Grid Impacts, Readiness, and Rate Structure

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Electric Grid

- Utility systems consist of three parts: **Supply**, **Transmission**, **Distribution**
  - Need to ensure there is enough supply and a sufficient network to move the supply to instantaneously meet customers demand within reasonable parameters

- MD PSC has regulatory jurisdiction over the utility **distribution** system, e.g. rate setting

- PSC has limited authority over **supply** and **transmission**.
  - Jurisdiction of FERC and planned and operated by PJM
  - Supply + Transmission = Wholesale Market
  - Maryland utilities procure capacity, energy, and other ancillary services from wholesale market.

Grid Planning Considerations for Electrification

- Issues facing EV are similar to those that will be seen from electrification and large load development.
- Peak management and load shape shifting will be important when pursuing electrification (and other grid planning in general)
- Will increase need to deploy generation capacity and the ability to move energy simultaneously.
  - Think of grid like your house circuit breaker
  - Part of a broader grid, cannot look at one load type in a vacuum
  - Importance of timing and certainty of need
- Distribution Planning Process

The Grid and Electric Vehicles

- Previously presented that there was a Dec. 2023 electrification study found in high electrification scenarios that load growth in Maryland for the distribution system was manageable through 2031.
  - Including of meeting advanced clean cars and trucks targets.
- Recent grid planning concerns have focused on incorporating large load growth, (e.g. data centers) and retirement/addition of generation which may further impact future grid needs.
- Balance between preparing grid vs load certainty vs ensuring developers know where best to interconnect.

General Rate Design

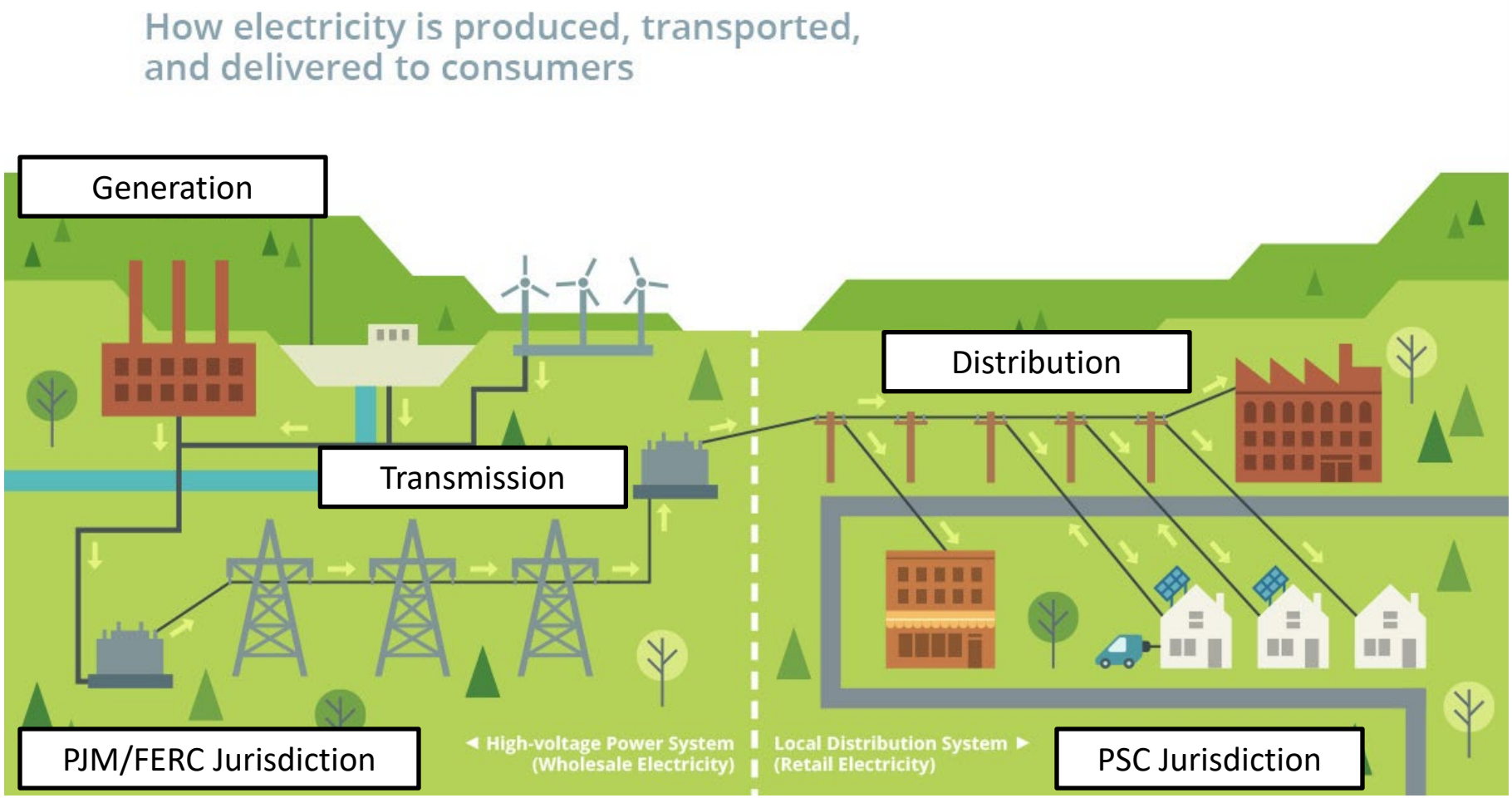
- Ensure revenue recovery and can reduce need for greater investment
- In a perfect world, prices reflect the economic costs of providing energy services reflective of certain regulatory principles.
- Upfront vs Ongoing charges
  - Interconnection/facilities (Upfront)
  - Fixed vs Demand vs Volumetric (Ongoing)
- Personal Experience:
  - Have seen a tension between balancing cost causation against rate simplicity with EV rates. This appears to be driven by the passing of costs from the utility to the EV driver by the charging station operator.

Various EV Rate Designs in MD

- Existing
  - Standard rate design
  - TOU rates (whole home and EV specific)
  - Smart Charge Management
- Historic
  - Demand charge credits
- Previously Considered
  - Demand charge relief rider (C&I)
- Possible future discussions?

Appendix

High Level Electric System Example



ISO New England (https://www.iso-ne.com/about/what-we-do/in-depth/how-electricity-flows-from-wholesale-to-retail)

www.psc.state.md.us