana utilities with a structured approach for identifying where ATTs may represent feasible alternatives or complements to traditional transmission solutions. These tools are intended to move ATT consideration earlier in the planning process by embedding technical feasibility, decision variables, screening criteria, and comparative assessment into a repeatable evaluation framework. Building on that foundation, Indiana utilities and regulatory stakeholders may consider extending the same structured approach beyond initial screening to the subsequent feasibility, coordination, permitting, and implementation stages.

The recommendations below are not intended to prescribe regulatory changes or create mandatory implementation requirements. Rather, they identify opportunities to make ATT evaluation and deployment more consistent, transparent, and efficient within existing utility and MISO planning processes. The recommended approach would create a clearer path from identification of an eligible ATT through increasingly detailed feasibility assessment and, where appropriate, implementation.

2. Establish a Phased ATT Feasibility and Deployment Path

Once the screening process identifies one or more potentially viable ATT options, utilities may consider advancing those options through a phased feasibility process, with the level of analysis and engineering detail increasing as the technology progresses through each phase. An initial or preliminary feasibility phase could confirm the underlying system need, verify that the ATT addresses the applicable thermal, voltage, reliability, or operational constraint, identify major fatal flaws, and develop an order-of-magnitude understanding of cost, schedule, constructability, modeling needs, and implementation risk. The Thermal and Voltage Procedures and their associated decision trees can serve as the technical starting point for this phase, while the ATT framework and technology attribute comparisons can provide supporting information on technology characteristics, limitations, expected benefits, and applicability.

ATT options that remain promising could then proceed to a more detailed feasibility phase. This phase may include refined power-flow and stability studies, technology-specific modeling, equipment and site requirements, operational considerations, vendor or engineering input where appropriate, and more refined cost and schedule estimates. The comparative cost and implementation-timeline information developed through the project may be used as a consistent reference point when comparing ATT alternatives with conventional upgrades. A final development phase could then address detailed engineering, procurement strategy, permitting, implementation planning, operating requirements, and any necessary approvals. This phased approach could help focus detailed engineering resources on the most promising alternatives while allowing other viable ATT options to be evaluated progressively as additional technical, cost, and implementation information becomes available.

3. Integrate Stakeholder Identification and Coordination into Each Phase

Stakeholder coordination may be incorporated as an explicit element throughout the phased process, with the level and scope of engagement evolving as potential solutions are evaluated and refined. At the preliminary stage, the utility could identify the asset owner, affected utility territories, neighboring systems, MISO interfaces, relevant internal utility groups, and other parties whose facilities or operations may be affected. The level of engagement could then increase as the ATT progresses through the feasibility process. For example, an advanced conductor project may require coordination among transmission planning, asset management, engineering, protection, operations, maintenance, environmental, real estate/right-of-way, and regulatory functions. Projects near another utility's territory or affecting shared or interconnected facilities may also benefit from early coordination with that utility and MISO.

A simple stakeholder-mapping step could therefore be included in the feasibility workflow to identify relevant stakeholders, clarify their roles and information needs, and determine appropriate points for engagement throughout the process. This may reduce late-stage redesign, avoid duplicated studies, and identify ownership or jurisdictional issues before significant engineering effort is committed.

4. Define Study Requirements and Modeling Expectations Earlier

ATT deployment may also be streamlined by establishing a more consistent approach for determining which studies are appropriate for each technology and project stage. The study scope could be scaled to the nature of the constraint and the maturity of the proposed solution. Preliminary screening may rely primarily on steady-state analysis and the decision variables contained in the Task 2 procedures, while later phases may add dynamic, protection, short-circuit, operational, or other technology-specific assessments as needed. Utilities may also consider documenting accepted modeling assumptions, data requirements, model-validation expectations, and approaches for representing technologies that are not yet fully supported in standard planning tools.

The best practices and lessons learned summarized in the ATT framework can be used as a reference when defining these study requirements. Establishing a repeatable study pathway may be particularly useful for technologies whose performance depends on operating conditions, controls, weather, or topology, because the feasibility assessment can explicitly capture the conditions under which the ATT provides the intended benefit and the conditions under which a conventional solution or complementary measure may still be required.

