Kansas Legislature

Mike Ross
Senior Vice President
Government Affairs and Public Relations

- Intro to SPP
- Transmission Planning
- Wholesale Energy Market
- FERC Order 1000
- Clean Power Plan
- Value of Transmission

December 7, 1941

New York World-Telegram

LATEST WALL ST. PRICES Real Estate, Page 31 PRICE THREE CENTS

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.

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."

SOVIET UNION CANADA MONGOLIA JAPAN CHINA UNITED STATES MIDWAY

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

BULLETIN.

By the United Press.

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

BULLETIN.

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

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

Members in 14 States

Arkansas

Kansas

Iowa

Louisiana

Minnesota

Missouri

Montana

Nebraska

New Mexico

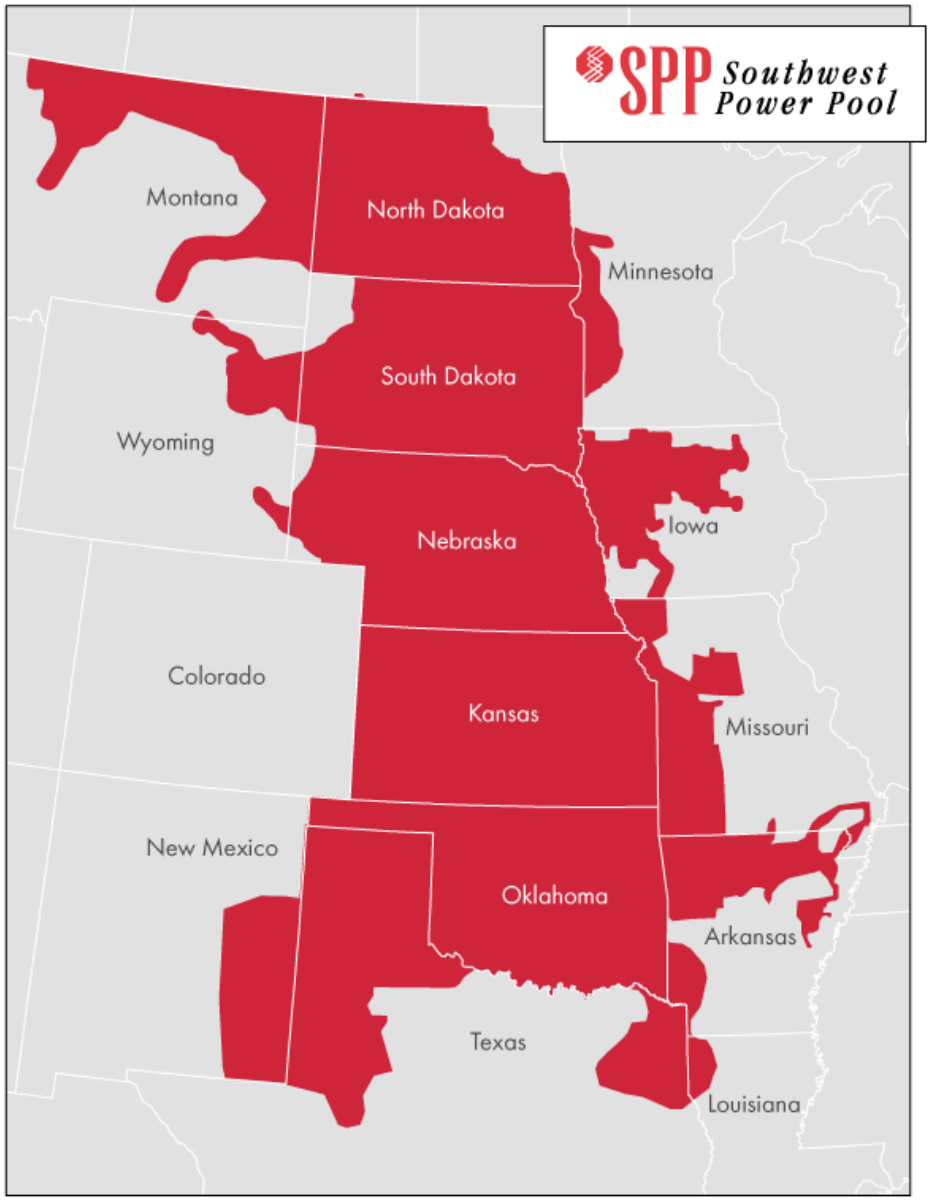
North Dakota

Oklahoma

South Dakota

Texas

Wyoming



Our Major Services

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

Our Approach

- **Regional**
- **Independent**
- **Cost-effective**
- **Focus on reliability**

Some Activities Outside of SPP's Responsibility

