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Annual Asset Health Update (BP-SD-03)

NPPD Board of Directors Meeting
Strategic Business Matters
December 2025

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Matt Gilliland, Director of Operations Support & Business Continuity
Shannon Schulz, System Engineering Manager
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BOARD POLICY
STRATEGIC DIRECTIVE

Policy No. BP-SD-03
Effective Date 11-10-21
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RELIABILITY/RESILIENCY

Nebraska Public Power District's (NPPD) generation, transmission, and distribution systems must operate reliably to meet the energy needs of NPPD customers. NPPD shall maintain its generation, delivery assets, and technology solutions in good/safe/secure working condition, while making investments and upgrades as needed to maintain load serving capability and meet regulatory requirements.

NPPD must also provide for resilience within its electric supply system. Resilience means that the critical parts of the electric supply system can mitigate, survive, and/or recover from high impact events. Electric supply system resilience is interdependent with the functionally inseparable from electric supply system reliability.

The District standard shall be to:

a. Meet all customer energy requirements through its generation assets and purchased power portfolio 100% of the time.
b. Maintain generation unit availability at or above targeted benchmarks.
c. Maintain an overall transmission network availability at or above targeted benchmarks.
d. Maintain distribution system reliability at or above targeted benchmarks.
e. Maintain technology solution availability at or above targeted benchmarks.

Changes to District Assets

Generation

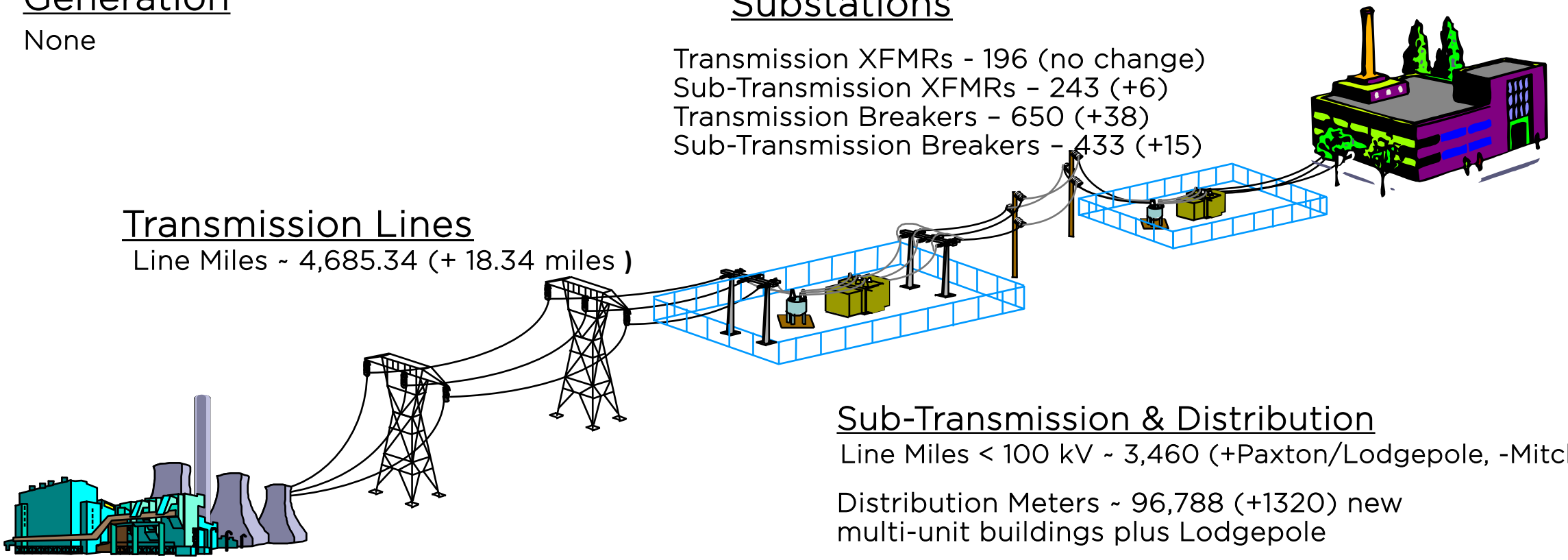
None

Substations

Transmission XFMRs - 196 (no change)
Sub-Transmission XFMRs – 243 (+6)
Transmission Breakers – 650 (+38)
Sub-Transmission Breakers – 433 (+15)

Transmission Lines

Line Miles ~ 4,685.34 (+ 18.34 miles)



Sub-Transmission & Distribution

Line Miles < 100 kV ~ 3,460 (+Paxton/Lodgepole, -Mitchell)

Distribution Meters ~ 96,788 (+1320) new multi-unit buildings plus Lodgepole

*NPPD Transmission & Distribution is monitoring and maintaining in excess of 250,000 components

Transmission and Distribution Asset Health

	Batteries - Transmission		Poles - Transmission
	Breakers – High Voltage		Relays - NERC
	Lines - Transmission		Relays – Non-NERC
↑	Poles - Distribution		Transmission RTUs
	Poles – Sub-Transmission*		Transformers – Sub-Transmission
			Transformers - Transmission

	Excellent
	Good
	Fair
	Needs Attention

↑	Improving
↓	Declining

NERC = North American Electric Reliability Corporation

RTU = Remote Terminal Unit

Transmission and Distribution
Reliability Metrics

	SAIDI - System Average Interruption Duration Index
	SAIFI - System Average Interruption Frequency Index
↑	CEMI – Customers Experiencing Multiple Interruptions
	TACOF – Transmission Average Circuit Outage Frequency
↓	Transmission Reliability (Preventable)