5. Incorporate Permitting, Siting, Land, and Regulatory Considerations into Feasibility

Technical feasibility alone does not determine whether an ATT can be deployed quickly. As candidate options mature, the evaluation process may include an increasingly detailed review of siting, right-of-way or land acquisition, environmental requirements, construction access, permitting, utility-specific requirements, and applicable local, state, federal, and regional regulatory processes. These considerations could initially be addressed through a high-level checklist and then refined as the project advances. The objective would not be to create new regulatory requirements, but to identify applicable requirements earlier and establish a predictable sequence for addressing them.

This approach may also help distinguish ATTs that can function as relatively rapid interim or short-term solutions from those that require permitting, land, outages, or construction activities comparable to conventional upgrades. Where an ATT can be implemented more quickly, utilities may consider evaluating it as a bridge solution while a larger transmission project is being developed, particularly where the ATT can relieve an identified constraint without precluding the long-term upgrade.

6. Create a Repeatable Decision Record and Handoff to Implementation

A streamlined process may benefit from a concise decision record at the conclusion of each phase. The record could summarize the identified system need, ATT options screened, reasons for advancing or eliminating alternatives, study results, stakeholder input, cost and schedule considerations, permitting or siting constraints, and remaining uncertainties. This would provide a consistent basis for deciding whether to stop the evaluation, perform additional analysis, compare the ATT with a traditional upgrade, or advance the concept toward implementation.

Taken together, the Task 2 framework, Thermal and Voltage Procedures, screening tools, best-practice findings, and comparative cost and timeline assessments can serve as components of a broader end-to-end ATT deployment pathway. Indiana utilities and regulators may consider using these materials not as stand-alone deliverables, but as linked references within a phased process that begins with screening and continues through feasibility, stakeholder coordination, detailed evaluation, permitting and siting review, and implementation planning. Such an approach could help make ATT consideration more routine within existing planning practices while preserving flexibility for utilities, MISO, and regulators to determine the appropriate level of analysis and coordination for each project.

Figure 1 summarizes the recommended streamlined ATT deployment process, building on the outputs of the ATT screening tool. The process provides a high-level pathway for advancing potentially feasible ATT options through phased feasibility assessment, design and permitting, deployment and commissioning, and ultimately operation. Stakeholder identification and coordination are incorporated throughout the process to support evaluation, decision-making, implementation, and ongoing operation.

ATT FEASIBILITY & DEPLOYMENT PROCESS (HIGH-LEVEL)

From Screening Tool Outputs to Turnkey Installation

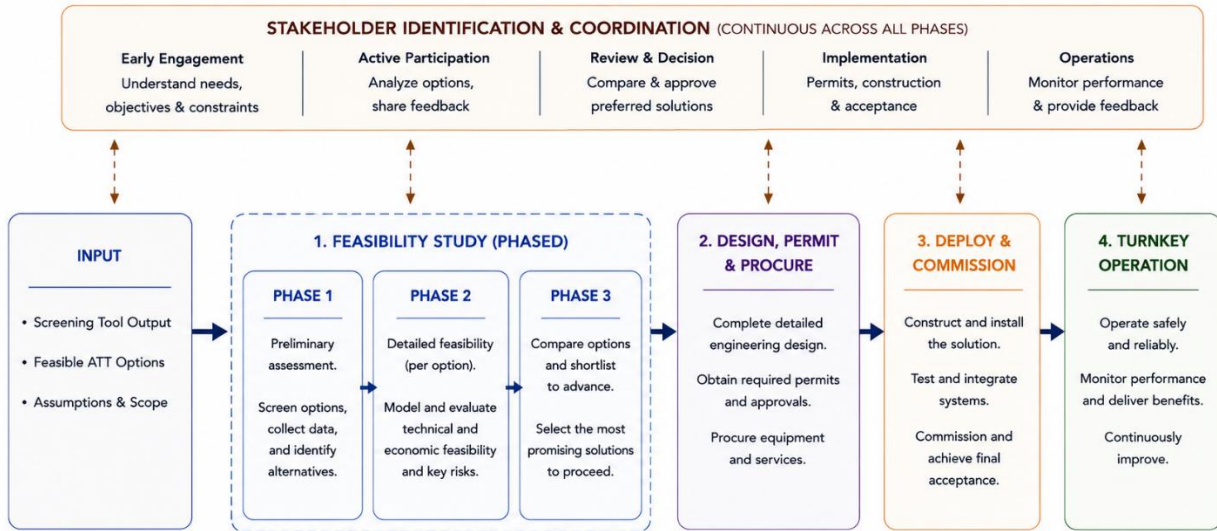


Figure 1. Recommended Streamlined ATT Feasibility and Deployment Process

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