

Demand for Transmission: Roles and Interactions of PUCs, IRPs and PPAs



BLM Transmission Webinar

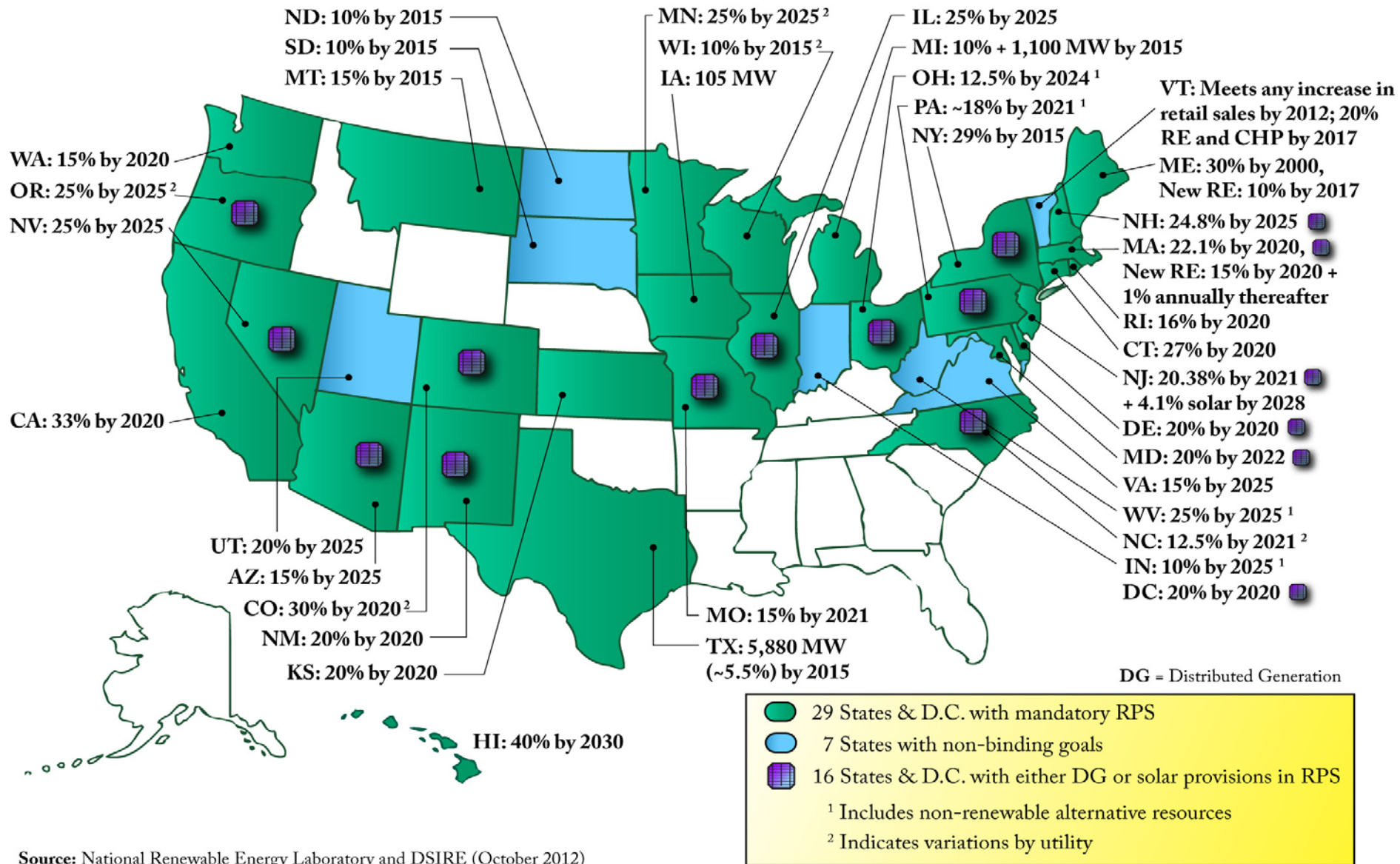
Karlynn Cory and David Hurlbut

February 28, 2013

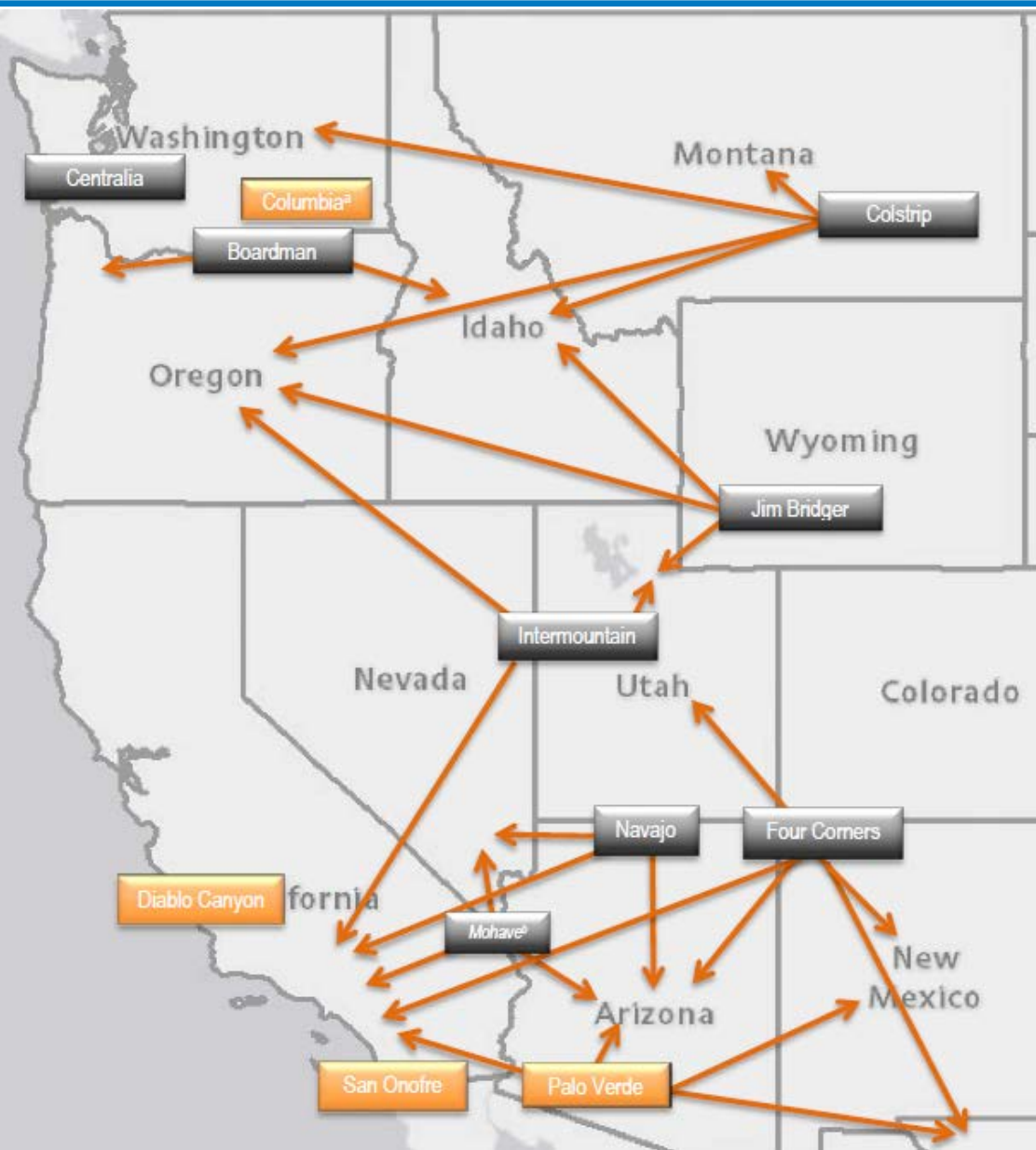
Objectives

- **Review key concepts**
 - RPS – renewable portfolio standard
 - Transmission planning
- **Add new key concepts**
 - IRP – integrated resource plan
 - PPA – power purchase agreement
 - PUC – public utility commission
- **Overview of IRP process**
- **How PPAs are generated in the process**
- **Role of PUC in approving the IRP**

