DOCKETED	
Docket Number:	23-IEPR-05
Project Title:	Accelerating Distribution Grid Connection
TN #:	250049
Document Title:	Presentation - Interconnection and Energization Overview of Rules for Two Different Types of Distribution System Connections
Description:	4.A Matt Coldwell.Matt, CPUC
Filer:	Raquel Kravitz
Organization:	California Public Utilities Commission
Submitter Role:	Public Agency
Submission Date:	5/8/2023 12:26:16 PM
Docketed Date:	5/8/2023

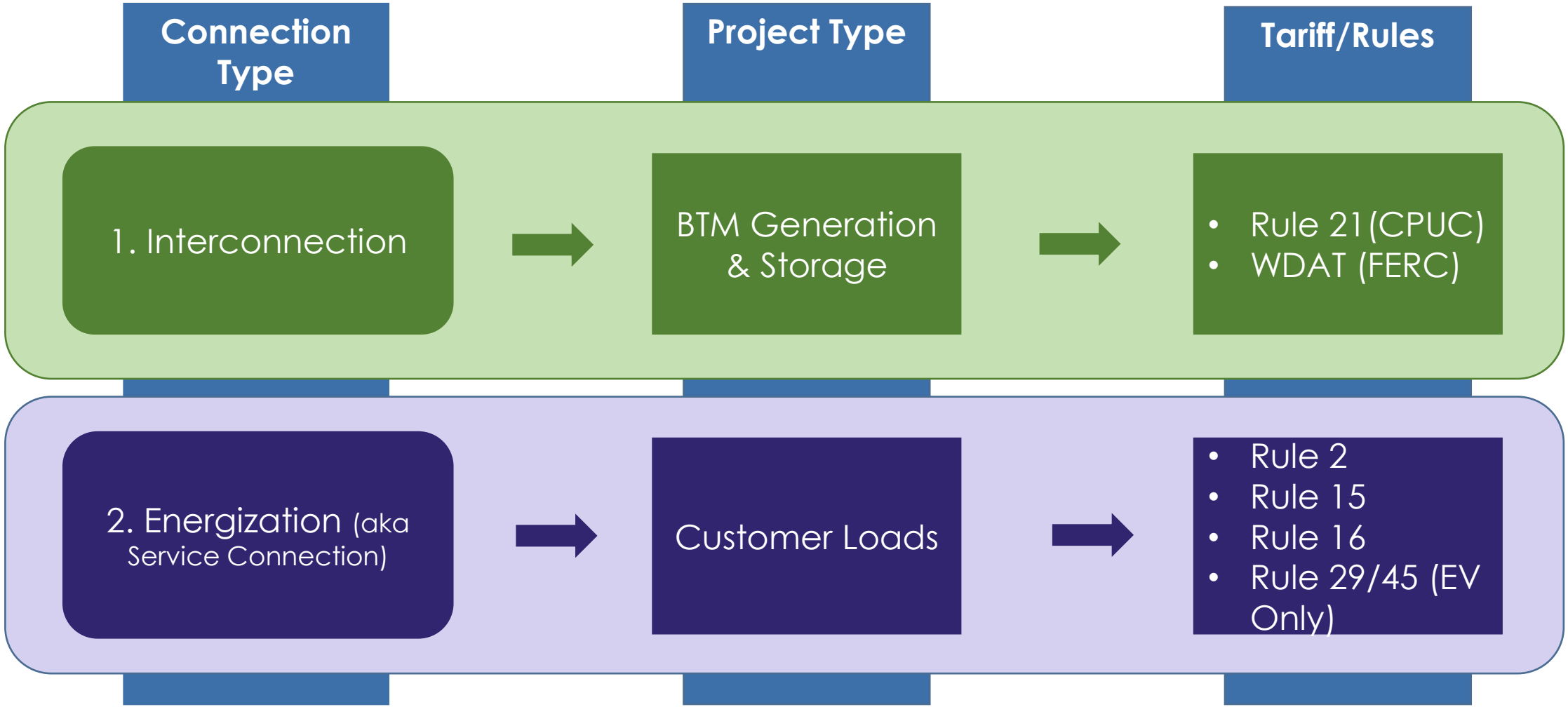
Interconnection and Energization:
Overview of Rules for Two Different Types of Distribution System Connections

