



2016

MEMBERS MEETING & Interactive Workshop

Chicago, Illinois

September 21–22, 2016

The Snake Pit

What's Better for Consumers – Residential Demand Rate vs.
Volumetric Flat Rate vs. Time Varying Rates

Snake Pit Wrangler



Liz Coyle
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2016

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Meet the Snakes



Volumetric Flat Rate

Mark Brown

Senior Customer Programs Officer at Fayetteville Public Works Commission



Residential Demand Rate

Stefanie Layton

Director of Revenue Requirements at Arizona Public Service Company



Time Varying Rates

Sanem Sergici

Principal at The Brattle Group



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100 Years of Success

- **Good Reasons for Flat Rates**
 - Industry Professionals Best Prepared
 - Residential Customers Ill-Prepared
- **Customers Lack Knowledge**
 - Multiple Customers
 - Teenagers
 - Low Income
 - Seniors
- **Protect the Less Fortunate**

Address All the Subsidies

- **Flat Rates are Subsidies**
- **Normal Ratemaking**
 - Unintentional Subsidies
 - Sufficient Revenue Recovery
 - KISS Good Policy
- **Political Ratemaking**
 - Intentional Subsidies
 - Rooftop Solar
 - Utility Scale Renewables
 - Energy Efficiency Programs
 - Fixed Costs In Variable Rates

Technology is Not Always the Answer

- **Smart Grid Technology is Great! But**
- **Cell Phone Industry Lessons**
 - Originally
 - Monthly Charges
 - Time Differentiated Volumetric Charges
 - Free Nights and Weekends
 - Now
 - One Flat Rate
 - » Voice
 - » Text
 - » **Data**
- **Give Customers What They Want**

Flat Rates are the Answer

- Professionals Best Prepared
- Let Customers Be Consumers
- Address Subsidies
- Learn Telecom Lessons
- Give Customers What They Want

What do customers want?

MORE

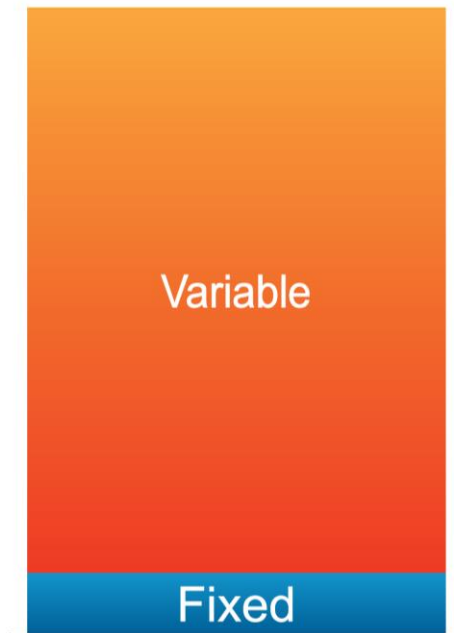
**More choices?
or
More control?**

BOTH

An Easy, Simple Solution

Two ways to save is good. Three ways is better.

