



# Reforming the TAC and Retail Transmission Rates

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# CPUC Staff Rate Design Proposals

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- Restructure the High-Voltage TAC as Either
  - A Coincident Demand Charge Rate (e.g. 12-CP), or
  - A Volumetric Time-of-Use (TOU) Rate
- Consider a recommendation to FERC that IOU retail transmission rates be Time-Differentiated, via either
  - Coincident Demand Charges, or
  - Volumetric TOU Rates





## Glossary

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- 12 Coincident Peak (12-CP): A method which allocates costs based on contribution to each of 12 monthly coincident peaks
- Coincident demand (CD) charge: A charge in \$/kW based on the highest interval demand during the peak TOU hours within a billing period
- High Voltage Transmission Access Charge (HV-TAC): Currently, a flat volumetric rate, in \$/MWh, that recovers the revenue requirement for the high-voltage transmission system (200 kV and above)
- Low Voltage Transmission Access Charge (LV-TAC): A charge, set separately for each utility, that recovers the revenue requirement for the utility's low-voltage transmission system (below 200 kV)
- Non-coincident demand (NCD) charge: A charge in \$/kW based on the highest interval demand in a billing period regardless of when it occurs
- Participating Transmission Owner (PTO): A utility or other transmission owner that pays a Transmission Access Charge (TAC) to the ISO
- Time-of-Use (TOU) rate: A volumetric rate (\$/kWh) that varies by season, day-type, and time of day (typically 2 or 3 periods per day)
- Transmission Revenue Requirement (TRR): The FERC-approved capital-related and O&M costs of the CAISO-controlled transmission grid, recovered in the HV-TAC and the LV-TAC.





## Retail Transmission Rates Are Set In a 3-Step Process

	<b>Step</b>	<b>Function</b>	<b>Change to be Considered</b>
<b>1</b>	TAC (High & Low Voltage)	Allocate TRR to PTOs	Flat volumetric (for HV-TAC) to Demand-based or TOU
<b>2</b>	IOU 12-CP Allocation	Allocate IOU TRRs to Rate Classes	No change needed—already peak demand related
<b>3</b>	IOU Retail transmission rate design	Set retail end-user transmission rates	Flat or non-coincident demand charge to TOU or coincident demand charge





## Step 1: TAC

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- Currently, High-Voltage TAC is a Flat Volumetric Rate
  - Not Time-Differentiated
- In Scope of ISO Stakeholder Initiative:
  - Restructure HV-TAC as either
    - A coincident peak demand-related charge or
    - A volumetric TOU rate
- CPUC Staff believes that either of these options would be superior to the current flat volumetric TAC rate (for reasons of efficient grid utilization - see below)





## Step 2: 12-CP Allocation of IOU TRRs

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- Currently, via FERC's 12 Coincident Peak (12-CP) Methodology
- Not In Scope of ISO Stakeholder Initiative
- 12-CP allocates TRR to customer classes based on class contribution to monthly coincident peaks
  - Hence customer *classes* benefit by reducing on-peak demand
- CPUC Staff believes 12-CP methodology reasonably promotes efficient grid utilization and no change in Step 2 is needed





## Step 3: IOU Retail Transmission Rate Design

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- Currently, IOU Retail Transmission Rates Are Not Time-Differentiated; They are either:
  - Flat Volumetric Rates (Residential & Small Commercial) or
  - Non-Coincident Demand Charge Rates (Medium and Large Commercial/Industrial)\*
- Should IOU Retail Transmission Rates be Time-Differentiated?
  - Not currently in scope of ISO's TAC Stakeholder Initiative; CPUC Staff plans to discuss this issue with our Commissioners to explore a possible recommendation to FERC for application to IOU TO rate cases.

\*Exception: SDG&E's AL-TOU rate has a small coincident demand charge component





# FERC Rate Design Principles

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- “Traditionally, the courts and FERC have required that approved rates reflect to some degree the costs actually caused by a customer who must pay for them.
  - Stated differently, ‘cost responsibility should track cost causation.’ ” (ISO “Issue Paper” (p.9))
- Through its Transmission Pricing Policy Statement, FERC has recognized general guiding principles for transmission pricing\*:
  - Must meet traditional revenue requirements
  - Must reflect comparability
  - Should promote economic efficiency
  - Should promote fairness
  - Should be practical

\*From July 12, 2017 ISO Presentation to Stakeholders







# Rates and Cost Causation

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- Do all demands equally cause costs, regardless of coincidence with peak loads?
  - **“Energy production patterns are changing** as clean renewable resources serve a greater share of California’s electricity demand. As the electricity system changes, so too must the underlying support and cost-recovery mechanisms such as rates, including time-of-use (TOU) rate designs.”\*
  - **Conditions on the grid are vastly more variable hour-to-hour than they were when the current TAC structure was initially implemented** (more than a decade ago). Much of this variation is driven by renewables, which operate in a highly-predictable daily cycle – amenable to TOU rates.

\*CAISO Time-of-use Periods Analysis filed January 22, 2016 in R.15-12-012.





