Diving into Water Rates and Project Financing: End of PAYGO?

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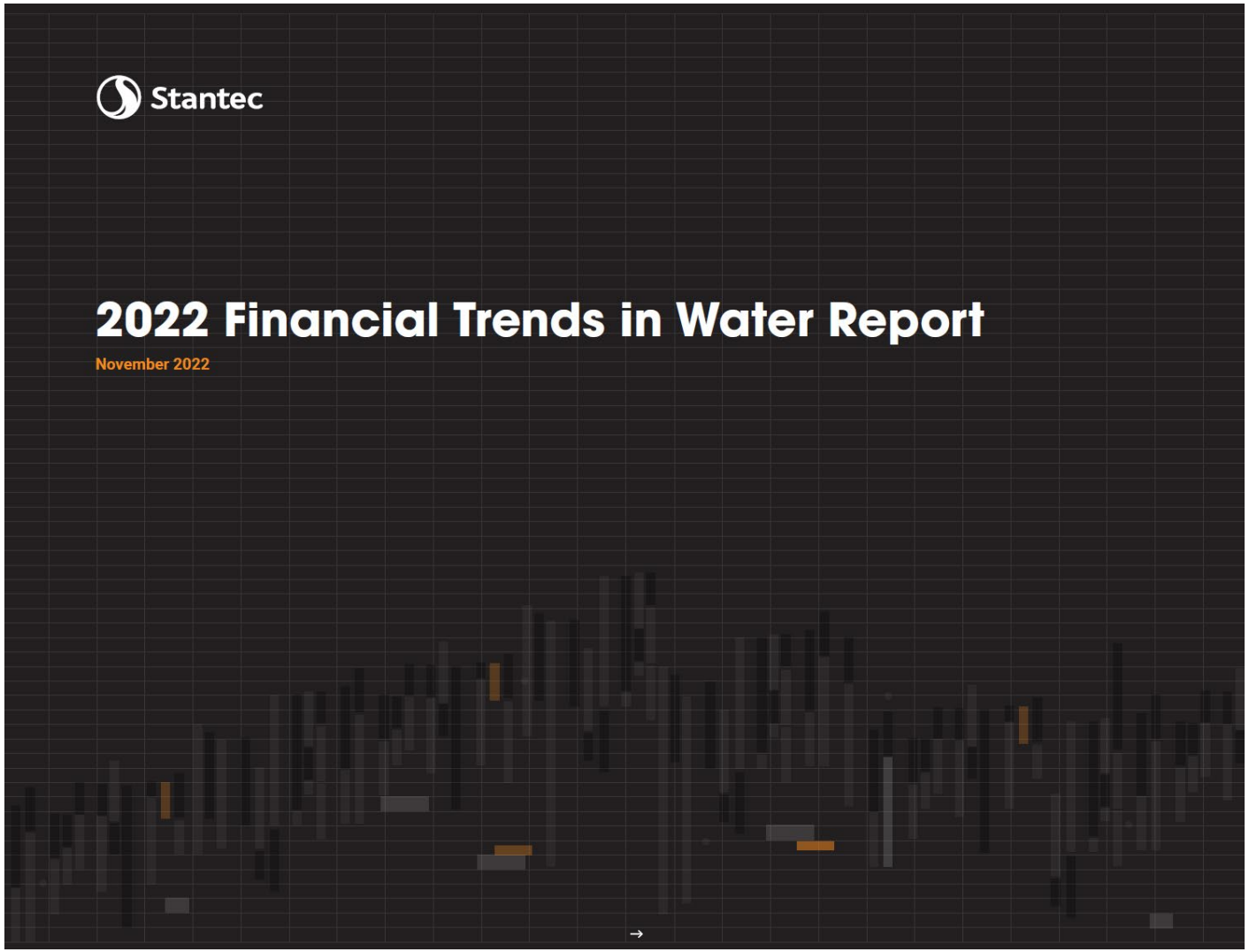
PNW AWWA 2023 - Kennewick

- Industry financial trends
- Addressing affordability: Two tools
  - Rate design
  - Federal grants & funding

Financial Trends

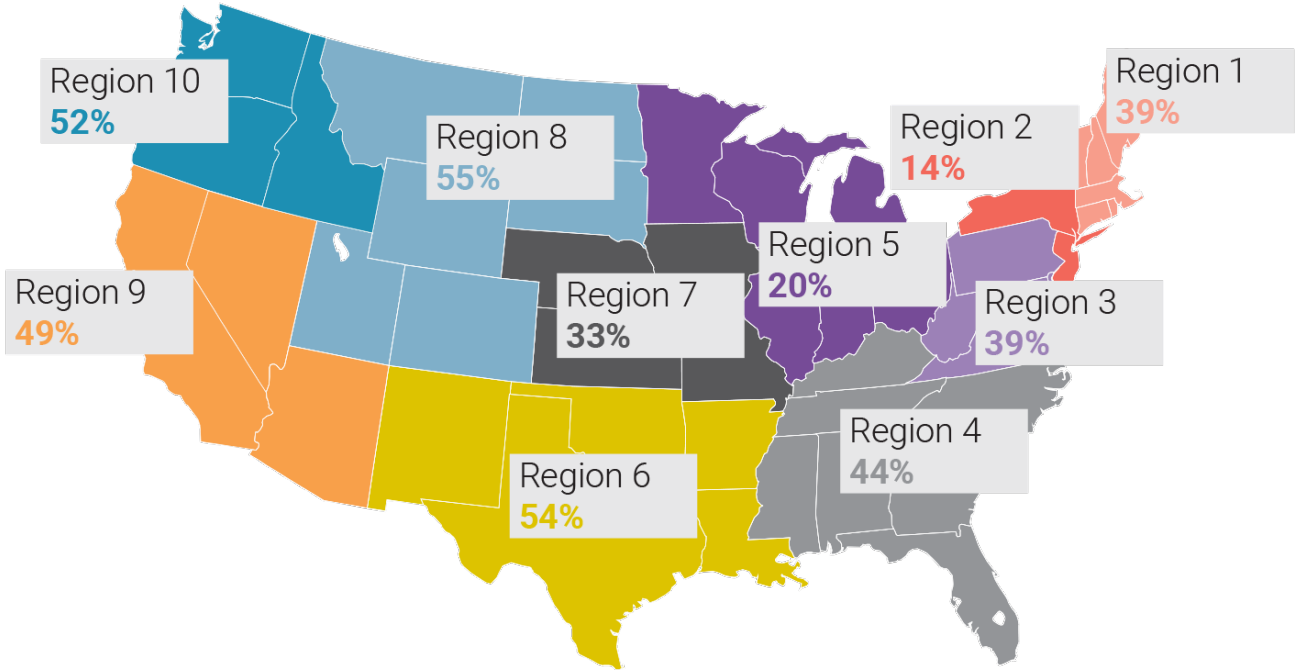
How PNW Water Industry rates & financing has changed over the past ten years