Example:
\$100 customer bill



2 ways to save

- Using less energy
- Using power at off-peak times

Example:
\$100 customer bill

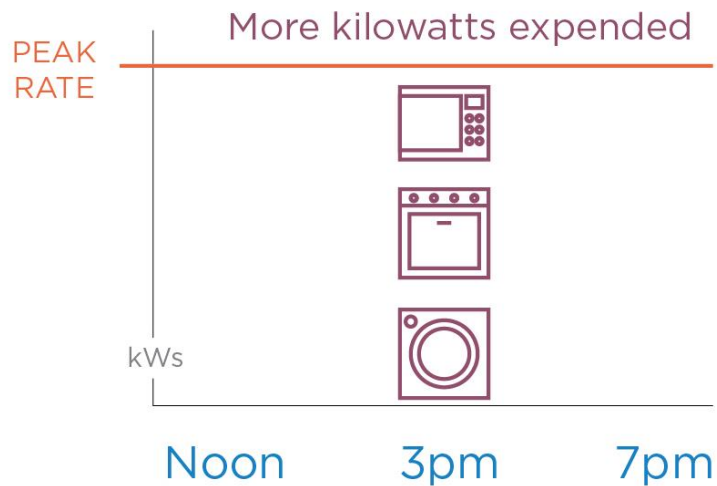


3 ways to save

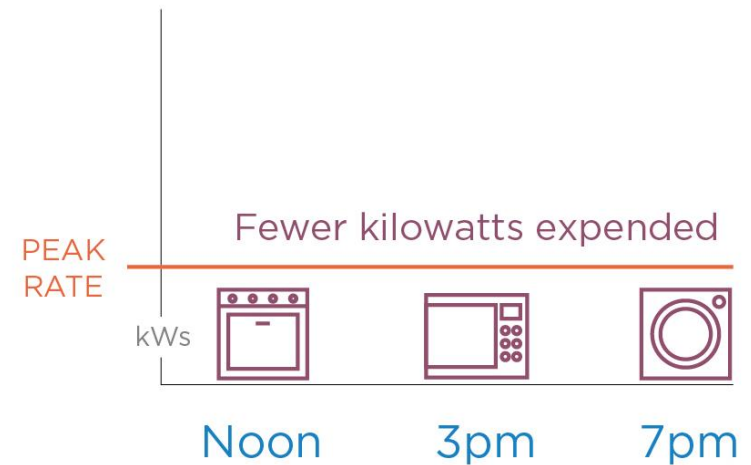
- Stagger use of major appliances
- Shift usage to off-peak times
- Save on overall energy use

Shift, Stagger, Save

SCENARIO A



SCENARIO B



5 Things to Know

1. Demand rates work

2. Customers can save money

3. Demand rates are fair

4. Demand rates facilitate the future

5. 120,000 APS customers already
have a demand rate

Demand Rates Aren't New

APS has offered residential demand rates since 1981 and today...

12,000

residential customers choose a rate plan combining time-of-use and peak usage.



33%

increase in residential customers adopting our demand-based rate plan since 2010, making it our fastest-growing plan.

