

# Why Utilities Are Rethinking Their Residential (and Small Commercial) Rates

National Energy and Utility Affordability Coalition  
Plenary Session

**PRESENTED BY**

Philip Hanser

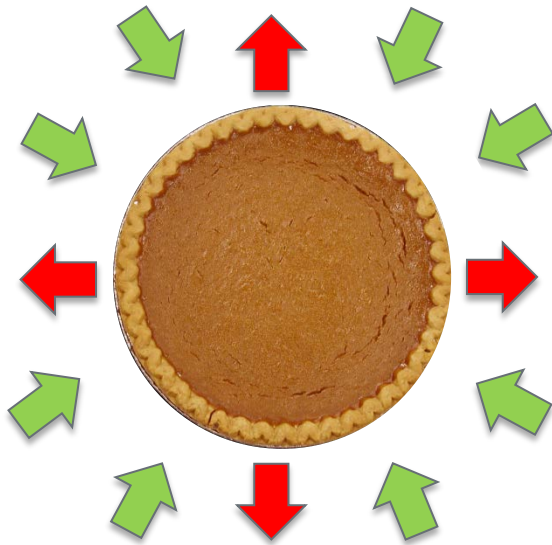
Denver, CO  
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THE **Brattle** GROUP

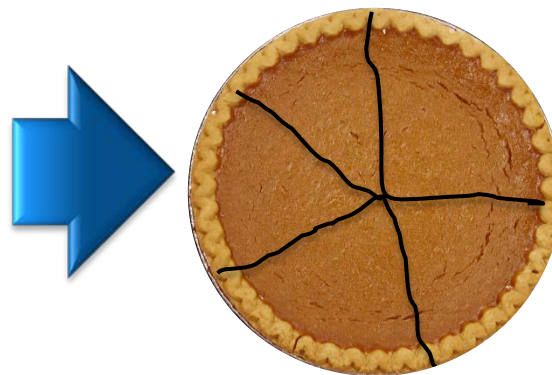
# The rate design process

Cost of Serving All Customers



*How large is the pie?*

Cost Of Service Study



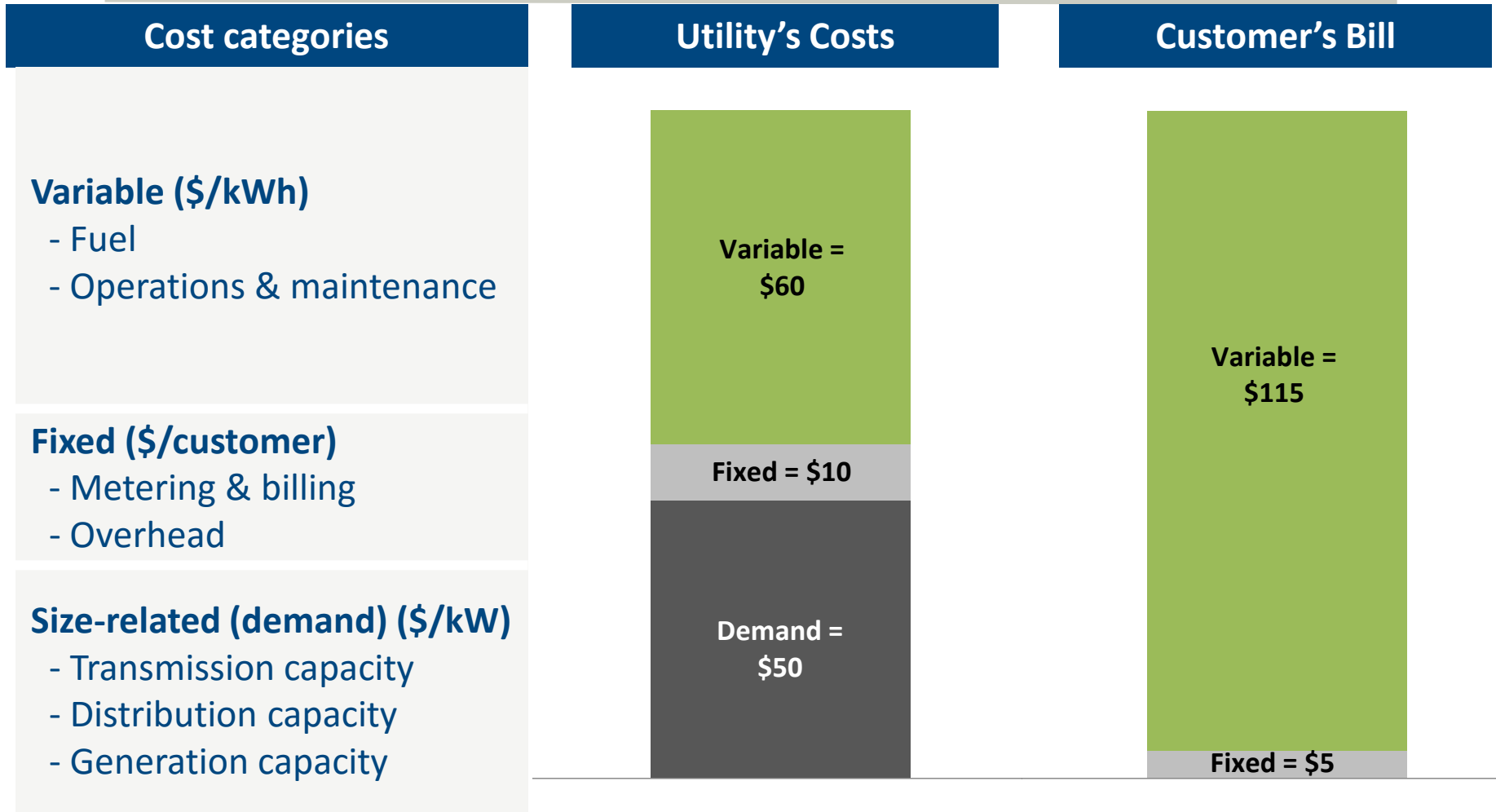
*How do we slice the pie?*

Rate Design



*How should the slices be served?*

# But, residential (and small commercial) rates have long been largely misaligned



Significantly more skewed for distribution utilities whose costs are nearly entirely fixed.