Financial Trends in the PNW Water Industry: Operating Expenses

Operating costs increased 52% over 10 years

Operating Expenses Ten Year Δ



Source: Stantec survey of 22 utilities in EPA Region 10 in Utiliwise database

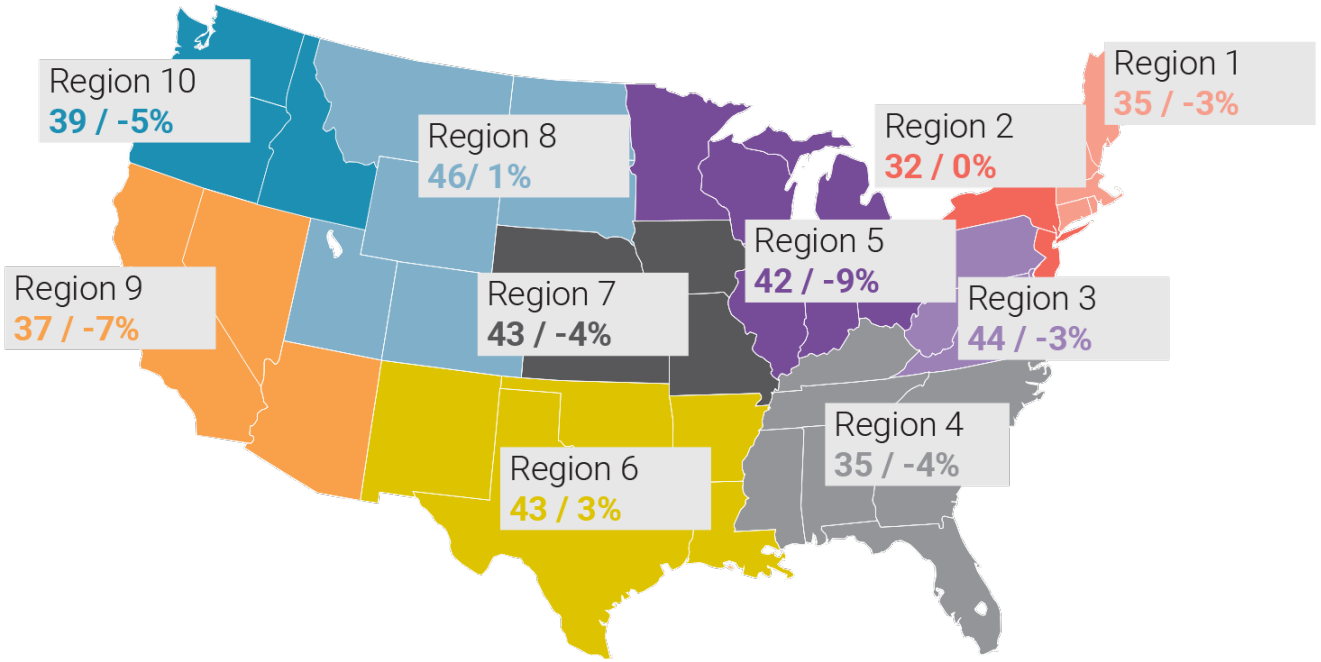
Financial Trends in the PNW Water Industry: Capital Spending & Asset life

Capital spending increased 31% nationally, but asset life decreased.

Remaining Asset Life in PNW:

39 years, -5% from ten years ago

Remaining Asset Life/ 10 yr Δ



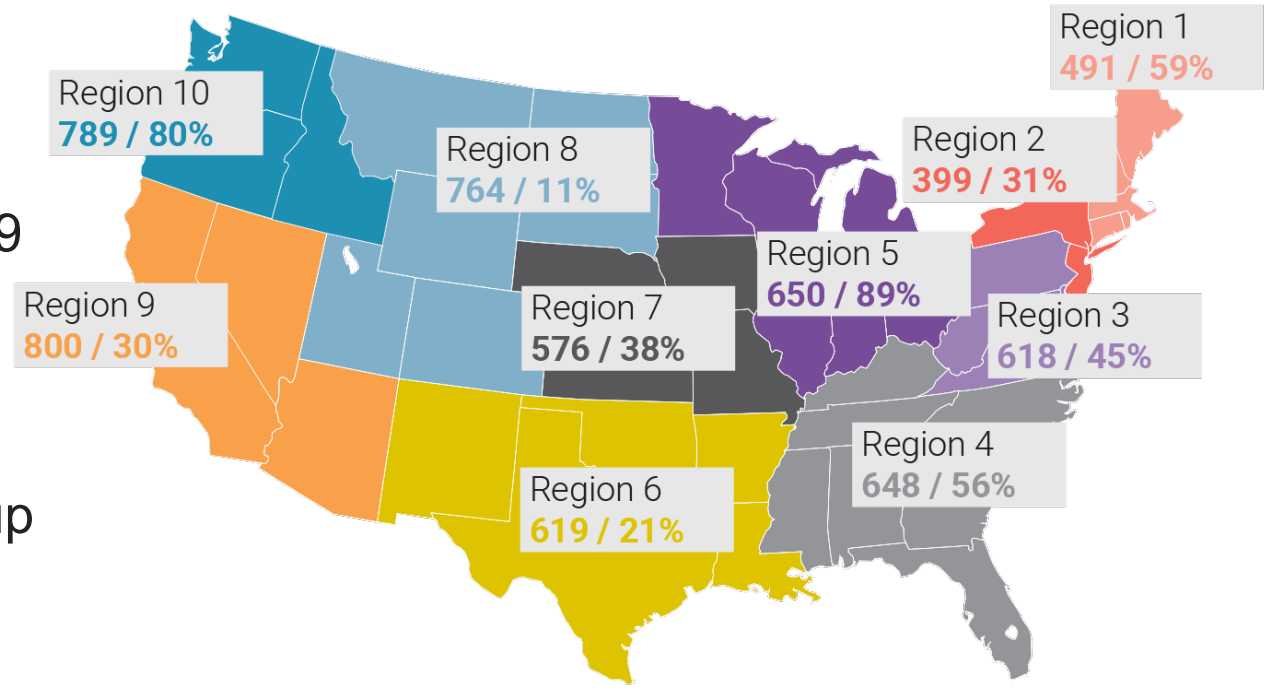
Source: Stantec survey of 22 utilities in EPA Region 10 in Utiliwise database

Financial Trends in the PNW Water Industry: More Days Cash On Hand

Days Cash on Hand averaged 789 days in the PNW, a 80% increase over 10 years

Driven by debt financing, saving up for bigger projects, building up reserves, etc.

