

Wheelock Substation Shooting & Recovery & Exercise (Team Sport)

Daniel Graham – Chief Security and Compliance Officer

Derik Johnson – Director, Transmission System
Maintenance

Agenda

Basin Electric Overview

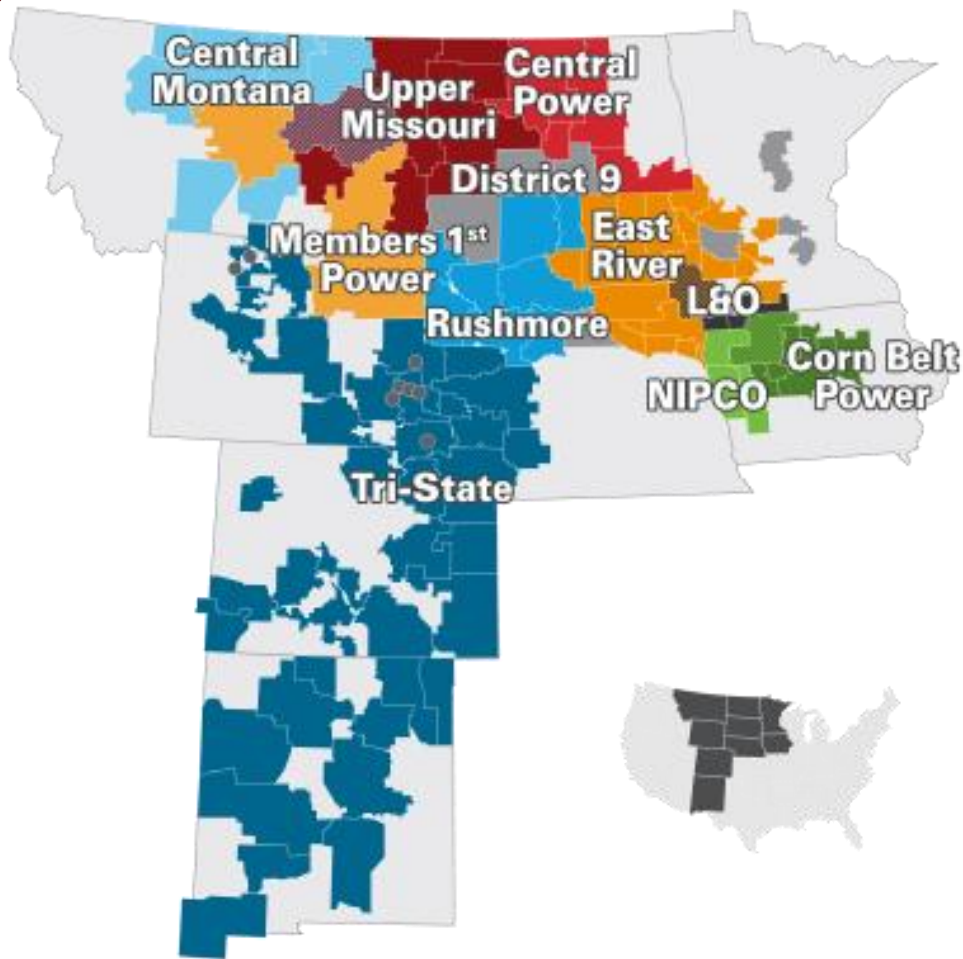
Event Overview

Damage and Recovery

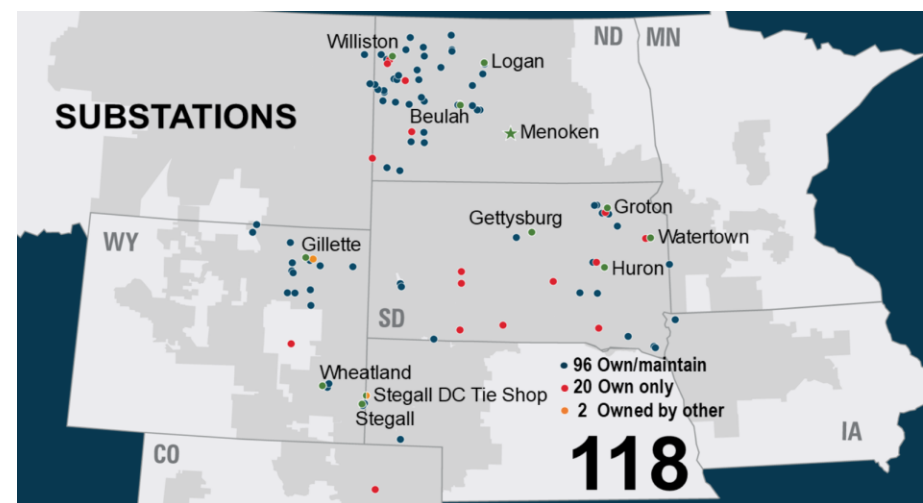
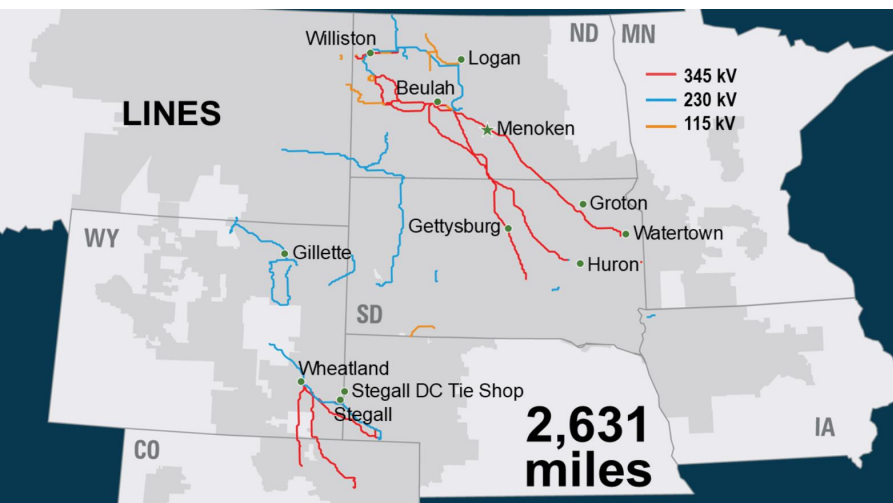
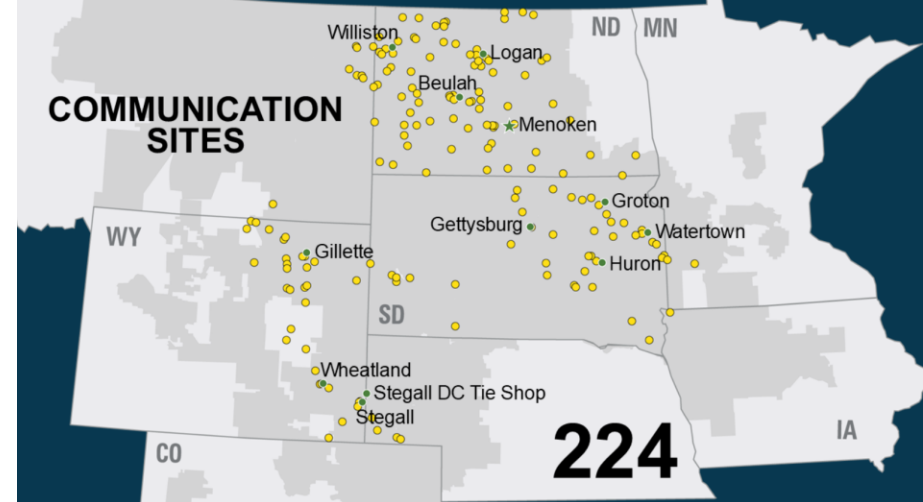
Justice System

