

Arkansas Joint Interim Committee on Energy

SPP Overview

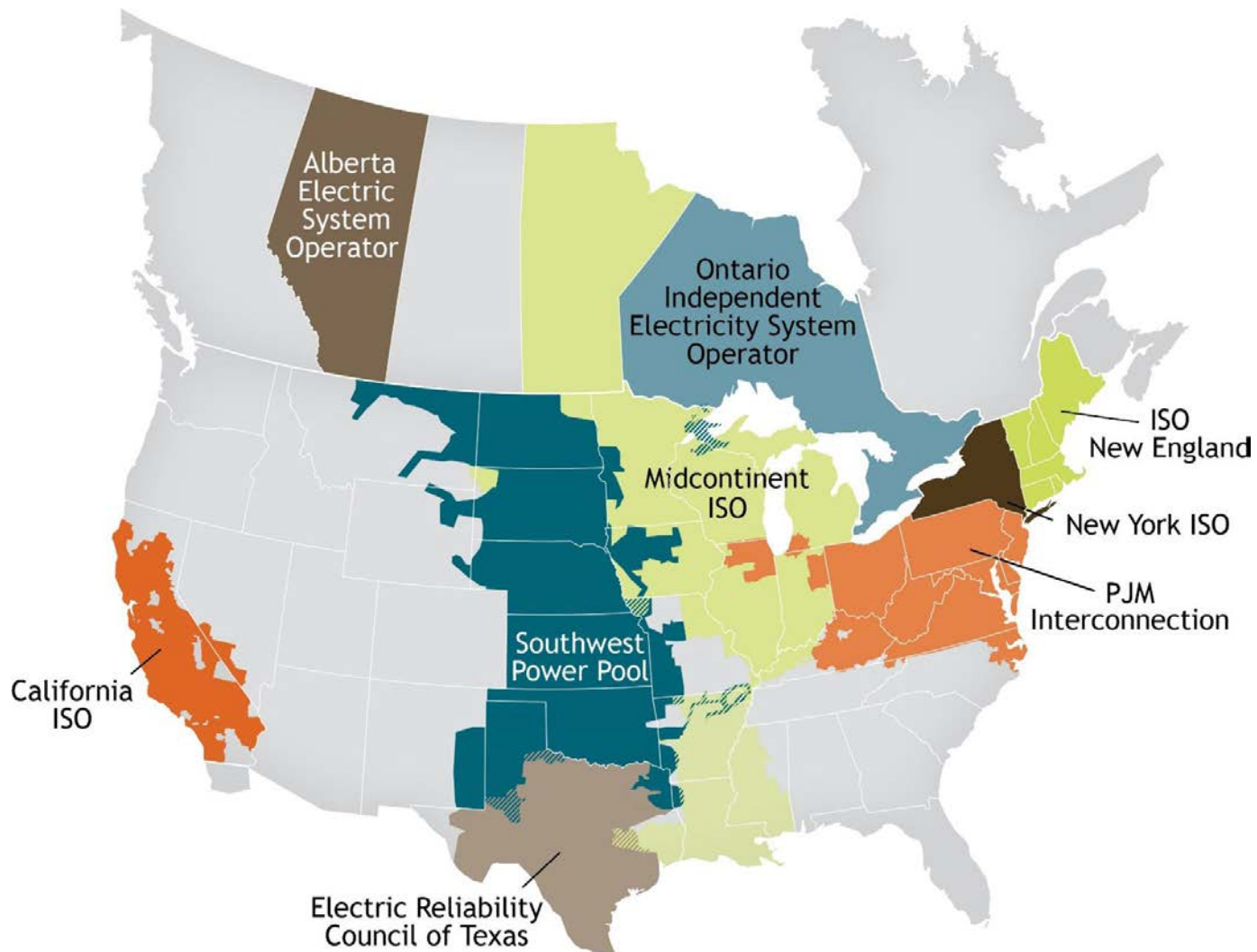
Mike Ross

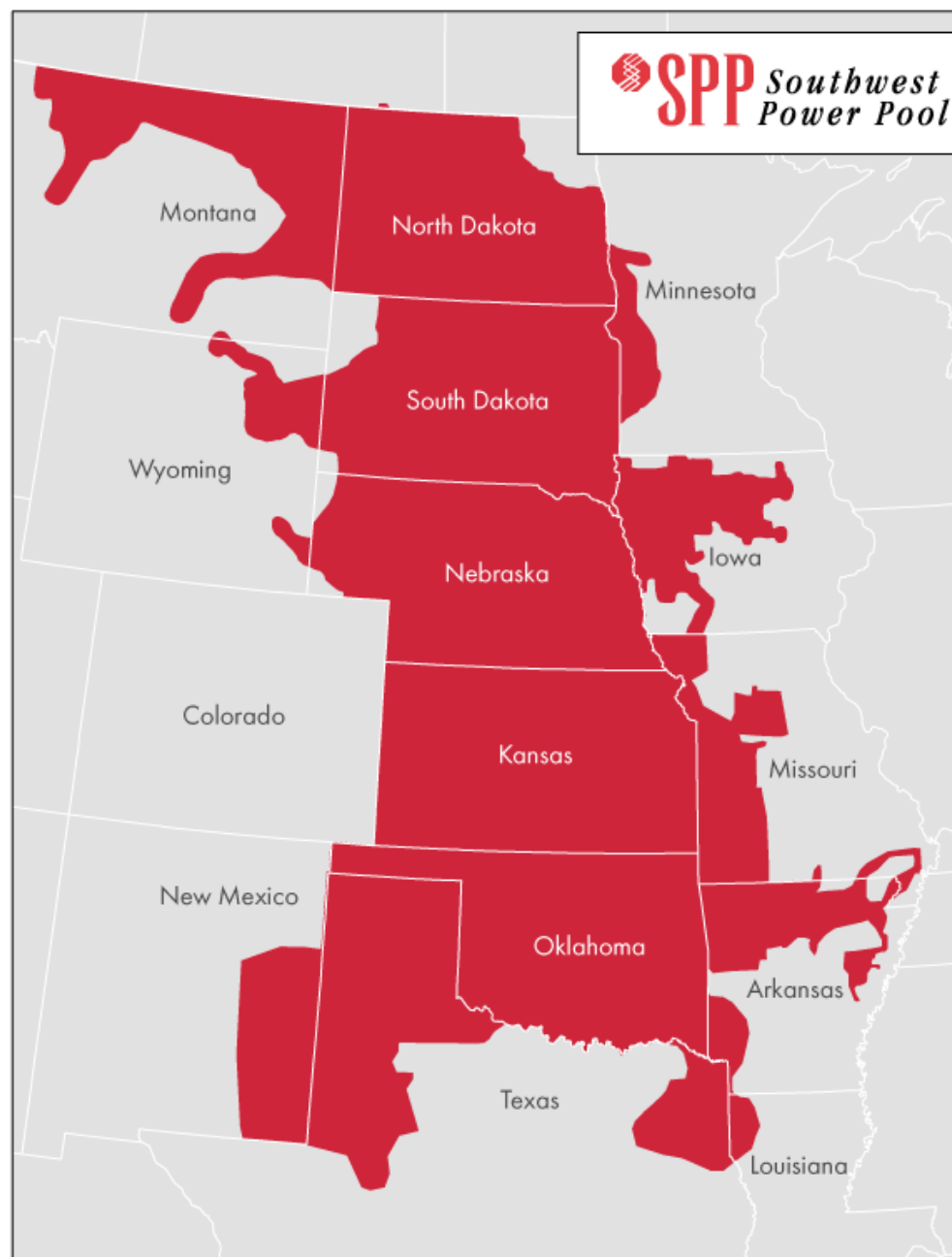
Senior Vice President

Government Affairs and Public Relations