# Rates and Cost Causation

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- Do all demands equally cause costs, regardless of coincidence with peak loads?
- **In 2015 CAISO identified the hours of 4-9 pm as peak (or super-peak) hours in which load reduction would be especially beneficial\***. Singling out these hours implied that loads occurring between 4 and 9 pm cause more costs than loads at other times.
  - Yet, for both the TAC and for the IOU's retail transmission rates, loads during those hours are not charged more, and customers cannot benefit by shifting load out of those hours.

\*Report filed by the ISO in CPUC Time-of-Use Proceeding (R.15-12-012 – “TOU OIR”).





# Rates and Cost Causation

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- **The current flat volumetric TAC structure and flat retail transmission rates do not encourage efficient use of the grid**
  - They neither discourage consumption on peak nor encourage beneficial off-peak consumption
  - **They effectively force off-peak consumers to subsidize on-peak consumers-**
    - On-peak costs are higher to the extent that on-peak consumption causes additional ramping costs, non-renewable generation costs, and GHG costs
    - Off-peak costs are lower to the extent that off-peak consumption potentially reduces ramping costs and improves utilization of renewable generation.





## Transmission Charges Should Promote Efficient Grid Utilization

- **Restructuring the TAC would be beneficial but not sufficient: Retail transmission rates should also reflect time-dependence of cost**
- **Currently, only Step 2 (12-CP allocation of IOU TRRs) accounts for the contribution of customer demands to the peak load on the transmission system.**
  - If the ISO does in fact institute a demand-based charge or a time-of-use pricing structure (as recommended here), both Step 1 and Step 2 would account for the contribution of customer demands to the peak load on the transmission system.
- **However, the resulting pricing signals will not be effectively passed through to IOU retail customers without a reform of IOU retail transmission rates (Step 3).**





## Current IOU Transmission Rates May Not Meet FERC Goals

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- CPUC staff believes that the current non-time-differentiated IOU retail transmission rates may not meet FERC fairness, economic efficiency, and comparability goals:
  - Current transmission rates may be unfair by forcing off-peak consumers to subsidize on-peak consumers
  - Economic efficiency requires that rates reflect cost-causation
    - Flat volumetric charges and non-coincident demand charges do not reflect time-dependence of costs





## Current IOU Transmission Rates May Not Meet FERC Goals

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- In addition, CPUC staff believes that the current non-time-differentiated IOU retail transmission rates may not meet the FERC comparability goal:
  - Under the FERC’s 12-CP methodology used by the IOUs to allocate the TRR among rate classes, each wholesale customer is its own rate class and is billed based on its contribution to each of 12 monthly coincident peak demands;
    - A wholesale IOU customer can therefore reduce its bill if it can shift load off peak.
    - In contrast, the IOUs bill larger individual retail customers based on non-coincident demand; a retail customer may *increase* its bill by shifting demand out of the peak hours.
  - This appears to raise a comparability issue between similarly situated retail and wholesale customers.





## Conclusion: Transmission Rates (Retail and HV-TAC) Should Be Time-Dependent

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- “TOU rates are an important tool for signaling consumers when to consume or reduce consumption of energy such that energy prices under a TOU rate design better align with electricity production costs and system needs compared to traditional flat ... rate structures.”\*
- Time-varying rates give consumers the information and choice to manage their energy use and save money, while beneficially reducing production costs and minimizing greenhouse gas emissions.”\*
  - Time dependence can be incorporated via coincident demand charges (e.g., 12-CP) or via volumetric TOU rates
  - Generally, FERC is amenable to coincident demand charges

\*CAISO Time-of-use Periods Analysis filed January 22, 2016 in R.15-12-012, p.3







# Appendix

## Additional Slides







## Other Commonly Accepted Rate Design Goals

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- Public utility services must be made available at “just and reasonable” rates . (P.U. Code §§ 451, 454).
- Rate design typically involves a balancing of a number of competing goals:
  - **Fair and equitable to all customers,**
  - **Stable and predictable,**
  - **Economically efficient,**
  - **Understandable by the public,**
  - Stable revenue collection by the utility,
  - **Reflective of the social costs of energy production and consumption, and**
  - Mimicking what a fully competitive unregulated market would charge.





## Retail Transmission Rates Are Set In a 3-Step Process

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- “FERC ruling determines the TRR amount each PTO may collect in rates. The rate cases and the FERC rulings for the load-serving PTOs also address the forecasted Gross Load quantities from which the TRRs will be recovered. For the IOU PTOs, FERC also approves each PTO’s retail transmission rate structure for the various customer classes and the exact amounts of its retail transmission rates.”

CAISO’s April 12, 2017 “Background White Paper” (p.7):

- The ISO, as well as the CPUC, can be parties to IOU TO Rate Cases and can recommend changes to retail transmission rate design.





## Retail Transmission Rates Are Set In a 3-Step Process

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- The ISO's Background Paper states: "... the IOUs generally align the retail transmission rate structures they file at FERC with the CPUC's overall retail rate policies prior to making their FERC filings."
  - CAISO's April 12, 2017 "Background White Paper" (p.7):
- However, CPUC staff believes that in recent years the IOUs have NOT aligned the retail transmission rate structures they file at FERC with the CPUC's overall retail rate policies:
  - while **the CPUC has been steadily moving toward time-varying rates**; the IOUs have retained retail transmission rates which have no time differentiation.





