



# TPU Rate Design

City of Tacoma | Tacoma Public Utilities

**Government Performance and Finance Committee**

June 21, 2022



## Overview



### Background

Once a Revenue Requirement has been established and the Cost-of-Service Analysis has been completed, **Tacoma Power** and **Tacoma Water** undergo rate design processes to set the rates charged to customers. These are the prices charged per unit of electricity or water that collect the revenue determined by the Cost-of-Service Analysis.

### Summary

Rate design blends judgement, best practices, and policies. There are competing needs and priorities that must be balanced. There are also limits imposed by accessibility and resolution of data.

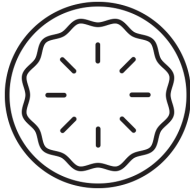
### Issue

The GPFC requires a foundational understanding of the rate-making process and principles to inform forthcoming utility budget and rate proposals.

# Rate-making Process Overview

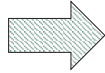


## How Big is the Pie?

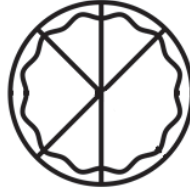


### Revenue Requirement

Identifies revenue needed to sustain operations, **according to financial plan**

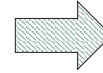


## How to Slice the Pie?



### Cost-of-Service Analysis (COSA)

Divides revenue requirement into **total amount** to be paid **by each customer class**



## How to Eat the Pie?



### Rate Design

Sets rate structure to bill each customer  
(e.g. customer **charge per month**, energy **charge per kWh**, usage **charge per CCF** [100 cubic feet; 748 gallons], etc.)

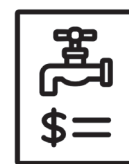
# Rate Design Primary Takeaways



Rate design is how the utility goes about collecting the cost to serve each class *from* each class



All possible designs have advantages and disadvantages



Higher fixed customer charges do not imply higher total bills



## Mismatched Costs and Revenues



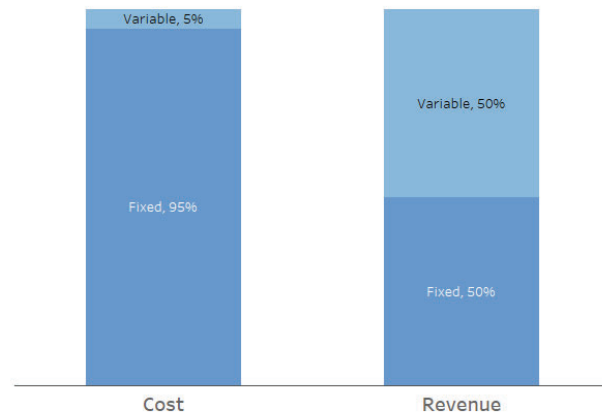
Water utilities exist in a capital-intensive business environment.

Over 95% of costs are “fixed” in the very short run; power, treatment, and solids handling are the only variable costs on this time horizon.

Rate design can be used to contribute to revenue stability, improve equity across customer classes, and send a conservation signal.

### Water Sytem Cost Structure

2021-2022 Rate Period



Cost represents expenses in terms of percentage.

Revenue represents anticipated water sales in terms of percentage.



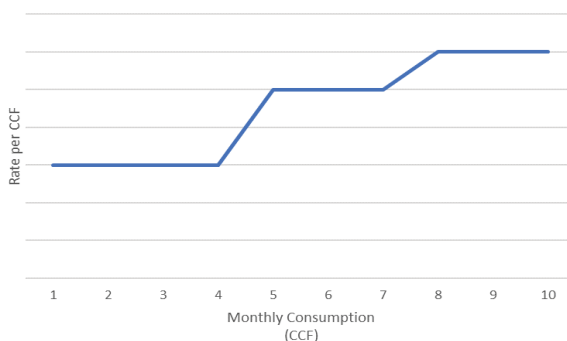
## Inclining Block Rate Design



### Inclining Block

- Best when the **cost to produce water increases** as more water is consumed.
- May send a **conservation message** to high-water users.

