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
  o RPS – renewable portfolio standard
  o Transmission planning

• Add new key concepts
  o IRP – integrated resource plan
  o PPA – power purchase agreement
  o 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)

- ND: 10% by 2015
- SD: 10% by 2015
- MT: 15% by 2015
- MN: 25% by 2025
- WI: 10% by 2015
- IA: 105 MW
- IL: 25% by 2025
- MI: 10% + 1,100 MW by 2015
- OH: 12.5% by 2024
- PA: ~18% by 2021
- NY: 29% by 2015
- VT: Meets any increase in retail sales by 2012; 20% RE and CHP by 2017
- ME: 30% by 2000, New RE: 10% by 2017
- NH: 24.8% by 2025
- MA: 22.1% by 2020, New RE: 15% by 2020 + 1% annually thereafter
- RI: 16% by 2020
- CT: 27% by 2020
- NJ: 20.38% by 2021 + 4.1% solar by 2028
- DE: 20% by 2020
- MD: 20% by 2022
- VA: 15% by 2025
- WV: 25% by 2025
- NC: 12.5% by 2021
- IN: 10% by 2025
- DC: 20% by 2020

- WA: 15% by 2020
- OR: 25% by 2025
- NV: 25% by 2025
- CA: 33% by 2020
- UT: 20% by 2025
- AZ: 15% by 2025
- CO: 30% by 2020
- NM: 20% by 2020
- KS: 20% by 2020
- MO: 15% by 2021
- TX: 5,880 MW (~5.5%) by 2015
- HI: 40% by 2030

DG = Distributed Generation

- 29 States & D.C. with mandatory RPS
- 7 States with non-binding goals
- 16 States & D.C. with either DG or solar provisions in RPS

1 Includes non-renewable alternative resources
2 Indicates variations by utility
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

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management
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

*NRTT Pilot Project

Map created by the Washington Office on 2021-01-29

This map is intended for display purposes only. No warranty is made by the Bureau of Land Management as to its accuracy, reliability, or completeness of the data it is based on or any combination of the data. No warranty is made that it is fit for any use other than for which it was created. This product was developed through digital computer techniques by persons without supervision.
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.)

1. Start interconnection and transmission process
2. Review existing portfolio, load forecast, future reserve margins
3. Consider existing rate-based facilities first (e.g. env. controls, retirements)
4. Identify remaining incremental needs for IRP process
5. Utility proposes and PUC approves winners; sign contracts
6. Evaluate new resources (supply- and demand-side)
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
  o Utility-owned generation (rate-base)
  o PPAs with utility-scale generators
  o Demand response programs
  o Other supply- or demand-side sources
• Transmission decisions
  o Line siting (most states)
  o FERC-regulated transmission rates have separate accounting, tariffs
    – Once FERC sets transmission rates, state PUCs not allowed to second-guess
• Distribution decisions
  o Interconnect new customers (e.g. load)
  o Interconnect on-site generation
Future renewable energy growth drivers

**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
Leading the Way to a Clean Energy Future

Karlynn Cory
RE Project Finance Analysis Team Lead
http://financeRE.nrel.gov

P: (303) 384-7464
E: karlynn.cory@nrel.gov

David Hurlbut
Senior Energy Analyst

P: (303) 384-7334
E: david.hurlbut@nrel.gov
Sources

• Edison Electric Institute, “Glossary of Electric Industry Terms” April 2005
  http://www.eei.org/meetings/Meeting%20Documents/TWMS-26-glossry-electerm.pdf

• Expert Glossary, accessed 2/12/2013
  http://www.expertglossary.com/
Kim Berns, Division Chief
Division of Lands, Realty & Cadastral Survey
BLM – Washington Office
kmberns@blm.gov
202-912-7350

Lucas Lucero, Rights-of-Way Branch Chief
BLM - Washington Office
llucero@blm.gov
202-912-7342

Beth Ransel, Linear ROW/Master Agreements Program Lead
BLM – Washington Office
bransel@blm.gov
202-912-7213