Independent System Operator (ISO) / Regional Transmission Organization (RTO) Map





20th Century National Academy of Engineering

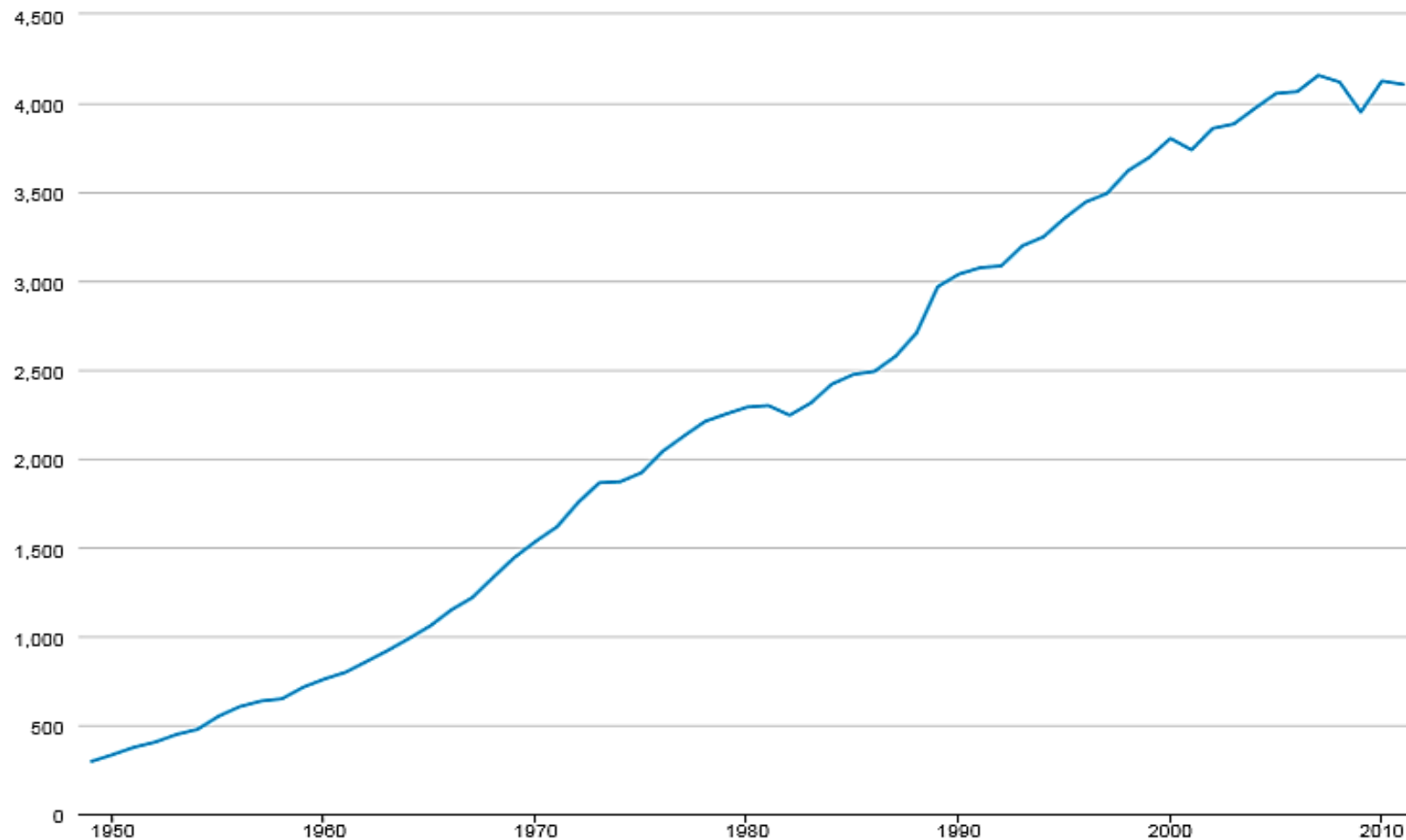
#1 Greatest Achievement: Electrification



