

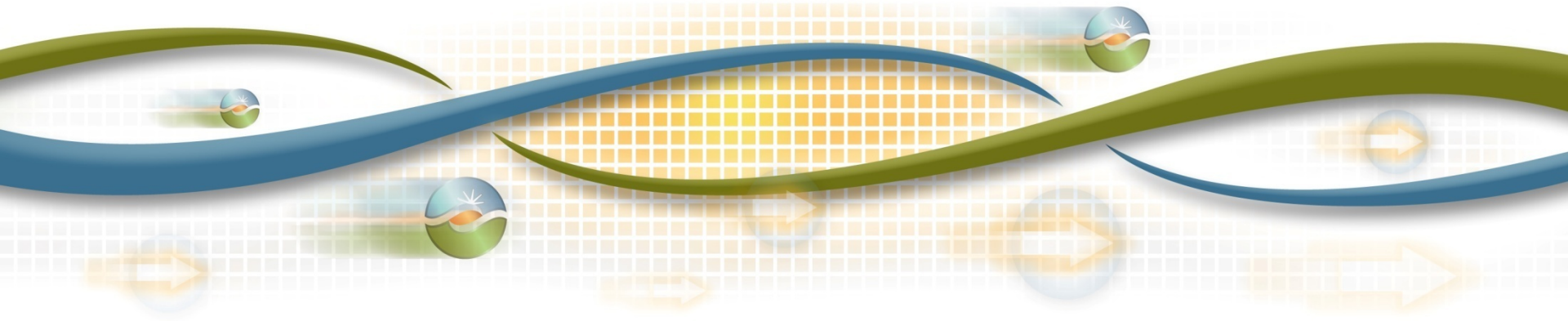
Connecting Transmission and Distribution

Heather Sanders

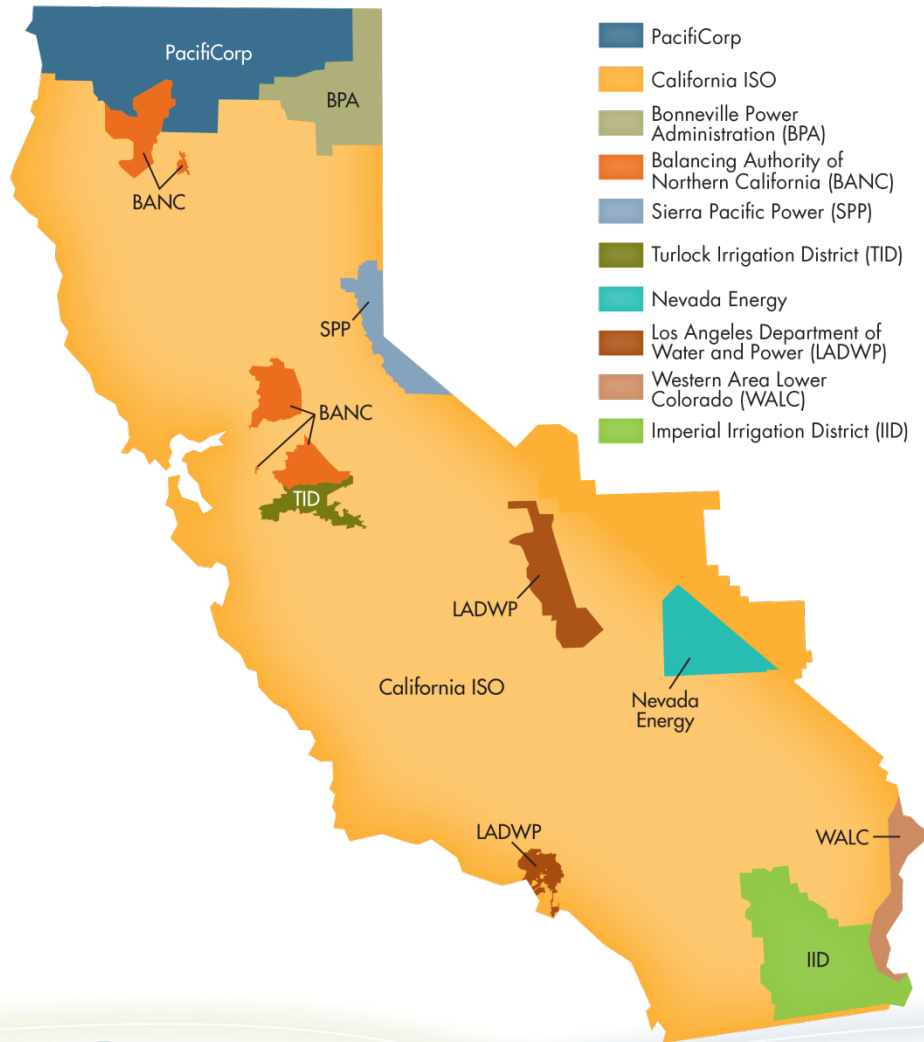
Director, Regulatory Affairs, Distributed Energy Resources