Matt Coldwell
Manager – Distribution Planning Branch
California Public Utilities Commission

May 9, 2023

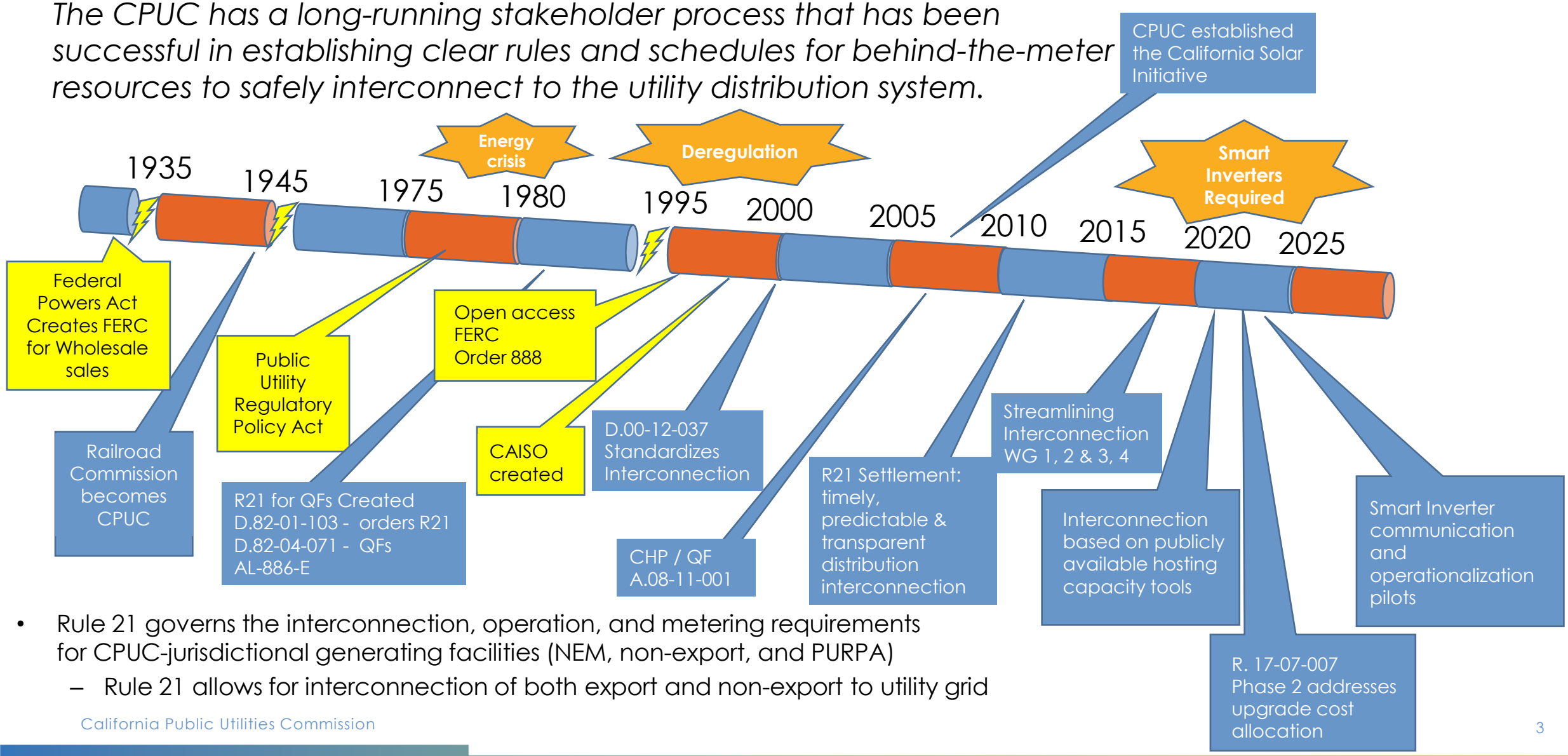
California Public Utilities Commission

Two Different Types of Connections to the Distribution System



CPUC's Rule 21 Interconnection Stakeholder Process

The CPUC has a long-running stakeholder process that has been successful in establishing clear rules and schedules for behind-the-meter resources to safely interconnect to the utility distribution system.



