

MINUTES OF THE SENATE UTILITIES COMMITTEE

The meeting was called to order by Vice Chairman Pat Apple at 9:30 A.M. on January 27, 2005 in Room 526-S of the Capitol.

Committee members absent:

Committee staff present: Athena Andaya, Kansas Legislative Research Department
Raney Gilliland, Kansas Legislative Research Department
Bruce Kinzie, Revisor of Statutes' Office
Diana Lee, Revisor of Statutes' Office
Ann McMorris, Committee Secretary

Conferees appearing before the committee:

Carl Huslig, Vice President, Transmission, Aquila

Others in attendance: See attached list

Presentation on Kansas Transmission 2005

Carl Huslig, vice president, Aquila Network, in his power point presentation answered questions such as – what is electric transmission?; what is an RTO?; what is SPP?; what is Regulation; what is transmission pricing? And What do Kansas Legislators do NOW? Mr. Huslig briefed the committee on electricity fundamentals, the transmission system, definitions, transmission characteristics and facts, the role of the North American Electric Reliability Council (NERC) and the Federal Energy Regulatory Commission (FERC), the Aquila Networks - WPK Transmission system, Kansas Transmission Barriers, Transmission pricing, and the Southwest Power Pool (SPP). (Attachment 1)

Committee questioned the time schedule and cost of building transmission lines and connecting with the neighboring states and the potential of wind energy.

Adjournment.

Respectfully submitted,

Ann McMorris
Secretary

Attachment - 1

KANSAS TRANSMISSION 2005

What is Electric Transmission?

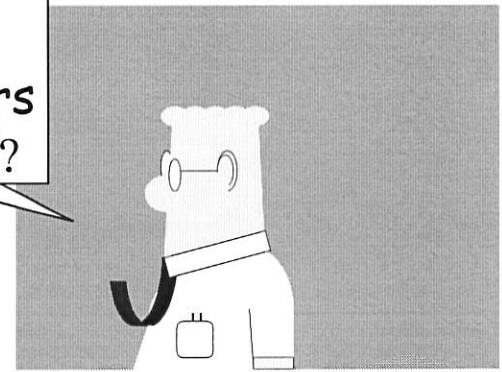
What is a RTO?

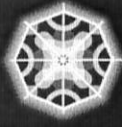
What is Transmission Pricing?

What is SPP?

What is Regulation?

What do
Kansas
Legislators
do NOW?

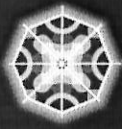




Electricity Fundamentals

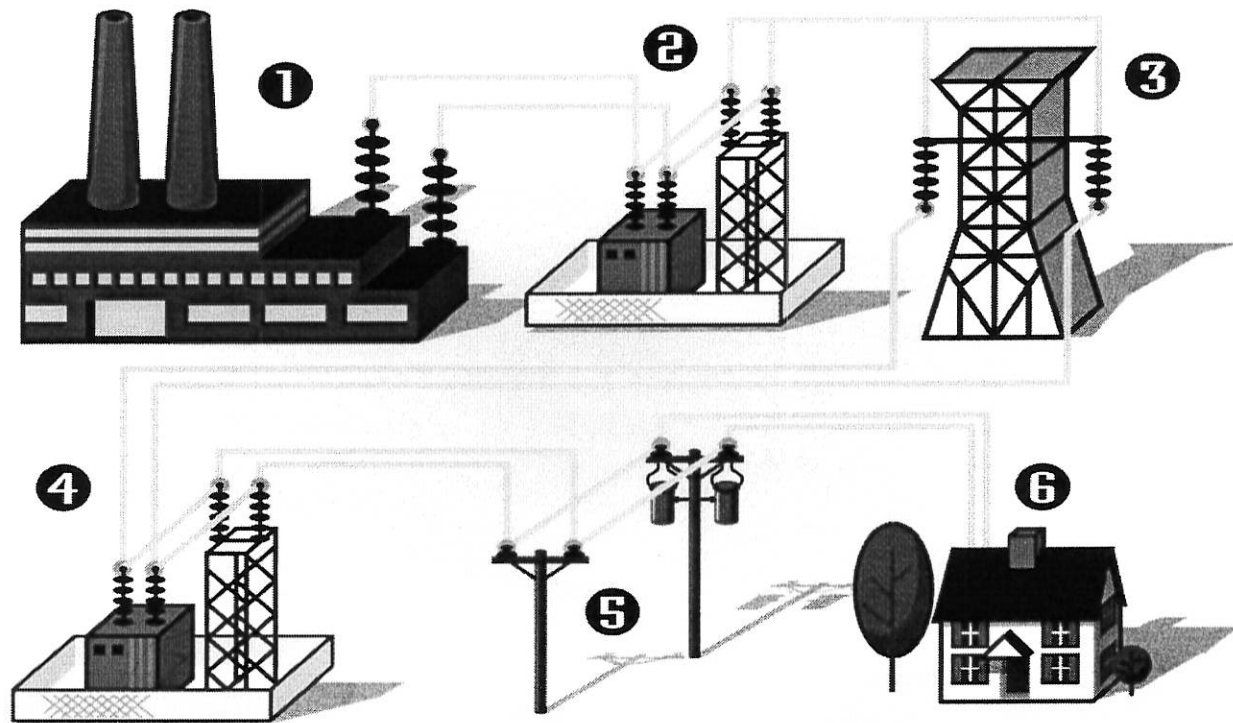
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- ✓ Electricity cannot be directed along any specific path; it flows through any connected route, following the path of least resistance
- ✓ Electricity cannot be stored easily or economically and must be produced at the moment it is needed
- ✓ The United States transmission system is one of the most reliable in the world
- ✓ Greater competition in electricity markets and the increasing demand for power have meant expanded use of the transmission system
- ✓ Transmission facilities must be expanded and new facilities must be built to assure reliability and to facilitate competition now and in the future



The Transmission System

1-3



When electricity leaves a power plant (1), its voltage is increased at a “step-up” substation (2). Next, the energy travels along a transmission line to the area where the power is needed (3). Once there, the voltage is decreased, or “stepped-down,” at another substation (4), and a distribution power line (5) carries the electricity until it reaches a home or business (6).

