

Basics of Energy Regulation

2024 Renewable Energy Law Essentials

Austin, TX

January 29, 2024

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About me:
Tetyana Rabczak

- 18+ years in environmental and energy law in the U.S. and Europe, at state government, law firms, consulting and non-profits
- VP Legal, Regulatory and Policy at The Accelerate Group
- Adjunct Professor at the Northwestern University Pritzker School of Law in Chicago
- Former Legal Advisor to Chairs at the Illinois Commerce Commission (utility regulator) and Illinois Pollution Control Board (environmental regulator)

We will cover: US electric grid basics

- The wires:
 - US electric grid: what it looks like and why
 - Grid 1.0 vs 2.0
 - Grid elements: Transmission, Distribution, Generation and Load
- The people:
 - State and Federal Regulators: FERC and State Public Utility Commissions
 - Grid Operators: RTOs/ISOs and distribution utilities
- The money:
 - Wholesale and retail markets, incentives and market barriers
- The renewables:
 - Where they fit in
 - How they fit in

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Key Takeaways

- **Renewable energy** (RE) resources **share** on the grid is **rapidly growing** for a variety of reasons: more demand from customers, state and federal policies (e.g., RPS), more economical due to lower costs
- A **lot more RE** resources are **needed** to meet climate goals (states have 50-100% clean energy goals by 2040-2050; currently RE at 50% in California, 30% in Hawaii, 14% in Illinois)
- Current electric grid (**Grid 1.0**) is not designed for 100% RE
 - Grid 1.0 needs a lot of \$\$ for grid upgrades to turn into Grid 2.0
 - RE resources can help reduce \$\$ of grid upgrades - with smart inverters, flexibility and quick response, grid following and grid forming capabilities
- RE **intermittency** requires other resources to ramp up/down quickly
 - As coal and gas retire, less baseload available to fill the gaps - grid operators need **flexible tools** to balance the grid

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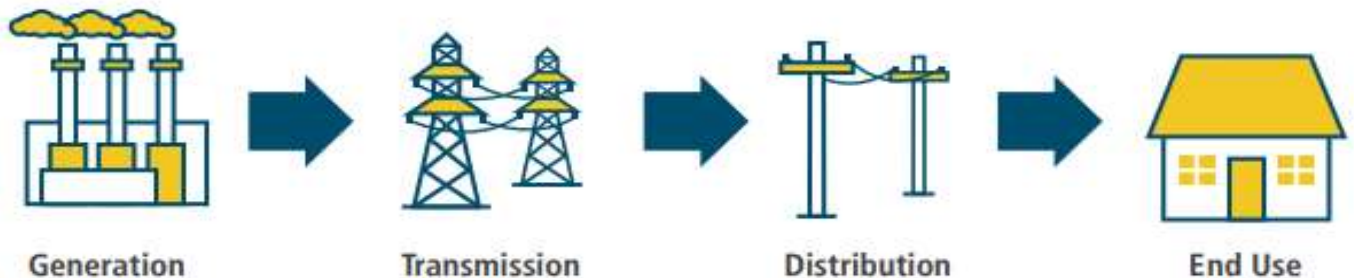
Key Vocabulary

- Transmission/Distribution
- Generation/Load
- Capacity (nameplate)
- Baseload, dispatchability
- Grid forming
- Bulk power system
- FERC
- RTO/ISO
- Wholesale market
- Vertically integrated
- Renewable Portfolio Standard (RPS)
- Integrated Resource Planning (IRP)
- Grid balancing
- Voltage, Frequency
- Capacity factor
- Intermittency
- Grid following
- Inverter-based resources
- DER
- PUC/PSC, IOUs, LSEs
- Retail market
- Deregulated, retail choice
- Renewable Energy Credit (REC)
- Integrated Distribution Planning (IDP)

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The wires: Traditional Electric Grid (Grid 1.0)

One direction: generation = load: control generation to balance the grid



Source: U.S. DOE

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First appeared as part of the conference materials for the
2024 Renewable Energy Law Essentials session
"Basics of Energy Regulation and Interconnection"