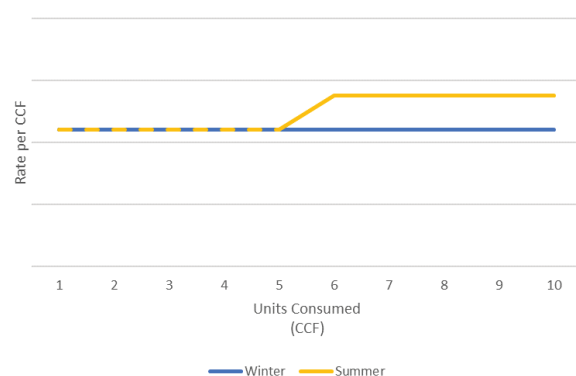
Inclining Block Rate Design



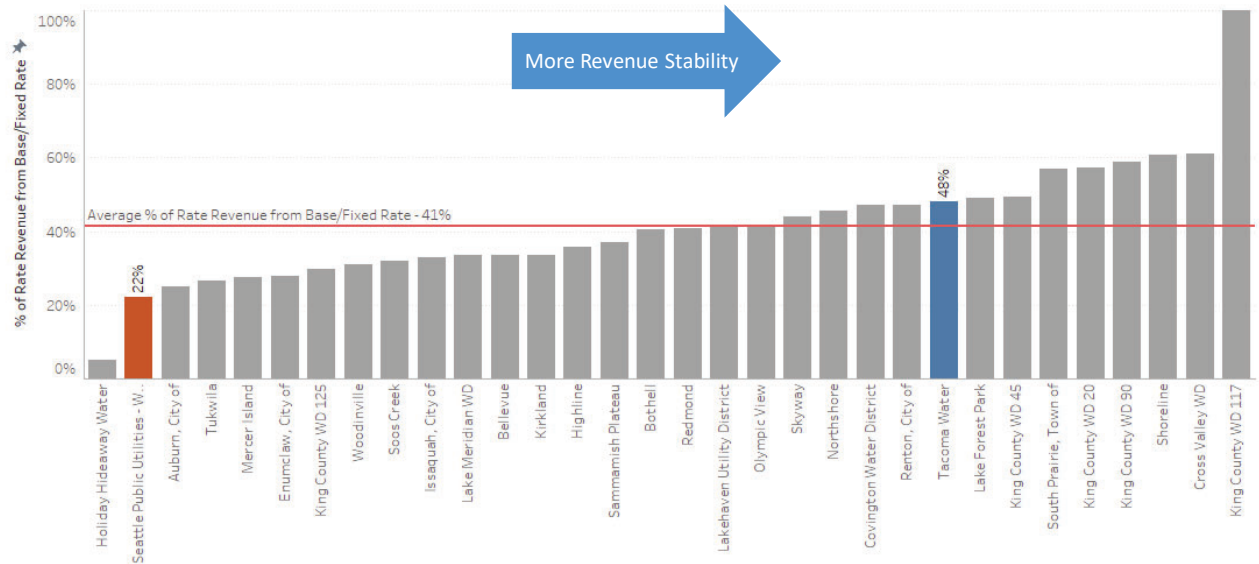
### Tacoma Water Residential Schedule

In the **winter season**, residential customers pay a **base rate** per CCF consumed. In the **summer season**, residential customers pay the same **base rate per CCF for the first five CCF consumed**, and an **increased rate for more** monthly consumption beyond five CCF.