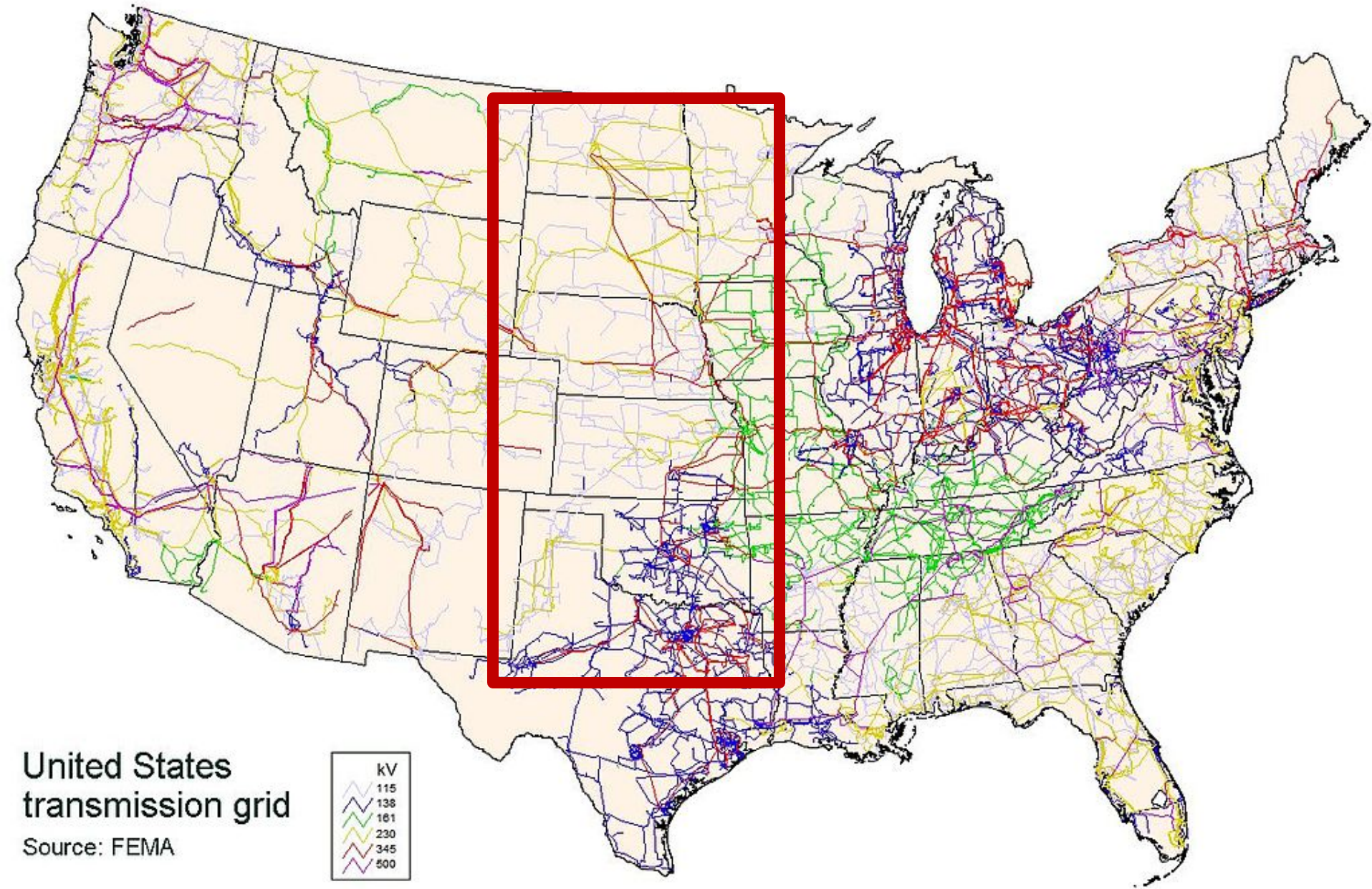
EIA – Total Electricity (1949-2011)

Table 8.1 Electricity Overview, 1949-2011, Net Generation Total

Billion Kilowatthours



United States Electric Grid





New York World-Telegram

Published by the New York World-Telegram Company, Inc. 100 Nassau St., N. Y. 10038
Local Forecast: Light rains tonight, somewhat higher temperatures than last night; tomorrow cloudy followed by clearing, cooler than today.
VOL. 74—NO. 135—IN TWO SECTIONS—SECTION ONE

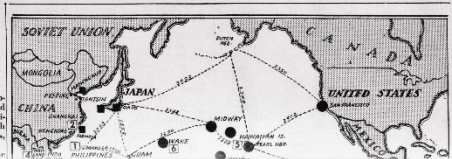
NEW YORK, MONDAY, DECEMBER 8, 1941
Published at special rate of 10¢ per copy
Price Three Cents

1500 DEAD IN HAWAII CONGRESS VOTES WAR

Tally in Senate Is 82 to 0,
In House 388 to 1, with
Miss Rankin Sole Objector

By LYLE C. WILSON,
United Press Staff Correspondent.
WASHINGTON, Dec. 8.—Congress today proclaimed existence of a state of war between the United States and the Japanese Empire 33 minutes after President Roosevelt stood before a joint session to ask such action and pledge that we will triumph—"so help us, God."

Democracy was proving its right to a place in the



100 to 200 Soldiers
Killed in Japanese Raid
On Luzon in Philippines

By the United Press.
BULLETIN.
MANILA, Dec. 8.—Press dispatches reported that 100 to 200 troops, 60 of them Americans, were killed or injured today when Japanese warplanes raided Iba, on the west coast of the island of Luzon, north of the Olongapo naval base.

