

# 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 schedule 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)

Selected a vendor to test the algorithms using ERCOT data



### Implementation

Integrate in production for real-time validation



### NPRR

Possible system-wide coordination of reactive power across ERCOT