# Misaligned rates lead to questionable decisions



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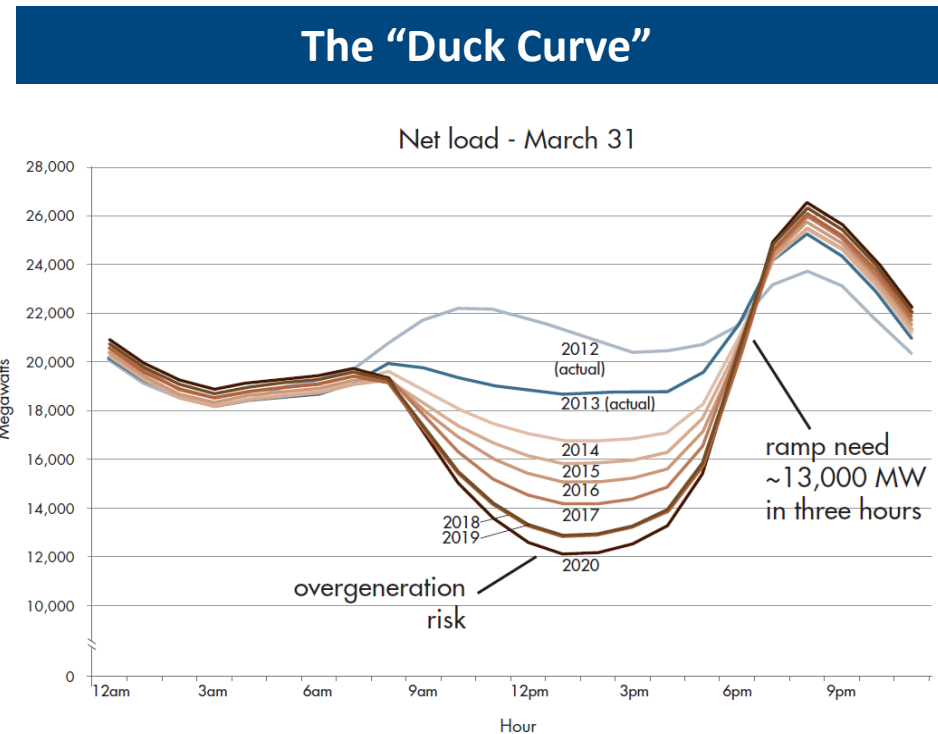
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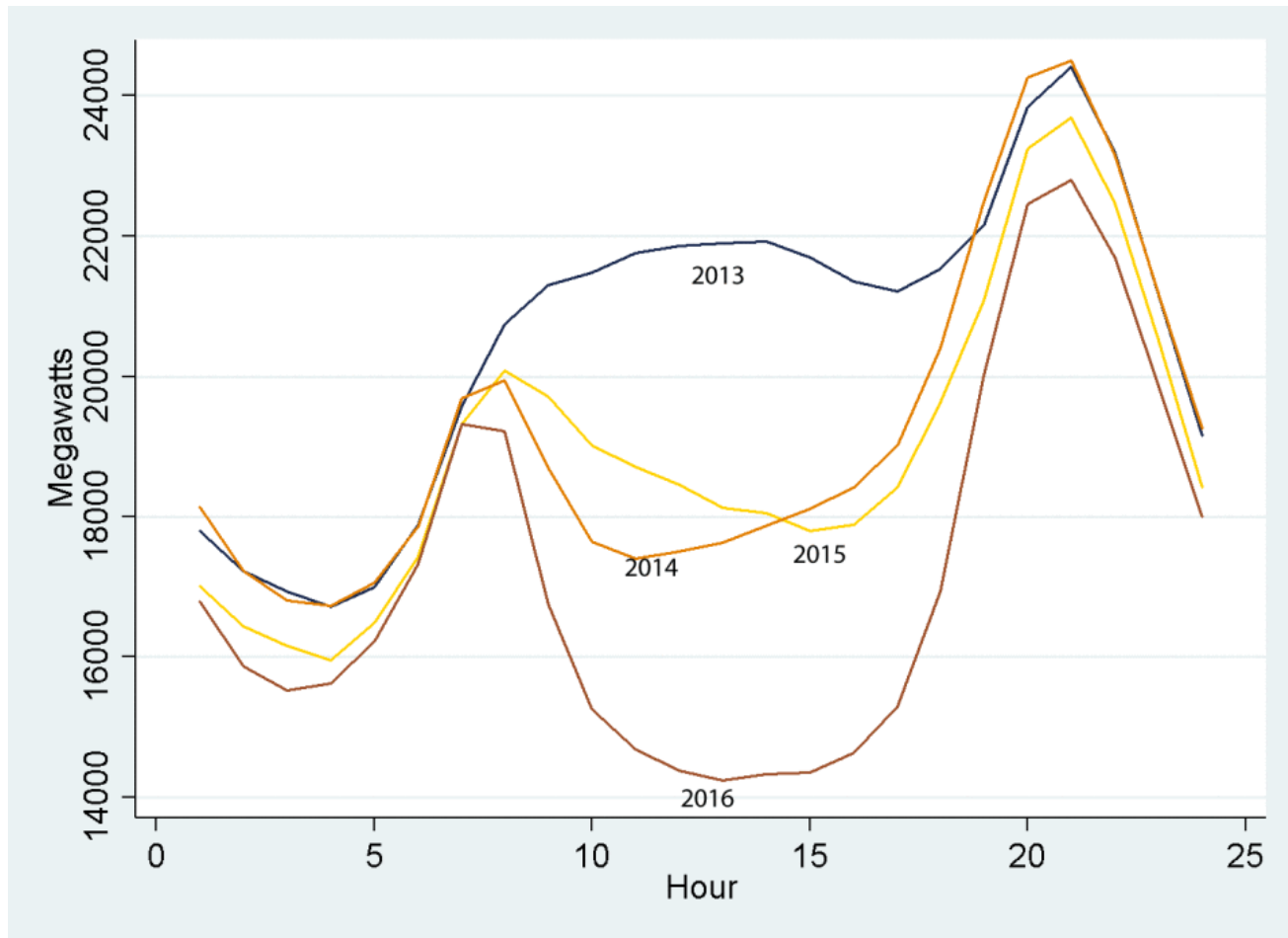
# Customers see their own savings, but don't see the full picture

Increases in customer generation may have two effects:

- Reduce capacity costs
  - Depends on the degree generation is coincident with system peak
  - Depends on the degree of customer generation reliability
- Increase other costs
  - Intermittency may result in
    - Increases generation ramping requirements (the duck!)
    - Increased level of operating reserves (idling generation)
    - Reduce efficiency of unit commitment
  - There may also be additional costs associated with maintaining power quality
  - And distribution-level capacity upgrades may be needed



# The Goose Has Landed



All data taken from CAISO website. Graph summarizes hourly data, March 28-April 3, 2013-2016.