Lessons Learned

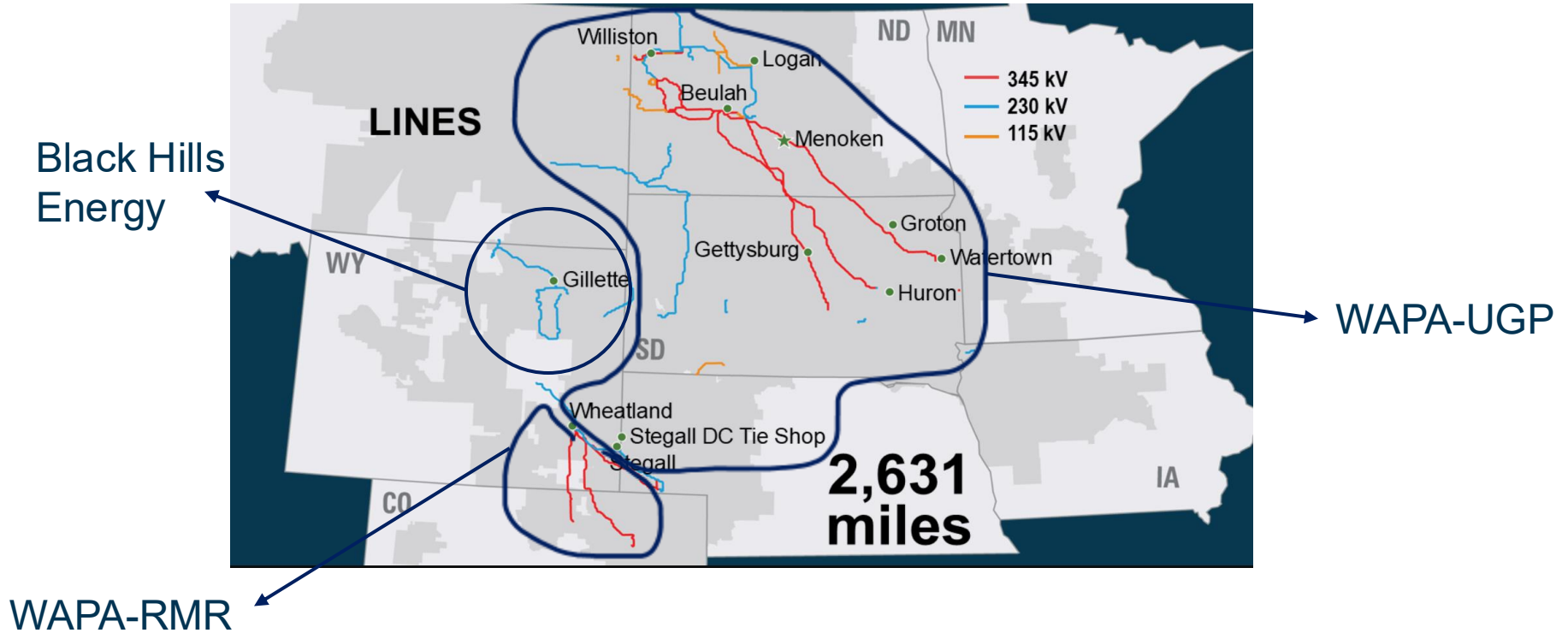
Basin Electric Overview



**3 MILLION
MEMBER-OWNERS**

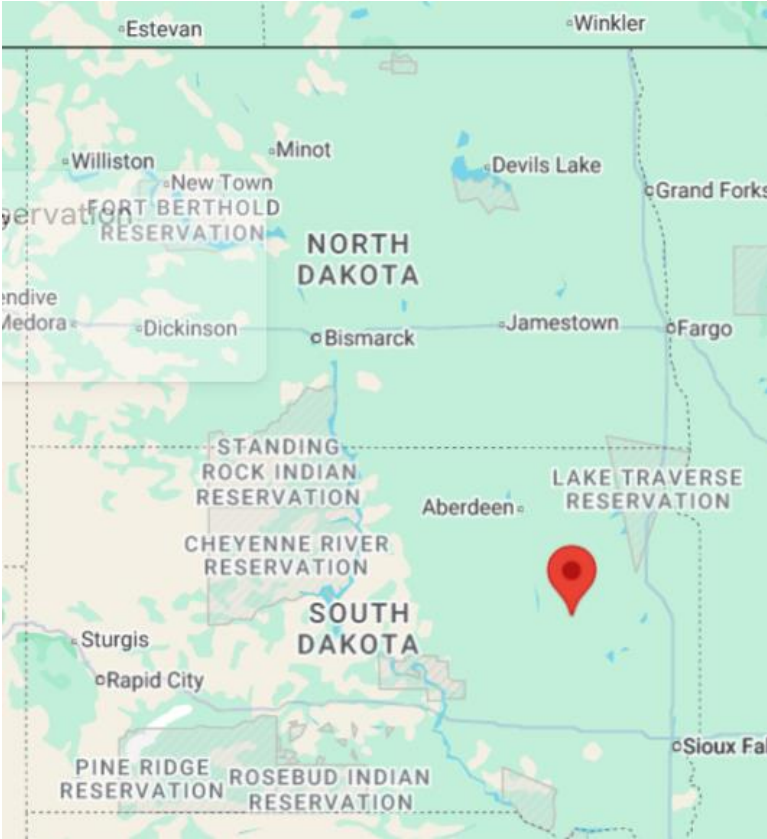


Not a Transmission Operator



Event Overview

Carpenter, SD



Member Substation



Keystone pipeline operating at reduced rate due to damaged power supply in South Dakota



By [Caley Gibson](#) · Global News

Posted July 18, 2022 6:12 pm · Updated July 18, 2022 6:44 pm



EXTINCTION REBELLION

ABOUT US.

Extinction Rebellion is a decentralised, international and politically non-partisan movement using non-violent direct action and civil disobedience to persuade governments to act justly on the Climate and Ecological Emergency.

[>>> see our annual report](#)



OUR DEMANDS.

1. TELL THE TRUTH.

Governments must tell the truth by declaring a climate and ecological emergency, working with other institutions to communicate the urgency for change.

[>>> learn more](#)

2. ACT NOW.

Governments must act now to halt biodiversity loss and reduce greenhouse gas emissions to net zero by 2025.