	Excellent (top Decile)
	Good (Top Quartile)
	Fair (2nd Quartile)
	Needs Attention

↑	Improving
↓	Declining

Transmission and Distribution Asset Health Focal Areas

- Poles (Distribution and Sub-Transmission Round Wood)
  - Distribution Poles reflect Caution, >2% reject (3.8%). Trending better, will be replaced or reinforced by the end of 2026 for non-priority poles
  - Sub-Transmission Poles are good, but recent inspection results with Unmanned Aerial System (UAS) platforms and line patrols may cause a declining trend
- Breakers
  - Continue to assess aging assets and update plans for refurbishment or replacement
- Station Class Power Transformers – Sub-Transmission
  - Continue to assess aging assets and loading; update plans for refurbishment or replacement based upon condition and load growth. Replacement plans in place for 2026 and 2027.
- Transmission Remote Terminal Units (RTUs)
  - Continue replacement of RTUs

Operations Support Asset Health

	Fleet Equipment
	Heavy Duty Trucks
	Medium Duty Trucks
	Light Duty Trucks
	Aerial Devices
	Cranes and Digger Derricks

	Facilities
↑	Eastern Area
↑	Central Area
↑	Western Area

	Aviation
	King Air B200

- **Inventory/Investment Recovery**
- **Drafting**
- **Business Continuity**

	Excellent
	Good
	Fair
	Needs Attention

↑	Improving
↓	Declining

Operations Support Focus Areas

- Fleet Services
  - SAP and Process Automation (QRcode Endeavor)
- Aviation
  - Uncrewed Aerial Systems (Drones) and Artificial Intelligence
- Facilities Services
  - Uninterrupted Power Supply (UPS at Doniphan), new building at Bassett, and Lincoln Area Office addition
- Inventory/Investment Recovery
  - Enhance SAP Material Requirements Planning (MRP) via RISE
- Drafting
  - 3D Modeling
- Business Continuity
  - Lessons learned from Grid Ex VIII, November 2025

Cooper Nuclear Station Asset Health

	Reactor Vessel Internals		Switchyard
	Primary Containment		Transformers
→	Condenser	→	Emergency Diesel Generator (EDG)
	Intake Structure		Batteries
	Turbines		Large Pumps
	Turbine Generator Control System	→	Large Electric Motors
	Main Generator		High Pressure Cooling Injection (HPCI)
	Main Generator Exciter		Reactor Core Isolation Cooling
	Critical Fan Coil Units (FCU)		Neutron Monitoring System
	Feedwater Heaters		Radiation Monitoring System
	Heat Exchangers		Riverwell System
	Circuit Breakers		Service Water
	Optimum Water Chemistry System		Augmented Off Gas (AOG)

NEEDS ATTENTION	FAIR	GOOD	EXCELLENT

Cooper Nuclear Station Reliability Targets

NEEDS ATTENTION	FAIR	GOOD	EXCELLENT

Cooper Nuclear Station Equipment Focus Area

- Emergency Diesel Generator
- Circulating Water Pump Motor
- Condenser Performance

Production Asset Health

Generation:	Boiler Fuel	Cooling/ Circulating Water	Control System	Generator & Exciter	Transmission (Main Power Transformer)	Emergency Electrical	Feedwater	Station DC Voltage	Station Power Distribution	Steam Generating	Turbine
GGS 1	↑	↓								↓	
GGS 2	↑	↓								↑	
SS 1				↓			↑				↓
SS 2										↑	
BPS											
CPS		↑	↑								

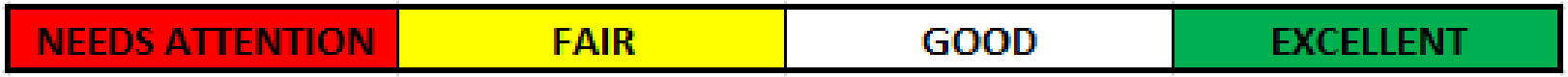
	Control System	Transmission	Communication	Blades	Drive Train	Generators	Towers	Voltage Control	Condition Monitoring	Rotor Positioning
AWEF					↑					↓

Needs Attention	Fair	Good	Excellent

↑	Improving
↓	Declining

Operational Excellence Energy Production

	GGS 1 – Equivalent Availability Factor
	GGS 2 – Equivalent Availability Factor
	SS 1 – Equivalent Availability Factor
	SS 2 – Equivalent Availability Factor
	BPS – Equivalent Availability Factor



Production Focus Areas

- Reliability and Market Performance
  - Major 2026 Work Scopes:
    - GGS1: Generator Rewind, Reheater Outlet Section Replacement & Traveling Water Screen Replacements
    - SS1: LP Turbine Repair, Reheater Replacement, Waterwall Tube Replacements
    - BPS: Steam Turbine Generator Breaker Replacement
- Staffing and Knowledge Retention
  - Critical skills on shift
  - Technical Staff

Enterprise Technology Asset Health

↑	Cyber Security
↑	Physical Security
	Internet Connectivity *
↑	Business Network Connectivity

	Business Server Infrastructure
↑	Organizational Data
	Backup/Recovery System *
↑	Critical Business Systems *

	Excellent
	Good
	Fair
	Needs Attention

↑	Improving
↓	Declining

SD03 Targeted Benchmark = *

Enterprise Technology Focus Areas

- Risk-Based Decision Making
  - Network and System Resiliency
  - Data Protection
  - Prioritization of baseload work and projects
  - Financial Stewardship
- Dedication to Excellence
  - Proactive Training and Drills
  - Collaborative Response
  - Continuous Improvement through Lessons Learned

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Questions

Stay connected with us.

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