# Utility Trends and Rates

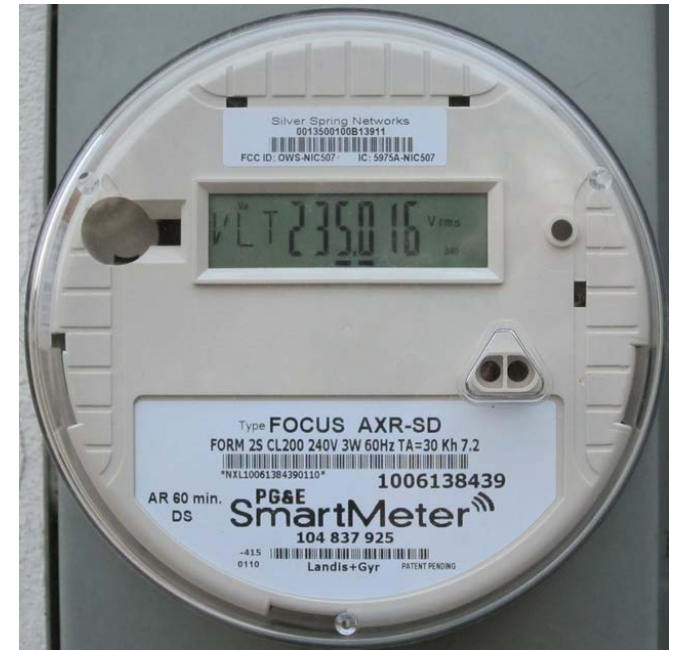
- **Flat electric sales**
  - Slow growth, sluggish economy
- **Low natural gas prices**
- **Low wholesale power prices**
  - All of these reduce sales, but don't reduce fixed costs.
- **RTO cost increases, mission creep**
  - Largely out of utility control, talk to the FERC
- **Infrastructure spending requests**
  - Meeting new needs
  - Replacing old with new expensive and results in
  - Increasing rates
- **Cost recovery to trackers and surcharges**
  - Better matching of rates and costs
- **PBR/formula rates push**
  - Aimed at responding to efficiency push

# New metering technology improves measuring usage and enables new rates

Traditional meter



Smart meter



Nearly one in every two households now has a smart meter



# Time Varying Rates are One Option

## Summary of Time Varying Rates

Rate	Description
<b>Time-of-Use (TOU)</b>	Charges a higher price during all weekday peak hours and a discounted price during off-peak and weekend hours
<b>Super Peak TOU</b>	Similar to the TOU with the exception that the peak window is shorter in duration (often four hours), leading to a stronger price signal
<b>Critical Peak Pricing (CPP)</b>	Customers are charged a higher price during the peak period on a limited number of event days (often 15 or less); the rate is discounted during the remaining hours
<b>CPP-TOU Combination</b>	A TOU rate in which a moderate peak price applies during most peak hours of the year, but a higher peak price applies on limited event days
<b>Peak Time Rebate (PTR)</b>	The existing flat rate combined with a rebate for each unit of reduced demand below a pre-determined baseline estimate during peak times of event days
<b>Flat Real Time Pricing (RTP)</b>	A rate with hourly variation that follows LMPs, but with capacity costs allocated equally across all hours of the year
<b>Critical Peak RTP</b>	A rate with hourly variation based on LMPs and with a capacity cost adder focused only during event hours, creating a strong price signal at these times

# Demand charges may be another

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	Old Two-Part Rate
Fixed charge	\$10/month
Volumetric charge	10 cents/kWh
Demand charge	\$0



Option A
\$10/month
6 cents/kWh
\$10/kW-month

(Rates shown are purely illustrative)