December 7, 1941



9 Days After the Bombing of Pearl Harbor...

- **SPP Founded in 1941 with 11 members**
 - Utilities pooled electricity to power Arkansas aluminum plant needed for critical defense
- **Maintained after WWII to continue benefits of regional coordination**





Northeast Blackout of 1965

Electric Reliability Act of 1967 & North American Electric Reliability Corporation (NERC)

- Tuesday, November 9, 1965
- Affected parts of Ontario in Canada and Connecticut, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont in the United States
- Over 30 million people and 80,000 square miles without electricity for up to 13 hours

Northeast Blackout of 2003



Led to Energy Policy Act of 2005



SPP's Corporate Center



Members in 14 States

Arkansas

Kansas

Iowa

Louisiana

Minnesota

Missouri

Montana

Nebraska

New Mexico

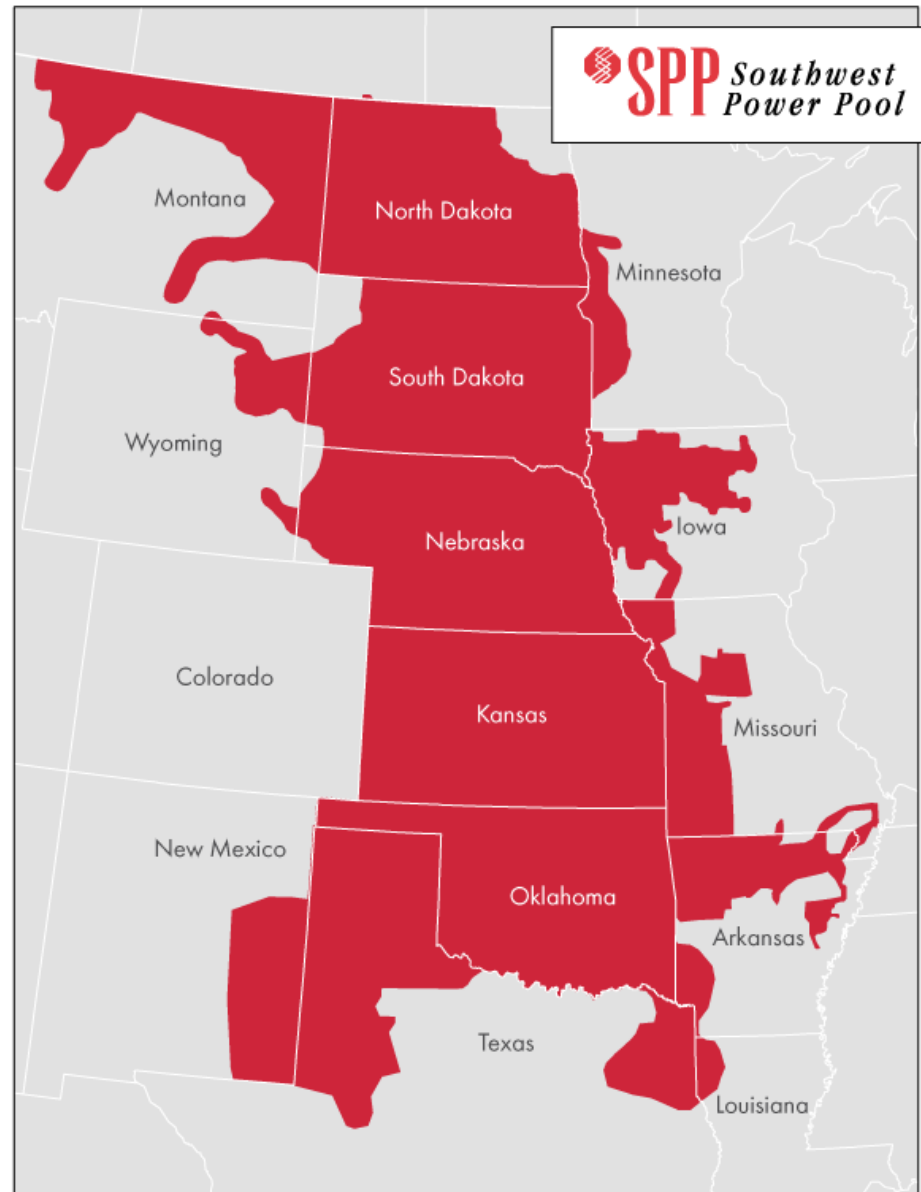
North Dakota

Oklahoma

South Dakota

Texas

Wyoming



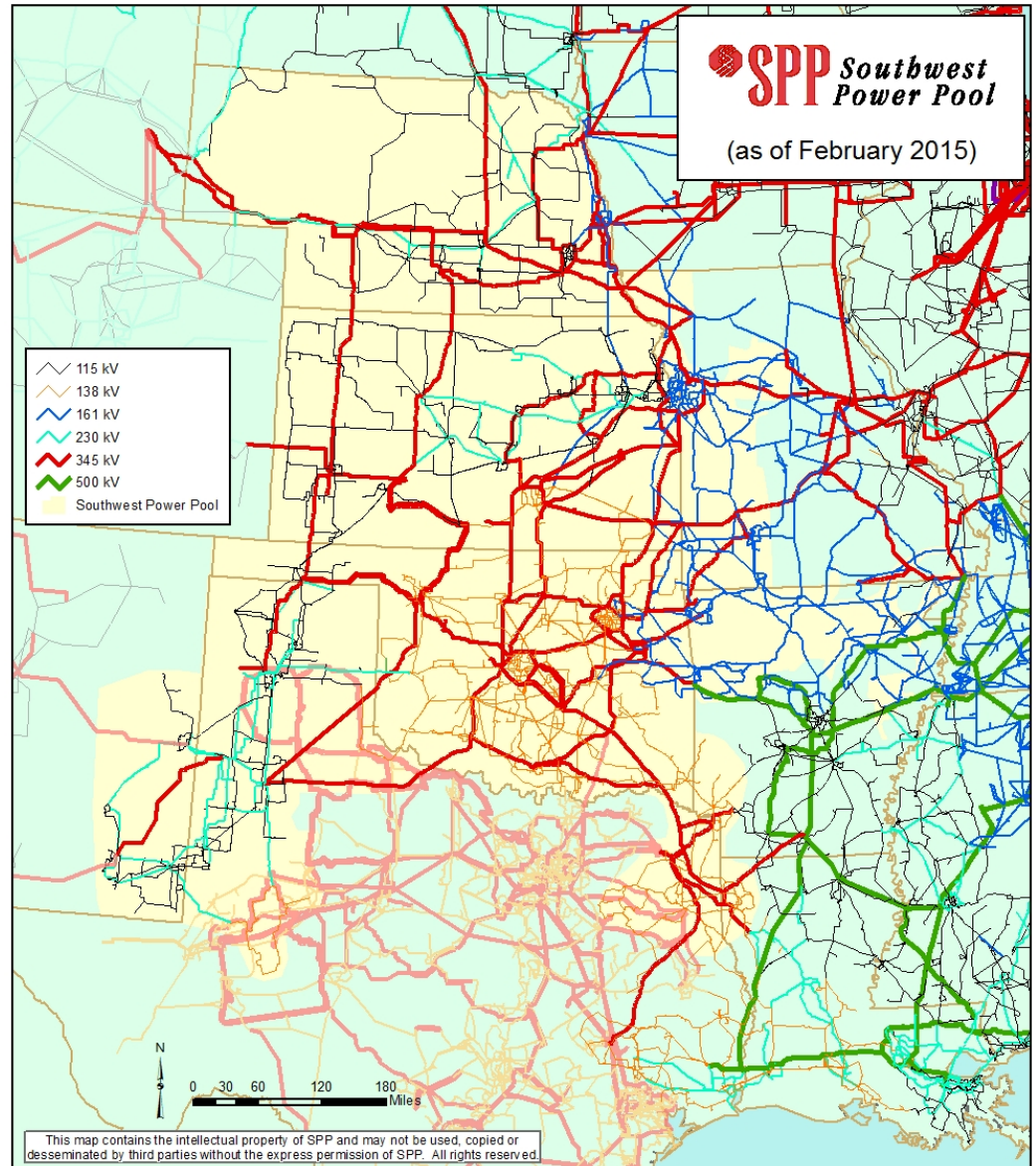
Our Membership Profile

Category	Number
Cooperatives	18
Investor Owned Utilities	18
Independent Power Producers/ Wholesale Generation	13
Municipal Systems	13
Marketers	12
Independent Transmission Companies	11
State Agencies	8
Federal Agencies	1
TOTAL	94