Definitions

1-4

- ✓ Transmission System – an interconnected group of lines and associated equipment for the movement or transfer of electric energy between points of supply and points at which it is transformed for delivery to customers or is delivered to other electric systems
- ✓ Transmission Service – use of the transmission system to transport energy from one point either inside or outside the transmission system to another point inside or outside the transmission system
- ✓ Open Access Transmission Tariff (OATT) – FERC calculated “not-to-exceed” rates for which transmission service is sold
 - Network Service – access to entire transmission system
 - Point-to-point – access from one point to another point



Definitions

- ✓ Bulk Transmission - the functional or voltage classification relating to the higher voltage portion of the transmission system (>100 kV)
- ✓ Sub-transmission - the functional or voltage classification relating to the lower voltage portion of the transmission system (25 kV to 100 kV)
- ✓ Distribution - the functional or voltage classification relating to the lower voltage systems for delivery to end use customer (<25 kV)
- ✓ Reliability – the degree of performance of the elements of the transmission system that results in electricity being delivered to customers within accepted standards and in the amount desired
- ✓ Federal Energy Regulatory Commission (FERC)

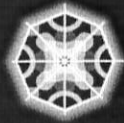
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Transmission Characteristics

- ✓ Three major transmission systems in the United States – Western Interconnection, Eastern Interconnection, and ERCOT
- ✓ Individual transmission systems are interconnected with neighboring utilities creating interdependence
- ✓ Interconnections provide capability for economic power transactions and enhance reliability by providing back-up power paths for emergency situations
- ✓ Transmission projects are classified as either load growth or integrity/reliability projects
- ✓ Transmission planning is performed by individual entities but have potential impact on neighbors which requires coordination of plans

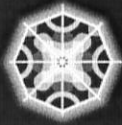
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Transmission Characteristics

- ✓ Power flows must remain in balance so that electricity is delivered to end-use customers at the exact amount and time that it is needed
- ✓ Operating a transmission system requires a high measure of coordination among all entities and is performed by operators in control area centers who are in constant communication
- ✓ Control areas are electric system or systems that are bounded by interconnection metering and telemetry
- ✓ Highly sophisticated computer systems (SCADA and EMS) provide data stream
- ✓ Control area operators are responsible to ensure that power generated matches the load at all times and to verify with other control area operators the scheduled interchange

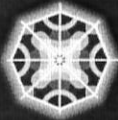
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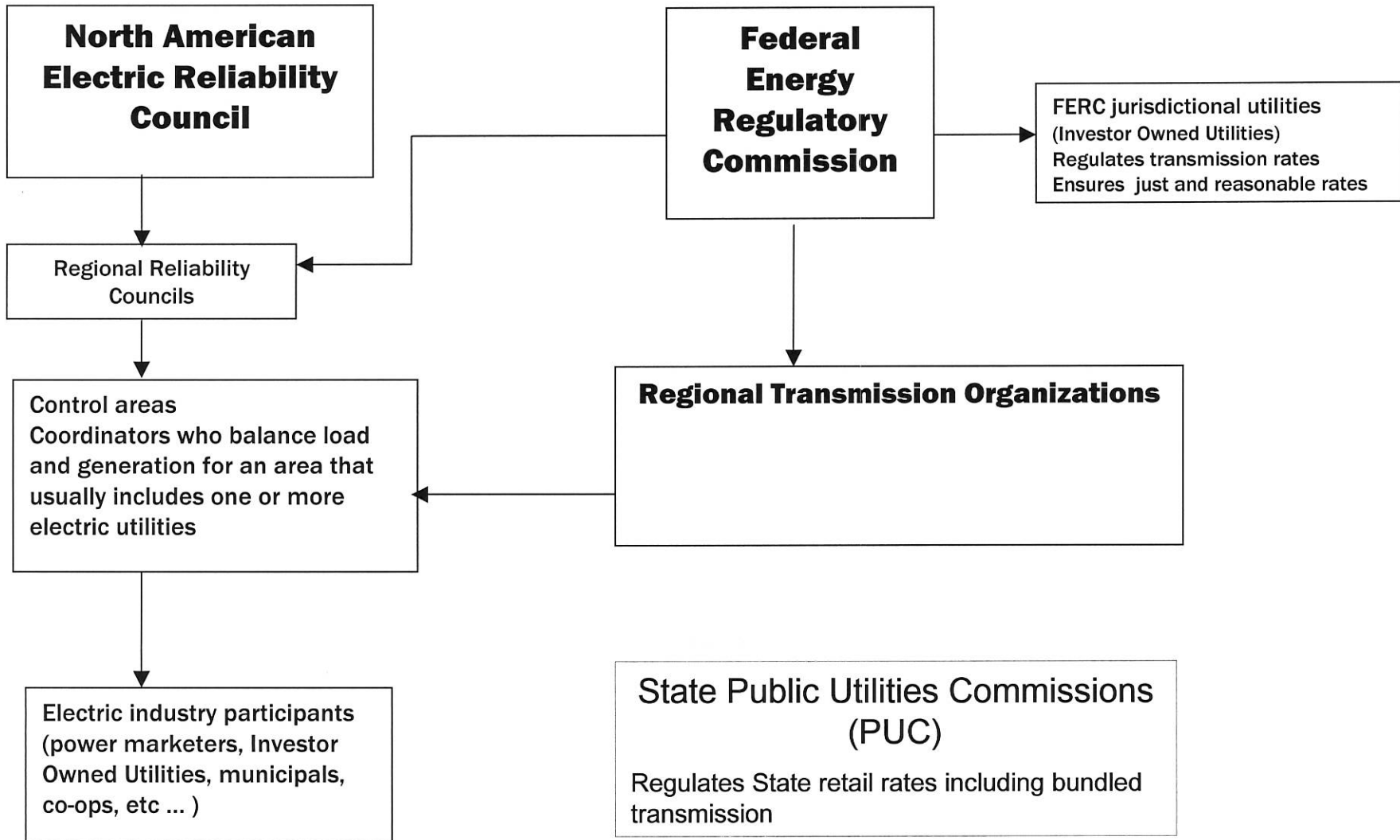
Transmission Facts