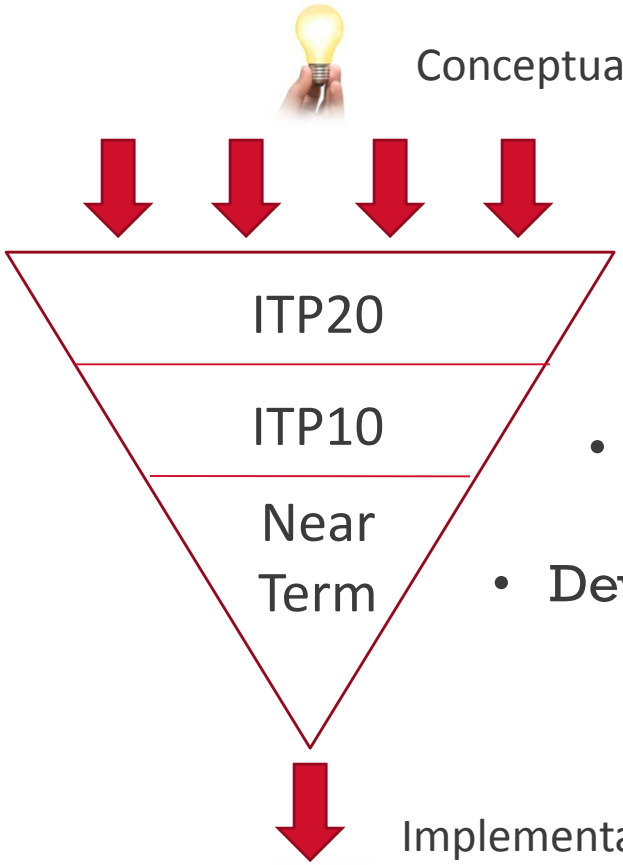
- Transmission Siting
- Generation Planning/Siting
- Transmission/Generation Construction
- Transmission/Generation Permitting
- Credit/Allowance Trading Oversight

Transmission Planning

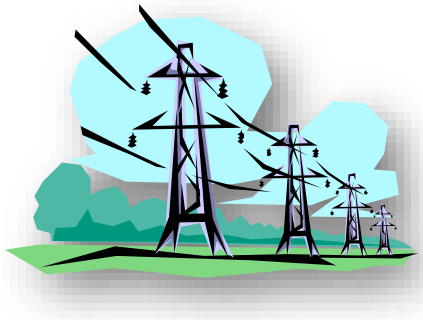
SPP's Planning Role

- Perform near and long-term reliability assessments of the transmission system in accordance with NERC Standards
- Develop annual transmission expansion plans in accordance with the SPP Tariff
- Recommend transmission expansion plans and projects to the Board for approval
- Direct construction of Board approved projects (Notification to Construct)

SPP Integrated Transmission Planning (ITP)



- Develop EHV "highway" vision
- Develop "highway/byway" system
- Develop "byway" & "local" system



20 Year Plan

- 300+ kV Solutions
- Encompass Scenarios
  - Renewable Energy Penetration
  - Load Growth
  - Fuel Prices
  - Others
- Flexible to Evolve with Changing Landscape

10 Year Plan

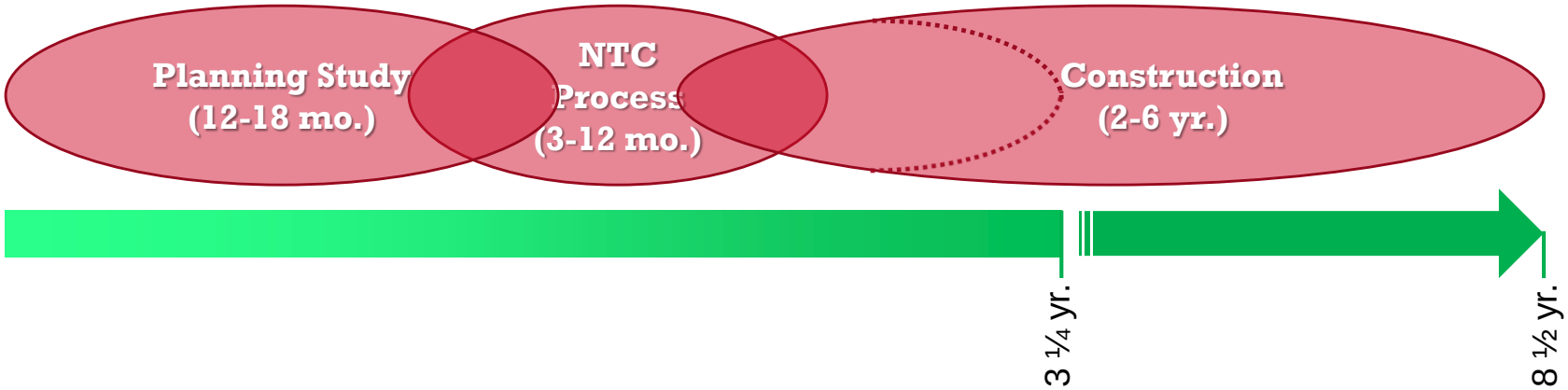
- 100+ kV Solutions
- Narrower Focus
  - Collector and delivery grid facilities
  - Mitigation of congestion
  - Improved market access
  - EHV overlay staging and interconnection