**or...**



Option B
\$15/month
6 cents/kWh
\$9/kW-month

**...etc.**

# Don't think utilities want to be villains...



They want to be heroes like we all do



# Utilities are trying to listen

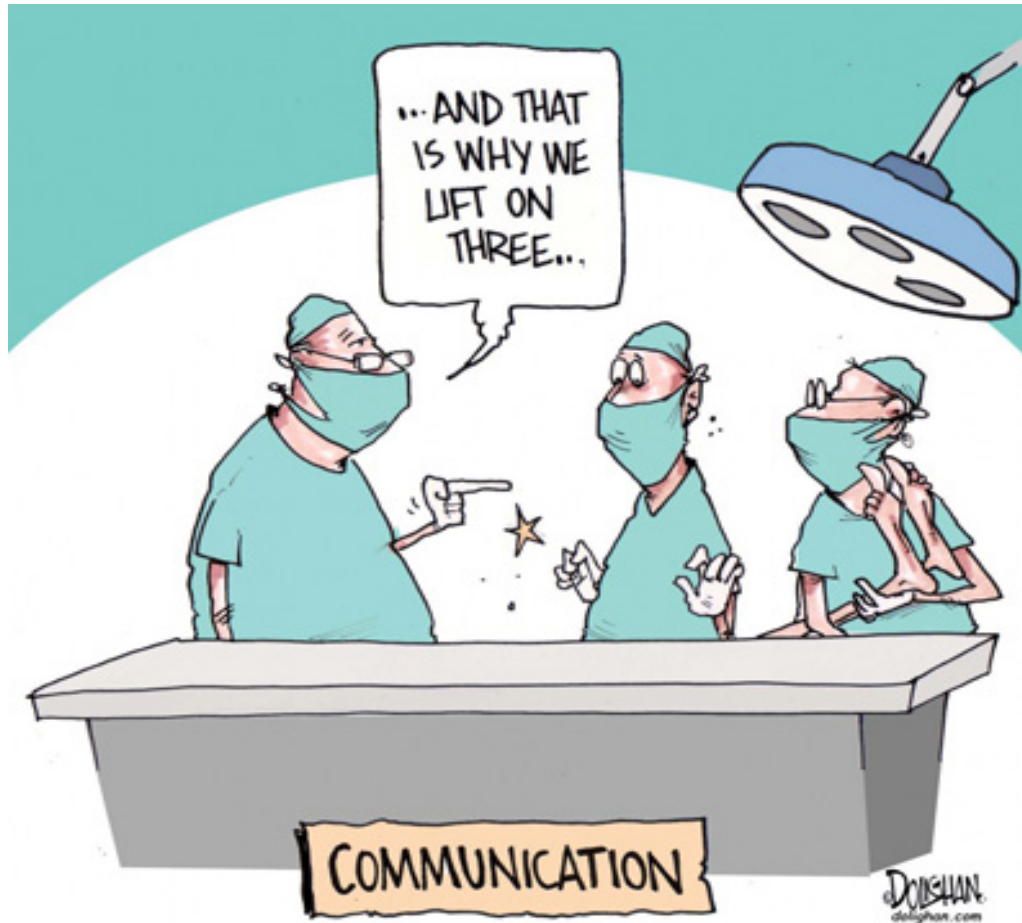
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# Sometimes we all need a little help doing so

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# Presenter Information

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**Philip Q Hanser** is a principal of The Brattle Group and has over thirty-five years of experience in the energy industry. He has appeared as an expert witness before the U.S. Federal Energy Regulatory Commission (FERC), and numerous state public utility commissions, environmental agencies, Canadian utility boards, as well as arbitration panels, and in federal and state courts and has consulted widely across the industry. Prior to joining The Brattle Group, he held teaching positions at the University of the Pacific, University of California at Davis, and Columbia University, and has served as a guest lecturer at the Massachusetts Institute of Technology, Stanford University, and the University of Chicago. He currently is a Senior Associate in the Mossavar-Rahmani Center for Business and Government at the Harvard Kennedy School and leads a seminar in public policy analysis. He has also served as the manager of the Demand-Side Management Program at the Electric Power Research Institute (EPRI).