- ✓ Transmission systems are aging.
 - Bulk of system is 30 to 60 years old.
 - Construction “boom” ended in the early 1980’s.
- ✓ Transmission systems have grown in importance since the early 1990’s.
 - Utilities are exchanging power for economic reasons
 - Wholesale competition has added to the number of players and the volume of transactions
- ✓ Transmission systems need updated or constructed
- ✓ Current estimates are in the \$5 billion dollar range nationwide



The Electric Industry At-A-Glance

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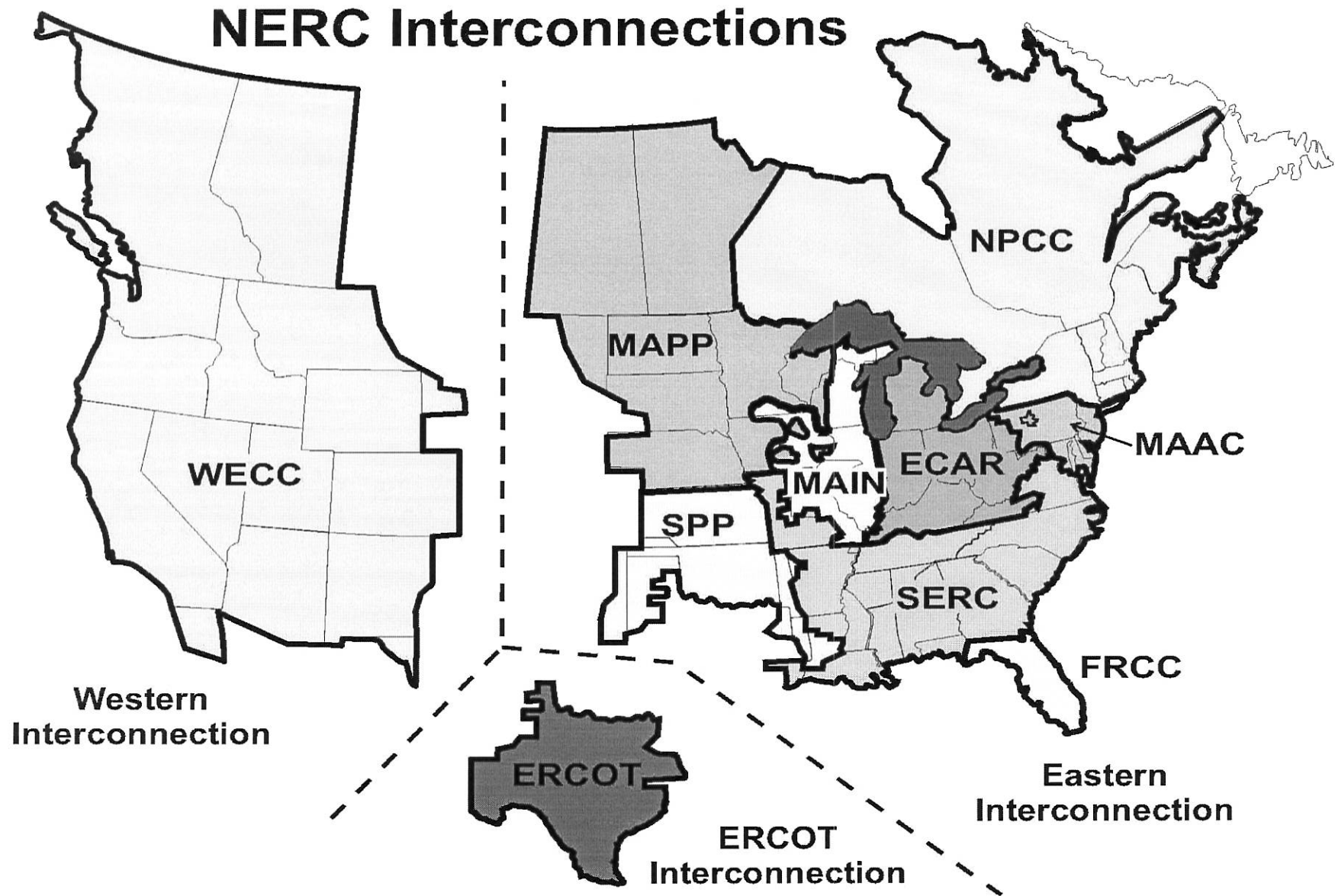
NERC

- ✓ November 9, 1965 Blackout
 - 13 Hour Outage in Northeast U.S. and Ontario, Canada
 - 30 Million people affected
- ✓ North American Electric Reliability Council (NERC) formed
 - Not-for-profit
 - Develops and enforces reliability policies