Near-Term Year Plan

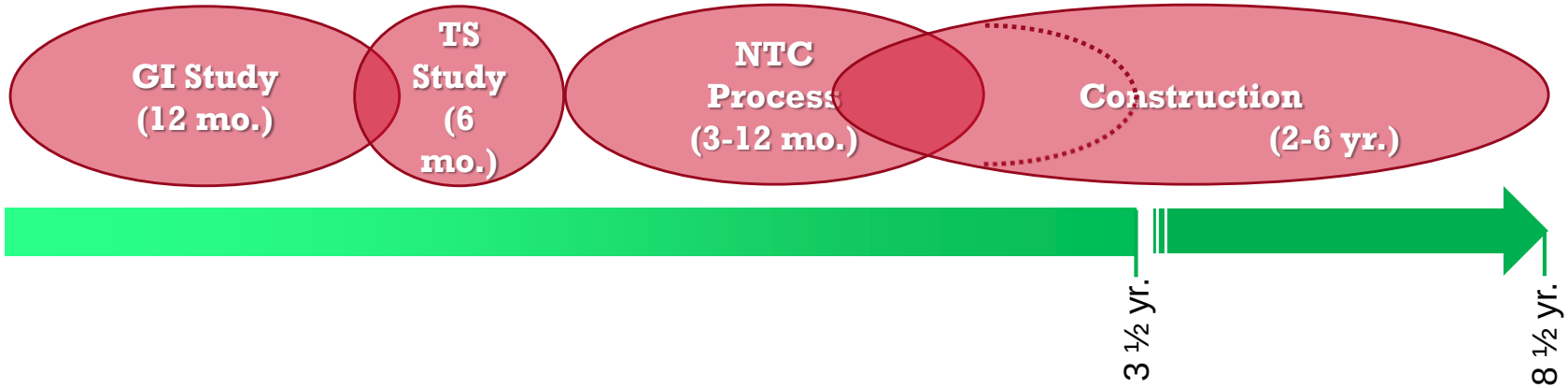
- 69+ kV Solutions
- Local Planning Needs
- Narrowest Assumptions
- Adherence to Reliability Standards

Transmission Build Cycle

Transmission Planning Process



GI and Transmission Service Process



How are transmission costs allocated?

- Highway/Byway: Makes up the majority of transmission projects in SPP. Projects are cost allocated with the following criterial:

Voltage	Region Pays	Local Zone Pays
300 kV and above	100%	0%
above 100 kV and below 300 kV	33%	67%
100 kV and below	0%	100%

Other methods that directly allocate costs:

- Sponsored: Project owner builds and receives credit for use of transmission lines
- Directly-assigned: Project owner builds and is responsible for cost recovery

Wholesale Energy Market

Market Concepts: What is a Market?

General Concepts:

Buyers/Sellers OR Producers/Consumers

Prices driven by Supply and Demand

Products

What Kind of Markets Does SPP Operate?

- Transmission Service: Participants buy and sell use of regional transmission lines that are owned by different parties
- 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's Energy Market: Integrated Marketplace

1. SPP facilitates the Marketplace

✓ Provides the infrastructure and systems

✓ Maintains and follows 900+ pages of Marketplace protocols

✓ 24/7 market operations

SPP's Energy Market: Integrated Marketplace

2. SPP financially settles the Marketplace
   - Calculates prices
   - Captures wholesale energy production and consumption
   - Collects from market participants (MPs) who owe the market
   - Pays MPs who are owed by the market
   - Remains revenue neutral

3. SPP has an independent Market Monitor

Integrated Marketplace Benefits

- **SPP markets have netted $380 million in savings in the past year.**
    - 170 participants
    - 586 generating resources
- Reduce total energy costs through centralized unit commitment while maintaining reliable operations
- Day-Ahead Market allows additional price assurance capability prior to real-time
- Operating Reserve products support implementation of the SPP Balancing Authority and facilitate reserve sharing

FERC Order 1000

FERC Order 1000

- July 21, 2011 – FERC issued Order 1000
- Major Reforms (regional and interregional)
  - Planning Reforms
    - Requires participation in a regional planning process to attain a more effective regional transmission plan
    - Must consider projects driven by public policy needs
    - Neighboring planning regions must coordinate
  - Cost Allocation Reforms
    - Planning regions must have cost allocation for new projects
    - Interregional cost allocation
  - Non-Incumbent Developer Reforms
    - Removal of ROFR from FERC tariffs – if regionally funded

SPP Approved Tariff Provisions

- For the SPP region, FERC directed that the approved competitive process beginning in April 2014. The criteria for competitive projects are:
  - ITP Upgrades, high priority upgrades, or Interregional projects
  - Have nominal operating voltage greater than 100 kV
  - Are not a rebuild of an existing facility
  - Do not alter a Transmission Owner's use and control of its existing right of way under relevant laws or regulations
  - Transmission facilities located where the selection of a Transmission Owner pursuant to Section III of this Attachment Y does not violate relevant law where the transmission facility is to be built
  - Not a Reliability project needed within 3 years or less