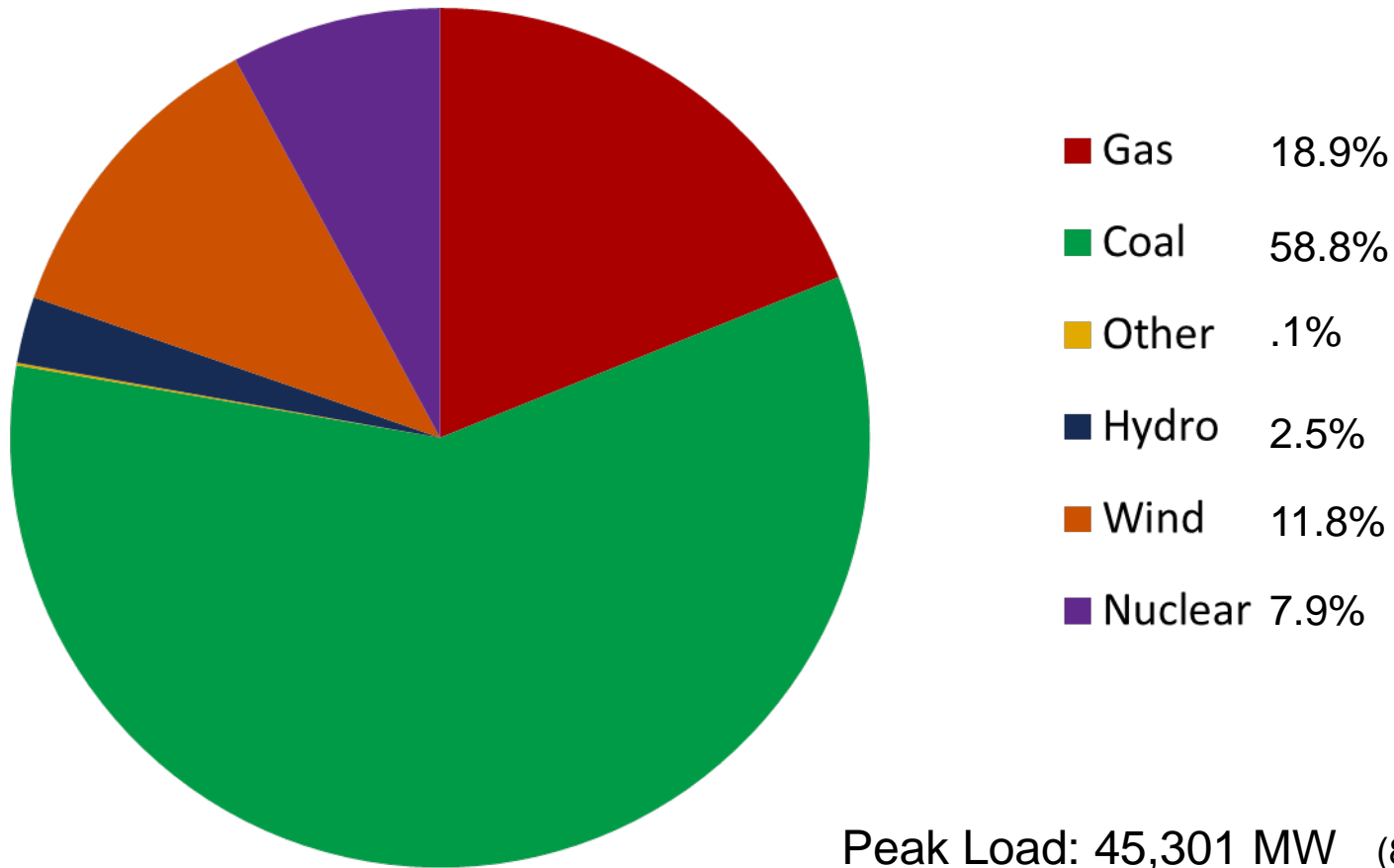
As of August 27, 2015

Operating Region

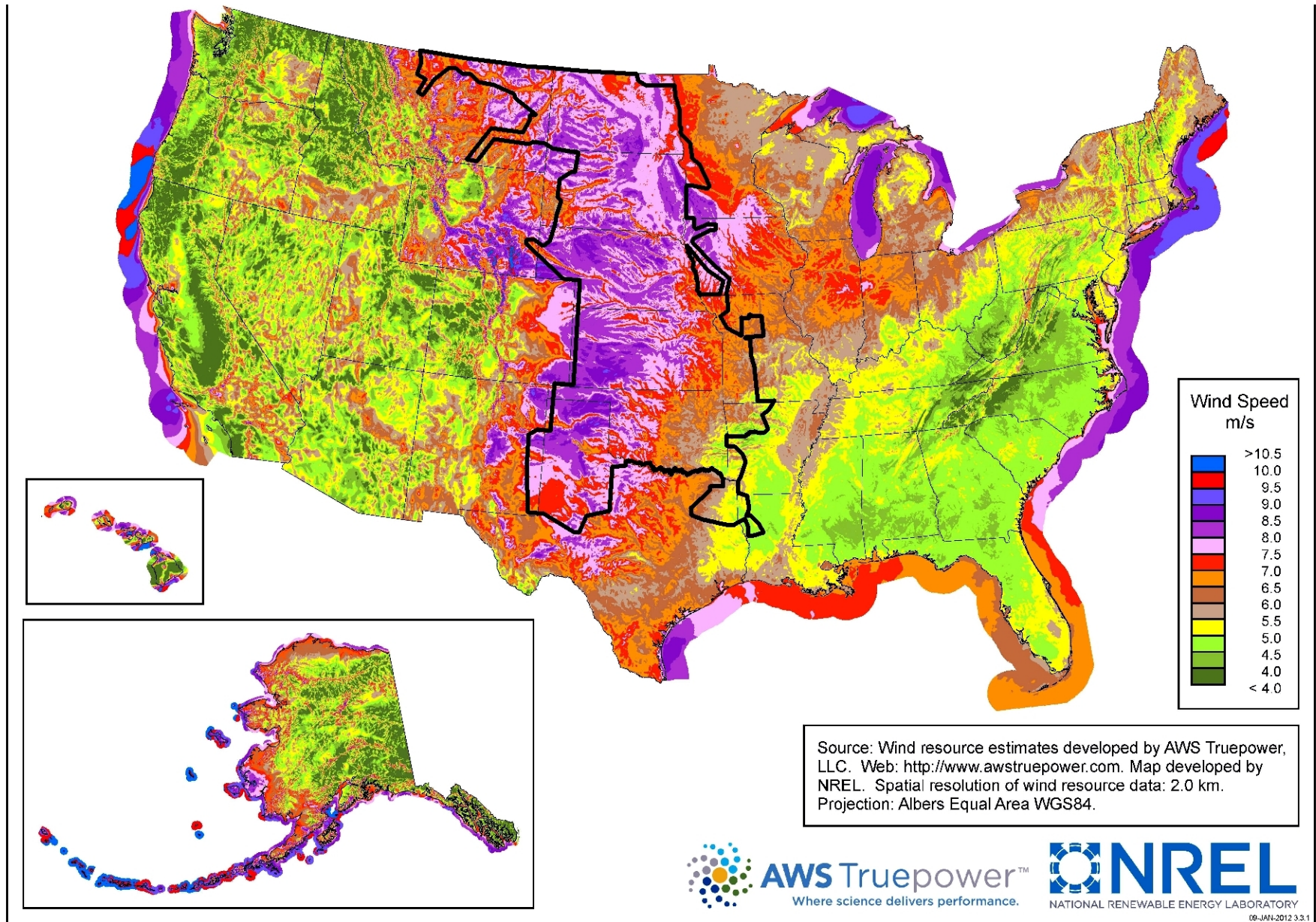
- 370,000 miles of service territory
- More than 15 million people
- 589 generating plants
- 4,229 substations
- 48,537 miles transmission:
 - The 48,537 miles of transmission lines in SPP's footprint would circle the earth almost twice!



2014 Energy Consumption (MWh)



Annual Average Wind Speed



Wind Energy Development

- **Wind “Saudi Arabia”: Kansas, Oklahoma, Nebraska, Texas Panhandle, New Mexico**
 - **60,000-90,000 MW potential**
 - **More wind energy than SPP uses during peak demand**
- **9,700 MW capacity of in-service wind**
- **16,900 MW wind under development**