Seasonal Inclining Block Rate Design



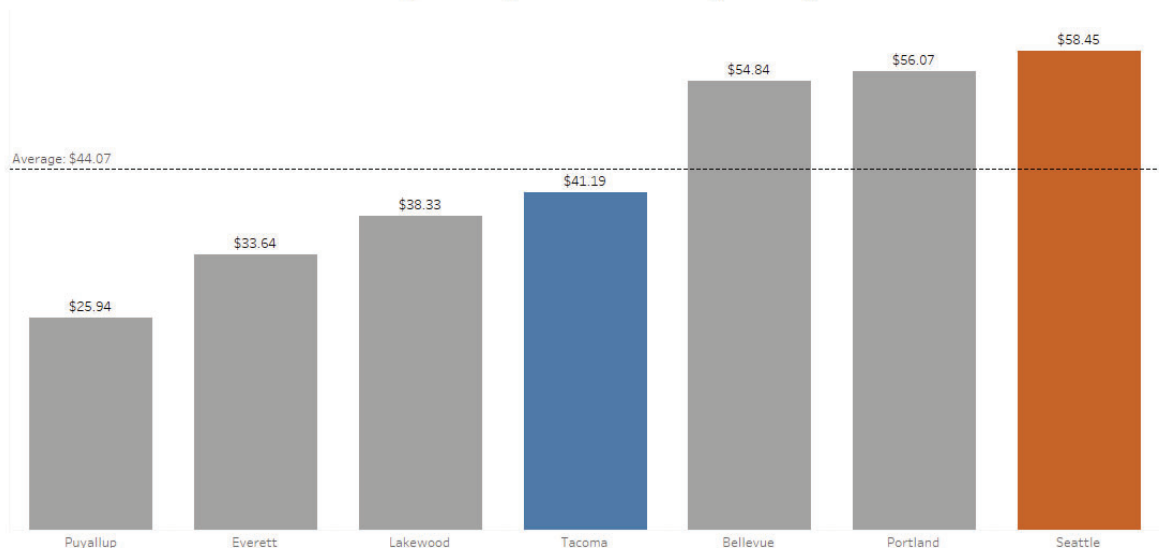
## Fixed vs Variable Cost Recovery



## Fixed Rates Do Not Determine Bill



2021 Average Monthly Water Bill for a Single-Family Home




This comparison assumes an average single family consumes is 6 CCF in winter months and 9 CCF in summer months, with a 5/8" meter.

## Power Complexity: Demand Charges

  
100 kW

×

  
1 hour

  
1 kW  
**DEMAND**  
“How big is the pipe?”

×

  
100 hours

=



100 kWh  
**ENERGY**

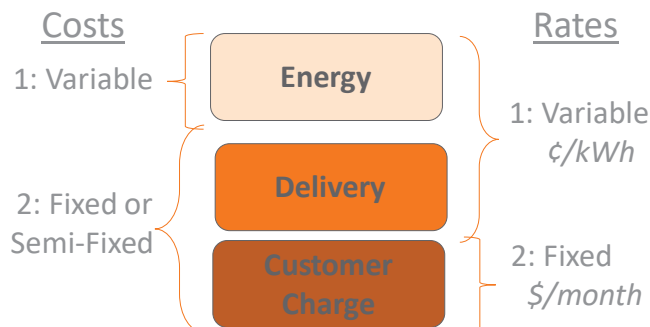
“How much went through the pipe?”

*Different peak demands can result in the same total energy, but have different costs for the utility to serve.*

## Designs Used at Tacoma Power

### Two-Part Rate

(Requires Simple Meter)

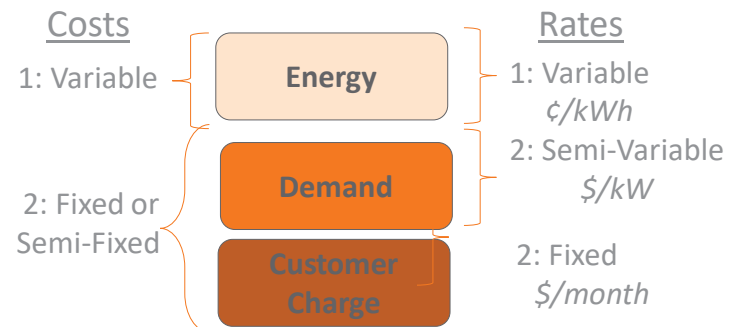


#### Two-Part Rate Schedules:

- Residential
- Small General Service

### Three-Part Rate

(Requires Demand Meter)



#### Three-Part Rate Schedules:

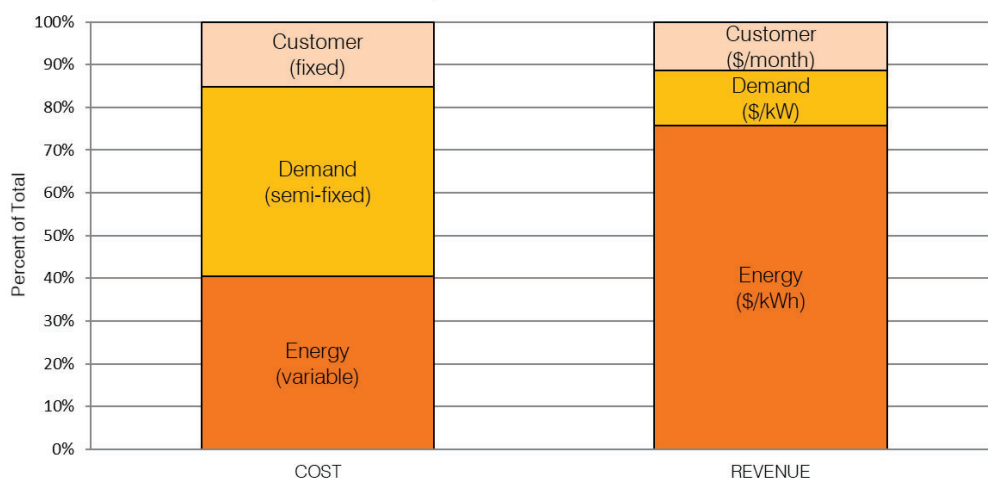
- General Service
- High-Voltage General
- Contract Industrial