- Rule 21 governs the interconnection, operation, and metering requirements for CPUC-jurisdictional generating facilities (NEM, non-export, and PURPA)
  - Rule 21 allows for interconnection of both export and non-export to utility grid

R.17-07-007: Rule 21 Phase II Proceeding

Five Working Groups = Three Decisions (93 Ordering Paragraphs) resulting in Advice Letters, Workshops, and Reports to Energy Division

- Working Group 1: Urgent and/or Quickly Resolved Issues
- Working Group 2: Incorporation of Integration Capacity Analysis and Streamlining Interconnection Issues
- Working Group 3: Timelines, Billing, Construction Upgrades, Cross-jurisdictional Coordination, Application Portals, Electric Vehicle Interconnection, Smart Inverters, and Other Technology Issues
- V2G AC Sub-Working Group: V2G AC Interconnection & Standards (off-shoot of Working Group 3)
- Working Group 4: Application Processing, Smart Inverters, Distributed Energy Management Systems, and Anti-Islanding Issues

R.17-07-007: Decision Highlights

➢ Working Group 1 (D.19-03-013)

- Improves transparency into the Utilities' metering practices and requirements for non-export relays and controls for solar plus storage systems
- Allows customers to replace existing inverters with inverters of equal or greater ability and encourages customers to replace existing inverters with smart inverters at end of life--Presumes that in the future most inverters will be replaced with the commonly available smart inverters to produce grid benefits

➢ Working Groups 2, 3, + V2G AC (D.20-09-035)

- Incorporates the Integration Capacity Analysis
- Allows customers to submit a Limited Generation Profile – that varies in time – to stay within ICA values to avoid distribution upgrades
- Clarifies the rules applicable to the interconnection of EVSEs in various configurations
  - Rule 21 does not apply to V1G, but Rules 2, 15, and 16 do
  - V2G DC Electric Vehicle Supply Equipment systems may be interconnected under the Rule 21
- Provides the option of using less costly power control systems (PCS) instead of relays for systems to be considered non-export, limited export, and inadvertent export

Rules that Govern Energization of Loads

For energization, there are different rules for different types of projects and infrastructure needs.

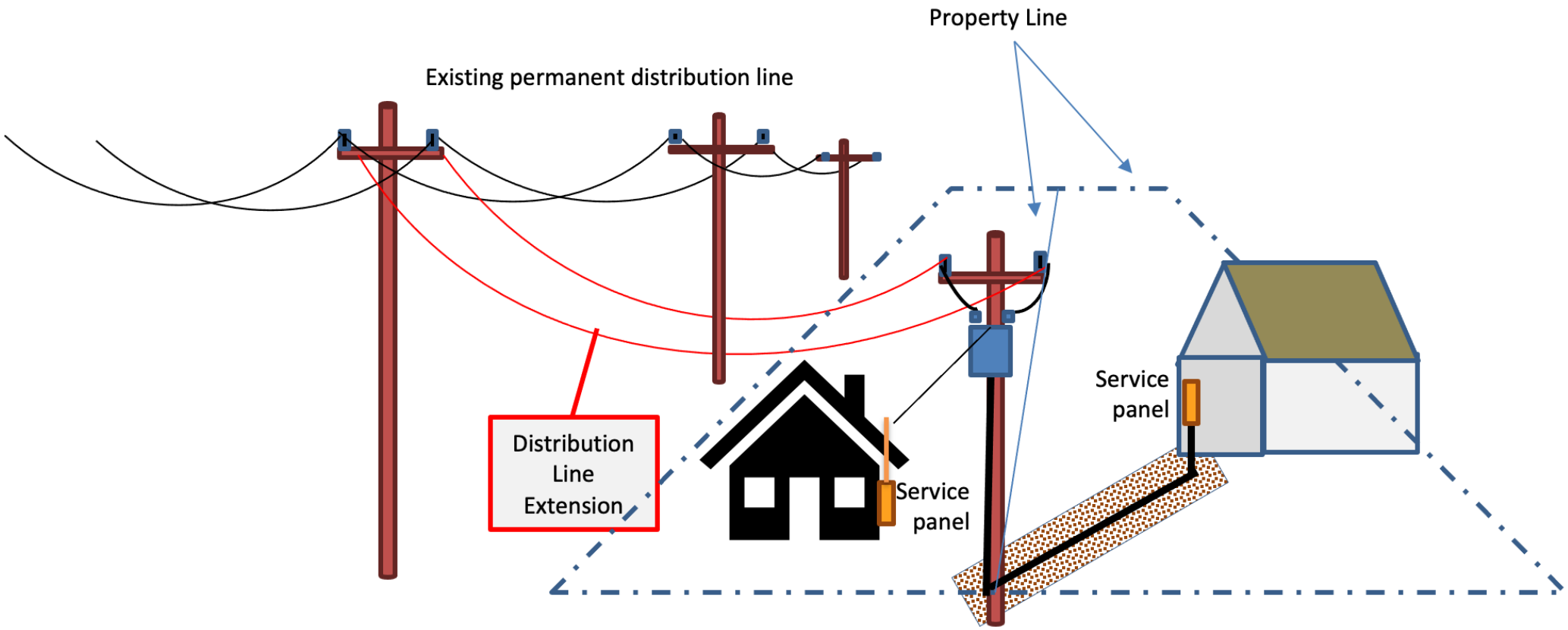
Rule 15: Distribution Line Extensions
- Extension of electric distribution lines
- Costs covered by ratepayers (through an allowance) and customer.

