



AI MODERNIZATION ROADMAP FOR CENTERPOINT ENERGY (2026–2032)

A STRATEGIC PLAN TO IMPROVE RELIABILITY, RESILIENCE, CUSTOMER TRUST, AND OPERATIONAL EFFICIENCY.



PHASE 1 — FOUNDATION (2026–2027)



1. ENTERPRISE DATA MODERNIZATION

CenterPoint cannot deploy advanced AI until its data is unified.

Key Actions:

- Build a **single enterprise data lake** for electric + gas operations.
- Integrate smart meter data, outage logs, vegetation data, weather feeds, and SCADA telemetry.
- Standardize data governance and quality rules.
- Deploy secure cloud infrastructure (Azure or hybrid).

Outcome: AI models can finally “see” the whole system.



2. AI-ENHANCED OUTAGE MANAGEMENT (PREDICTIVE + REAL-TIME)

CenterPoint's biggest reputational risk is storm outages.

Immediate AI applications:

- **Predictive outage modeling** (before storms hit).
- **Crew routing optimization** using ML.
- **Automated restoration sequencing** based on grid topology.
- **AI-assisted outage map** that updates dynamically.

Outcome: Faster restoration, fewer surprises, improved customer trust.



3. AI FOR CUSTOMER EXPERIENCE

CenterPoint maintains high level of customer loyalty

AI driven improvements:

- Natural-language chatbots for outage status.
- Personalized usage insights from smart meters.
- Predictive billing alerts (“Your bill will be 18% higher next month due to X”).
- Automated fraud detection for abnormal consumption.

Outcome: With out commitment, our customers feel informed, well taken care of, satisfied, and loyal



PHASE 2 — GRID INTELLIGENCE & AUTOMATION (2027–2029)



4. AI-DRIVEN GRID OPTIMIZATION

CenterPoint's grid is large and complex.

AI can:

- Balance load across circuits in real time.
- Predict transformer overloads.
- Recommend switching actions to avoid outages.
- Optimize voltage and reactive power (Volt/VAR optimization).

Outcome: A self-healing grid that prevents outages before they occur.



5. VEGETATION MANAGEMENT AI

Storm damage is heavily driven by falling trees.

AI tools and drones:

- Satellite + LiDAR imagery to detect risky vegetation.
- Predictive trimming schedules.
- Automated contractor dispatch.



Outcome: Fewer storm-related outages and lower O&M costs.



6. GAS PIPELINE SAFETY AI

CenterPoint's multi-state gas network is a major risk surface.

AI can:

- Detect methane leaks via sensor fusion.
- Predict corrosion hotspots.
- Identify unauthorized excavation.
- Optimize pipeline replacement prioritization.

Outcome: Higher safety, lower regulatory exposure.



PHASE 3 — CUSTOMER-FACING INNOVATION (2029–2030)



7. AI-OPTIMIZED EV INFRASTRUCTURE

As EV adoption grows, CenterPoint must plan for load spikes.

AI can:

- Predict EV charging demand by neighborhood.
- Recommend transformer upgrades.
- Optimize placement of public charging stations.
- Coordinate with automakers (Ford, GM) for grid-aware charging.

Outcome: Avoid transformer failures and support EV growth.



8. DISTRIBUTED ENERGY RESOURCE (DER) INTEGRATION

DER is expected to grow in foreseeable future.

AI can help manage:

- Rooftop solar
- Home batteries
- Microgrids
- Commercial generators





8. DISTRIBUTED ENERGY RESOURCE (DER) INTEGRATION

DER is expected to grow in foreseeable future.

AI can:

- Forecast DER output.
 - Optimize grid dispatch.
 - Prevent reverse-flow overloads.
 - Support virtual power plants (VPPs).
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Outcome: A modern grid that embraces customer-owned energy.



PHASE 4 — AUTONOMOUS UTILITY OPERATIONS (2030–2032)



9. FULLY AUTONOMOUS GRID ZONES

CenterPoint automates entire grid segments

AI can:

- AI-driven switching
- Automated fault isolation
- Self-healing feeders
- Drone-based inspections with AI image analysis

Outcome: Outages become rare and short.



10. AI-DRIVEN CAPITAL PLANNING

CenterPoint optimizes cap-expenditure

AI models evaluate:

- Asset health
- Failure probability
- Replacement ROI
- Climate risk
- Customer impact



This produces **optimal 10-year capital plans** that regulators trust.

Outcome: Smarter spending, fewer rate increases.



11. AI-POWERED EMERGENCY RESPONSE

During hurricanes

The new system will:

- predicts outage clusters hours before landfall with AI.
- Automatically generates crew staging plans.
- Optimizes supply chain (poles, transformers, fuel).
- Provides real-time situational awareness dashboards.

Outcome: Faster recovery and better public perception.

SUMMARY

THIS ROADMAP ACHIEVES:

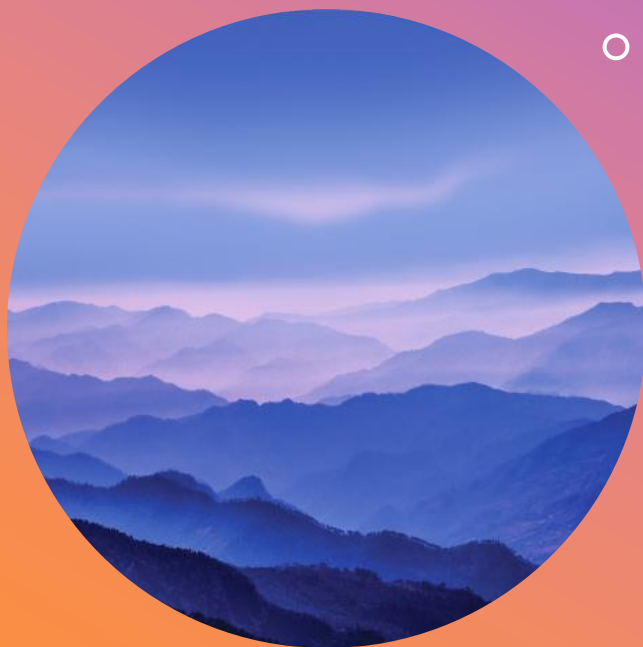
Reliability - Fewer outages, faster restoration, smarter grid operations.

Safety - Better pipeline monitoring, vegetation management, and storm response.

Customer Trust - Transparency, personalized insights, and predictable billing.

Regulatory Strength - Data-driven capital plans and demonstrable modernization.

Operational Efficiency - Lower O&M costs, higher profit margins



THANK YOU

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