States with Renewable Portfolio Standards (indicating solar/DG set-asides)



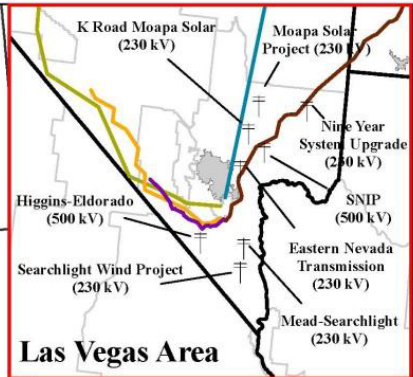
Historical power flows in Western Interconnect



- Coal and nuclear plants
- 500+ MW
- Most plants serve demand in more than one state
- Most send some output to California

Source: upcoming NREL report (Hurlbut, McLaren and Gellman)

Pending Transmission Projects



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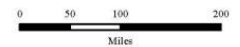

Washington Office
Minerals and Realty Management

DRAFT Pending High Voltage Transmission Projects

- BSE Hidden Hills
 - Solar Express
 - Sigurd Red Butte
 - Zephyr
 - EGS
 - Barren Ridge
 - RTI
 - Boardman Hemingway*
 - San Juan Basin
 - Cascade Crossing*
 - Centennial West
 - Southline
 - Gateway West*
 - SunZia*
 - MSTI
 - TransWest*
 - NGIV
 - Vantage Pomona Heights
- † Project < 50 Miles

- Boundaries**
- State
 - Field Office
 - Urbanized Area

*RRTT Pilot Project

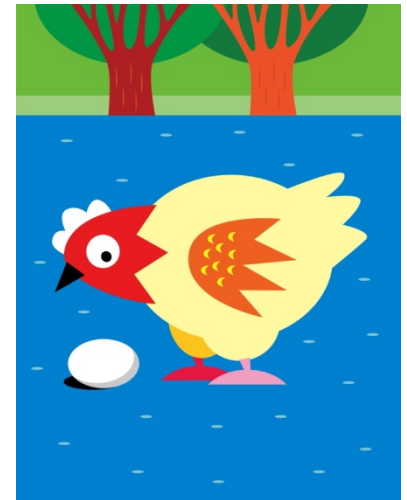


Map generated by the Washington Office on 2012.04.24

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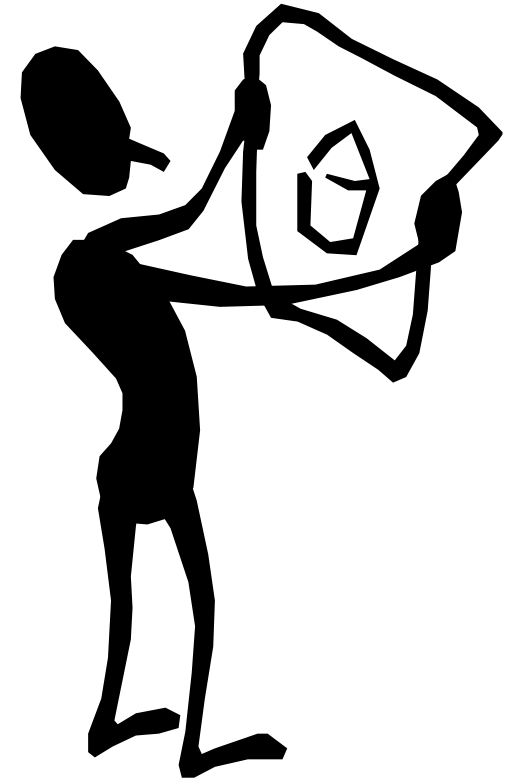
Transmission Planning Realities

- **Chicken-and-the-egg – who will build first?**
 - RE projects: completed in 1-3 years
 - Transmission: 5-10 years (10-15 yrs. in CA)
- **Transmission and cost allocation issues**
 - Do you build a line bigger than needed, hoping that more generators will come?
 - In general, answer is no
 - PUCs considers interconnection queue for guidance
 - The west's Renewable Energy Zone effort can help
 - Does the first generation plant pay the full cost of new transmission and required upgrades?
 - FERC Order 1000 indicates they shouldn't
 - Who should pay (generators, utility, ratepayers)?
And how to allocate costs between key parties?