Competitive Bidding Process

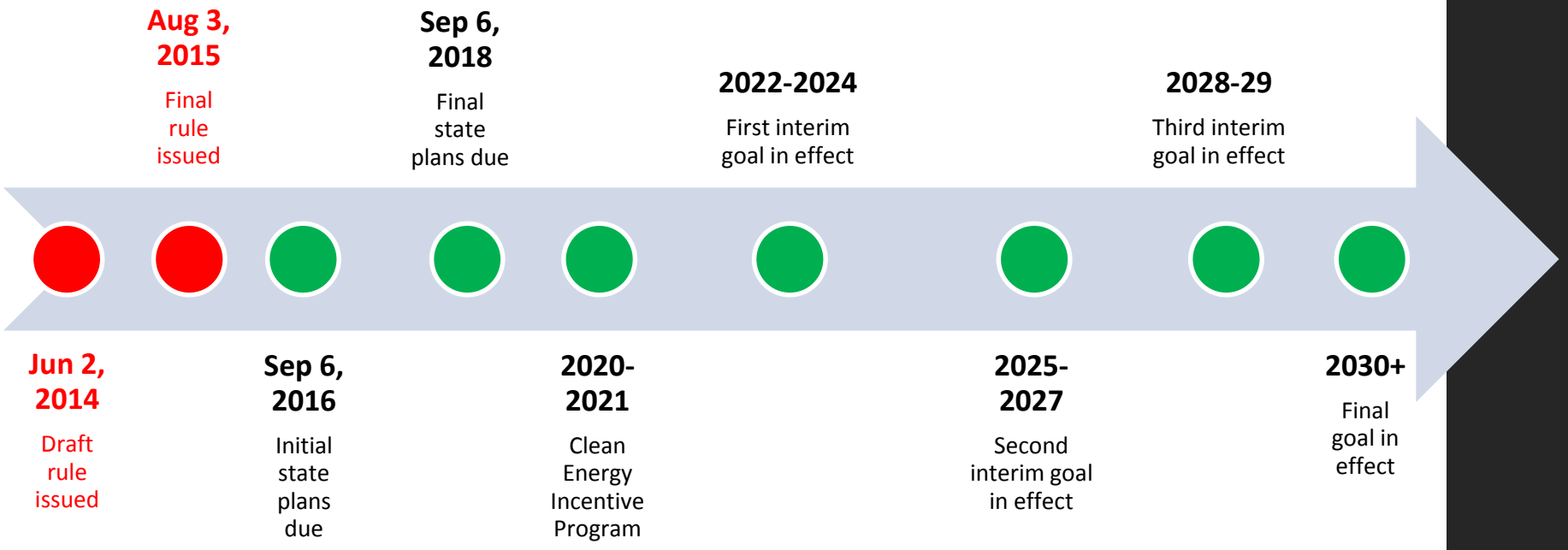
- Once a competitive project is identified:
  - SPP issues a Request for Proposal (RFP)
  - Only Qualified RFP Participants (QRPs) are allowed to respond to the RFP – Extensive list of RFP requirements for both SPP and Respondents
  - Public pre-response Q&A meeting to allow Qualified Participants to ask questions regarding the RFP
  - A pool of ten (10) 3rd party, independent experts are approved by the SPP Board of Directors
  - SPP Board selects 5 of these experts to serve on the Industry Expert Panel (IEP) which will review the RFPs
  - Qualified RFP Participants have 180 days to respond to the RFP
  - Once submitted, the IEP has 90 days to score and rank each RFP Proposal in a non-discriminatory manner
  - The IEP recommends a winning RFP Proposal and an alternate RFP Proposal to the SPP Board of Directors
  - The SPP Board ultimately determines and awards bid.
  - SPP staff has 15 days to issue Notification to Construct (NTC)