Rule 16: Service Extensions
- Service facilities that extend from distribution line
- Equipment located on customer site
- Costs covered by ratepayers (through an allowance) and customer.

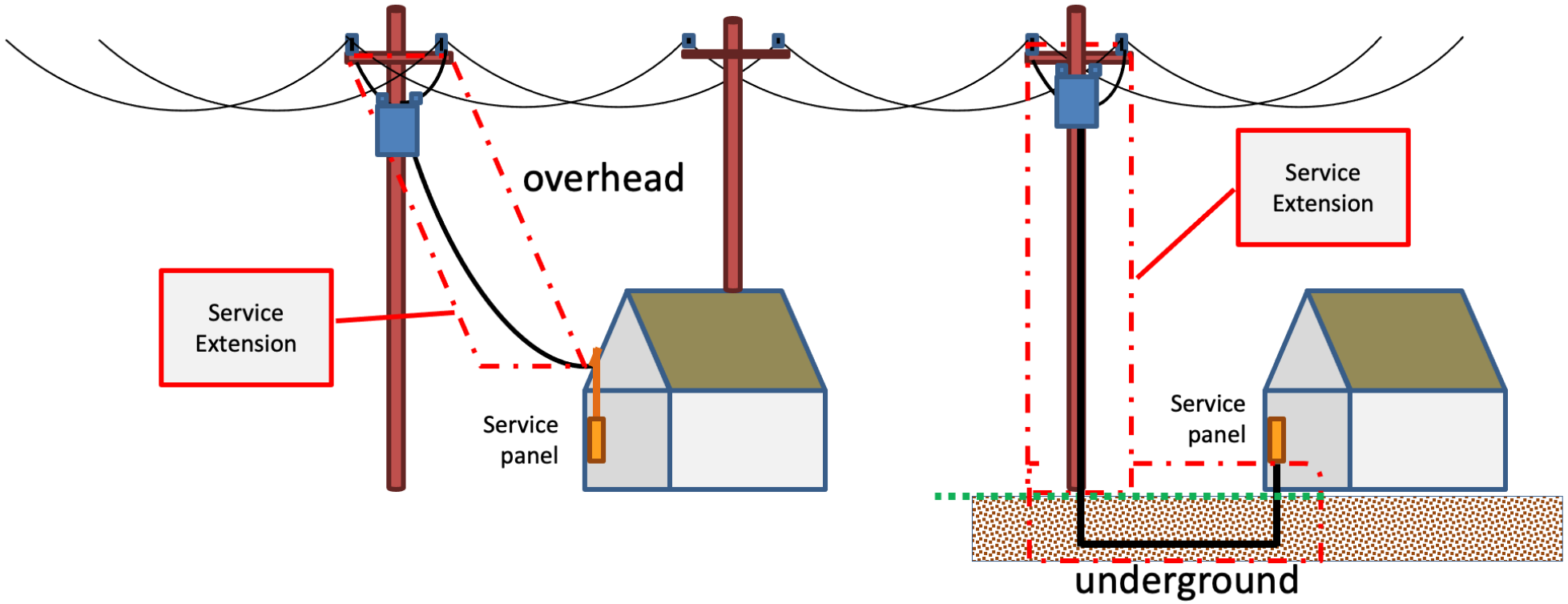
Rule 2: Special Facilities
- Non-standard facility installs
- Costs covered by customer

