



# Grid Security Review



- **Electric Grid and Security Awareness**
  - *National Grid composition*
  - *Arkansas Grid composition*
  - *Electric Cooperatives of Arkansas*
  - *Brief Security Review*
  - *Threat Analysis and Landscape*
  - *Critical Concerns*

- **National Grid Composition**

- *3 Electric Interconnects in the US*
  - *Eastern, Western, ERCOT*
  - *7 Regional Transmission Organizations (RTOs)*
  - *66 Balancing authorities or BAs (Management of Power)*
  - *Over 3,000 electric generation companies*
  - *64 Generation and Transmission (G&T) / 832 Distribution Cooperatives*
  - *Municipals (>450), IOUs (>160), and various energy marketers*

- **Arkansas Grid Composition**

- *Arkansas shares two RTOs (Regional Transmission Operators)*

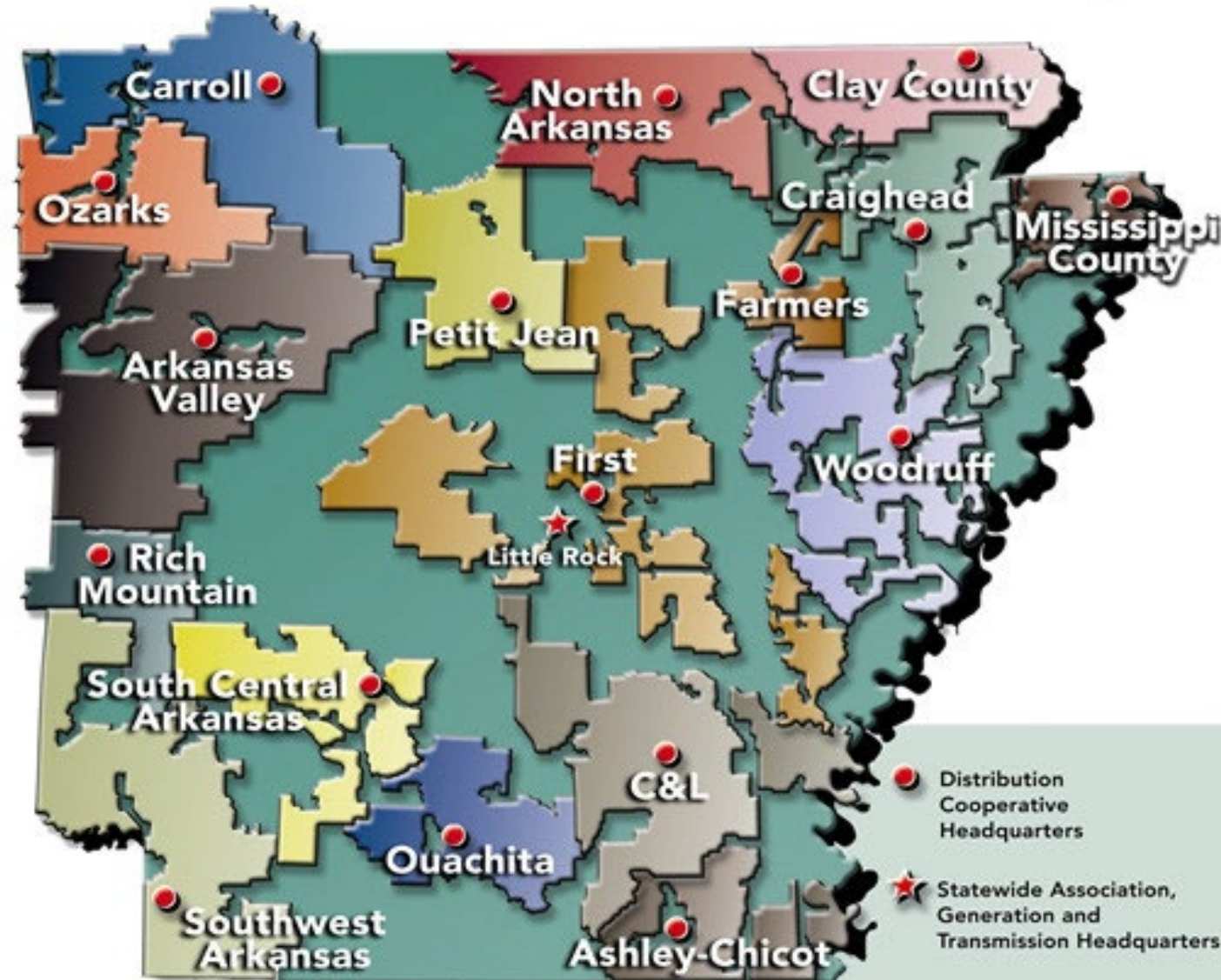
- *MISO (Midcontinent Independent Service Operator)*
- *SPP (Southwest Power Pool)*