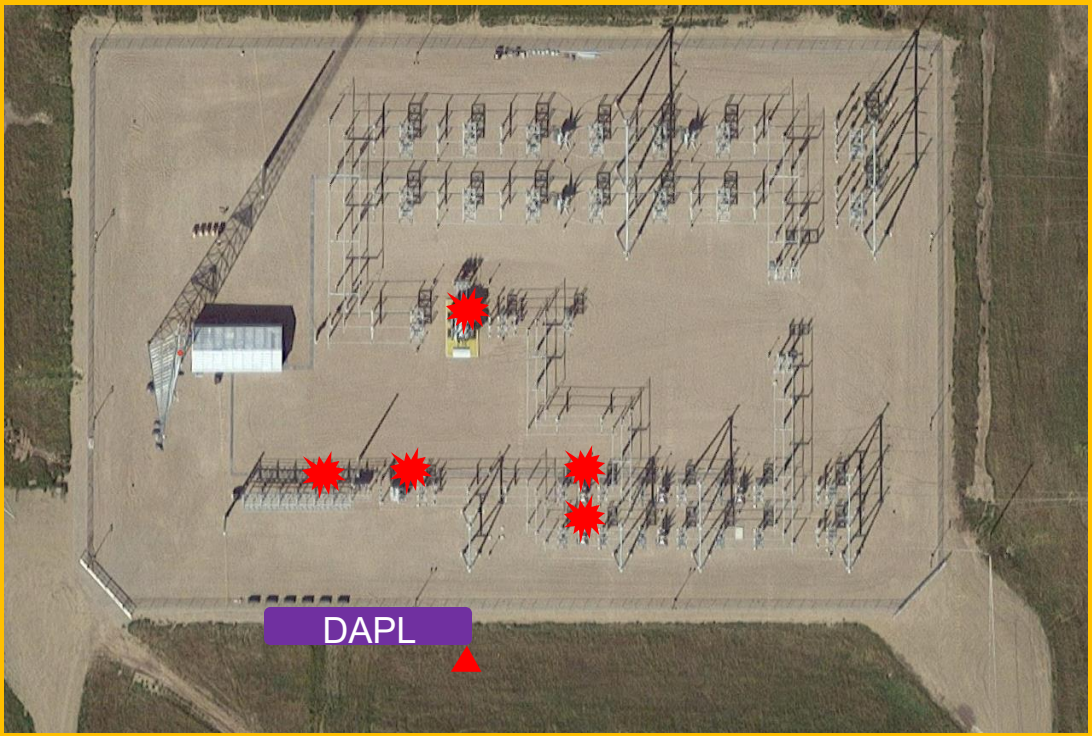
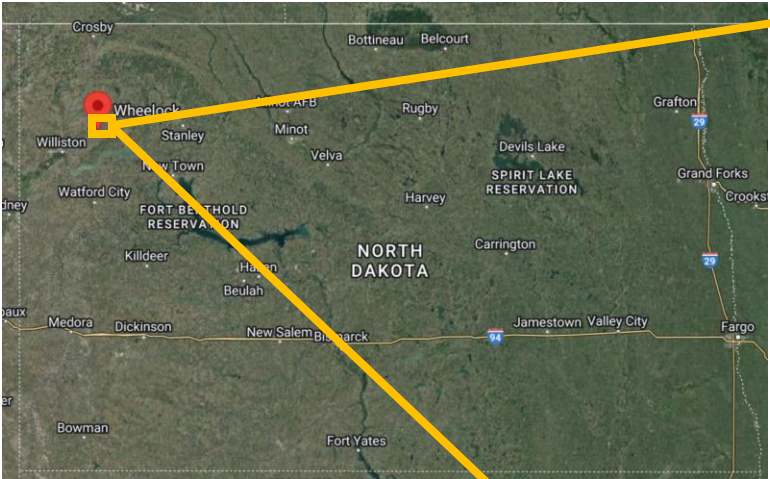
[>>> learn more](#)

3. GO BEYOND POLITICS.

Governments must create and be led by the decisions of a Citizens' Assembly on climate and ecological justice.

[>>> learn more](#)

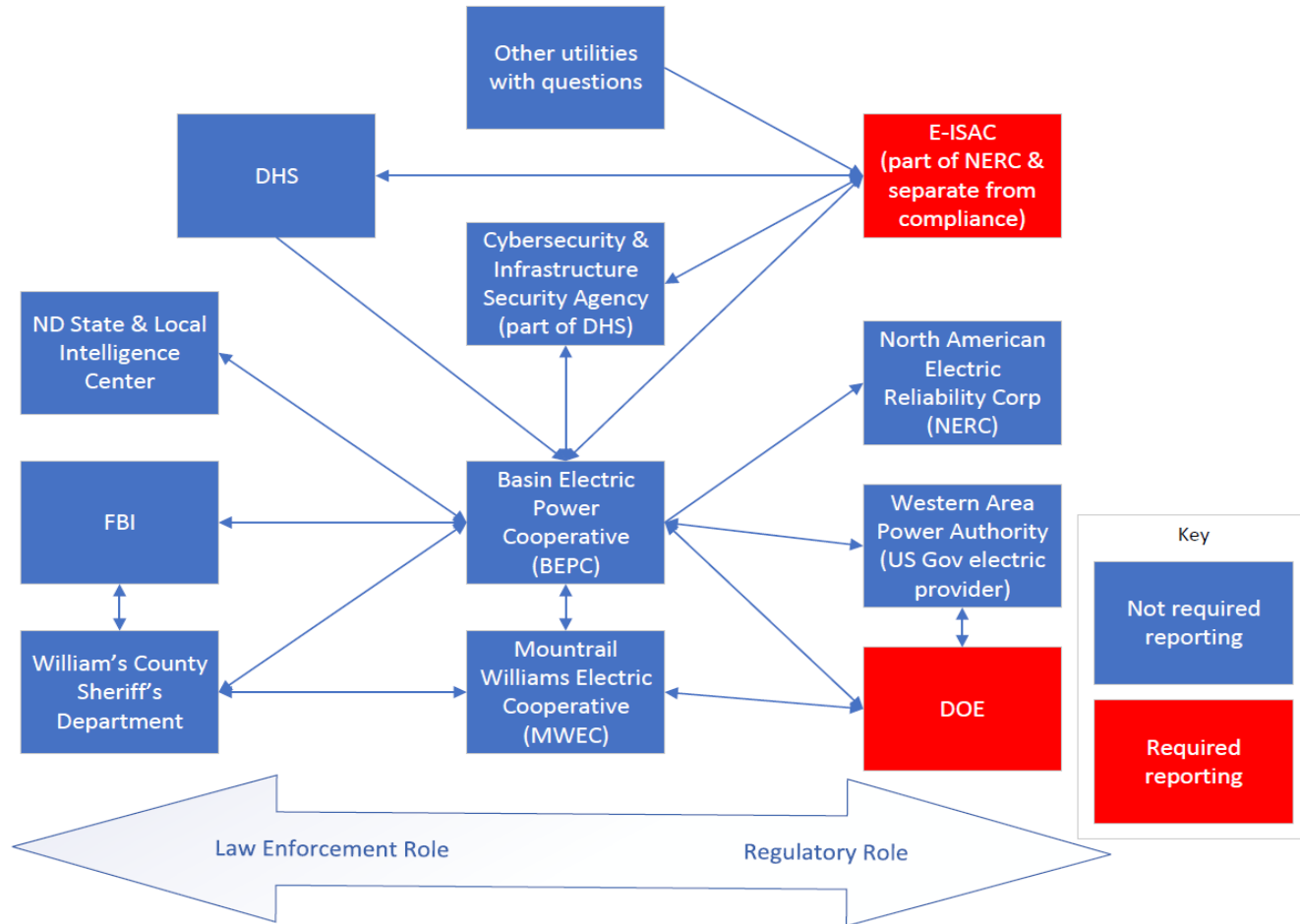
Location





Notifications

- Saturday morning
 - Not everyone is going to have phones ready
 - First 3 IR member did not pick up initially
 - Running, on an exercise bike, and was not near phone
 - Had to call wife of a member
- Required reporting
 - DOE-417
 - Difficult to answer, completed 3 times by 3 entities
 - E-ISAC
 - FBI
 - Sheriff's Department



Suspect Sequence of Events



Not the actual vehicle

- Checked into Microtel in Williston, ND with a Canadian ID
- Drove a Honda Element w/ Oregon plates to substation
- Spray painted "DAPL" & symbol
- Fired multiple rounds into equipment from outside the perimeter fence from a Bushmaster 450 rifle
- Attempted to drive a minimum maintenance road and became stuck in mud
 - Left the vehicle with an empty rifle case, a receipt for ammunition, brass, & correspondence with the subject's name (law enforcement search)
- Concealed the rifle, pistol, brass, and live rounds in a duffel bag
- Called a tow truck
- Transported by tow truck to the Microtel
- Threw away the duffel bag with the rifle, pistol, brass, and live rounds in hotel dumpster (caught on hotel cameras)
- Arrested by law enforcement at hotel (same day)



