OPALCO Cost-of-Service Analysis and Rate Design

OPALCO February Board Meeting

February 20, 2025

Arne Olson, Senior Partner

Energy+Environmental Economics

About E3

130+ full-time consultants

30+ years of deep expertise

Engineering, Economics, Mathematics, and Public Policy


San Francisco


New York

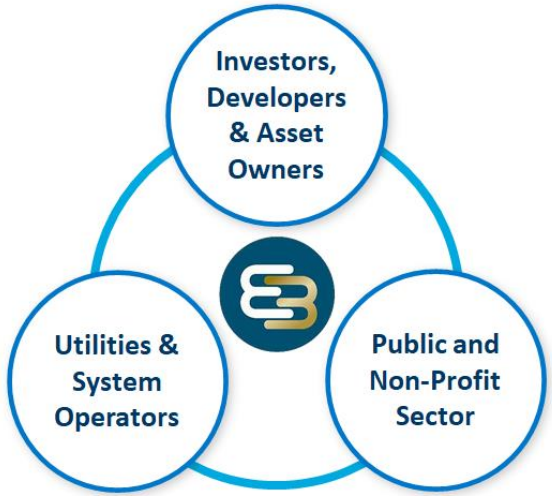

Boston


Calgary


Denver

E3 Clients

300+ projects per year across our diverse client base



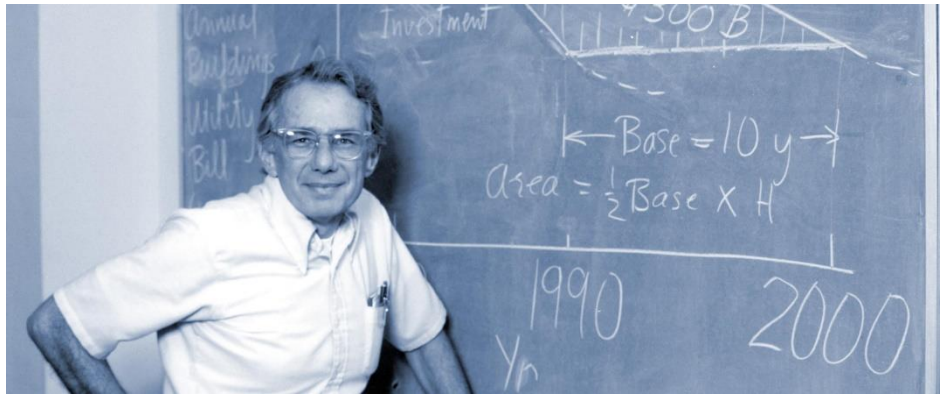
Recent E3 Projects

- **E3 is supporting the Massachusetts Interagency Rates Working Group in the development of Near- and Long-Term Rate Design Strategies**
- **E3 supported the Washington Public Utility District Association (WPUDA) with an evaluation of Net Energy Metering (NEM)**
- **E3 supported the Sacramento Municipal Utilities District in developing a new solar and storage rate to replace their legacy NEM rate offering**
- **E3 supported Umatilla Electric Cooperative in multiple cycles of cost-of-service analysis and retail rate design**

Times have changed, and our rate designs must change too (1/3)

"Then"

- Fuel was expensive and power was dirty no matter when it was consumed
- Conservation was a key strategy to save fuel and reduce emissions
- High volumetric rates – e.g., inclining blocks – were aligned with environmental and equity goals



"Now"

- Clean energy is abundant during many hours of the year
- Electrification is a key strategy to decarbonize cars and buildings
- High volumetric rates are an impediment to achieving electrification goals

Times have changed, and our rate designs must change too (2/3)

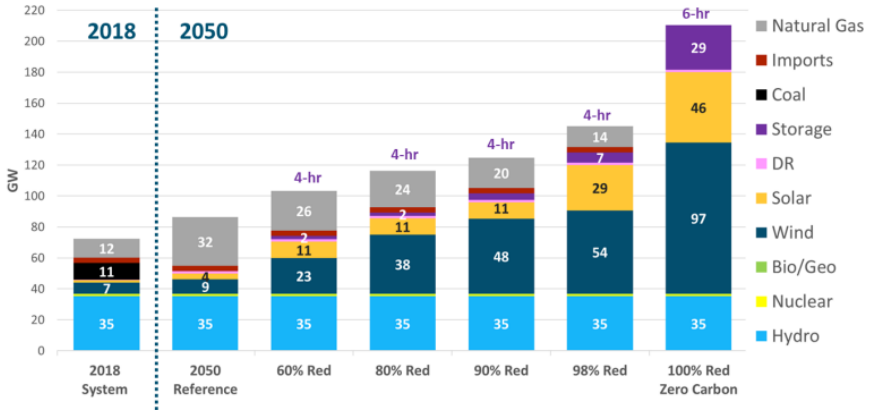
"Then"