1-10

3 Interconnections/ 10 NERC Regions

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NERC

- ✓ Voluntary participation
- ✓ Establish reliability criteria
 - Minimum operating standards
 - Minimum planning standards
- ✓ Monitor compliance
- ✓ Coordinate system planning
- ✓ Oversee design and operations

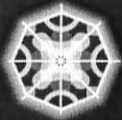
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FERC

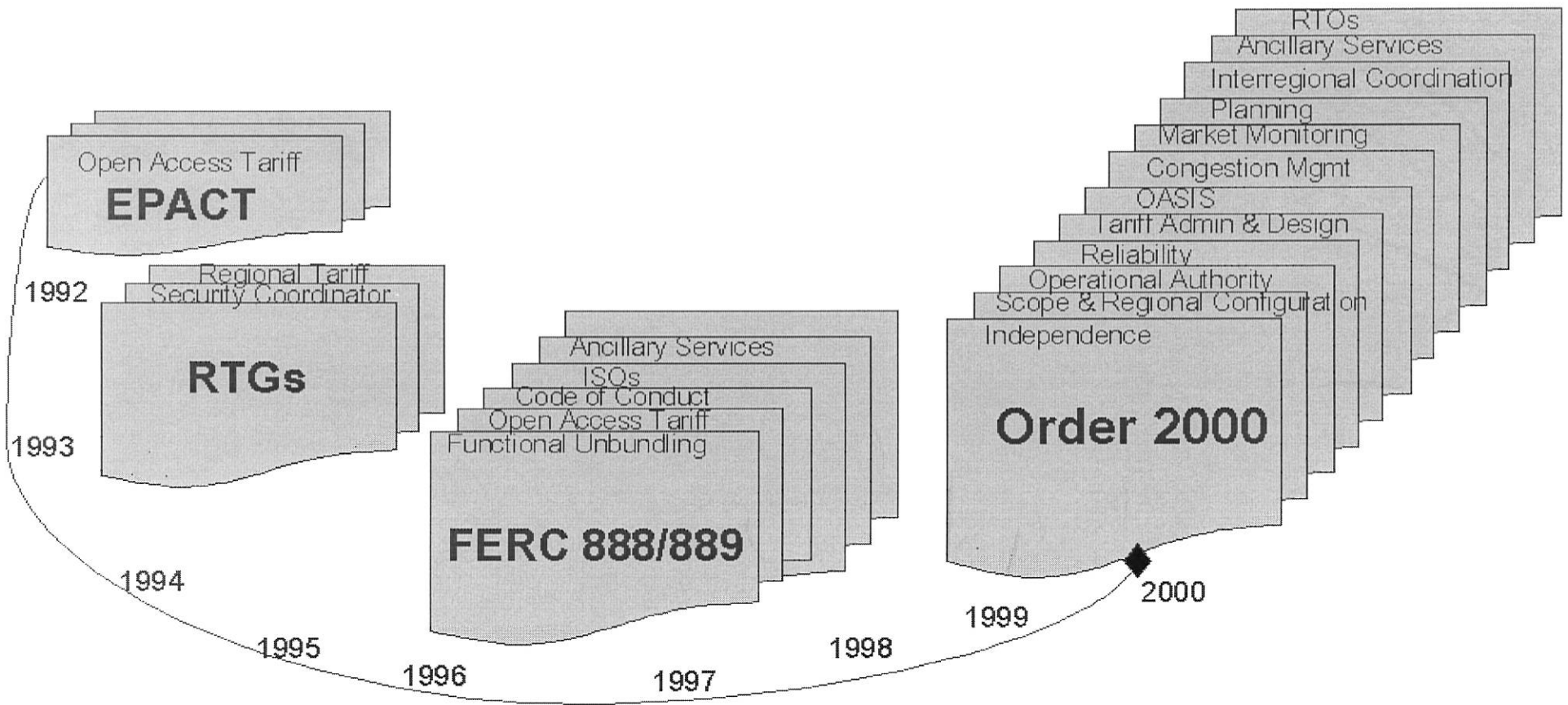
- ✓ Created in 1977 by the Department of Energy
- ✓ Replaced the Federal Power Commission
- ✓ Regulates transmission and sales of electricity in wholesale commerce
- ✓ Oversees wholesale bulk electric sales and transmission for interstate commerce
- ✓ Does not regulate physical siting of generation, transmission, or distribution facilities
- ✓ Does not regulate municipal power systems, federal power agencies, or electric cooperatives

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FERC regulates access to the grid

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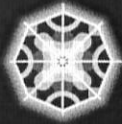




FERC Order 2000

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- ✓ **Intended to spur voluntary development of RTOs to promote efficiency, reliability and ensure non-discriminatory transmission service**
- ✓ **FERC wants RTO's to control network**
 - **Discrimination and market power concerns**
 - **Change market structure to bring transparency**
 - **Ration transmission capacity to highest value**
- ✓ **RTO minimum functions include:**
 - **Tariff administration and design**
 - **Congestion management**
 - **Parallel path flow**
 - **Ancillary services**
 - **OASIS and Total Transmission Capability (TTC) and Available Transmission Capability (ATC)**
 - **Market monitoring**
 - **Planning and expansion**
 - **Interregional coordination**



FERC

- ✓ **Opinion No. 453 (issued 10/11/01)**
 - Changed everything
 - All load including bundled retail and grandfathered wholesale load will be regulated by RTO tariff and subject to cost adder
 - Costs for everyone will increase
 - Utilities protested to FERC on cost recovery
 - FERC responded with two options
 - State PUC cost recovery
 - File service rider at FERC