Size comparison

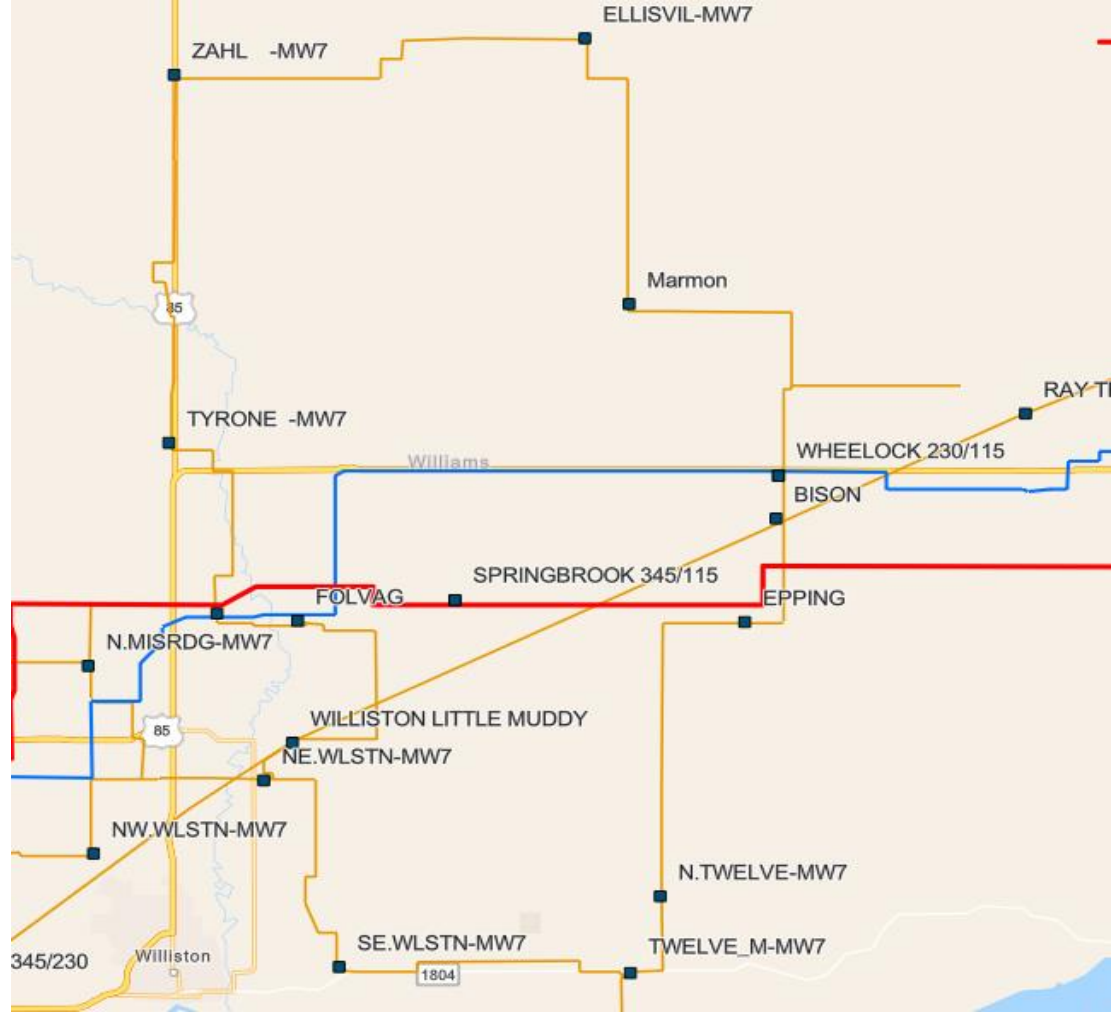
Damage and Recovery

Impact

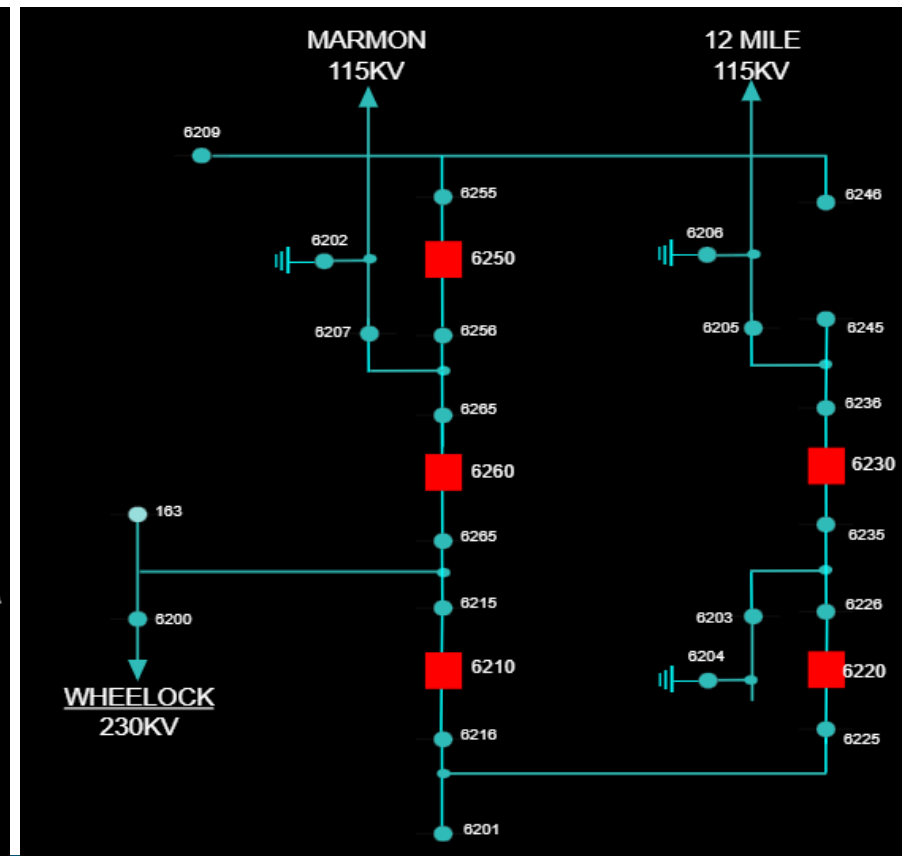
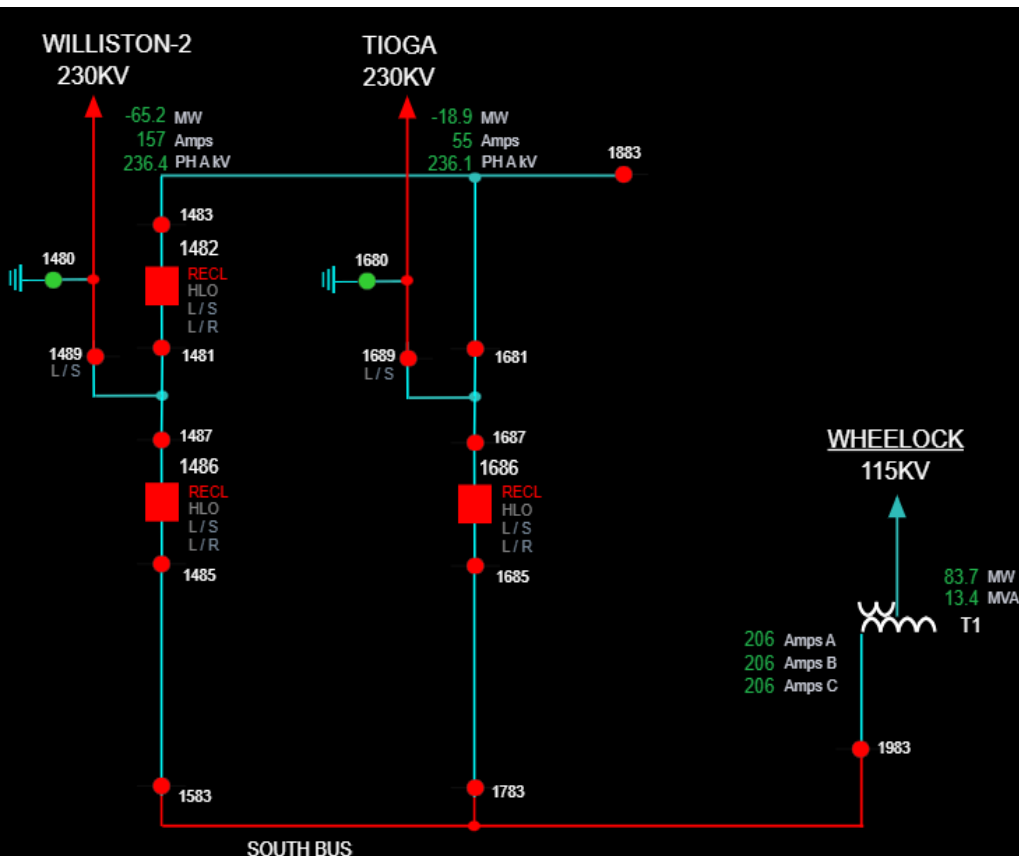
- 327 meters /160 members without service for 6 hours 31 mins
- Equipment damaged
 - **Member:**
 - 2 – 115kV breakers
 - 1 – 115kV potential transformer
 - 2 – 25kV regulators
 - **Basin Electric Power Cooperative:**
 - 1 - 230/115kV 166 MVA auto transformer T1