Days Cash on Hand/ 10 yr Δ

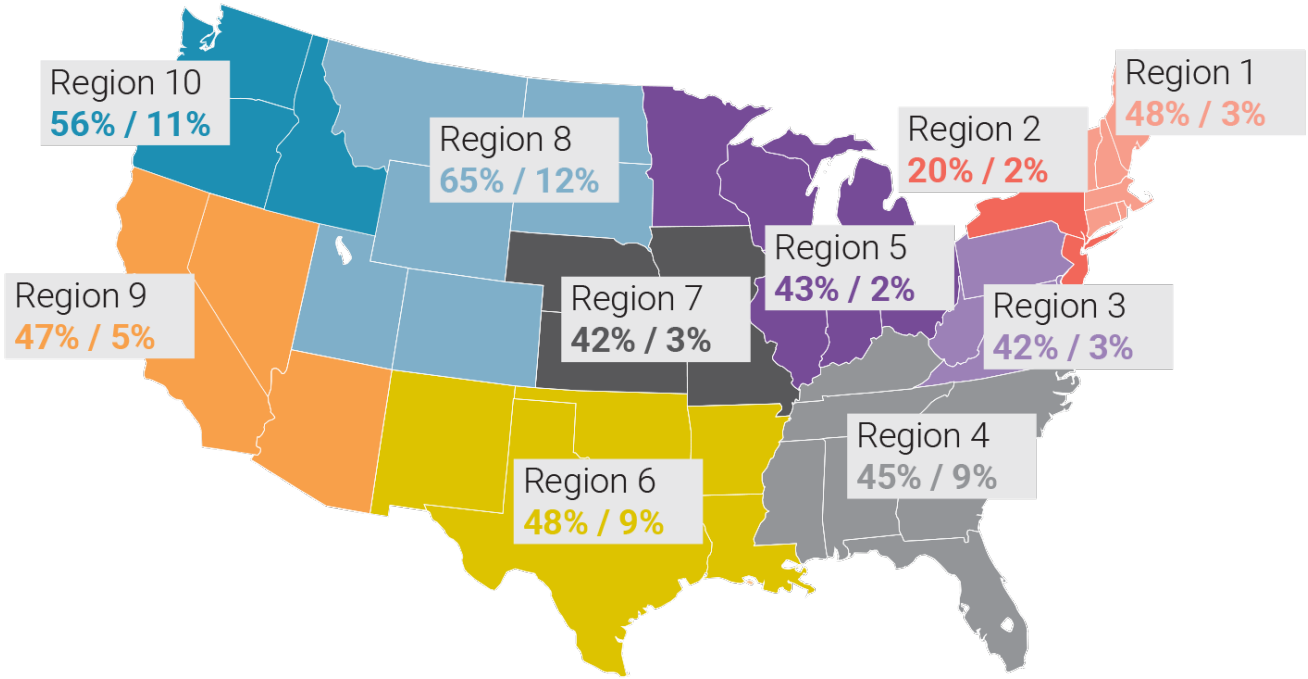


Source: Stantec survey of 22 utilities in EPA Region 10 in Utiliwise database

Financial Trends in the PNW Water Industry: Revenue Increases

Revenue growth = 56%, despite only 11% in population growth.

Revenue 10 yr Δ/ Population 10yr Δ



Source: Stantec survey of 22 utilities in EPA Region 10 in Utiliwise database

Affordability

Recovering costs while keeping equity in mind

A Growing Local Toolbox for Water Affordability

Bill Design

Rates, fees, and cost allocation

No added city fees added in the bill

Assistance

Discounts

Payment plans

Emergency funds

Debt forgiveness

Lifeline or lower rates

Leak repair support

Disconnection policy

Efficiency/Scale

Low non-revenue water

Strong utility mgmt.

Alternative revenue

Digital and tech solutions

Community-driven, representative regionalization

Subsidy

Bond ratings

Project prioritization

Grants & subsidized loans

Federal earmarks

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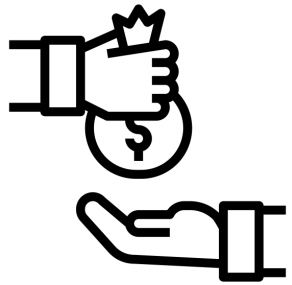
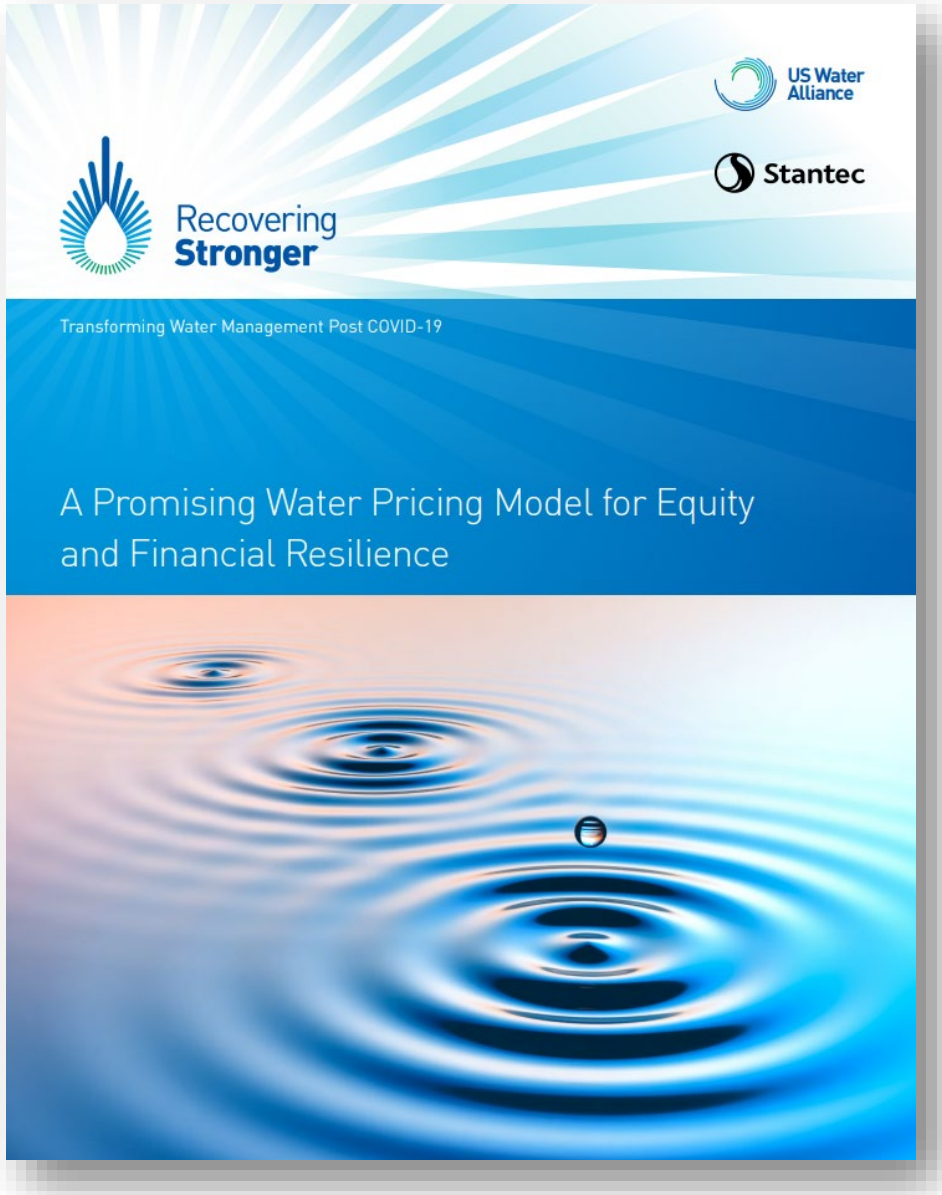