Key Concept: Integrated Resource Plan

- What? Public planning process and framework to evaluate utility resource options to meet demand
 - Who? Utilities and regulators
 - When? Short-term and long-term needs
 - Why? Analyze cost of and benefits from supply-side and demand-side options
- ➔ can include environmental impacts, EE and RE alternatives



Sources: EEI, Expert Glossary

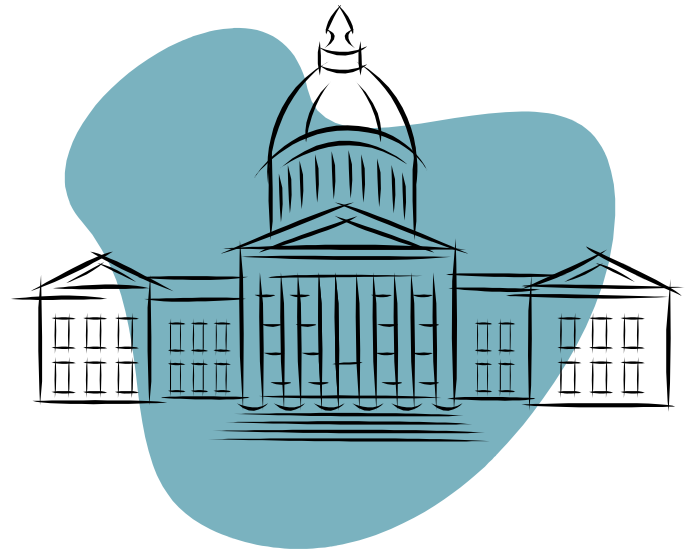
Key Concept: Power Purchase Agreement

- What? Contract to purchase electricity (a.k.a. power)
- Who? Between utilities and independent power producers
- When? Long-term (10-25 years; ~20 years for RE)
- Why? To secure investor capital to build the plant in the first place