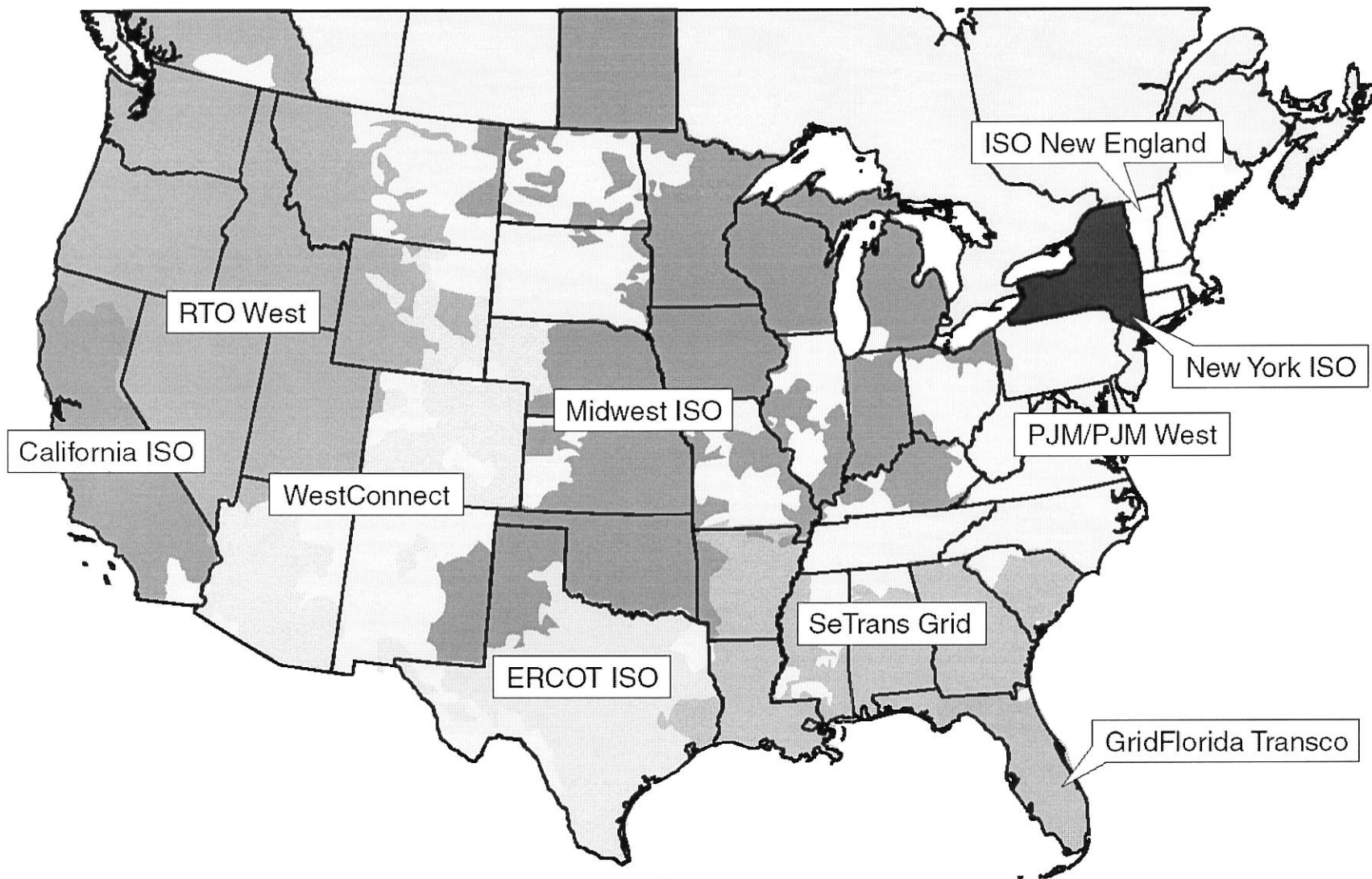
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Approved RTOs and Existing ISOs

