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

Helping our members work together to keep the lights on ... today and in the future.
Independent System Operator (ISO) / Regional Transmission Organization (RTO) Map
# Our Membership Profile

<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investor Owned Utilities</td>
<td>14</td>
</tr>
<tr>
<td>Cooperatives</td>
<td>13</td>
</tr>
<tr>
<td>Marketers</td>
<td>12</td>
</tr>
<tr>
<td>Municipals</td>
<td>11</td>
</tr>
<tr>
<td>Independent Power Producers/Wholesale Generation</td>
<td>13</td>
</tr>
<tr>
<td>Independent Transmission Companies</td>
<td>10</td>
</tr>
<tr>
<td>State Agencies</td>
<td>7</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>80</strong></td>
</tr>
</tbody>
</table>

As of October 28, 2014
2013 Energy Capacity and Consumption

12% annual planning capacity requirement
Transmission Facts

• In 2013, SPP members completed 101 transmission projects totaling more than $586 million

• More than $7.7 billion in transmission grid upgrades were planned and approved in the 2000-14 planning cycles

• 48,930 miles of transmission lines in SPP’s footprint would circle the earth — almost twice!
Finding Balance

- Less Investment → Less Amount of Transmission
- More Investment → More Amount of Transmission

- Minimum for Reliable Delivery to Customers
- More Transmission Needed
- Expand Transmission
- No Limits to Low Cost Delivery

Customer Energy Cost
Transmission = 10% Retail Electricity Rates

Transmission enables optimal use of our region’s diverse generating resources, including coal, natural gas, hydroelectric, nuclear, and wind energy.
How does SPP decide what and where transmission is needed?

• Integrated Transmission Planning process
• Generation Interconnection Studies
  – Determines transmission upgrades needed to connect new generation to electric grid
• Aggregate Transmission Service Studies
  – Determines transmission upgrades needed to transmit energy from new generation to load
  – Shares costs of studies and new transmission
• Specific transmission studies
Who pays for these transmission projects?

- **Sponsored**: Project owner builds and receives credit for use of transmission lines
- **Directly-assigned**: Project owner builds and is responsible for cost recovery and receives credit for use of transmission lines
- **Highway/Byway**: Most SPP projects paid for under this methodology

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Region Pays</th>
<th>Local Zone Pays</th>
</tr>
</thead>
<tbody>
<tr>
<td>300 kV and above</td>
<td>100%</td>
<td>0%</td>
</tr>
<tr>
<td>above 100 kV and below 300 kV</td>
<td>33%</td>
<td>67%</td>
</tr>
<tr>
<td>100 kV and below</td>
<td>0%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Projects Constructed 2005-2014
Conceptual and Approved Expansion

(July 2014)

All SPP Transmission Expansion Plans are subject to change.

Upgrade Type
- Completed 345 kV
- Double Circuit 345 kV NTC's
- Single Circuit 345 kV NTC's

Other Expansion
- Clean Line
- HPX Expansion
- CREZ
- SGL Ckt/Dbl Ckt Towers
- Double Ckt
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
- 9,000 MW capacity of in-service wind
- 20,228 MW wind in-service and being developed
  - Includes wind in Generation Interconnection queue and with executed Interconnection Agreements
Annual Average Wind Speed - 80 meters

Solar in the U.S.

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

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
Generation Interconnection Requests

GI Requests (Wind)
(As of October 2014)

Status of GI Request
- Signed IA/In Service
- Signed IA/On Schedule
- Signed IA/On Suspension
- Under Study

Size of GI Request (MW)
- 1 - 60
- 61 - 140
- 141 - 250
- 251 - 550
- 551 - 1000

All Generation Interconnection data taken from GI Queue on 10/2/2014. Request locations shown are approximate locations. Points of interconnection are not displayed on this map.