US Water Alliance

Stantec

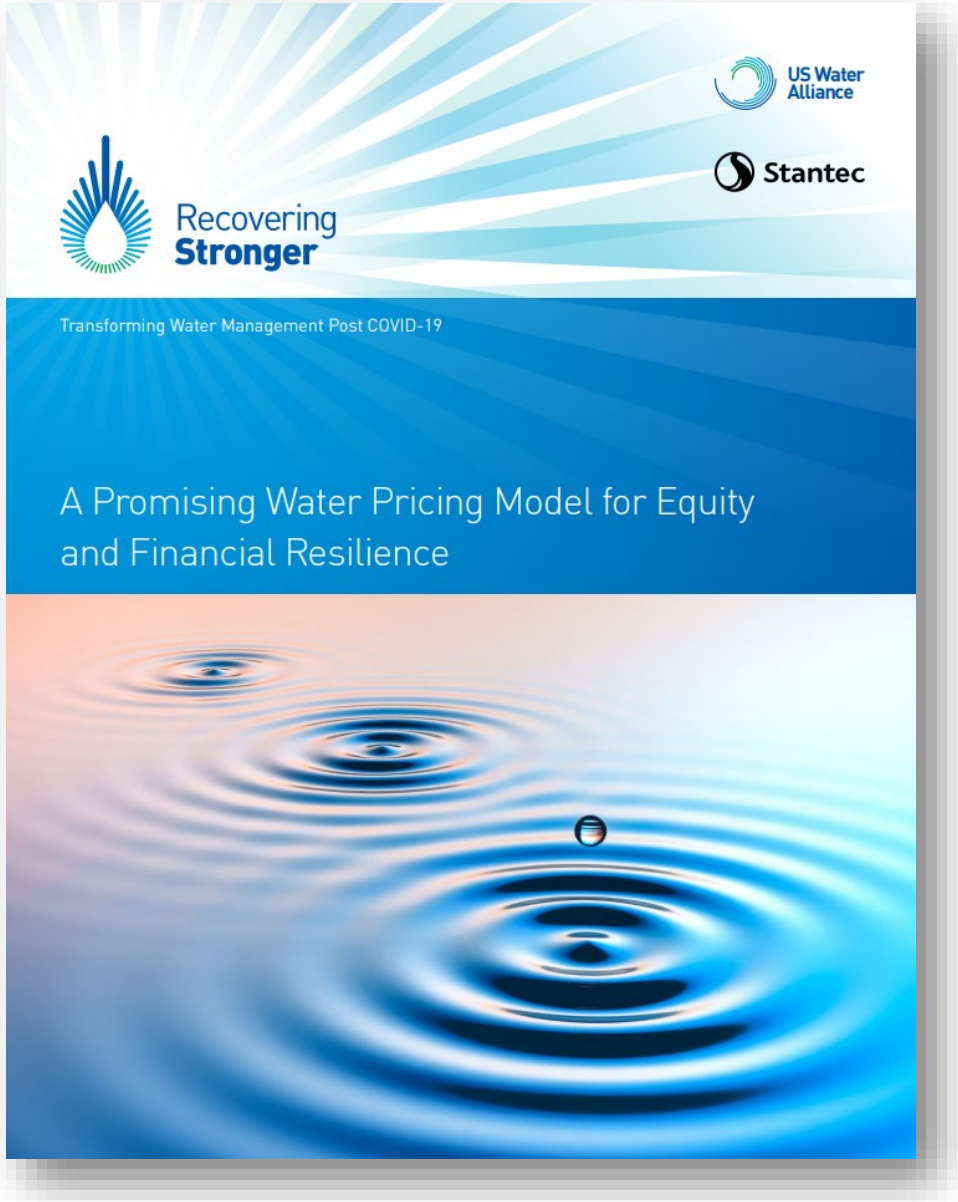
A Service of The City of Cincinnati

GREATER CINCINNATI WATER WORKS



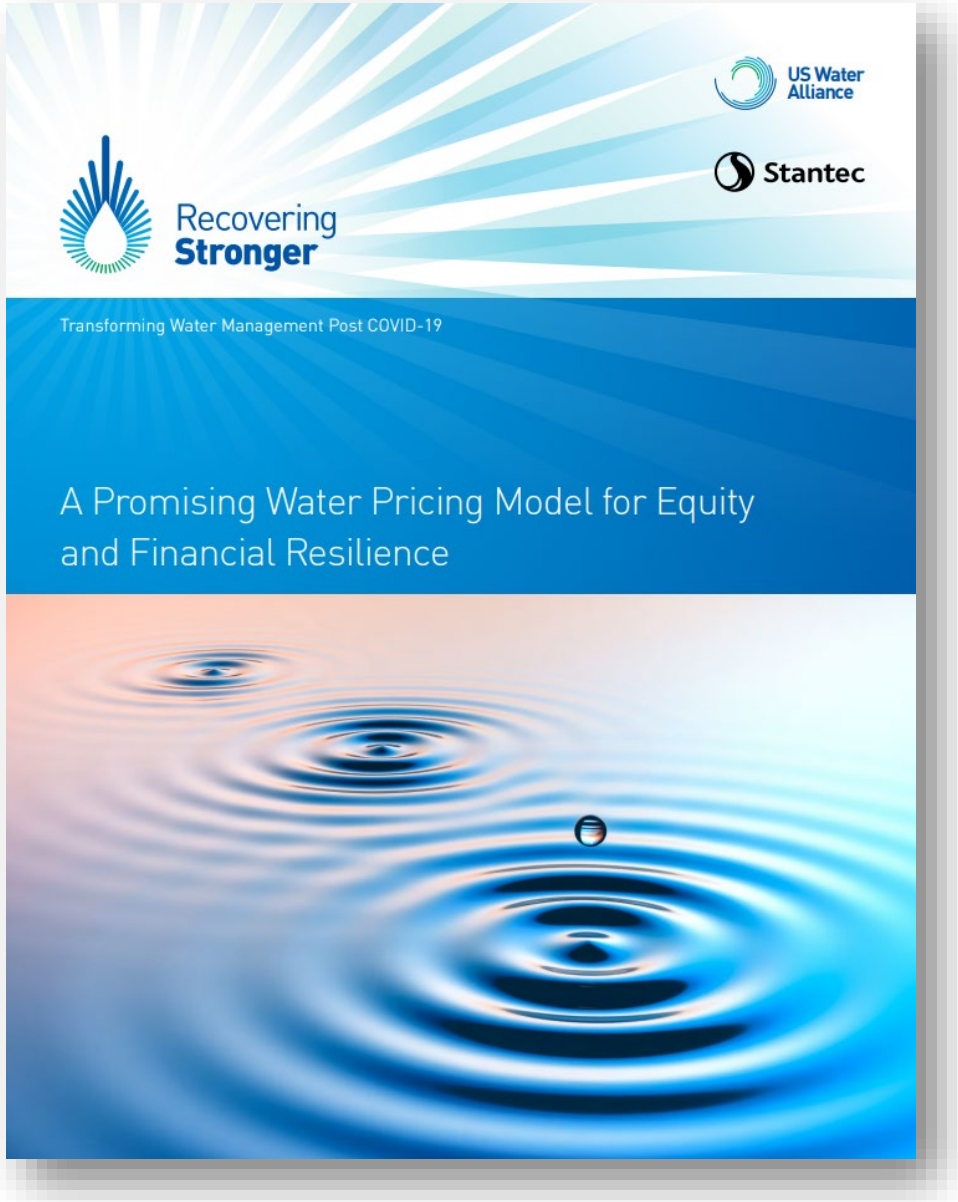
Goal of study

- Water is a public good
- Other common goods (roads and libraries, etc) are funded collectively through fees, tax revenue, and combinations of the two
- Water and wastewater utilities rely almost exclusively on revenue from customers



Goal of study

- Create a rate model that shifts some utility costs from usage to other property characteristics
- Accomplish full cost recovery
- Use traditional base-extra capacity approach to rate setting (base flow, maximum day flow, peak hour flow, customers)