Utility Participation as of February 2003

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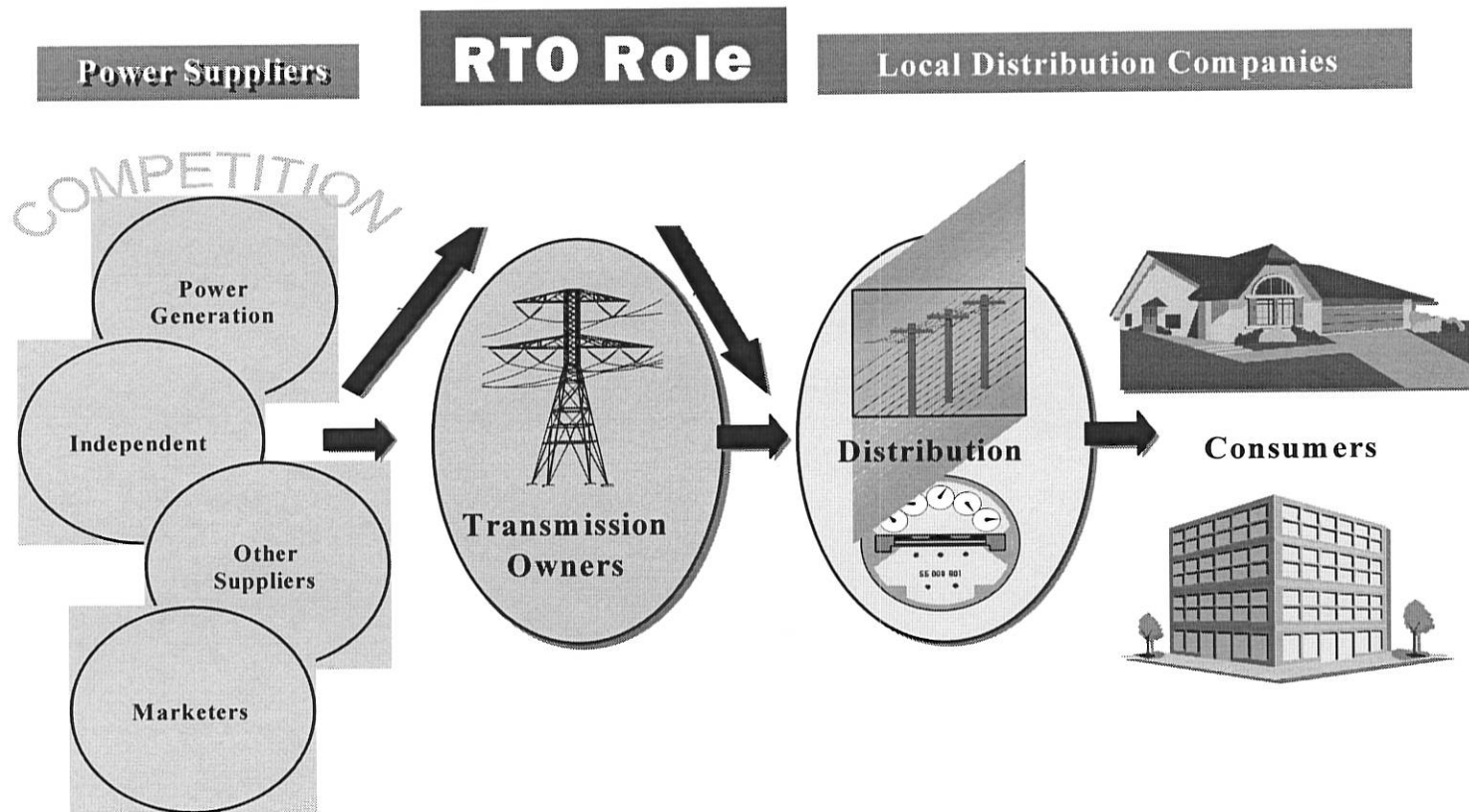
Note: Map includes service territories of transmission-dependent utilities.

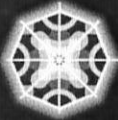
This map is available to EEI electric company members at http://www.eei.org/products/rto/maps/rto_map.pdf (PDF) or [rto_map.ppt](#) (PowerPoint)

© 2003 Edison Electric Institute. Service territory data source: POWERmap, 2nd quarter 2002 release, © Platts, a Division of the McGraw Hill Companies.

Restructuring the Electric Utility Industry

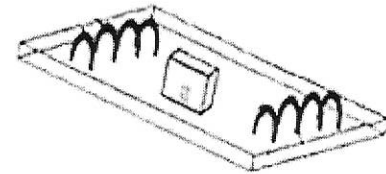
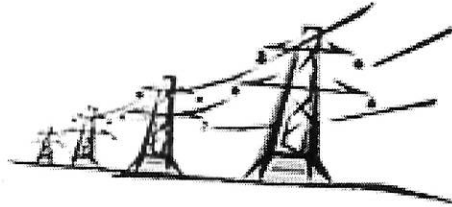
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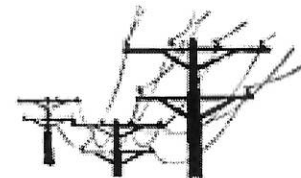
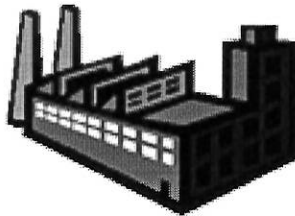
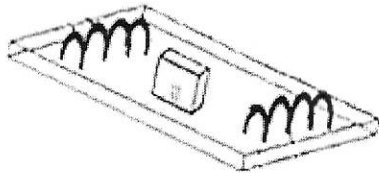


Watching the Grid

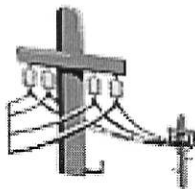
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Regional transmission organizations, reliability councils and utilities monitor the flow of power from the generating plant to the substation



Utilities and "control areas" monitor the flow of power from the substation to load centers (such as communities or large customers)