Wheelock Area Transmission System

- 115kV
- 230kV
- 345kV

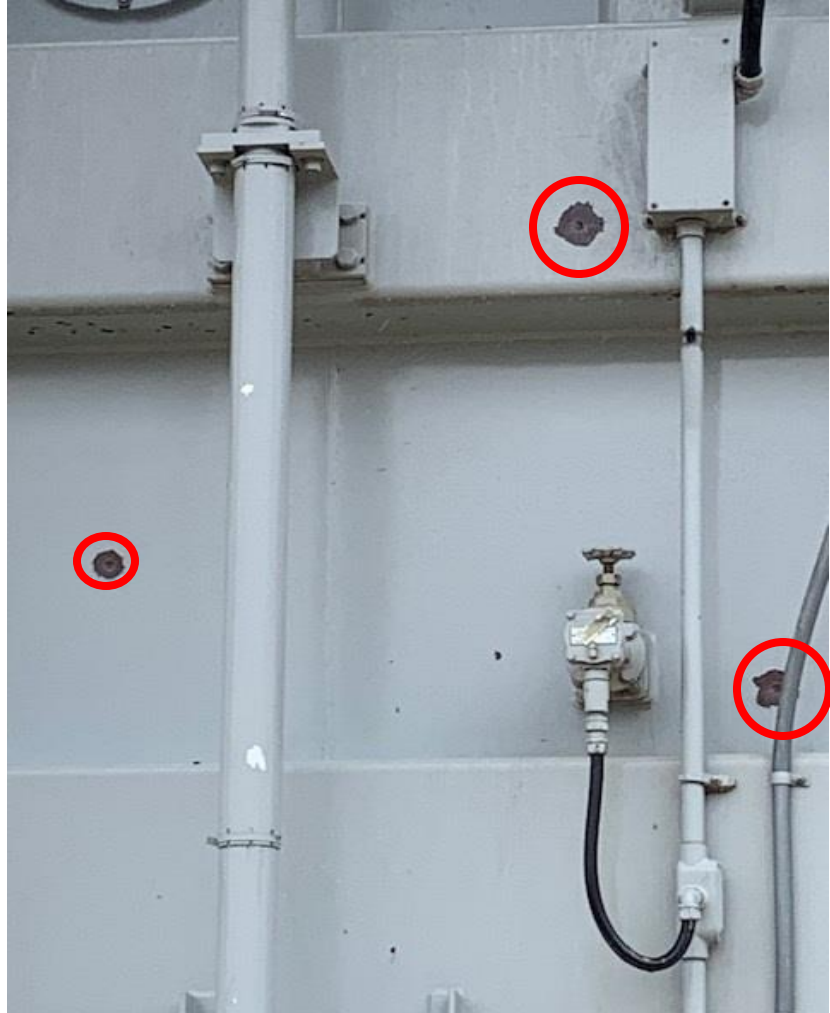


Wheelock Electrical Diagram

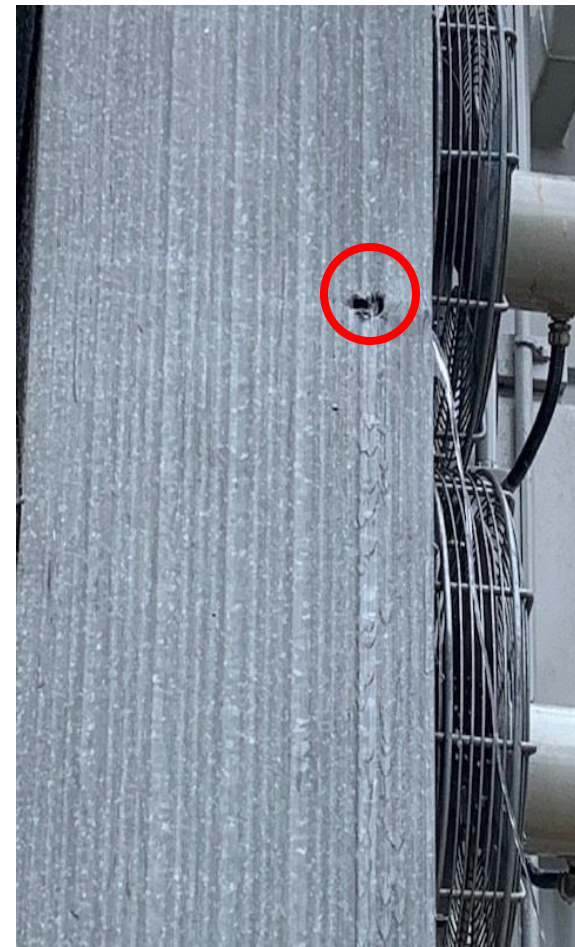


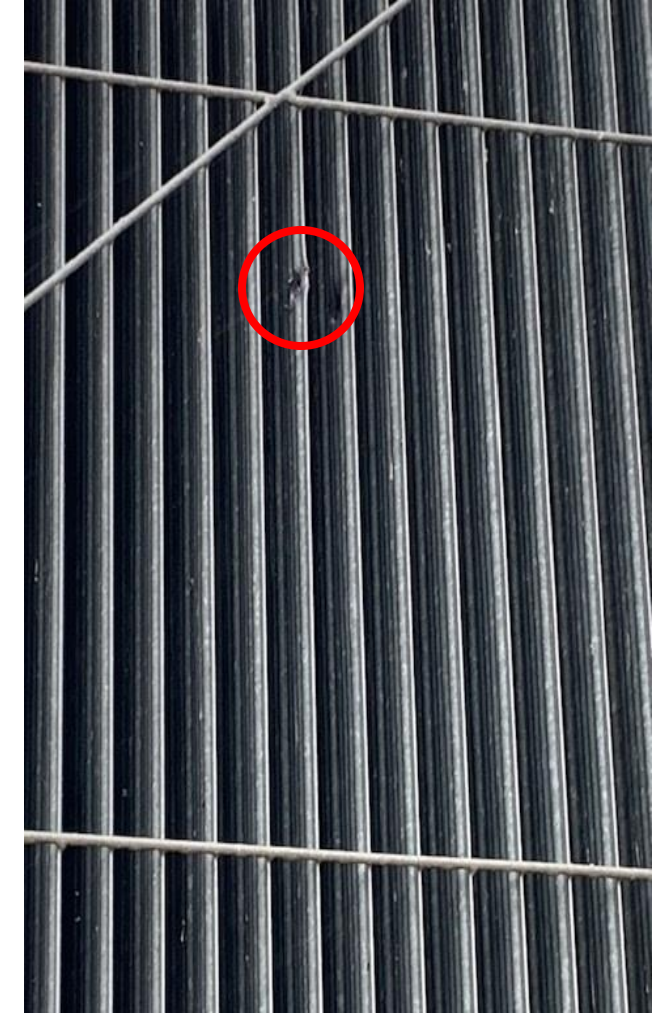
Over
20
Hits
Found











To Move or Repair...