## Fixed & Variable Costs and Revenues



### System Cost & Revenue Structure

2019/2020 Rate Period



Most of the total Tacoma Power system **costs are fixed**. At the same time, most of the total Tacoma Power **revenues are variable**.

From 2019/2020 COSA. Amounts for Click! underrecovery included as a fixed customer item.

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## Customer Charges = Electrification Costs Less



If the customer charge is higher, the **per-kWh charge can be lower**.

The **per-kWh charge** is the “fuel cost” for electrification.

Higher customer charges **reduce overall bill to “fill” an EV**.

- **Goal:** encourage use of **carbon-free hydropower instead of fossil fuel**.
- It is very cheap for Tacoma Power to generate an extra unit kWh of electricity with our dams—just open a sluice and let more water flow! **High kWh charges are not needed to keep generation costs down.**
- Tacoma Power has dedicated conservation funding to incentivize energy efficiency. **Higher kWh rates are not anticipated to induce more conservation.**

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## Customer Charges = Lower Heating Bills

If the customer charge is higher, the **per-kWh charge can be lower**.

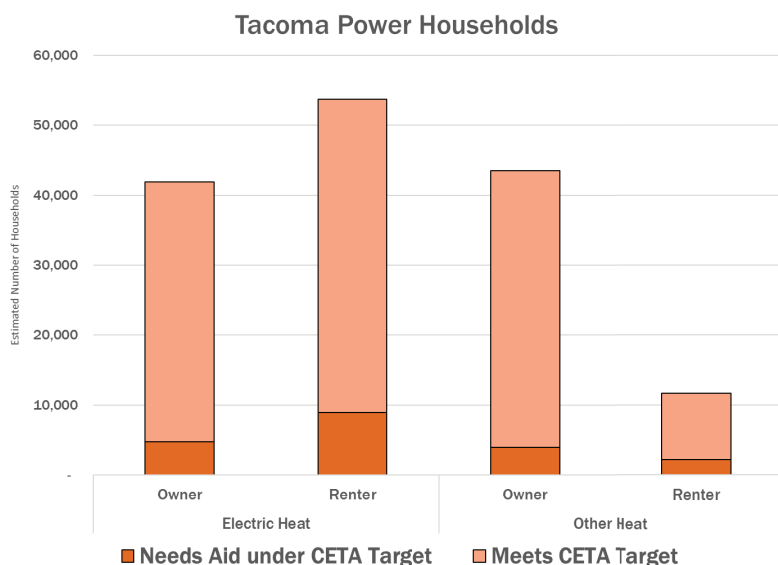
The **per-kWh charge** is the “fuel cost” for electric heating.

Higher customer charges **reduce overall bill to heat a home**.

- **Goal:** ensure equitable access electric services.
- **Renters and low-income households** are more likely to have **electric heat**. They are also more likely to be unable to invest in conservation due to lack of capital or legal authority.
- Higher customer charges place **disproportionate burden** on households with electric heat.

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## Customer Charges Can Enhance Affordability



- **Clean Energy Transformation Act** sets targets for affordability.
- **Renters with electric heat** are most likely to be identified as needing energy assistance.
- **Owners with electric heat** are more likely to need assistance than owners with other heating sources, since they are more likely to be low-income.

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## Next Steps



GPFC Presentation Topic	Date
Customer Assistance	July 19, 2022
Outreach Efforts and Plans	August 2, 2022
Latest Update on Preliminary Budget and Rates	September 20, 2022
Final Rates Proposal prior to Council Consideration	October 4, 2022
First Reading of Budget & Rates	November 8, 2022
Second Reading of Budget & Rates	November 15, 2022



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