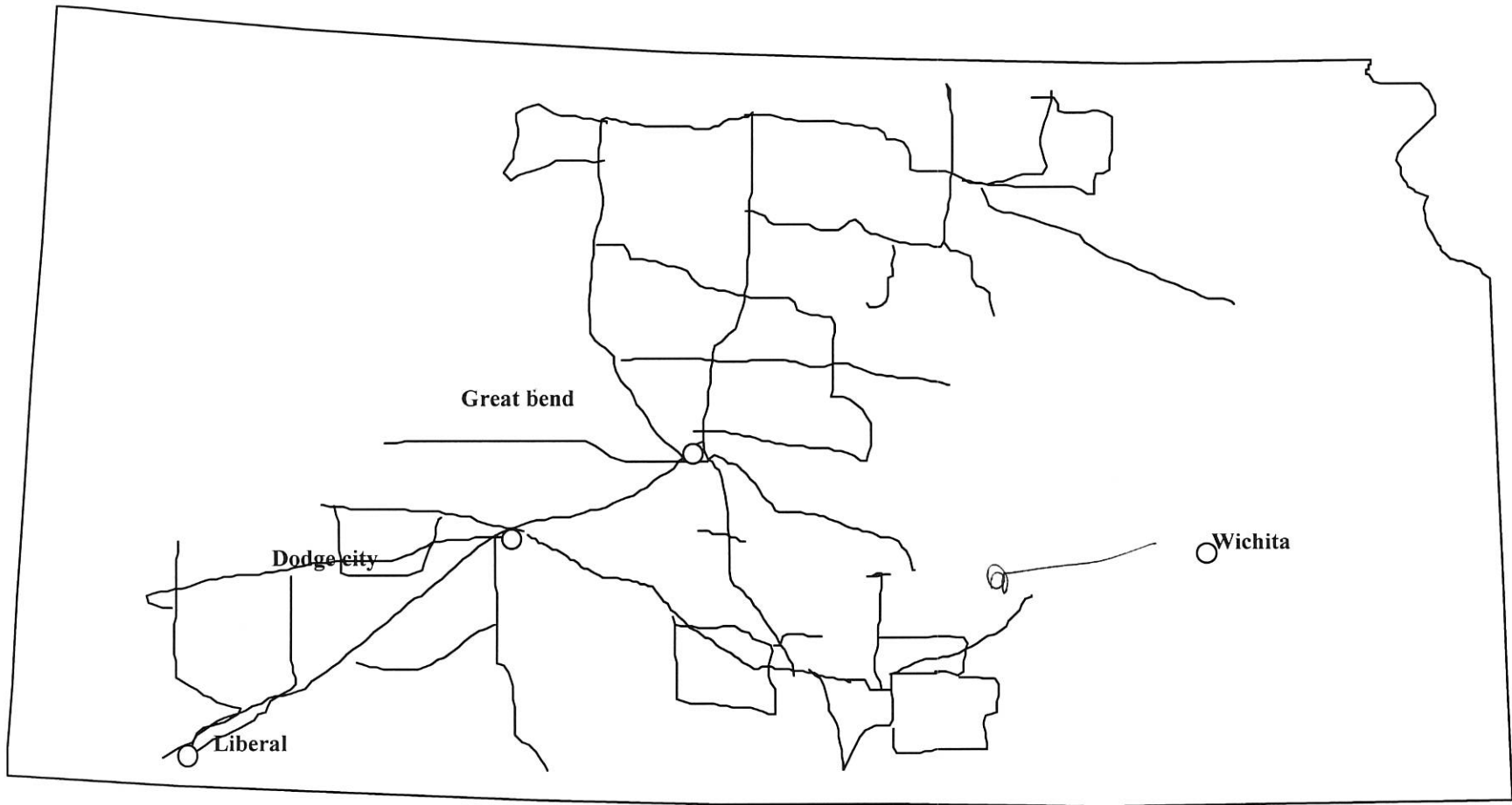


Distribution companies oversee the flow of power from the substation to residential, business and industrial customers



Aquila Networks – WPK Transmission System

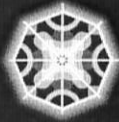
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Aquila Networks - WPK

- ✓ **Transmission Profile**
 - Southwest Kansas to North Central Kansas
- ✓ **Transmission Lines (2464 miles)**
 - 210 miles of 230 kV lines
 - 74 miles of 138 kV lines
 - 731 miles of 115 kV lines
 - 1,450 miles of 34.5 kV lines
- ✓ **Transmission Substations (218 subs)**
 - 3 – 230 kV substations
 - 3 – 138 kV substations
 - 31 – 115 kV substations
 - 181 – 34.5 kV or less substations
- ✓ **Gross Transmission Investment (\$121M)**

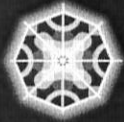
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Kansas Transmission Barriers

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- ✓ Cannot move power into state from any direction
 - Lack of infrastructure between Kansas and our neighbors
- ✓ Cannot move power across state
- ✓ Incentive to build is not there
- ✓ Who pays and how does it affect rates?
- ✓ Regional projects are necessary which require coordinated planning and project management
- ✓ Expensive to site
- ✓ Must overcome “Not in my backyard” sentiment



Transmission Pricing

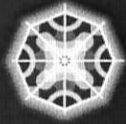
✓ Existing sources of revenue

- Wholesale customers
- Wheeling customers/regional tariff participants
- Native load customers or transfer pricing
- Interconnect studies/agreements

✓ RTO sources of revenue

- Elimination of pancaking
 - Network service
 - Point-to-point
- Through and out

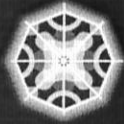
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Transmission Pricing

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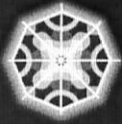
- ✓ Pricing methodologies
 - Postage stamp
 - License plate
 - Flow based e.g MW-mile
 - Highway rate design
 - Locational marginal pricing (LMP)



Transmission Pricing

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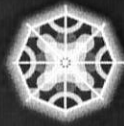
- ✓ Ancillary Services
 - What are they?
 - Types
 - Scheduling
 - Voltage
 - Frequency
 - Imbalance
 - Spinning reserves
 - Planning reserves



Transmission Pricing

1-26

- ✓ Pricing incentives
 - ROE increase
 - Accelerated depreciation
- ✓ Bundled transmission
 - FERC regulates wholesale rates
 - States regulate bundle retail rates
- ✓ Transmission bifurcation
 - KS Statute 66-1237
 - Allows for transmission surcharge to recover FERC regulated costs (“RTO cost recovery”)