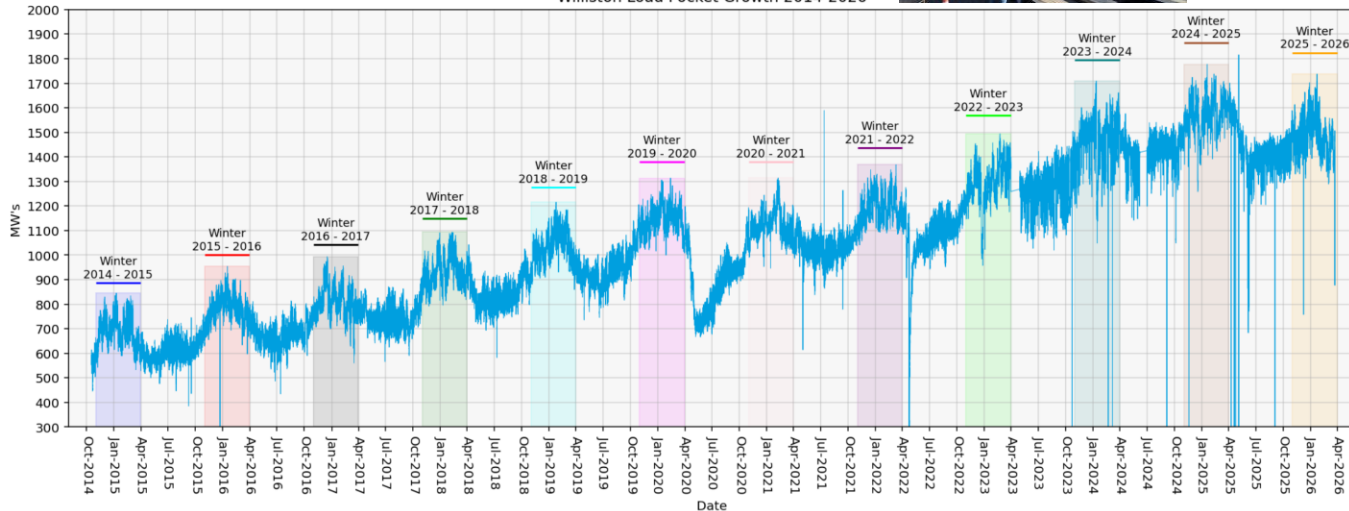


Vs.



Clock was ticking to be able to serve load...

Williston Load Pocket Growth 2014-2026

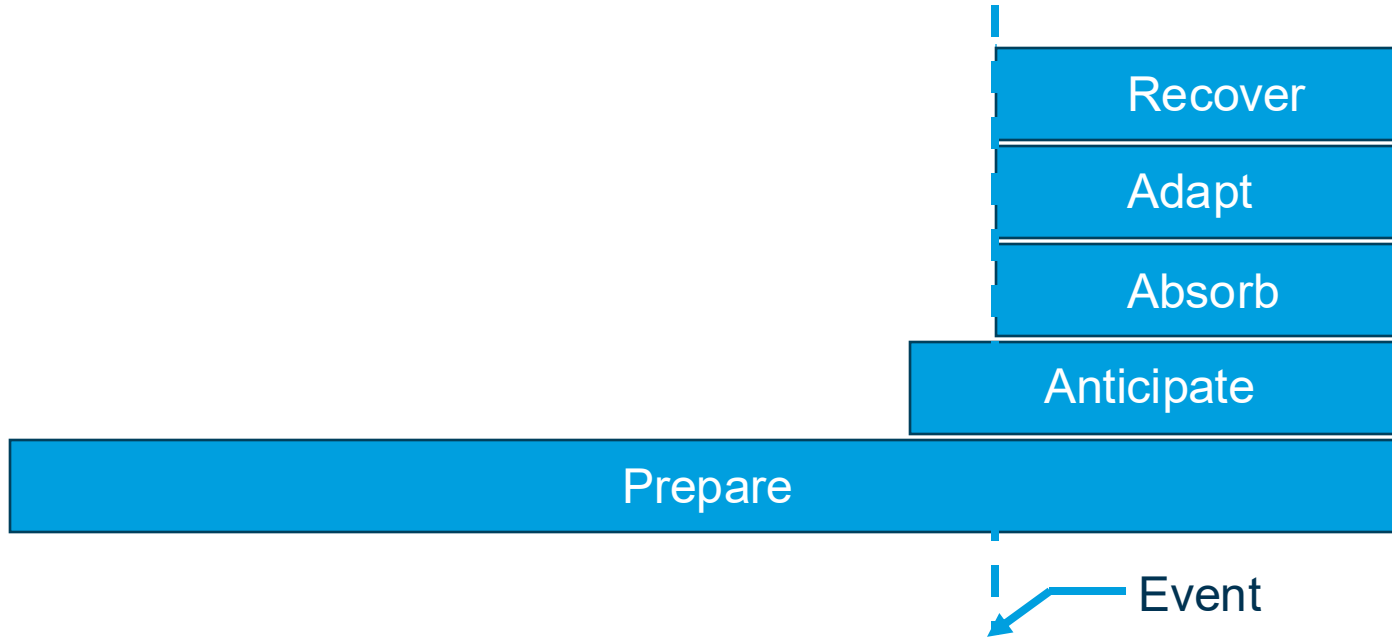


Repairs

- Met with manufacturer onsite for internal inspection
- Decision made to move unit
- Moved Wheelock (damaged unit) to Blaisdell
- Moved Spare unit from Blaisdell to Wheelock
- Oil processing / oil cleanup
- Transformer disassembly/reassembly for both units
- Manufacturer repaired onsite
- Long lead time on radiators
- Engineering required for spare transformer
- \$1.8MM (BEPC Equipment)



Resilience



*NATF/EPRI definition

Justice System

Law & Order

- Law Enforcement - “who investigate crime”
 - Sheriff’s department
 - FBI
- Dept of Justice Prosecution Team - “who prosecute the offenders”
 - Victim advocate
 - FBI victim specialist
 - Prosecuting attorneys
 - Judge

Justice Process Overview

- Arrested
- DOJ Victim Specialist & FBI submit RFI throughout process
- Track costs & keep good books
- Ballpark estimates become evidence
- FBI tour of substation
- Dates constantly change – Multiple Hearings
- Trial Day

Sentencing & Victim Statement

- Joint coordination on impact statement
- Surprise during victim impact statement
- Terrorism and cost multipliers were factors
- Prosecution recommended two concurrent 12.5 year sentences
- Judge disagreed which led to two consecutive 12.5 year sentences
- Defendant comments
- Appeal

Lessons Learned & Exercise

After Action Review & Lessons Learned

- What went well?
 - BEPC teams worked well together
 - Practiced in exercises
 - Incident Response (IR) team activated freeing up transmission to focus on recovery
 - BEPC & MVEC worked well together
 - Law enforcement relationship
- What did not?
 - DOE-417 process
 - After hours access for engineers to have remote access
 - Once you report expect to be bombarded
 - BEPC crisis communication team needed to be added to automated text messages
 - Coordination between operation and security – when alerts come in

FBI Items

- Lots of behind-the-scenes investigation
 - E-ISAC coordination
 - Tracked down vehicle and rifle supply
 - Locations
- Treat attacks like acts of terrorism initially
 - Have specialized crew for the crime scene investigation
 - Will take much longer but **useful to ensure everything is assessed and able to be used in court**
- Authored a paper specific to substation shootings – being reviewed for release