+ Reducing consumption avoided fuel combusting generation with high variable costs

"Now"

+ Avoidable resources have high fixed costs and almost no variable costs

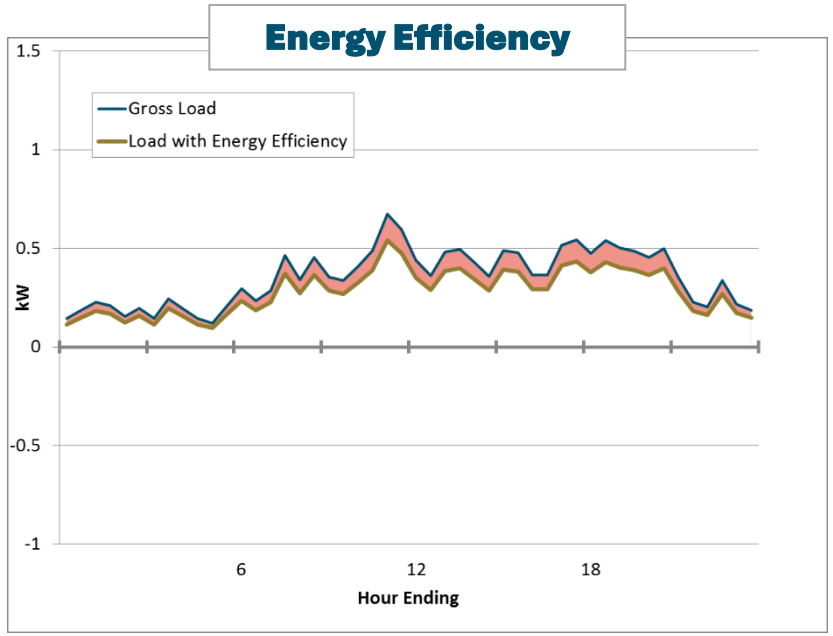
2050 Pacific Northwest Decarbonization Portfolios (GW)



Times have changed, and our rate designs must change too (3/3)

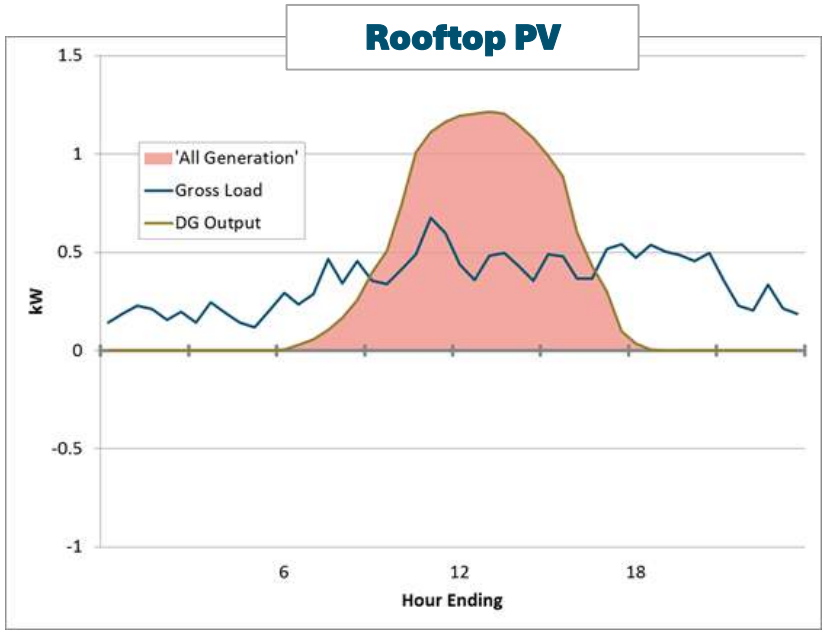
"Then"

