CASE STUDY



Look ahead reactive power optimization

Problem:

- · With growing penetration of Inverter-Based Resources (IBRs), changing load profiles, and variations in software-based controls, there can be challenges in maintaining voltage stability and reactive power balance across the grid.
- Without a robust look ahead voltage optimization, there can be blind spots with risk of insufficient reactive power leading to voltage violations or inefficient switching of reactive devices



Potential Solution:

• A tool that can optimally schedules reactive power resources and voltage set points over future time horizons (8 to 24 hour look-ahead) using advanced optimization strategies with configurable control priorities (shunts, transformers, SVCs, generators).

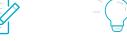
Benefit:

• Improving grid reliability and operational efficiency using optimal control's strategy



Timeline









White Paper

Define needs and requirements



Proof-of-Concept (POC) Implementation

Selected a vendor to test the algorithms using **ERCOT** data

Integrate in production for real-time validation

NPRR

Possible system-wide coordination of reactive power across ERCOT

2024 2025 2026 2027 2028