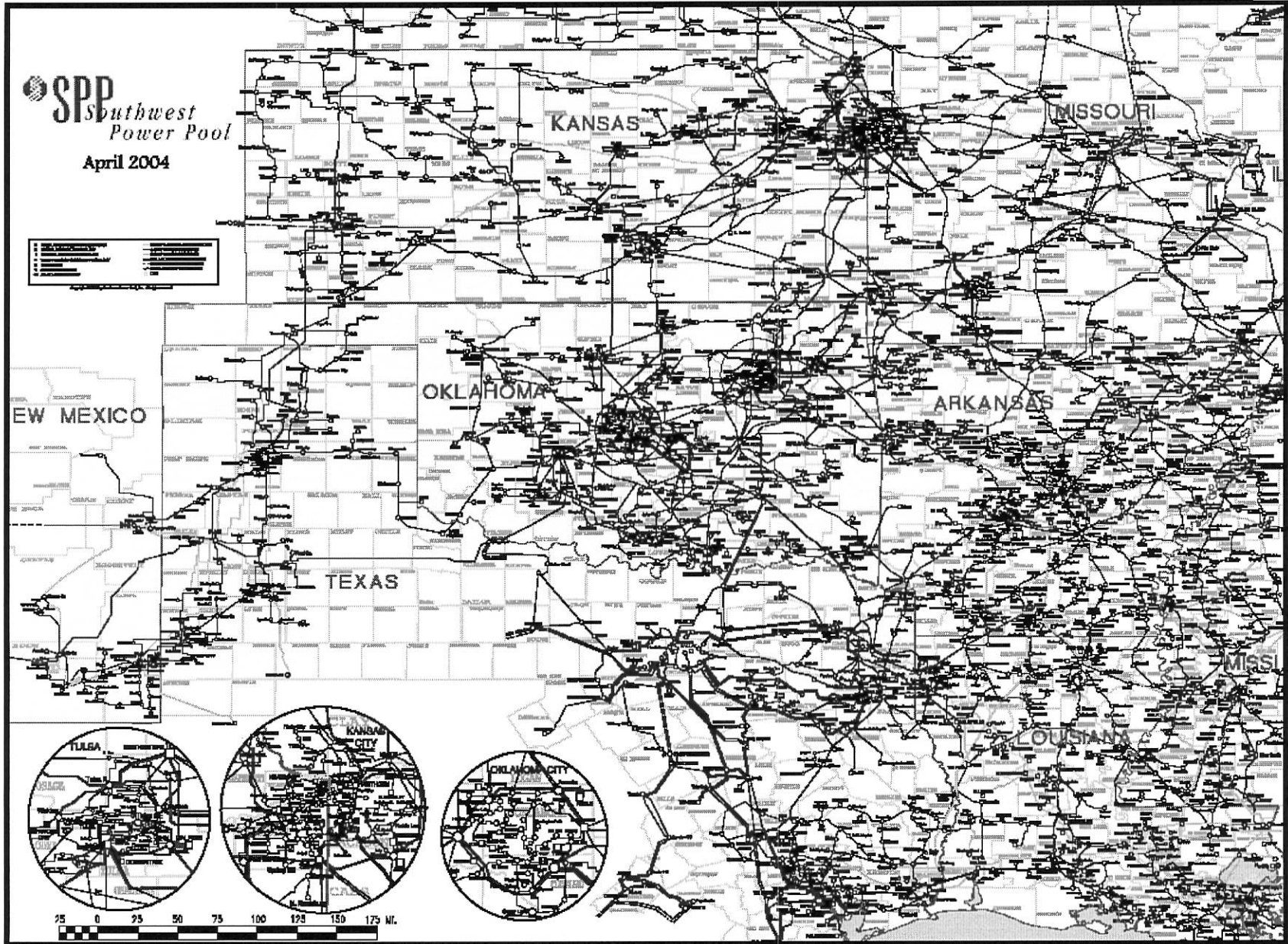
Southwest Power Pool (SPP)

- ✓ All or part of 8 states
- ✓ 279,000 square miles of service territory
- ✓ \$4.6 billion in transmission gross investment
- ✓ 36,800 pole miles of transmission lines
- ✓ 4.5 million customers served
- ✓ 39.1 GWs of peak demand
- ✓ 45.9 GWs of generation capacity

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SPP Transmission Map

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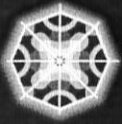
SPP History

- ✓ **1941: Formed to serve defense needs**
- ✓ **1968: NERC Regional Council**
- ✓ **1980: Telecommunications network**
- ✓ **1991: Operating Reserve Sharing**
- ✓ **1994: Incorporated**
- ✓ **1997: Security Coordination**
- ✓ **1998: Tariff Administration**
- ✓ **2001: Regional Scheduling**
- ✓ **2004: FERC Approved RTO**
- ✓ **2005: RTO implementation**
- ✓ **“Evolution, not revolution”**



SPP Regional State Committee

- ✓ **Membership includes state commissioners from Arkansas, Kansas, Louisiana (observer), Missouri, New Mexico, Oklahoma, and Texas**
- ✓ **The RSC has primary responsibility for determining regional proposals and the transition process in the following areas:**
 - whether and to what extent participant funding will be used for transmission enhancements
 - Cost benefit studies for RTO applications/membership
 - Transition mechanism to be used to assure that existing firm customers receive FTRs equivalent to the customers' existing firm rights
 - Approach for resource adequacy across the entire region
 - Whether upgrades for remote resources will be included in the regional transmission planning process
 - Role of transmission owners in proposing transmission upgrades in the regional planning process



2005 Transmission Highlights??

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- ✓ **National Energy Bill Legislation**
- ✓ **FERC Orders**
- ✓ **Wind Interconnections and Reliability Standards**
- ✓ **SPP Migration to RTO**
- ✓ **SPP RSC Cost-Benefit Studies**
- ✓ **SPP RSC Cost-Allocation Plan Approval**
- ✓ **NERC Reliability and Readiness Audits**
- ✓ **Successful KS Bifurcation/RTO Cost Recovery Orders**