Recommended Actions & Framing

- Individual vulnerable & fragile
 - Design Based Threat (DBT) assessments show we will not be able to add sufficient enhancements due to rural locations
- Antifragile as an industry
 - Fragile things break when stressed or attacked
 - Robust things can resist stress & attacks
 - Antifragile things become stronger when stressed or attacked
- Relational/status interests
 - Require industry to coordinate w/ government
 - Sharing of intelligence should be a 2-way street
 - Intergovernmental status/coordination
 - Exercises reinforcing reporting & relationships
- Financial interests
 - Fund government for coordinating & prosecuting
 - Limit economic impact on utilities & public
 - Camera systems (evidence/employee safety)
 - Build transmission, spare parts, mutual aid
 - Limit vendor & 3rd party interference in regulation
- Functional interests
 - Improve security & resilience across sector
 - Prevent & deter attacks

Exercise

- Red Team
 - You: Activist group
 - Task: Plan & execute an attack
 - Limitations:
 - Imagination
 - Reality
 - Winning is
 - Attack causes outage(s)
 - Larger the better
 - Do not get caught
 - Make headlines
- Blue Team
 - You: Utility company owning 118 rural substations
 - Task: Plan defense
 - Limitations:
 - 100 substations
 - Budget: \$2M / year
 - Termination criteria
 - Do too much & raise rates
 - Do nothing w/o explanation & support
 - Media/messaging
 - Law enforcement response time: 20 mins
 - Operational & maintenance impacts
 - DBT analysis
 - Winning is
 - Individual company
 - Prevent/reduce damage & outage
 - Industry
 - Prevent/reduce future attacks

Simplified DBT Analysis

- Race between defender (Blue) and attacker (Red)
 - Defender clock starts upon detection and ends with law enforcement arrival
 - Attacker can take any and all actions prior to detection
 - Security enhancement impact detection and can delay attacker
 - Attacker can be clever negating or limiting impact of enhancements
 - Enhancements cost money and impact member rates and/or corporate profits
 - ***Simplified***

Enhancement	Cost / Substation (\$USD)	Estimated Detection / Delay Time
Camera & alarms	500,000	Detection upon arrival to site
Ballistic fencing	2,000,000	2 min
Concrete barriers	10,000	1 min
Law enforcement coordination	500	5 min

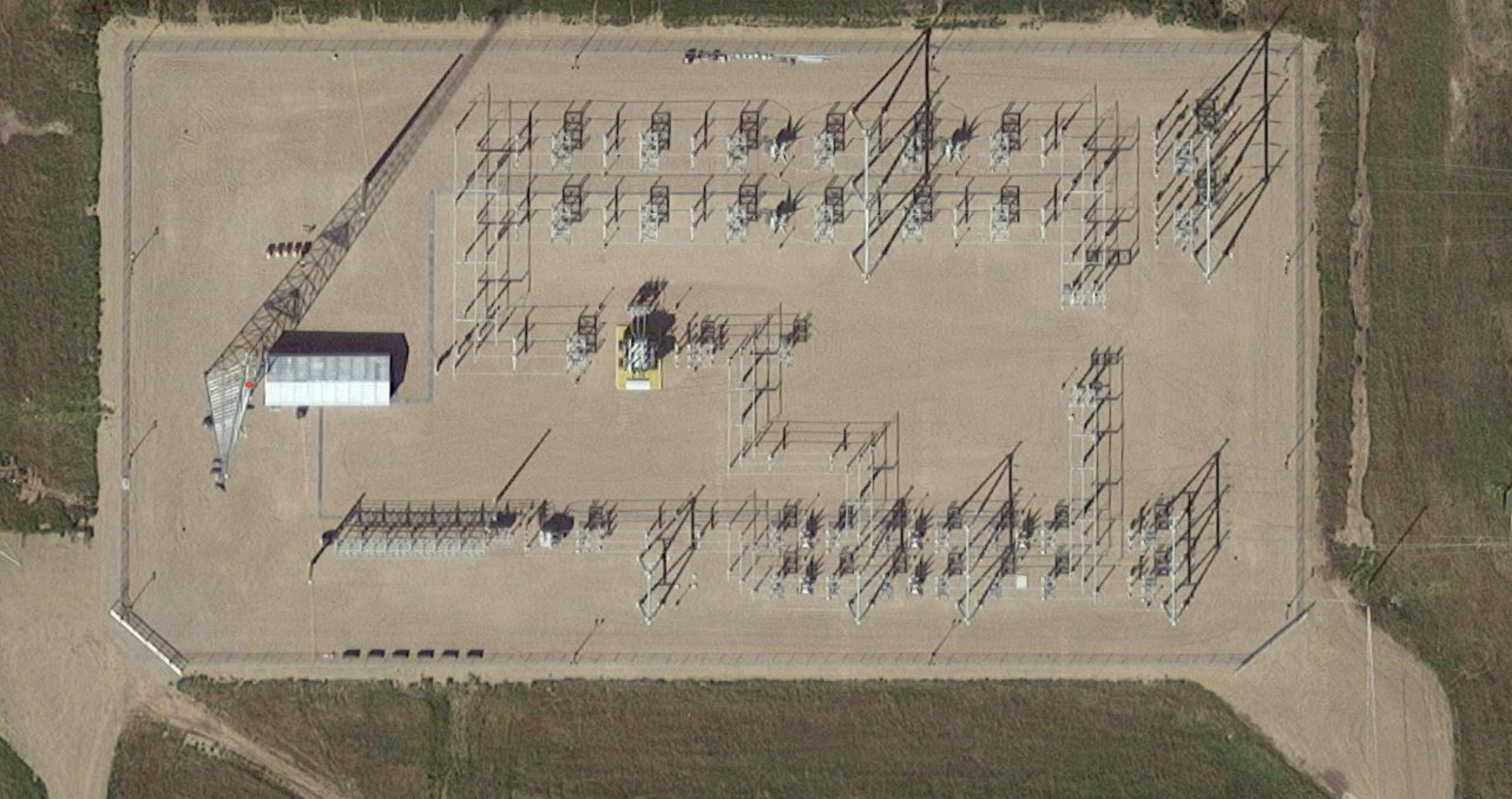
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Red Team

- Walk through attack plan

Blue Team

- Walk through defense plan



DBT Timeline

- Red team time from detection:
- Blue team time from detection:

Exercise Winner

- Red Team
 - Winning is
 - Attack causes outage(s)
 - Larger the better
 - Make headlines
 - Do not get caught
- Blue Team
 - Winning is
 - Individual
 - Prevent/reduce damage & outage
 - Industry
 - Prevent/reduce future attacks

Why do the lessons learned matter?

- Effectiveness & Efficiency
 - Security solutions should have actual impact and not be overly burdensome for operations and maintenance
- Antifragile
 - Individual vs industry
- Strategic signaling

Questions

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MIDWEST
RELIABILITY
ORGANIZATION

2026 MRO Reliability, Security and CMEP Summit

Omaha FBI

 CONNECTION

 CURIOSITY

 COMMITMENT

 COMPETENCY



MIDWEST
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Nebraska National Guard

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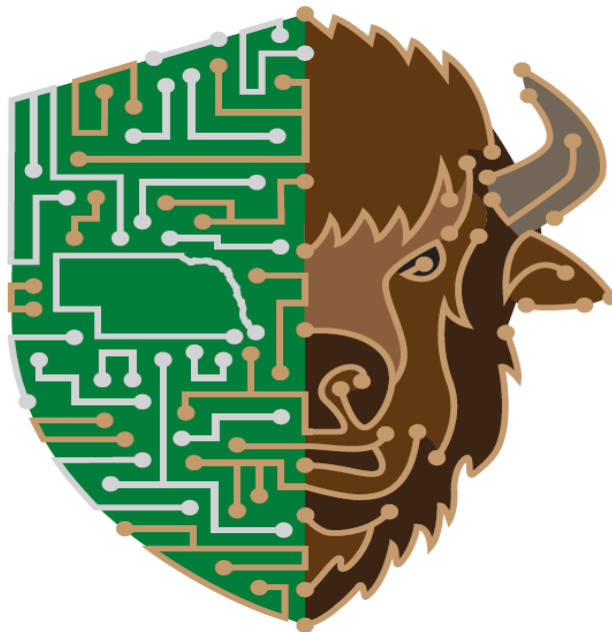
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CYBER TATANKA



CYBER TATANKA



Nebraska Public Power District



Lincoln Electric System

Building Partnerships

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CYBER TATANKA

Cyber Tatanka 2026

Nebraska's Premier Defensive Cyber Range Exercise

June 1-12, 2026 | Kiewit Hall, UNL



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Why Tatanka?