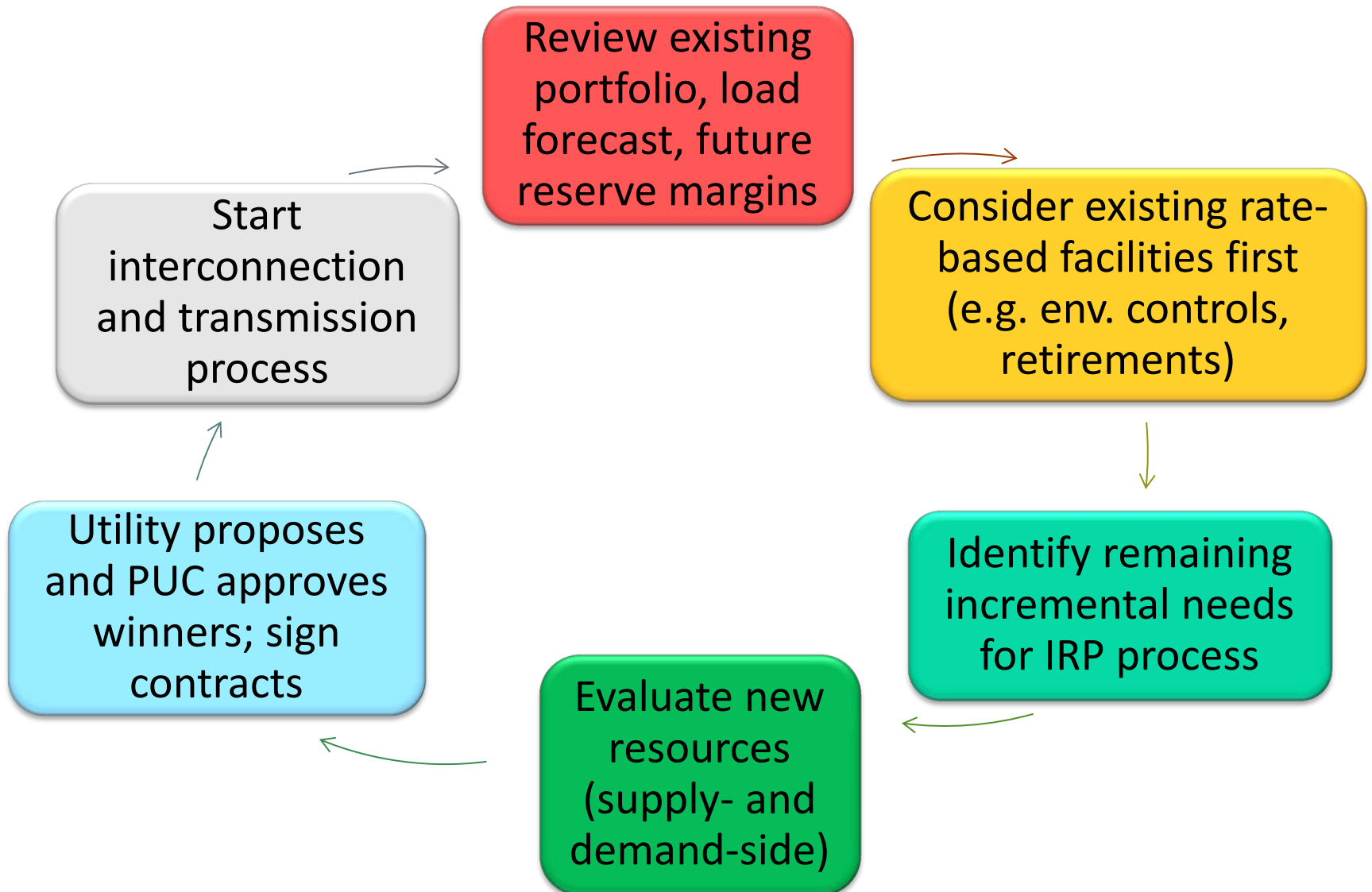
Key Concept: Public Utility Commission

- What? State regulatory agency that oversees retail utility rates
- Who? Governs investor-owned utility decisions about new generation, transmission and distribution
 - Does not include municipal utilities or rural coops
- When? Short- and Long-term
- Why? To make sure that customer rates are reasonable, while electric grid reliability is maintained
- Also called? Public Service Commission



Sources: EEI, Expert Glossary

Overview of IRP Process (every 2-5 yrs.)



Contracting: How PPAs are Generated

1. Request for proposal (RFP)

- Utility gets PUC permission to issue an RFP
 - Usually RE done in its own RFP (to meet RPS)
 - Sometimes RE eligible in general RFP
- Proposals submit by date certain
- Utility evaluates and makes recommendation to PUC
 - Least-cost is usually main criterion
- PUC approves or asks for changes – next step: PPA!



2. Sole source contract (opportunistic situations)

- Developer approaches utility directly (if no RFP open)
- If interested, utility asks PUC for approval
- Next steps depend on the state and the PUC
 - Some will approve after evaluating
 - Some might require an RFP to compare
- PUC approves or asks for changes – next step: PPA!

Role of state PUCs

- **Generally, decisions that do not involve interstate commerce**
- **Supply decisions**
 - Utility-owned generation (rate-base)
 - PPAs with utility-scale generators
 - Demand response programs
 - Other supply- or demand-side sources
- **Transmission decisions**
 - Line siting (most states)
 - FERC-regulated transmission rates have separate accounting, tariffs
 - Once FERC sets transmission rates, state PUCs not allowed to second-guess
- **Distribution decisions**
 - Interconnect new customers (e.g. load)
 - Interconnect on-site generation



Future renewable energy growth drivers

NREL Image Gallery: 16706.JPG

Quantitative requirements

- National RPS/RES, additions to state RPS

Cost relative to other new capacity options

- Benchmark: new combined cycle natural gas

Environmentally driven coal retirements

- Mercury/air toxics, greenhouse gases

Factors affecting RE-related transmission needs

- Energy Imbalance Market, grid integration
- Preference for distributed generation

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Leading the Way to a Clean Energy Future

Sources

- **Edison Electric Institute, “Glossary of Electric Industry Terms” April 2005**

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- **Expert Glossary, accessed 2/12/2013**

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