



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



## Transmission Enabling

**Where are we now?**

Existing processes - transmission needed to:

- **Reliability Assessment:** Maintain reliability for next 10 years
- **Aggregate Transmission Service Study:** Meet current requests for transmission service
- **Generation Interconnection:** Connect new resources to grid
- **Balanced Portfolio:** Provide more benefits than costs per zone
- **Extra High Voltage (EHV) Overlay:** Meet needs 20+ years

Why do we need to change?

- **Address gaps and conflicts between processes**
- **Simplify multiple cost allocation methods**
- **Position SPP to respond to federal focus on improving electric infrastructure**
- **Develop holistic, long-range view**
- **Be proactive rather than reactive to building and paying for infrastructure**

New planning process will:

- **Consolidate:**
  - Reliability Assessment
  - Balanced Portfolio
  - EHV Overlay
- **Generation Interconnection and Aggregate Studies:**
  - Remain separate
  - Simplified

Variables to consider

- **Renewable Energy Mandates (RPS/RES)**
  - Wind generation, solar, bio-mass, kinetic hydro
  - Energy efficiency and demand response
- **Carbon legislation**
  - Carbon capture and sequestration
  - Nuclear generation
  - Distributed generation

## Variables to consider

- **Air quality**
- **Smart grid**
- **Price sensitive demand**
- **Electric transportation**
- **Electric storage**

## Proactive Planning

- **Focus on deliverability of energy to market**
  - **Benefits are Regional, Not Local**
- **Deliverability to load in other markets vs. Renewable Energy Credits (RECs)**



## Integrated Transmission Plan

## What is Integrated Transmission Planning?

- **ITP:** New effort to develop proactive regional transmission planning principles
- **Goal:** Build robust grid to meet near- and long-term needs
- **Horizon:** 5, 10, and 20 year
- **Focus:** Regional, integrated with local
- **Update:** Every three years
- **Resulting in:** Comprehensive list of needed projects for SPP region over next 20 years

## What is Integrated Transmission Planning?

- **Major Objective: Design transmission backbone to connect load centers to low-cost generation**
  - Backbone should integrate SPP's East and West regions
  - Make transmission enabler rather than constraint
  - Strengthen ties to Eastern and possibly Western Interconnections



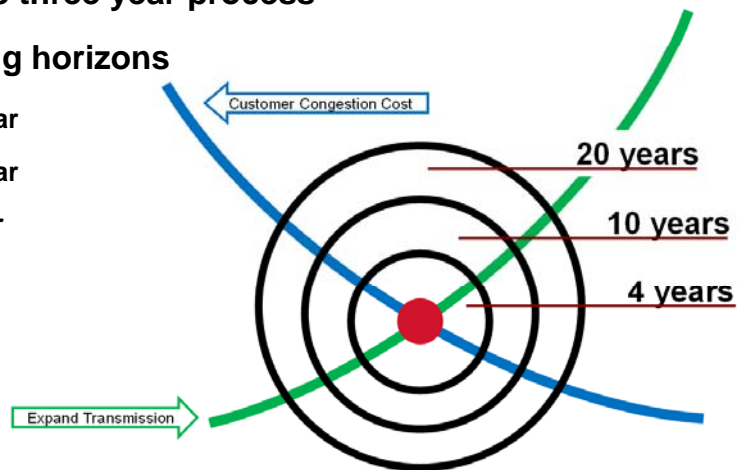
## Need Stakeholder Input

- **What should the backbone of the transmission system look like?**
- **Where should the on and off ramps be?**
- **Develop the plausible futures and modeling assumptions**
- **Reviewing the list of proposed ITP projects**
- **Follow through with project construction**

## ITP Design

- **Iterative three year process**
- **Planning horizons**

- 20 year
- 10 year
- 4 year



## 20-Year Plan

- **345+ kV solutions**
  - Also look at underlying System at 100 kV+
- **Encompass scenarios:**
  - Renewable energy penetration
  - Load growth
  - Fuel prices
  - Others
- **Flexible to evolve with changing landscape**