CYBER TATANKA

The Lakota word Tatanka refers to the bison (often translated as "big beast" or specifically the male buffalo), which held profound cultural, spiritual, and practical significance for the Plains tribes like the Lakota.

It was not just an animal but the very essence of their existence. Providing food, clothing, shelter, tools, and even spiritual guidance through ceremonies and symbols of self-sacrifice.

Similarly, critical infrastructure in modern society encompasses the essential assets, systems, and networks (across 16 key sectors like energy, water, transportation, and communications) that underpin daily life, the economy, and national security, acting as the invisible backbone that sustains everything from healthcare to commerce.

In essence, Tatanka was the "critical infrastructure" of the Plains world a singular, life-sustaining force much like how today's interconnected systems form an ecosystem where failure in one strand unravels the whole.

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What Makes Cyber Tatanka Unique?



CYBER TATANKA

- Unclassified environment
- Non-DOWIN Cyber Range
- Modeled for DOMOPs
- Designed to promote interoperability between civilians, NGOs, SLGs, and DOW
- State Partnership Program is the primary mechanism for international participation
- Partner Funded – federal funding through IRT

DoWIN – Department of War Information Network

DOMOP – Domestic Operations are performed in the U.S. Homeland under local, state, and federal law.

NGO's – Non-government officials

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Cyber Tatanka Attendees



CYBER TATANKA

Twelve (12) Critical Infrastructure Sectors

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**Commercial
Facilities**



**Critical
Manufacturing**



**Emergency
Services**



Energy



**Nuclear Reactors,
Materials, &
Waste**



**Government
Facilities**



**Healthcare &
Public Health**



**Food &
Agriculture**



**Transportation
Systems**



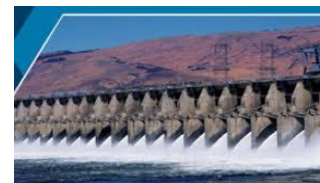
**Water & Wastewater
Systems**



Financial Services

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Dams Sector





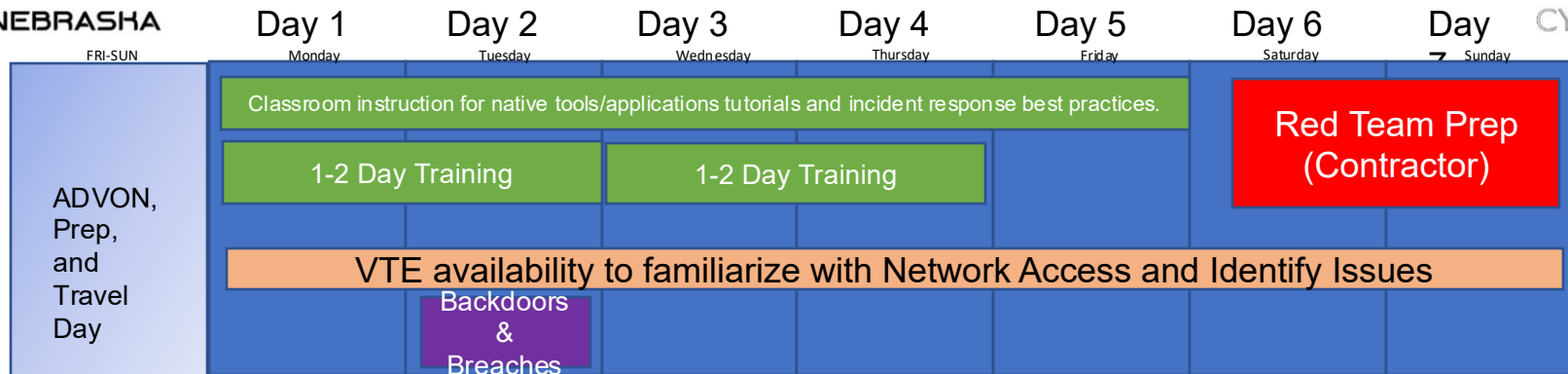
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Week 1 - Breakdown

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CYBER TATANKA



- Dispersed academic courses. Beginning to Advanced training for tools, management processes/frameworks, and team/event activities.
- Network validation – familiarization of range/tools. Identify and resolve issues with range/network/tools.

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Week 2 - Breakdown

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Day 8
Monday

Day 9
Tuesday

Day 10
Wednesday

Day 11
Thursday

Day 12
Friday

Day 8 Monday	Day 9 Tuesday	Day 10 Wednesday	Day 11 Thursday	Day 12 Friday
Vignette 1	Vignette 2	Vignette 3	Vignette 4	Vignette 5
Threat Brief	DV Day - Rehearsal		DV Day	Hot Wash / AAR
Hot Wash	Hot Wash	Hot Wash	Social	
Red-Blue AAR	Red-Blue AAR	Red-Blue AAR	Hot Wash	Return Travel Begins
			Red-Blue AAR	

- Threat Brief – Provided by Palo Alto - Unit 42
- Daily vignette – each with a specific threat actor (progressively more sophisticated)
- Daily internal team walkthrough with White Cell rep, AAR, and/or planning/prep time.
- Final Exercise AAR (All teams), Day 12



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Impacts over 4 years



CYBER TATANKA

- **650+** Professionals Directly Trained (2022-2025) Military, civilian, academic, and government personnel
- **250+** U.S. Military Personnel Trained
- **40+** International Allied Military Personnel Trained
- **2 Million+** Nebraskans Protected
- Cyber Tatanka's significant domestic reach - training cyber defenders serving over **62 million Americans** across **8 states** spanning from the Northeast to the Mountain West to the South.
- Roughly **499.5 Million** Just under **half a billion** people are represented by the countries who have participated in Cyber Tatanka!
- Countless relationships and partnerships created.

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CYBER TATANKA



CYBER TATANKA

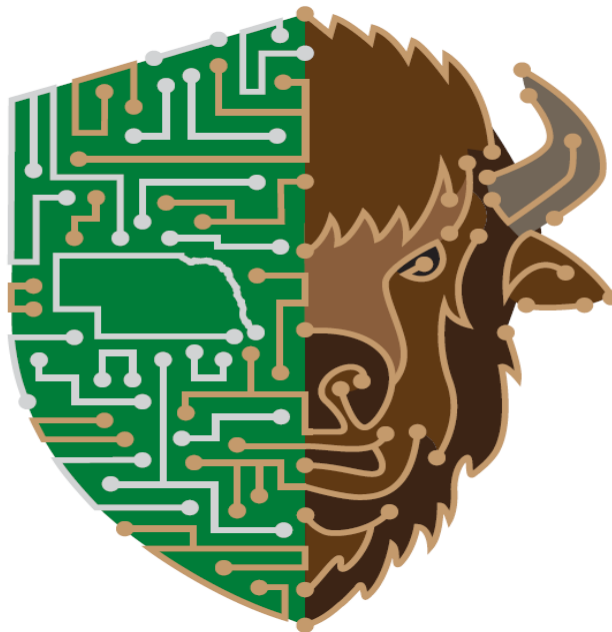
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Questions?

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