+ Customer response to price signals was predictable
+ Blunt price signals were sufficient to induce beneficial response



"Now"

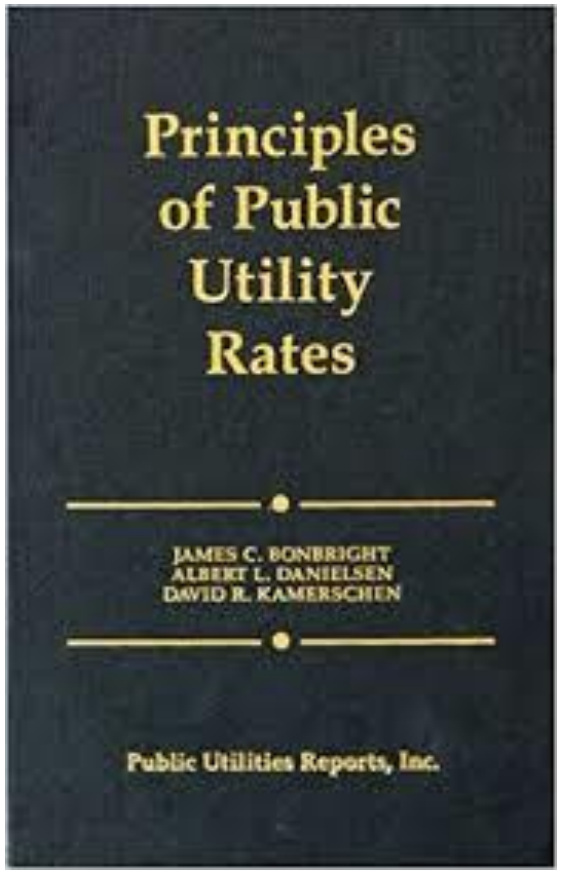
+ Customers are increasingly able to respond dynamically to price signals
+ More precise price signals will be necessary to avoid harmful arbitrage



Rate design entails tradeoffs among different objectives

+ "Bonbright Principles"

1) Recovery of total revenue requirement
2) Fair apportionment of costs among customers
3) Price signals that encourage efficient use
4) Customer understanding and acceptance
5) Practical and cost-effective to implement
6) Rate and bill stability



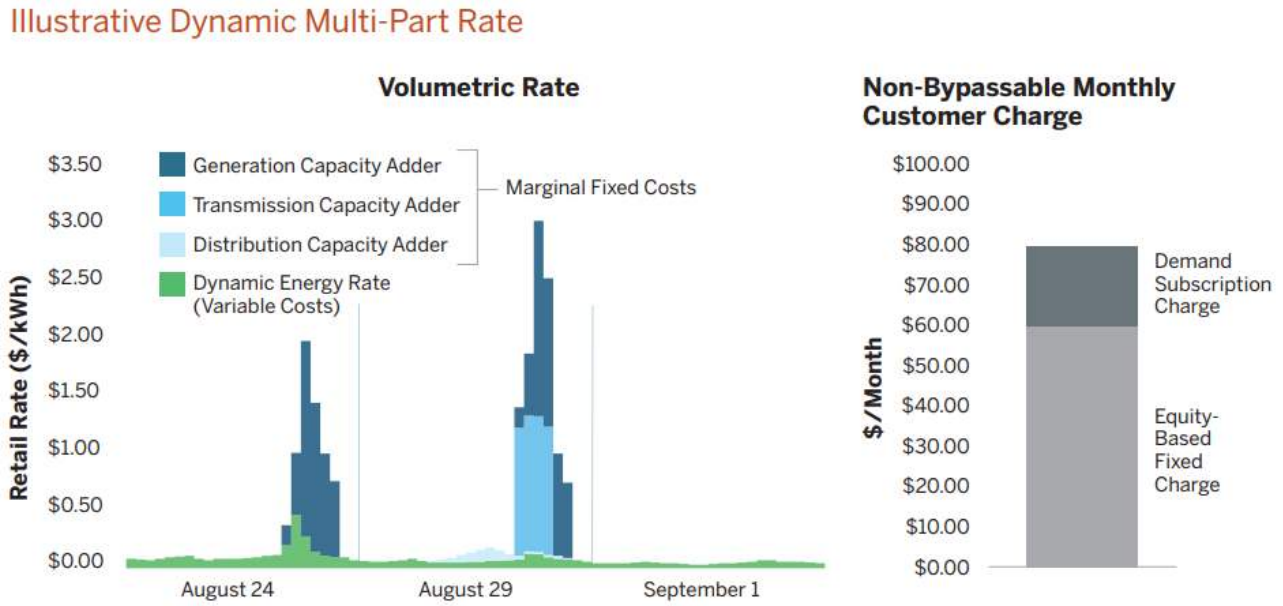
+ Other policy goals:

1) Energy affordability for low-income customers
2) Support for building and vehicle electrification
3) Efficient dispatch and fair compensation of distributed energy resources
4) + Others

Long-term vision for rate design

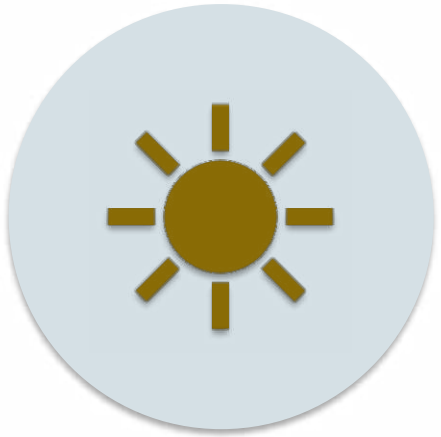
General concept of a multi-part rate:

+ **Send good price signals to induce beneficial behavior at the margin**
  - Energy and demand charges based on long run marginal cost (LRMC)
  - This will result in some fixed cost recovery since LRMC > SRMC
+ **Recover remaining costs through non-bypassable charges designed for equity**
  - Demand subscription
  - Ratchet demand charge
  - Income-based fixed charges
+ **Must consider adverse impacts of bill volatility for customers**
  - Can consider offering a legacy rate for those who can't or don't want to be prosumers



https://www.esig.energy/wp-content/uploads/2023/03/ESIG-Retail-Pricing-dynamic-rates-E3-wp-2023.pdf

OPALCO's near-term needs



Ensure all customers, including seasonal customers and rooftop solar owners, fairly contribute to the fixed costs of the grid

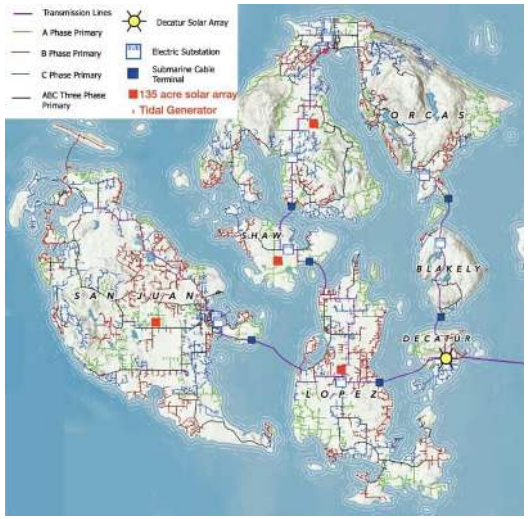
Support the financial health of the utility, including during warm winters when electricity sales are low

Maintain energy affordability for low-income customers

Characteristics of OPALCO

OPALCO has some key differences from other utilities

+ **Low-cost power supply from BPA**
  - Variable supply costs are a relatively small share of costs
+ **Costly transmission cables among the islands**
  - Fixed delivery costs are a relatively large share of costs
+ **Relatively poor solar resource quality, yet high rooftop solar adoption**
  - Lower solar capacity factor than in other regions
+ **Large hydro resource means there is relatively little value in intra-day energy shifting**
  - This is reflected in BPA pricing
+ **Large share of seasonal homeowners**
  - These customers have relatively low winter sales, when OPALCO recovers the majority of revenues



Our scope of work

Update cost-of-service analysis	Allocation of costs to different customer classes
Develop rate proposals	Consider default time-of-use rates plus adding small demand charges and/or larger cust. charges
Customer bill impacts analysis	Impacts of new rates on different customer groups
Transition plan and comms	Key considerations for the successful roll-out of new rates
(Opt.) Electric vehicle rate analysis	(Optional) development of new rates to support EV adoption and managed EV charging

Questions?