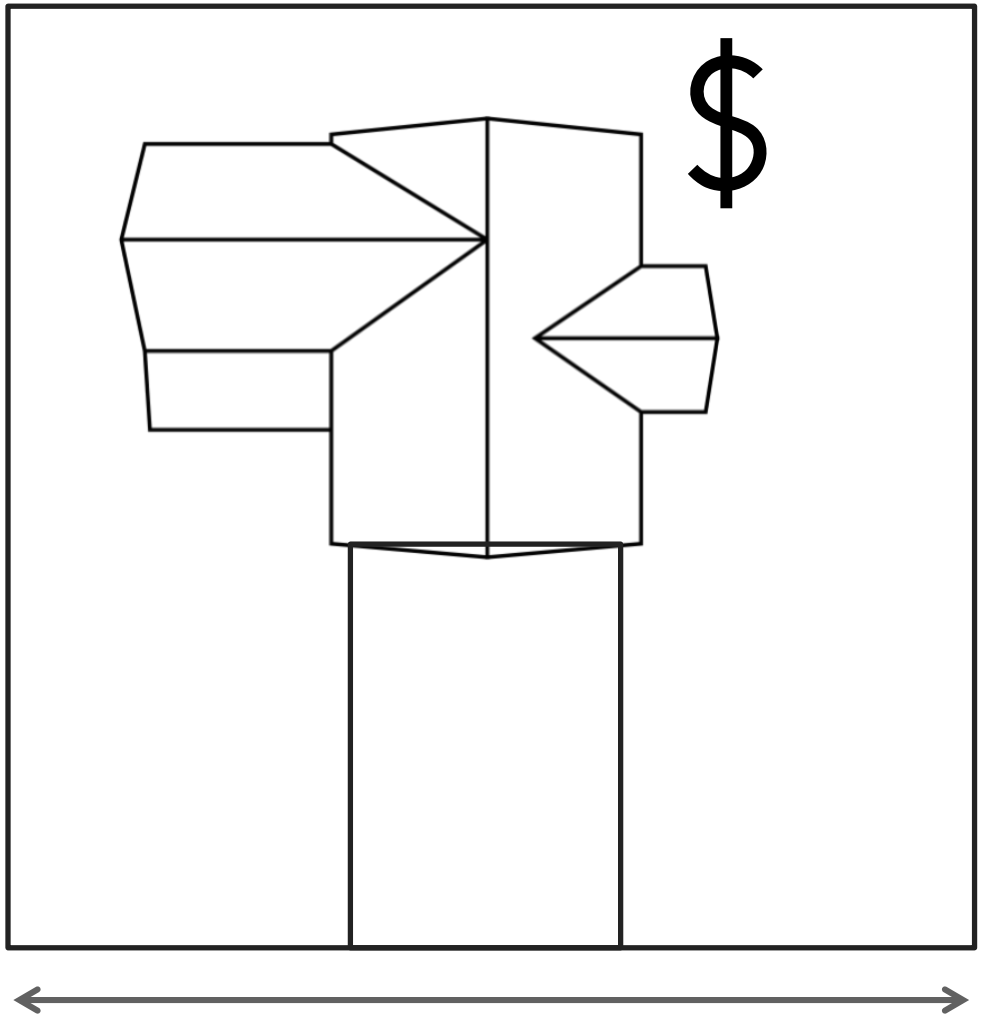


Property characteristics

Property value
- Greater benefit from fire protection

Number of bedrooms
- Higher capacity, supply, and treatment needs

Building footprint
- Greater benefit from fire protection
- Higher capacity needs



Parcel area
- Higher capacity, supply, and treatment needs
- Could serve as a proxy frontage feet if frontage feet data is not readily available

Frontage feet
- Increases capital & operational costs of distribution system
- Increasing the potential for system water losses

Property characteristics correlated with income more than consumption, indicating potential improvements for affordability

Variable	Correlation with Median Household Income
Property Value	
Number of Bedrooms	
Frontage Feet	
Building Area	
Consumption	
Parcel Area	

Correlation tests used Greater Cincinnati Water Works data

Property characteristics correlated with income more than consumption, indicating potential improvements for affordability

Variable	Correlation with Median Household Income
Property Value	0.7842
Number of Bedrooms	0.7549
Frontage Feet	0.6260
Building Area	0.5947
Consumption	0.5662
Parcel Area	0.5651

Correlation tests used Greater Cincinnati Water Works data

Study methods

- **Utility billing data**
  - Customer classification
  - Monthly/quarterly water consumption
  - Monthly/quarterly water bill
  - Account identification number
  - Premise identification number
- **County parcel data**
  - Premise identification number
  - Parcel size in acres
  - Assessed property value
- **County building data**
  - Premise identification number
  - Building size in square feet
- **New data created**
  - Property frontage in linear feet
  - Number of bedrooms

Identify cost types → Isolate from pricing → Identify units of service → Calculate pricing per unit → Compare bills

Study methods

Identify cost types

Isolate from pricing

Identify units of service

Calculate pricing per unit

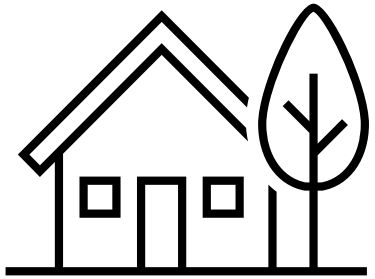
Compare bills

Total Distribution Costs to be Recovered = $7,735,206

Alternative Distribution Pricing	# units	Price per unit
Frontage Unit Cost ($/LF)	4,538,872	$1.70
Parcel Area ($/Acre)	13,020	$594.09
Building Size ($/SF)	100,401,975	$0.077
Property Value ($/$ Assessed Value)	$11,642,369,546	$0.00066
Number of Bedrooms ($/Bedroom)	162,970	$47.46

Compare bills by neighborhood

Identify cost types | Isolate from pricing | Identify units of service | Calculate pricing per unit | **Compare bills**



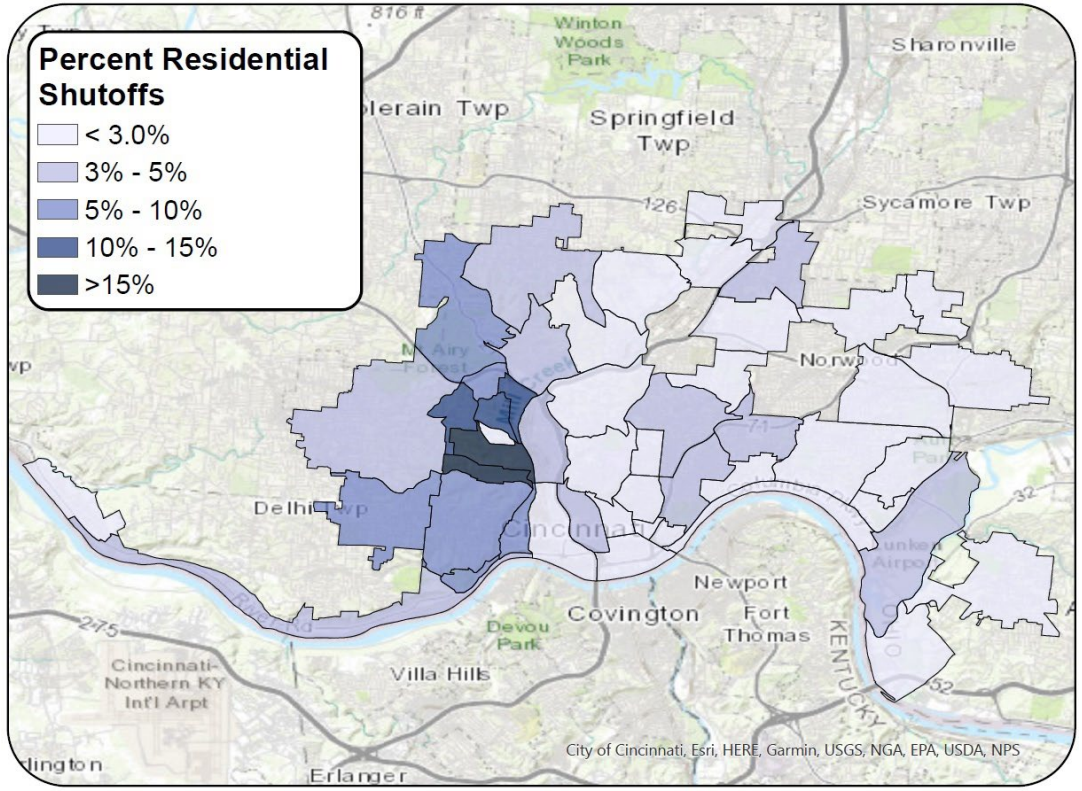
Neighborhood A

Median Household Income: $13,724

Lowest Quintile: $7,240

	Current	Bedrooms	Building Size	Frontage	Parcel Area	Property Value
Typical Bill	$23.05	$22.38	$20.34	$19.82	$17.66	$15.72
Typical Units	5.0 CCF	2.1 BR	977 SF	40.5 LF	0.1 AC	$30,000
% of Median Household Income	2.0%	2.0%	1.8%	1.7%	1.5%	1.4%