## 10-Year Plan

- **100+ kV solutions**
  - Also look at underlying System at 69 kV+
- **Narrower focus**
  - Collector and delivery grid facilities
  - Mitigation of congestion
  - Improved market access
  - EHV overlay staging and interconnection

## 4-Year Plan

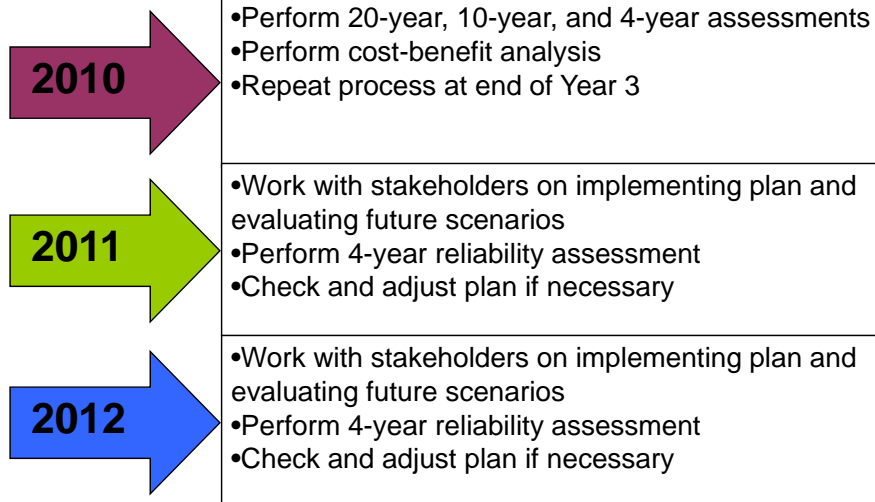
- **69+ kV solutions**
- **Local planning needs**
- **Look at known assumptions**
- **Adherence to reliability standards**



## Metrics to Prioritize

1. Adjusted Production Cost (APC)
2. Impact on losses
3. Capacity margin
4. Operating reserves
5. Environmental impacts
6. Transmission enhancement
7. Resource access
8. Reliability enhancement

## Schedule





# Cost Allocation

Who pays for transmission now?



<i>Type</i>	<b>Reliability</b>	<b>Economic</b>
<i>Purpose</i>	Keep lights on	Benefit/Cost >1
<i>Also Called</i>	Base Plan	Balanced Portfolio
<i>Funded</i>	Region - 33% Impacted zone- 67%	Shared regionally
<i>Voltage</i>	All	345 kV+
<i>Implemented</i>	2005	2009

## Who will pay with new approach?

- **SPPT considering “highway/byway” approach**
  - High-voltage “highway” funded with regional rate
  - Lower-voltage “byway” funded with local rate
- **Highway/Byway:**
  - Supports uniformity of customer costs
  - Eases administrative burden of differing allocation methods
  - Provides basis for cost allocation across seams
  - More consistent with “national transmission highway” being discussed at federal level

## Cost/benefit analysis to be performed

- **40-year horizon**
- **Identify cost/benefit of each scenario by zone/state**
  - Scenarios include load sensitivities, wind levels, fuel/carbon prices, etc.
- **Quantify benefits from:**
  - Avoided projects
  - Reduction in emissions, operating reserves, congestion
  - Interconnection improvements
- **Assess impact on typical residential customer**

## How would “highway” impact customers?

- **Regional EHV “highway” cost: ~ \$6-7 billion**
- **Customer impact: Benefits expected to exceed cost**
  - **Example – SPP’s analysis found that for 7 Balanced Portfolio projects that cost \$700 million, customers would:**
    - **Pay 88¢ on \$100 monthly utility bill (less than 1% of bill)**
    - **Gain \$1.66 in benefits**
- **Customer savings come from:**
  - **Improved access to low-cost generation**
  - **Greater grid efficiency**
  - **Increased competition in SPP wholesale market**

## Conclusion

- **Foster new era of transmission planning**
- **Forward-looking and proactive planning**
- **GI and Aggregate Study more efficient**
- **Meet short-term and long-term needs**
- **Robust, flexible, and cost-effective**
- **Maintain reliability while providing economic solutions**



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