- ***Electric Cooperatives of Arkansas***

- 1 G&T – Arkansas Electric Cooperative Corporation*

- 17 Distribution Cooperatives covering approx. 62% of the State*

## Electric Cooperatives of Arkansas Service Area Map



## Security Review

- *Current state of security*
- *Areas of improvement to physical infrastructure*
- *Threats*
- *Cyber*
  - *Hacktivists*
  - *Nation States using cyber space*
  - *ECO (ecological) Activists*
  - *Criminal Organizations*
- *Physical*
  - *Domestic Violent Extremist (DVE) or Environmental (DVE)*
  - *Anarchists*
  - *Supply Chain*
  - *Control Systems (Manufacturer concerns)*

*“Why us?”..... Or ..... “Why NOT us?” Target considerations*

## Threat Analysis

- Overall Good (FBI, CISA, DHS, Local energy security reports)
- Very few physical attacks on State assets
- Cyber attacks overall in energy sector are low
  - (note: Anarchists and DVEs in Arkansas are vocal – less physical)
  - Intel reports reviewed daily – EISAC, DHS CISA, FBI
  - Most Common
    - Substation access to gain copper (has slowed)
    - Physical Generation plants (manned) little to no activity
    - Low reported events on surveillance, casing, or breach w/o theft
    - Tools, equipment, vehicles, chainsaws, etc.

## Critical Concerns

- » Upcoming election
- » Black Start program for Arkansas
- » Nation State / Border crossings
- » Ideological shifts to violent extremism
- » Insider threats
- » Datacenters (AI, Bitcoin Exchanges, Edge/micro)
- » Unprojected Load (Lithium)



## Grid Outage Concerns

Question Posed: What impact is there to children and the elderly?

1. Arkansas State: Primary response would be initiated and coordinated through ADEM
2. Activation of FEMA to provide generators. AECC / Entergy – Mobile Substations
3. Coordination of power comes from MISO/SPP in their markets as Balancing Authorities
4. Post-9/11 creation of 3 major grid interconnects
5. Feeding America / AR Foodbank have assistance plans for all areas
6. County by county Emergency Management plans are enacted
7. Schools / Churches / and public facilities are utilized for shelters (beyond shelters)

## **Grid Impact in Blackout:**

1. Cell towers and critical infrastructures (generators)
2. Fuel Stations/Grocery/Sewage lift stations w/o power have major implications
3. Utilities, Med centers, public transportation, highways & byways, LEO impacted.

## Summary

Electric Grid resiliency continues to improve through regulatory requirements and infrastructure improvements. NERC (North American Energy Reliability Corporation) regulations cover the Continental US, Canada, Mexico and the Northern part of Baja California also continue to evolve.

### Largest Blackout

2003 blackout – 55 million effected due to software bug in an operator alarm system.

Restoration to most in <7 hours.

Prior to 2003 – NERC Standards were voluntary. Energy Policy Act of 2005 gave FERC auth.

\*Smart-Grid technologies are evolving (self-healing) systems.

AECC continues to evolve its energy stance through a Balance of Power initiative. The impact of fossil fuel reduction in generation will have a national impact. Intermittent power sources such as solar and wind, are environmentally limited. Supply chain issues in energy infrastructure continue, while the cost of construction escalates, creating higher costs on consumers. Each of these considerations, beyond EVs, terrorism, and catastrophic weather events, add to the

## THANK YOU

**Daron Frederick**

Chief Information Officer/ Chief Security Officer

Arkansas Electric Cooperatives Corporation

Email: [daron.frederick@aecc.com](mailto:daron.frederick@aecc.com)