Calculate bills for all neighborhoods

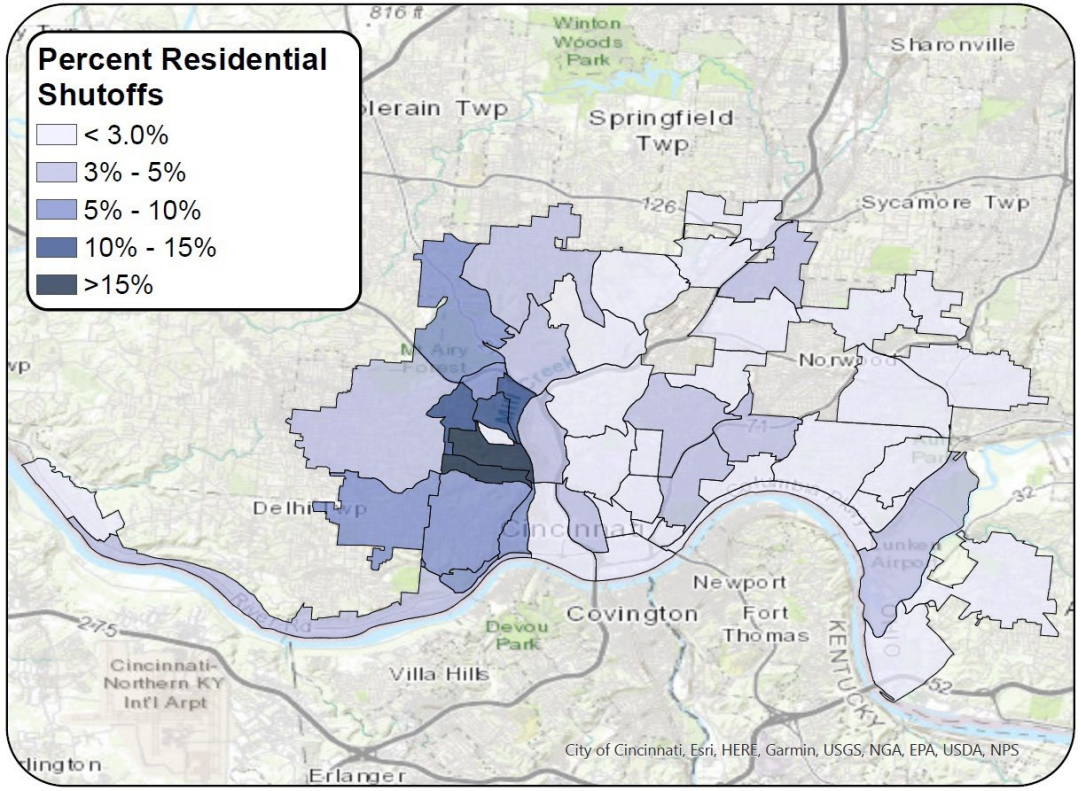


Account Shut-offs

Darker Shading = More Shut-offs

Calculate bills for all neighborhoods: Property Value-based bills

Property-value based bills consistently reduced bills in neighborhoods with high rates of shut-off