Resnick Institute – Grid 2020 Discussion Series

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California ISO

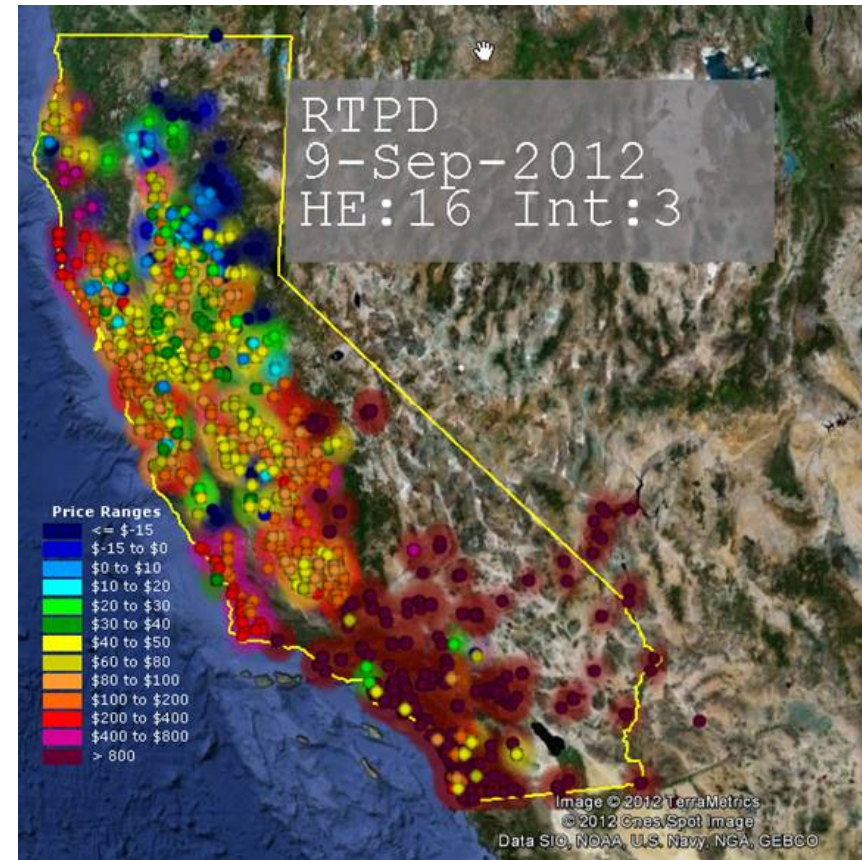


The ISO, a nonprofit public benefit corporation, maintains the constant and reliable flow of electricity for the health, safety and welfare of consumers

- **58,698** MW of power plant capacity
- **50,270** MW record peak demand (July 24, 2006)
- **26,500** market transactions per day
- **25,627** circuit-miles of transmission lines
- **30 million** people served
- **309 million** megawatts of electricity delivered annually

Questions remain about how to put together a market (or markets) for distribution and transmission resources.

- Maximize value for resource owner
- Minimize cost from operator perspective
- Meet operational requirements across entire system
- Respect constraints
- Cost (value) of resources and devices communicated
- Capabilities of resources and devices known and modeled
- System optimization and local optimization coordinated



ISO experience integrating distributed energy resources

- Resource modeling
- ISO market models
- Wholesale distribution access tariffs
- Limited operations experience
- Need for transmission and distribution coordination
- Tension between operational need and customer expectations



The “duck” shows growing need for flexibility starting 2015 – all resources can contribute.