Rule 29/45: EV Infrastructure
- Utility side of the meter service and distribution facilities
- Costs covered mostly by ratepayers

Electric Rule 15: Line Extension



Electric Rule 16: Service Extension



Rules 15 & 16: Allowance for Distribution Line and Service Extensions

- Allowance only applies to Residential projects
- Allowance is a credit against refundable extension costs. It is based on the number of residential units expected to be connected within the first six months.
- The allowance will first be applied to the Residential Service Facilities, with Rule 16. Any excess allowance will be applied to the Distribution Line Extension to which the Service Extension is connected.
- Electric Allowance = Electric Net Revenue/Cost of Service Factor
- Residential electric allowance per meter or residential dwelling unit based on the above formula:
  - PG&E: $3,255 (PG&E, Effective 1/1/2022)
  - SCE: $4,420 (SCE AL 4399-E, Effective 2/1/2021)
  - SDG&E: $3,981 (SDG&E, Effective 10/10/2022)

New EV Infrastructure Rules (Rules 29/45)

- **New EV Infrastructure Rules**
  - Starting in 2022, utility-side infrastructure to support charging is now generally paid for via ratepayers under the EV Infrastructure Rules adopted pursuant to AB 841 (Ting, 2020)
    - Rule 29 – PG&E and SCE
    - Rule 45 – SDG&E
  - EV Infrastructure Rules serve as an alternative to the electric IOUs' Rule 16 for commercial and industrial customers (including Multifamily residences) installing separately metered/submetered EV charging.
  - A similar policy is in place for residential customers, something that AB 841 directed the CPUC to continue.
- **Cost to Ratepayers**
  - **Ratepayers now cover nearly the full cost of service** line extensions and electrical distribution infrastructure on the utility-side of the meter
  - The full cost impact of this policy is unknown at this time.

Expediting Energization: Spotlight on Rules 15 and 16

- Rule 15 and 16 are now in the spotlight due to recent energization delays and planning for electrification over the next several years.
    - Majority of these rules' provisions were instituted in the late 1990's.
        - The last major revision of Rules 2, 15, & 16 (for non-EV infrastructure) was in Decision (D.) 07-07-019, dated July 12, 2007. The Commission approved various changes to the method by which electric and gas service and line extension allowances are calculated.
        - Utilities periodically submit tariff revision proposal if their periodic reviews result in a change of more than 5% in either the allowances or cost of ownership charges.
        - Cost of Ownership charge also applies in Rule 2 as special facilities monthly charges.
        - Subsequent tariff revision proposals were submitted by utilities on specific sections of their individual tariffs.

Streamlining Energization: Learnings from Rule 21 Interconnection Process

What can energization learn and apply from Rule 21 interconnection process?

- Leverage existing timeline reporting templates from Rule 21
  - D.20-09-035 Ordering Paragraph 22 directed the IOUs to submit quarterly processing timelines report, which include data such as:
    - Project zip code, status, size, timeframe for various stages in the interconnection process (e.g., time for submission if interconnection request to time deemed complete)
- Repurpose Rule 21 efforts for load to streamline energization projects; for example:
  - Interconnection Notification Only Approach (NOA) → **Energization NOA**
    - Could expedite energization of projects if certain criteria are met, such as using load during periods where there is no need to upgrade the electric grid
  - Limited Generation Profiles → **Limited Load Profile**
    - Use of Power Control Systems to control load and possibly expedite the energization process
  - Utilize IEEE 2030.5 communication infrastructure to communicate net load and control timing of load

Thank You!

Questions?

Matthew.Coldwell@CPUC.CA.GOV

The CPUC is hiring!
www.cpuc.ca.gov/careers