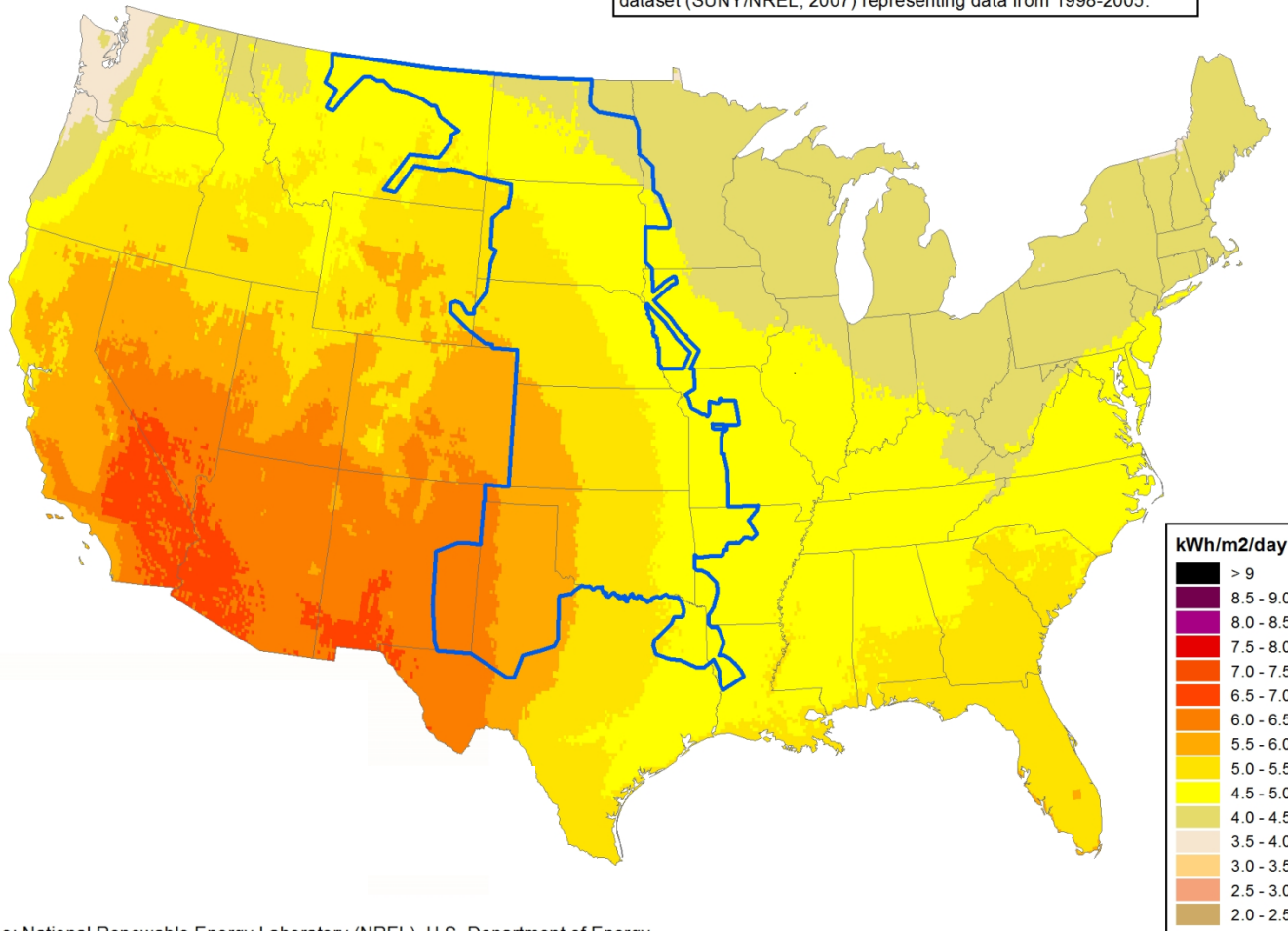


Solar in the U.S.

PV Solar Radiation
(Flat Plate, Facing South, Latitude Tilt)

Annual

This data represents annual average solar resource potential for 48 Contiguous United States and Hawaii, in High Resolution. The data for Hawaii and the 48 contiguous states is a 10 km, satellite modeled dataset (SUNY/NREL, 2007) representing data from 1998-2005.



Source: National Renewable Energy Laboratory (NREL), U.S. Department of Energy

Regulatory Environment

- Incorporated in Arkansas as 501(c)(6) nonprofit corporation
- FERC — Federal Energy Regulatory Commission
 - Regulated public utility
 - Regional Transmission Organization
- NERC — North American Electric Reliability Corporation
 - Founding member
 - Regional Entity



Governance

- **Independent Board of Directors**
- **Members Committee**
- **Regional State Committee**
- **Working Groups**



Our Major Services

- Facilitation
- *Reliability Coordination*
- Transmission Service/
Tariff Administration
- *Market Operation*
- Standards Setting
- Compliance Enforcement
- *Transmission Planning*
- Training



*Regional
Independent
Cost-effective
Focus on reliability*

Reliability Coordination

- Manage grid 24 x 365
- Anticipate problems
- Take preemptive action
- Coordinate regional response
- Independent

As “air traffic controllers,” our operators comply with ...



... more than 3,800 pages of reliability standards and criteria

Markets

- **Integrated Marketplace:** Participants buy and sell wholesale electricity in day-ahead and real-time
 - **Day Ahead Market** commits the most cost-effective and reliable mix of generation for the region
 - **Real-Time Balancing Market** economically dispatches generation to balance real-time generation and load, while ensuring system reliability.

