

# **Evolving Distribution Infrastructure with Distributed Energy Resources**

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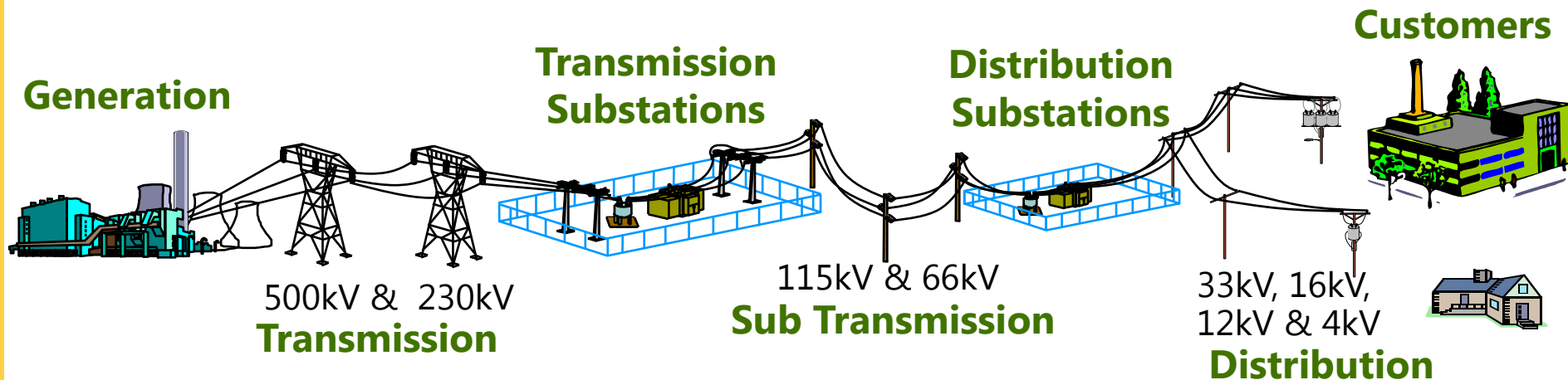
# DER Integration

- Distribution Resource Plan
  - Hosting Capacity Capabilities
  - Locational Value of Distributed Energy Resources
  - Requirements for High Penetration DERs
  - Microgrids and Community Choice
- What is the utility role?
  - Wires company/Toll Roads
  - Enable: “Integrated Grid”
  - Animate: Incentive Adder
  - Something Else



# Industry Evolution and Innovation

- Innovation Path
  - Regulatory input/approval/control
  - Utility cooperation/implementation/agreement/control
  - Provider innovation/implementation/value/regulation
  - Customer interest/participation/need



# New Customers

- Prosumer and Infrastructure
  - Resources encouraged by rate structure
  - Resources that can be used to defer or displace infrastructure that is financed through the rate structure
  - Resources used change the rates collected
  - Rate structure changes
  - Real-time pricing
- Planning and Operational Implications
  - Load Forecasting
  - Aggregation and control - NODES
  - Co-optimization
  - Procurement and Markets

# California Next Steps

- ICA and LNBA
  - Hosting Capacity and Information Transparency
  - Capacity + Energy + Ramping + Regulation
  - Load Curve Adjustments
- Field Demonstrate Benefits and Value
- Infrastructure for High Penetration DER
- Alternatives – Microgrids and Utility Coordination
- DER Incentives for the Utility
- Distribution Coordination or Independent Distribution System Operator or Micro-Markets