## PS(1): New Developments at the CPUC

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- On August 24, 2017, the CPUC Issued D.17-08-030 in the SDG&E GRC Phase 2 rate proceeding:
  - Setting a peak TOU period of 4 pm to 9 pm every day for all rate schedules
    - This directive did not rely on CAISO’s 2015 TOU period analysis, but it is consistent with CAISO’s recommendations.
  - Increasing the peak-related component of SDG&E’s Medium and Large Commercial/Industrial distribution demand charge rates from 35% to 61%.





## PS(2): New Developments at the CPUC

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- In addition, D.17-08-030 orders SDG&E to perform a study of its retail Transmission rate design:

OP 34. San Diego Gas & Electric Company must conduct a study to **examine the appropriate allocation of transmission costs between noncoincident demand charges and system peak demand charges** to be filed at the Federal Energy Regulatory Commission prior to the next San Diego Gas & Electric Company Phase 2 General Rate Case. San Diego Gas & Electric Company must consult with parties to this proceeding in preparing its research plan for the study, and file the research plan as a Tier 2 Advice Letter within 120 days of the effective date of this decision.





## SDG&E's 2008 Transmission Rate Proposal\*

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- “NCD charges, by definition, are not dependent on time-of-use or system peak demand conditions.”
- “Because SDG&E's transmission system is designed to meet system peak requirements, which typically occur during the summer season, at least a portion of SDG&E's transmission rates should be seasonally-differentiated and peak-related.”
- “To better reflect cost causation principles, SDG&E proposes that transmission rate structures be modified by incorporating seasonally-differentiated charges that are based on either:
  - (1) Maximum Summer and Winter On-Peak Period Demands, or
  - (2) Demands at Time of Monthly System Peak.”

\*Testimony of Robert Hansen for SDG&E in FERC Docket ER09-295, November 14, 2008





## SDG&E's 2008 Transmission Rate Proposal (2)

In a letter from FERC's Office Of Energy Market Regulation dated March 4, 2009, SDG&E's proposal to restructure its medium and large commercial transmission rates was accepted:

- On November 14, 2008, San Diego Gas & Electric Company (SDG&E) submitted proposed changes to its End Use Customer Base Transmission rate design applicable to a subset of Medium and Large (M&L) Commercial customers under Appendix IX of its Transmission Owner (TO) Tariff.**1 SDG&E proposes to reduce Non-Coincident Demand charges and implement peak-related transmission demand charges**, i.e., seasonally differentiated charges. Waiver of the prior notice requirements under section 35.11 of the Commission's regulations (18 C.F.R. § 35.11) is granted, and **SDG&E's submittal is accepted for filing effective September 1, 2009, as requested.**







# Flat Rate Pros, Cons, & Uses

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- Pros
  - Simple & understandable
  - Stable
- Cons
  - No TOU signal (does not reflect time variation in energy and capacity costs)
  - No Baseline allowance
- Uses
  - No longer used by CA IOUs except for T&D rates (As recently as 2012, most small and medium commercial customers were on flat rates)







# Time-of-Use (TOU) Rate

## Pros, Cons, & Uses

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- Pros
  - Provides TOU signal
  - Some Indication of Conservation
  - Generally understandable by customers
- Cons
  - Not Compatible with Baseline Allowance
- Uses
  - Currently used by CA IOUs for small commercial rates





# Non-Coincident Demand Charge (NCD) Rate

## What is an NCD?

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- It is a charge based on the customer's maximum 15-minute interval demand, in kW— **Regardless of when it occurs**





# Non-Coincident Demand Charge (NCD) Rate Pros, Cons, & Uses

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- Pros
  - Provides signal to flatten load
  - Stable revenue collection for utilities
- Cons
  - No TOU signal
  - Does not reflect cost causation
  - Does not provide a price signal for customer DER investments that is aligned with grid needs
- Uses
  - Heavily used in medium and large commercial distribution and transmission rates





# Coincident Demand Charge (CD) Rate

## What is an CD Charge?

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- It is a charge based on the customer's maximum 15-minute interval demand, in kW– **During the Peak TOU period**





# Coincident Demand Charge (CD) Rate Pros, Cons, & Uses

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- Pros
  - Provides signal to move load off peak
  - Provides a price signal for customer DER investments that is generally aligned with grid needs
- Cons
  - More complex than volumetric TOU rates, without necessarily better reflecting cost causation
  - May not properly credit NEM customers
- Uses
  - Used in medium and large commercial generation rates, and (to a lesser extent) in distribution rates.





## Recent Developments in C&I Rates (SDG&E GRC Phase 2)

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- Currently, SDG&E's Medium and Large Commercial distribution rates are 65% NCD / 35% CD
- SDG&E proposed to move to 85% NCD / 15% CD
- SEIA proposed to move to 39% NCD / 61% CD
- D.17-08-030 (issued 8/24/17) adopted SEIA's proposal because it better reflects cost causation for distribution