Clean Power Plan

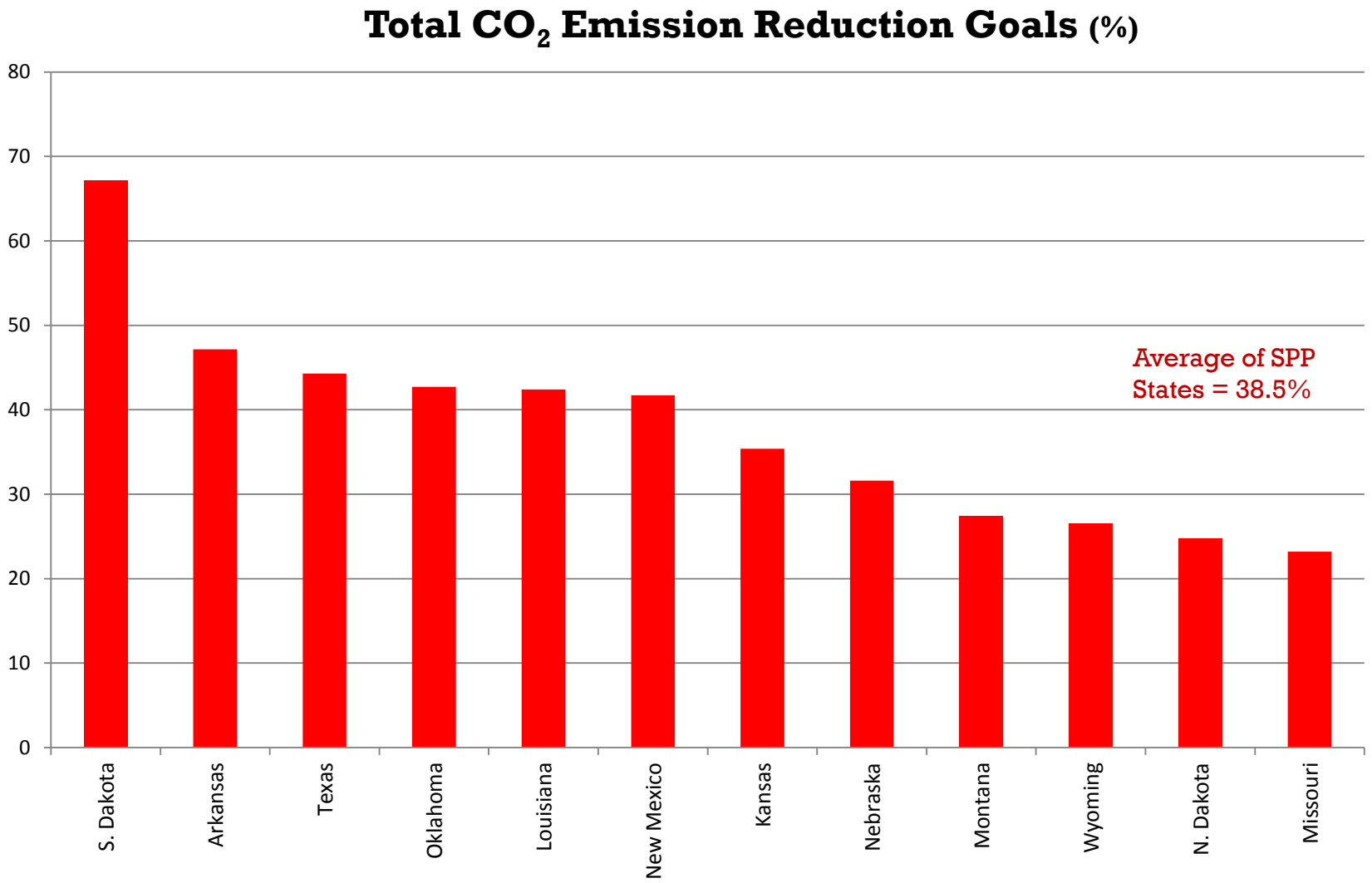
EPA Clean Power Plan Overview

- EPA's performance standards to reduce CO_2 emissions from existing fossil fuel-fired generators
- Achieves nationwide 32% reduction of CO_2 from 2005 levels by 2030, with interim reduction beginning in 2022
- States develop plans to meet their assigned CO_2 goals
  - Can choose to meet statewide portfolio goals (rate-based or mass-based) or resource specific performance goals
  - Allowed to submit plans for EPA approval as late as Sept. 2018
  - EPA will impose Federal Plan if state does not submit
  - States can submit individual plans or work with other states