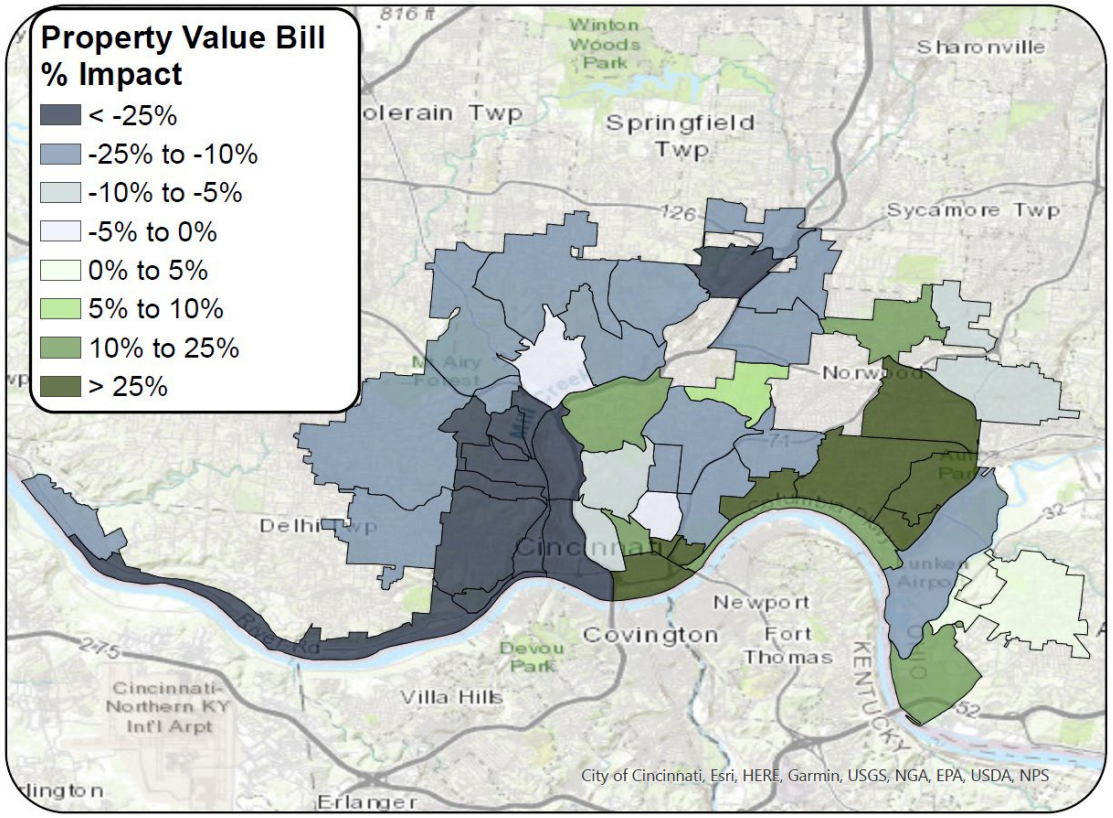


Account Shut-offs

Darker Shading = More Shut-offs

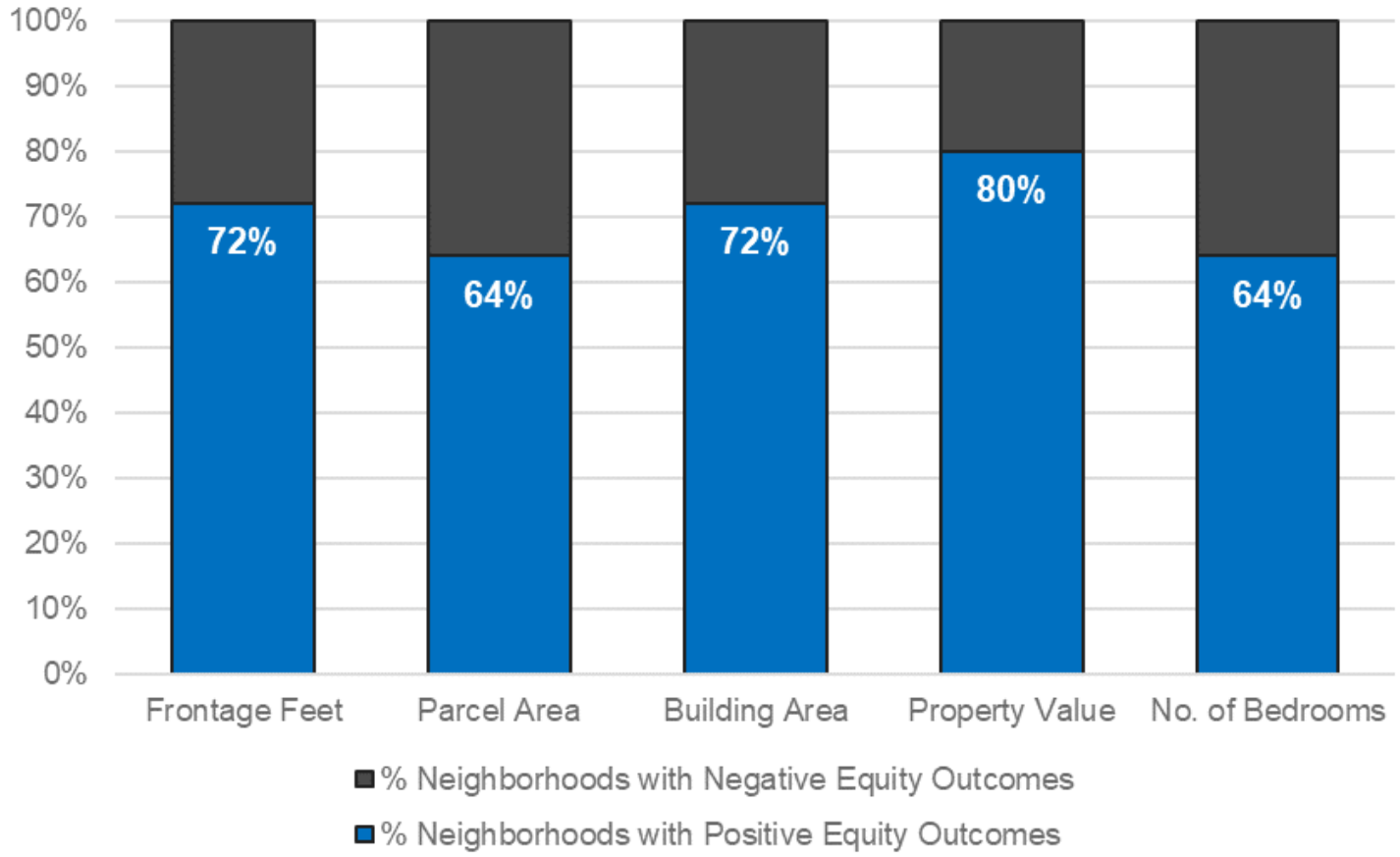
Property Value Bill Impacts

Blue = Decrease, Green = Increase



⚠ Other property characteristics, like frontage-feet based bills, both decreased and increased bills in neighborhoods with high rates of shut-off

Pricing Model for Equity and Financial Resilience: Results



All alternatives yielded positive equity outcomes in the majority of neighborhoods

Could use assistance programs to support any outliers

Implementation Considerations: A summary of tradeoffs

Pricing Strategy	Cost of Service Nexus	Affordability Improvement	Range of Bill Impacts	Data Intensity & Availability	Administrative Burden	Potential Legal Risk
Property Value						
Frontage Feet						
Parcel Area						
Building Footprint						
No. of Bedrooms						

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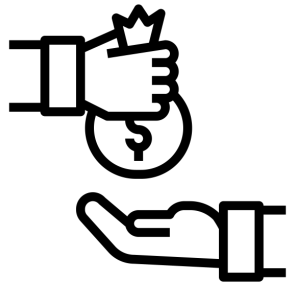


Lots of federal funds flowing… to who?

- Over the past two years, the federal government has directed $10+ Billion in funding for drinking water infrastructure & $12 Billion for western water resources

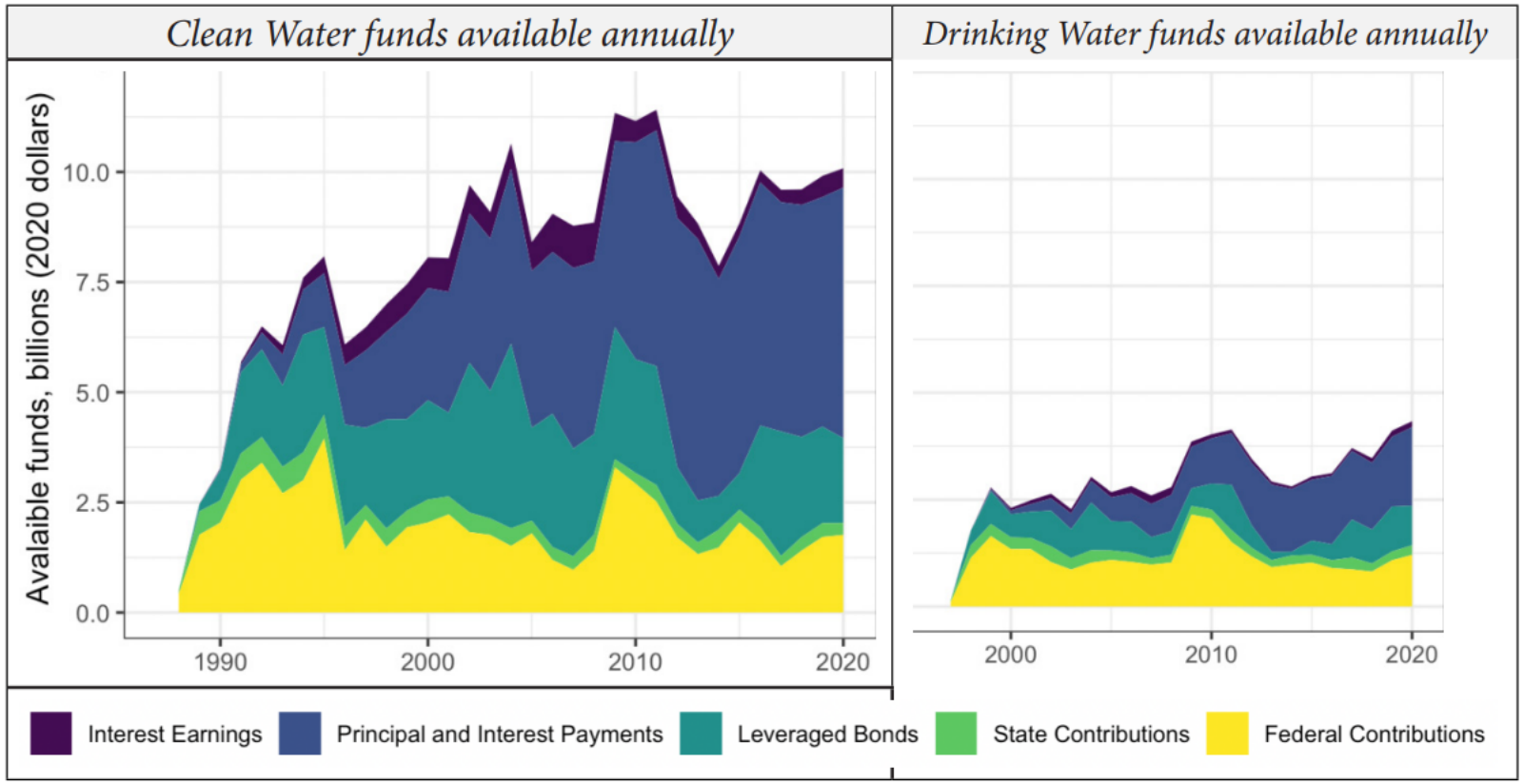
- Drinking Water State Revolving Fund (DWSRF) = $500M annually base appropriation + $2.1 B annually for next 5 years from 2021 Bipartisan Infrastructure Law