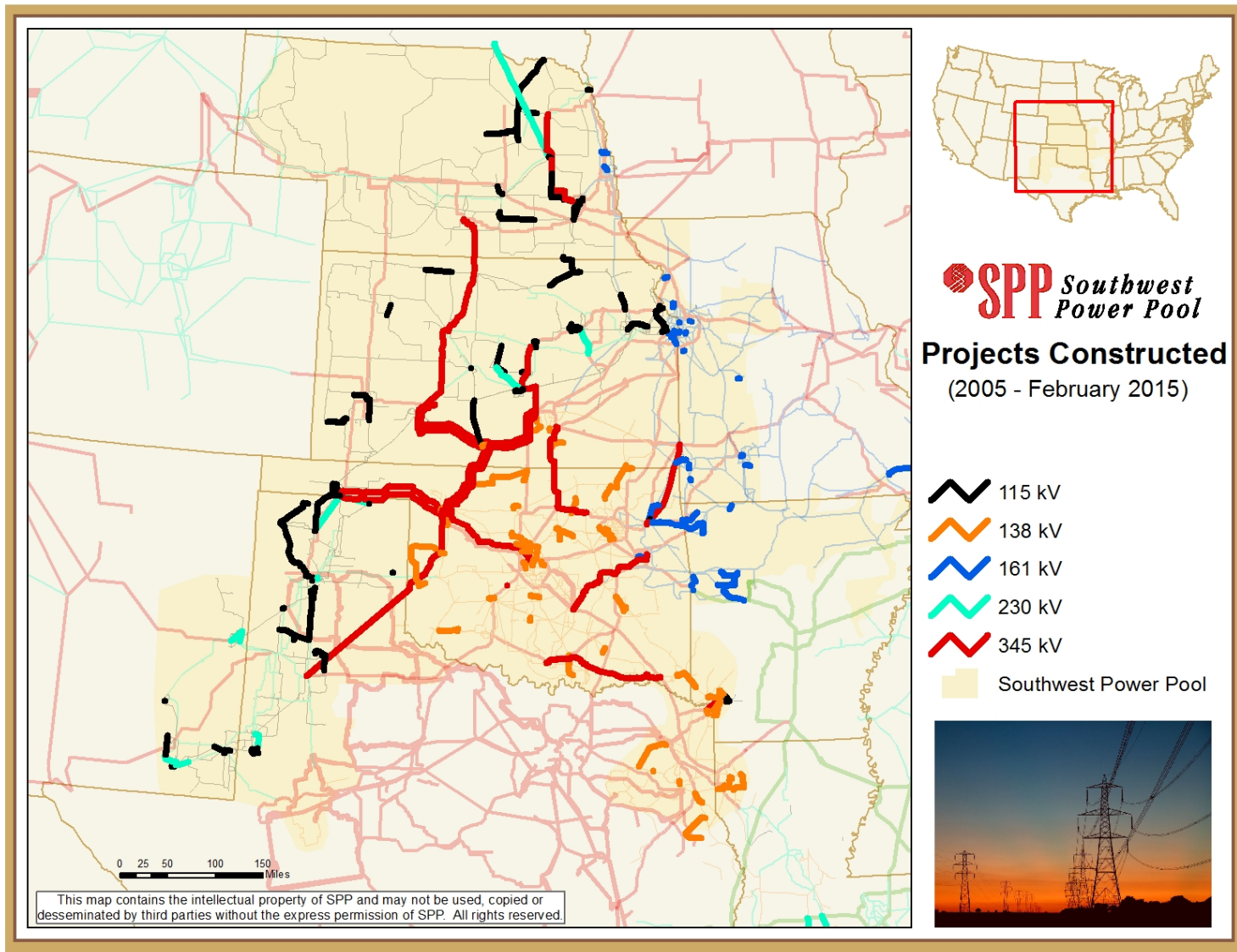
SPP markets have netted \$380 million in savings in the past year.

Transmission Planning

- **Reliability**
- **Economics**
- **Public Policy**



Projects Constructed 2005-2015



Training

- **2014 Training program awarded more than 18,000 continuing education hours to member companies**
- **SPP offers:**
 - **Regional System restoration drills**
 - **Integrated Marketplace training**
 - **Regional Emergency Operations sessions**
 - **Train-the-Trainer classes**



ECONOMIC IMPACT OF SPP TO ARKANSAS

New SPP Headquarters – Completed Summer 2012



SPP Construction Economic Figures - Investment

Investment in SPP's Little Rock Campus

Construction Investment	\$ 61.7 M
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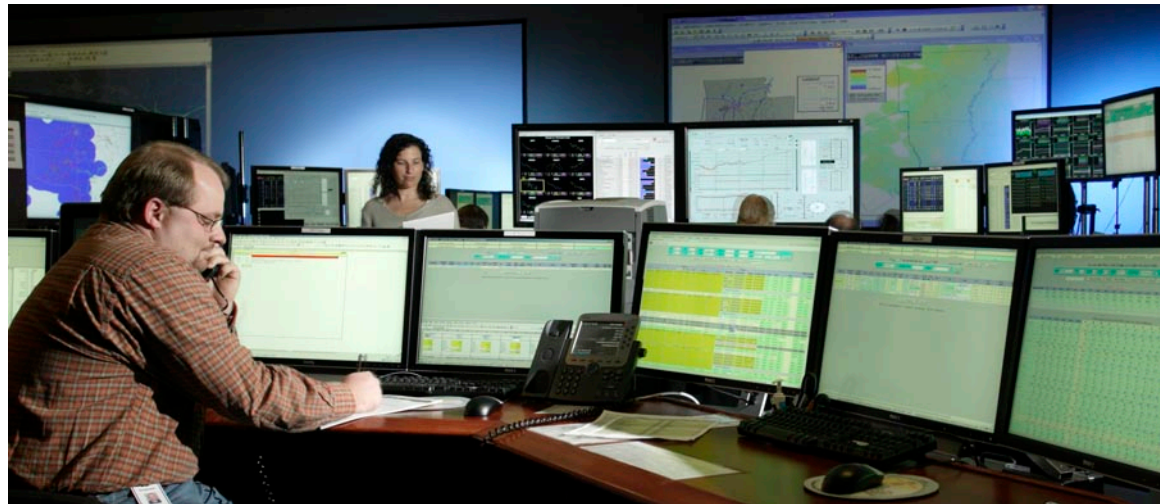
Equipment and IT Investment	<u>\$ 26.6 M</u>
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TOTAL INVESTMENT	\$ 88.3 M
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SPP Employment




- About 600 employees
- Median salary: \$85,100
- Primary jobs: Information Technology, Engineering, and Operations



Community Involvement and Recognition

- **Named Best Company to Work for by Arkansas Business in 2014**
- **Principal Financial Group “Top 10” Employer**
- **Employee involvement in over 70 non-profits and charities, including:**
 - Arkansas Foodbank
 - Girls of Promise
 - Race for the Cure
 - Relay for Life
 - United Way
 - Philander Smith College
 - Our House
 - UALR
 - Youth Home
 - Civic Clubs

A nighttime photograph of a city skyline reflected in a body of water. The skyline includes several tall buildings with lit windows, and a bridge is visible on the left. The lights from the buildings and the bridge are reflected in the calm water. A red horizontal line is positioned below the text.

Helping our members work together to keep the lights on...
today and in the future