Clean Power Plan Milestones



% Emission Reduction Goals for States in SPP

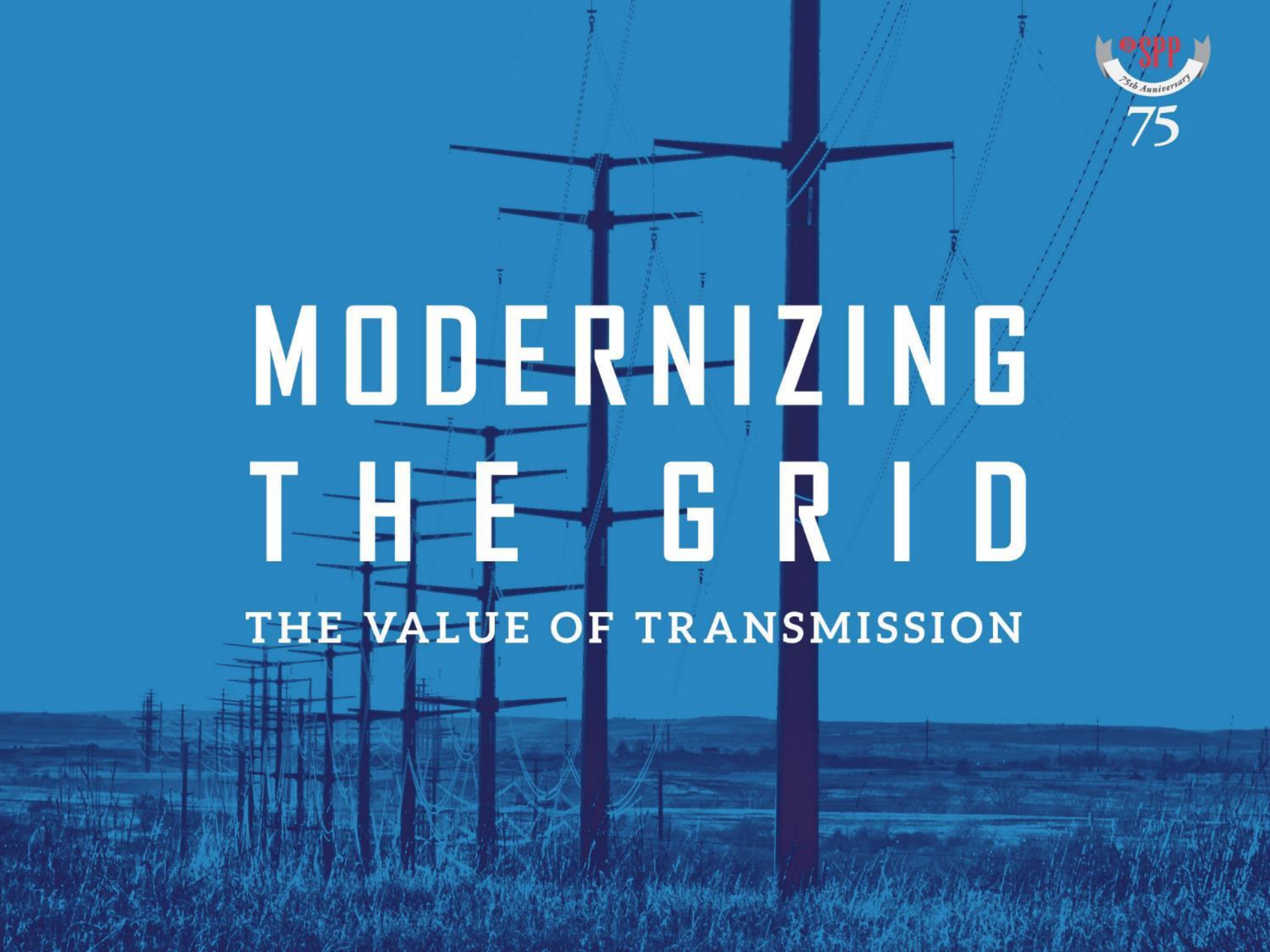


Coordination with SPP

- SPP is the Planning Authority and Reliability Coordinator for its Region and is available to assess state plans for reliability impacts to the SPP region
- We encourage states to begin coordination with SPP early and often during the development of state plans
- We encourage states to determine their expectations for SPP's role in the consultation process early so that SPP can appropriately schedule resources
- States with multiple RTOs/PAs/RCs should be aware of potential for overlapping impacts that could require broader coordination

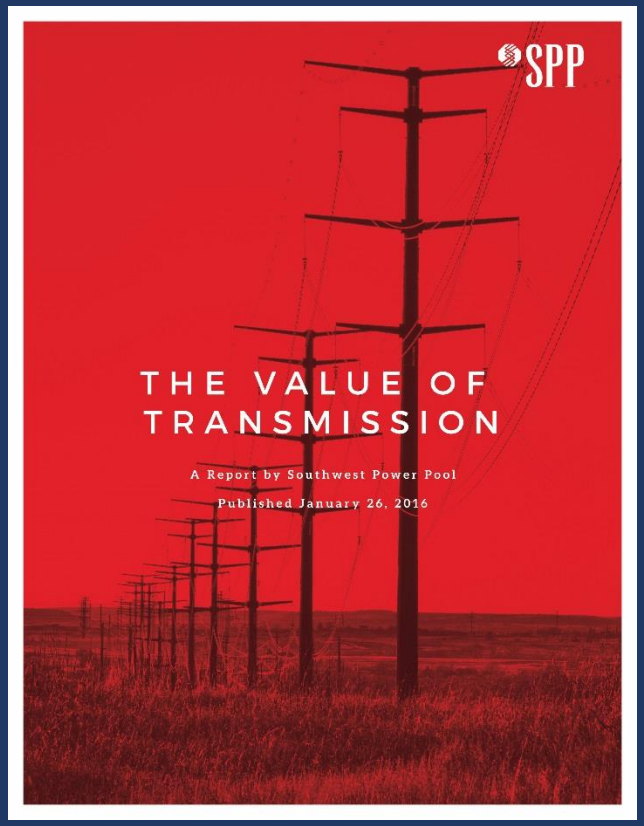
SPP's CPP Conclusions

- SPP studies indicate a regional approach to CPP compliance is more cost effective than a state-by-state approach and less disruptive of the reliability and economic benefits provided by SPP's Integrated Marketplace.
- A regional compliance approach does not have to depend upon a single compliance plan for a geographic region, but could be accomplished with compatible state compliance plans that rely on market-based solutions.
- States are encouraged to develop plans, even if litigating, rather than waiting for EPA's Federal Plan to be imposed on them.
- SPP is responsible for planning and operating the electric transmission system across its 14-state region and is best equipped to assess reliability impacts of state compliance plans to the SPP region.
- SPP can best assess reliability impacts to its region by performing a consolidated review of the compliance plans for the states operating in SPP.
- SPP stands ready to assist any way that it can to ensure a reliable, cost effective approach to compliance.