FY23 DWSRF Appropriations

State	DWSRF Base	BIL General Supplemental	Base + BIL General	Emerging Contaminants	Lead Service Line Replacement	FY23 Total
Idaho	$4.9 M	$21.0 M	$26.0 M	$7.6 M	$28.6 M	$62.3 M
Oregon	$7.4 M	$31.6 M	$39.1 M	$11.4 M	$28.6 M	$79.2 M
Washington	$11.3 M	$48.2 M	$59.5 M	$17.5 M	$28.6 M	$105.7 M
US Total	**$1.1 B**	**$2.2 B**	**$3.3 B**	**$0.8 B**	**$3.0 B**	**$7.1 B**

State Revolving Funds

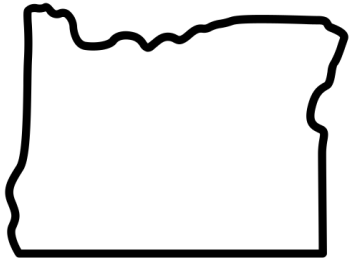
- Actual amount of $$ is 2 or 3 times the appropriations, because states leverage bonds and grow the fund as loans are repaid.
- Spreads the cost of capital investments over 30 years
- Loans are offered at a fraction of the interest rate of bond financing
- Option for principal forgiveness
- Interest rate not based on credit rating of borrower



Note. Data: NIMS.

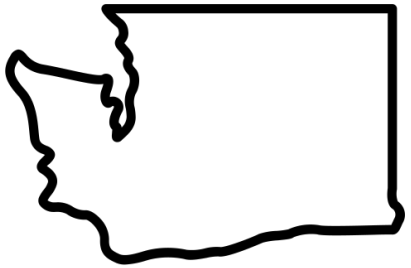
Disadvantaged communities are being prioritized

Justice40 Executive Order requires that 40% of funds from the DWRSF go to disadvantaged communities, as defined by states.



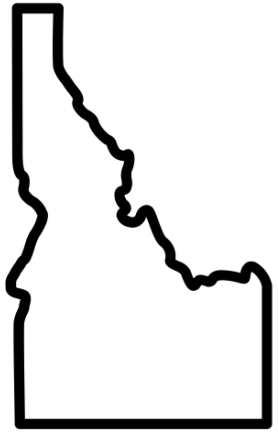
Oregon

> A public water system that has a service area with a median household income below the state average.



Washington

> A water system where average water rates exceed 2.5% (medium) or 3.5% (high) of the median household income.



Idaho

> A water system where the annual cost of drinking water service exceeds 2.0% of the median household income.

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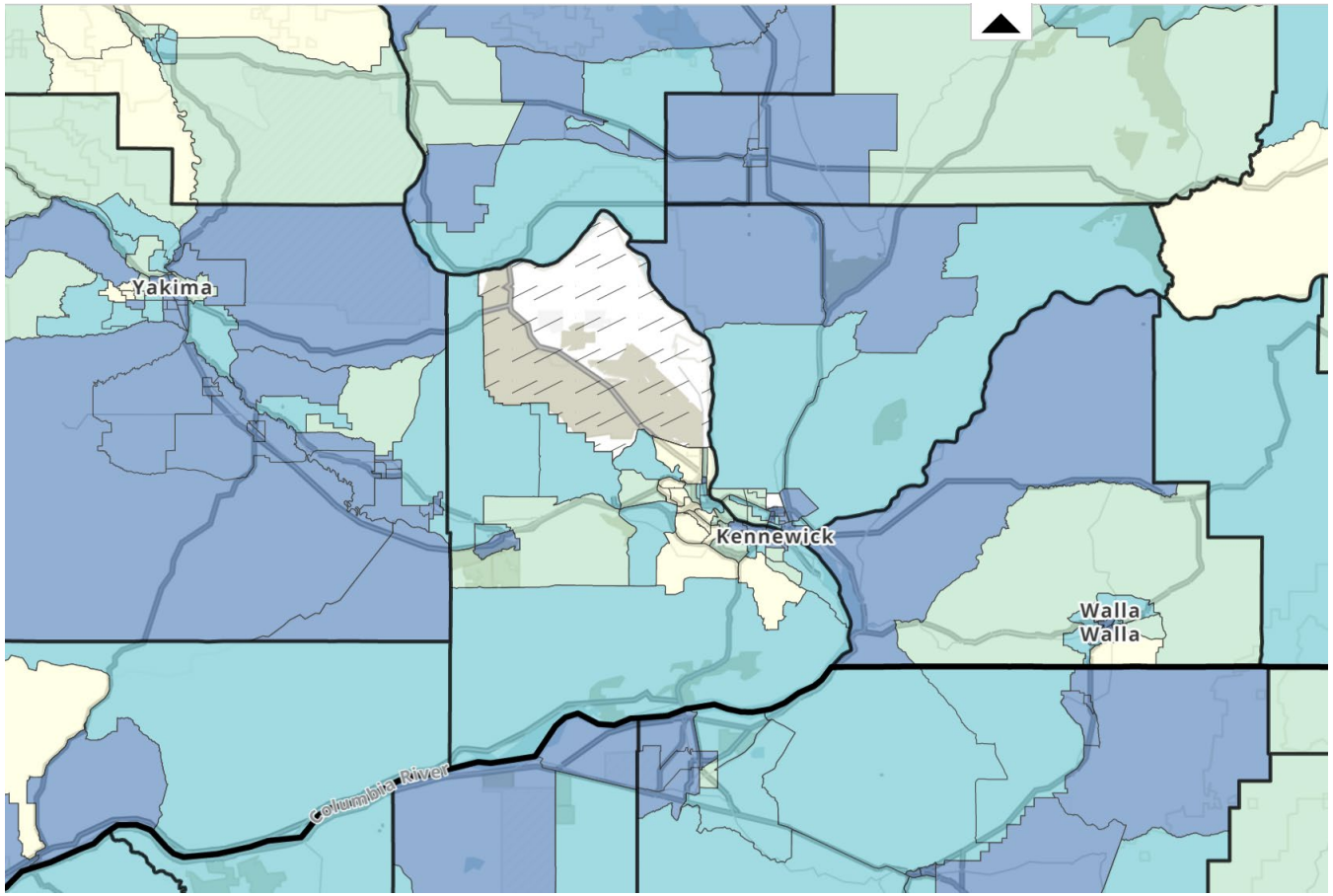

FEMA Social Vulnerability Index Tool

Thank You!

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