SPP
75th Anniversary
75
MODERNIZING
THE GRID
THE VALUE OF TRANSMISSION

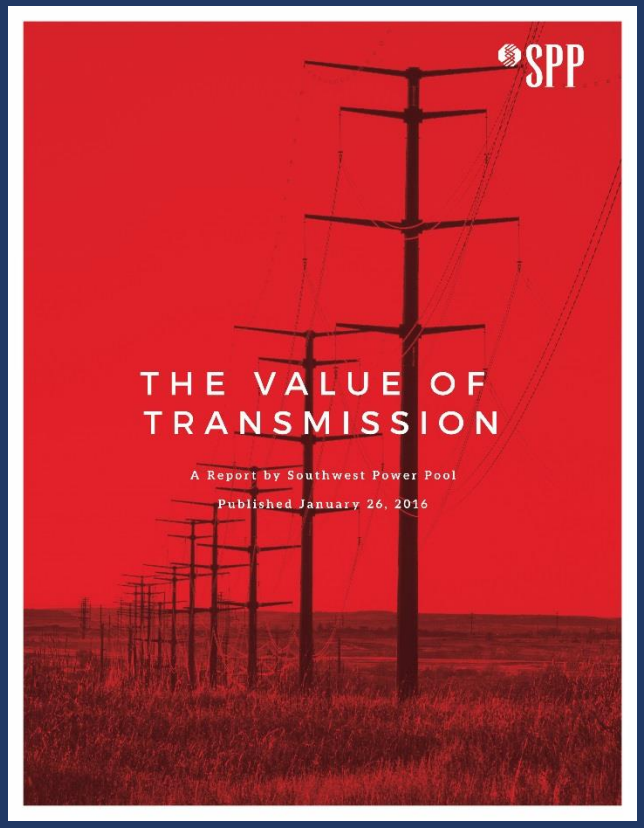
STUDY SCOPE

- 348 projects from 2012-14, representing $3.4B of transmission investment
- Based on the first year of operation of Integrated Marketplace from March 2014 through February 2015



STUDY METRICS

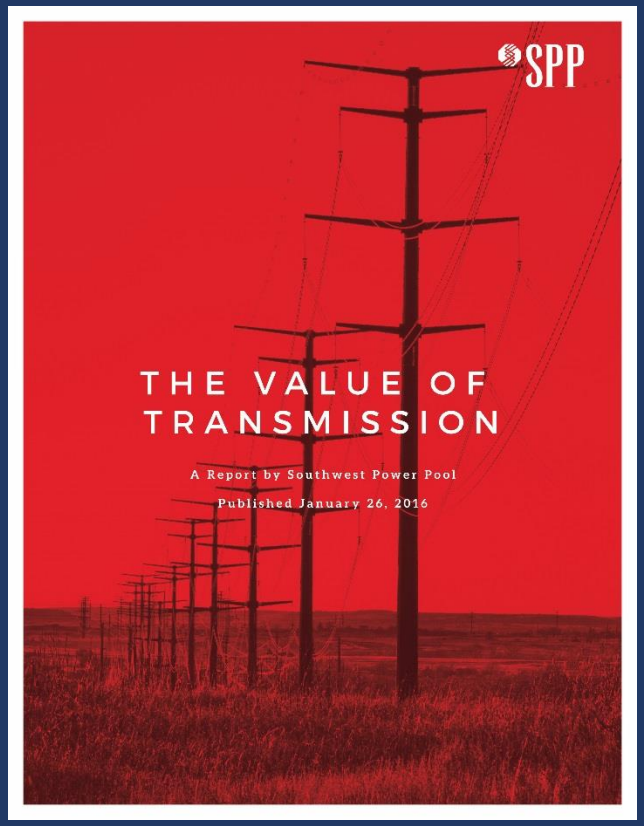
- Adjusted Production Cost (APC) Savings
- Additional Production Cost Savings
- Reliability and Resource Adequacy Benefits
- Generation Capacity Cost Savings
- Market Benefits
- Other industry and SPP approved metrics



STUDY RESULTS

- APC Savings calculated at more than $660k/day, or $240M/year.
- Overall NPV of all benefits for considered projects are expected to exceed $16.6B over 40 years.

Benefit-Cost ratio of 3.5 to 1



BRATTLE GROUP REVIEW

- "The SPP Value of Transmission study is a path-breaking effort…"
- "… A more accurate estimate of the total benefits that a more robust and flexible transmission infrastructure provides to power markets, market participants and, ultimately, retail electric customers."
- "Estimated present value of the production cost savings in the SPP study likely is understated…"

THE Brattle GROUP

December 30, 2015

Mr. Jay Caspary
Director, R&D and Special Studies
Southwest Power Pool
201 Worthen Drive
Little Rock AR 72223-4936

Re: SPP Value of Transmission Study

Dear Jay:

Thank you for giving us the opportunity to review the "Value of Transmission" report and the associated PowerPoint summary presentation prepared by SPP staff in December 2015. The SPP study attempts to quantify the overall value provided by SPP transmission projects placed in service during 2012-2014. Based on our review of the final drafts of your study and several prior rounds of discussions in response to earlier drafts, we are pleased to provide the following comments:

- The SPP Value of Transmission study is a path-breaking effort. It provides a more accurate estimate of the total benefits that a more robust and flexible transmission infrastructure provides to power markets, market participants and, ultimately, retail electric customers.
- Relying on a full "re-run" of SPP's day-ahead and real-time markets without the evaluated transmission projects for 40 representative days during the first year of operation of SPP's Integrated Marketplace and comparing the re-run results to actual market results (which include the evaluated transmission projects after they were placed in service) yields a more complete and more accurate estimate of the production cost savings provided by the evaluated projects than the savings estimated in traditional planning studies.
- The estimated present value of the production cost savings in the SPP study likely is understated because: (a) many of major transmission projects evaluated were not yet in service during most of the 40 days that were analyzed; (b) the selected representative days did not include a full spectrum challenging system conditions (such as extreme weather or generation/transmission outage events) that must be expected to occur over the long service life of the evaluated transmission projects; and (c) based on the experience from other SPP transmission benefit studies, the growth rate of the quantified production cost savings may exceed the assumed annual rate of 10% per year.
- The methodologies applied by SPP staff to quantify the range of other transmission-related benefits are consistent with the methodologies applied in the ITP and RCAR evaluation process. Where deviations from the ITP and RCAR processes exist (e.g., in the estimation of public policy benefits), the methodologies applied are reasonable and represent best available industry practice.

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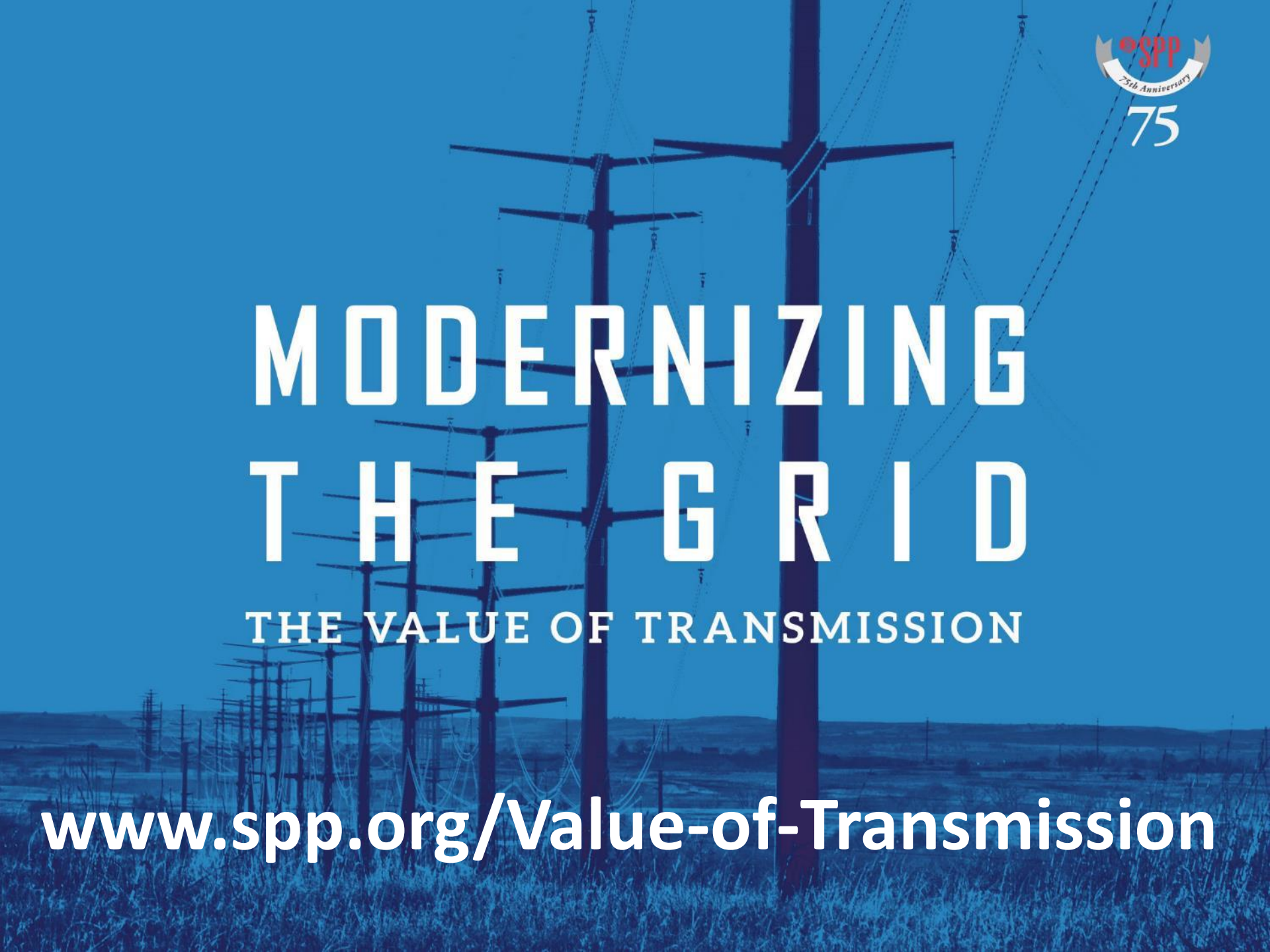
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