90%

of customers saved money on their summer bill.*

Among the highest savers

42% are small to mid-size customers.*

60%

reduced their peak usage by an average of 12.5% during the summer peak season.*

Moving away from Flat Rates

PRESENTED TO

Smart Grid Consumer Collaborative

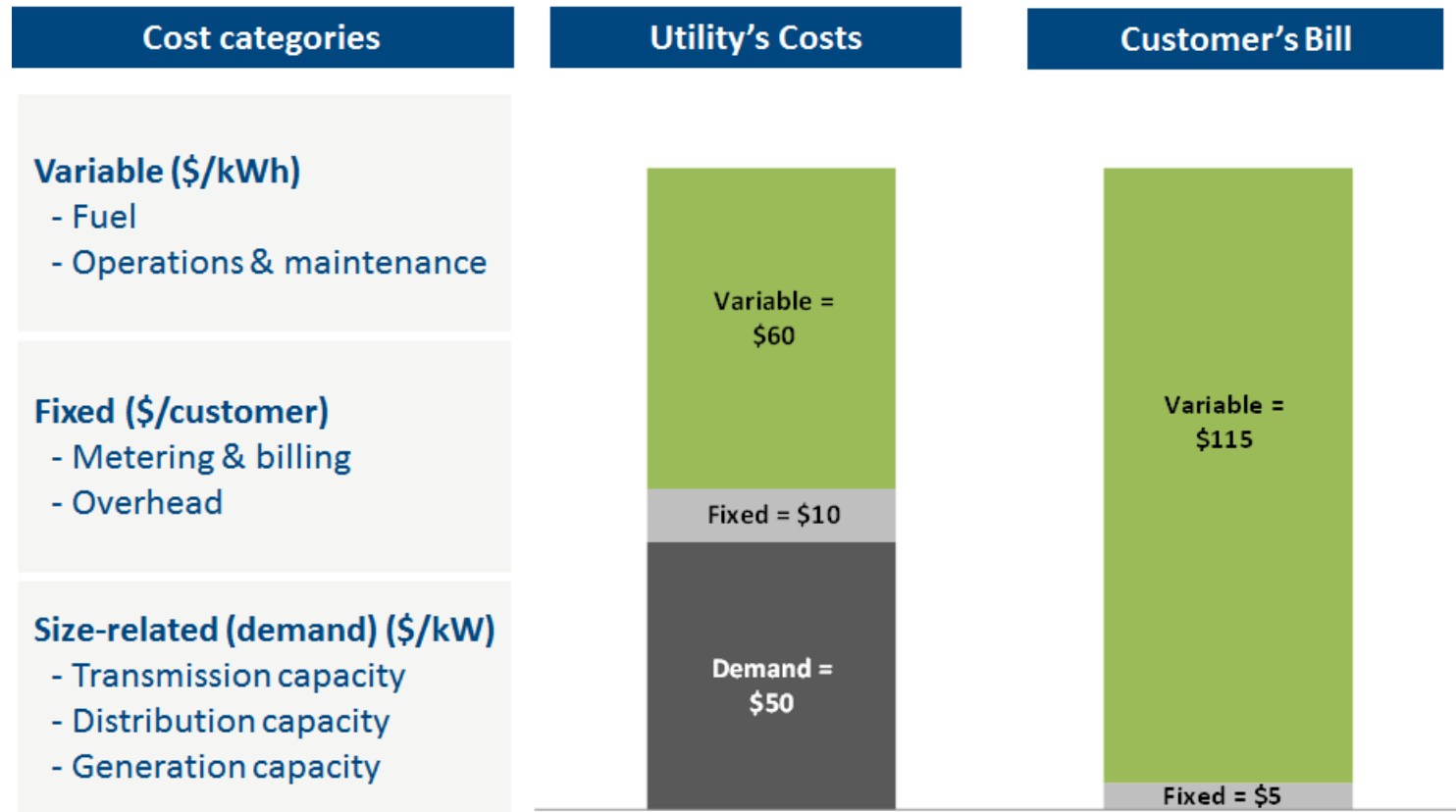
PRESENTED BY

Sanem Sergici, Ph.D.

September 21, 2016



For many utilities, their residential rates and costs are grossly misaligned



Residential rate design is ripe for rethinking

Flat rate pricing (FRP) has been ubiquitous in residential rate design, not just in the US but globally

FRP has persisted because of two reasons

- Lack of advanced metering
- A concern that residential customers won't understand either time-variant prices or demand charges

The industry has begun moving to a three part rate, comprised of a monthly service charge, a demand charge and TVP

- Such rates have a long history for commercial and industrial customers

It is essential to move away from flat rates...

Towards a rate structure with a demand rate and time-varying energy component

Different jurisdictions may introduce demand rates and time-varying energy components at different times depending on which one of the following problems represents a bigger issue for their jurisdiction

- Customers who can invest in distributed generation being subsidized by those who cannot
- Peaky customers being subsidized by flat-load customers

In this presentation, I will focus on the merits of TVP for the energy component of rates

The case for TVP rests on two pillars

Economic efficiency

- The costs of supplying and delivering electricity vary by day
- Unless consumers see this time variation in prices, they will have no incentive to modify their usage patterns
- Excess capacity will have to be built and kept on reserve to meet peak loads during a few hundred hours of the year

Equity

- Customers who consume relatively less power during peak periods subsidize those who consumer relatively more power during peak periods

Nationally, we lose \$10 billion each year due to flat rate pricing

There are more than 50 million households with smart meters today but less than 2 million of them are on TVP

That prevents us from harnessing the benefits of universal dynamic pricing

- \$7B/year in lower energy costs
- \$3B/year in reduced cross-subsidies

So why are so few customers on TVP?

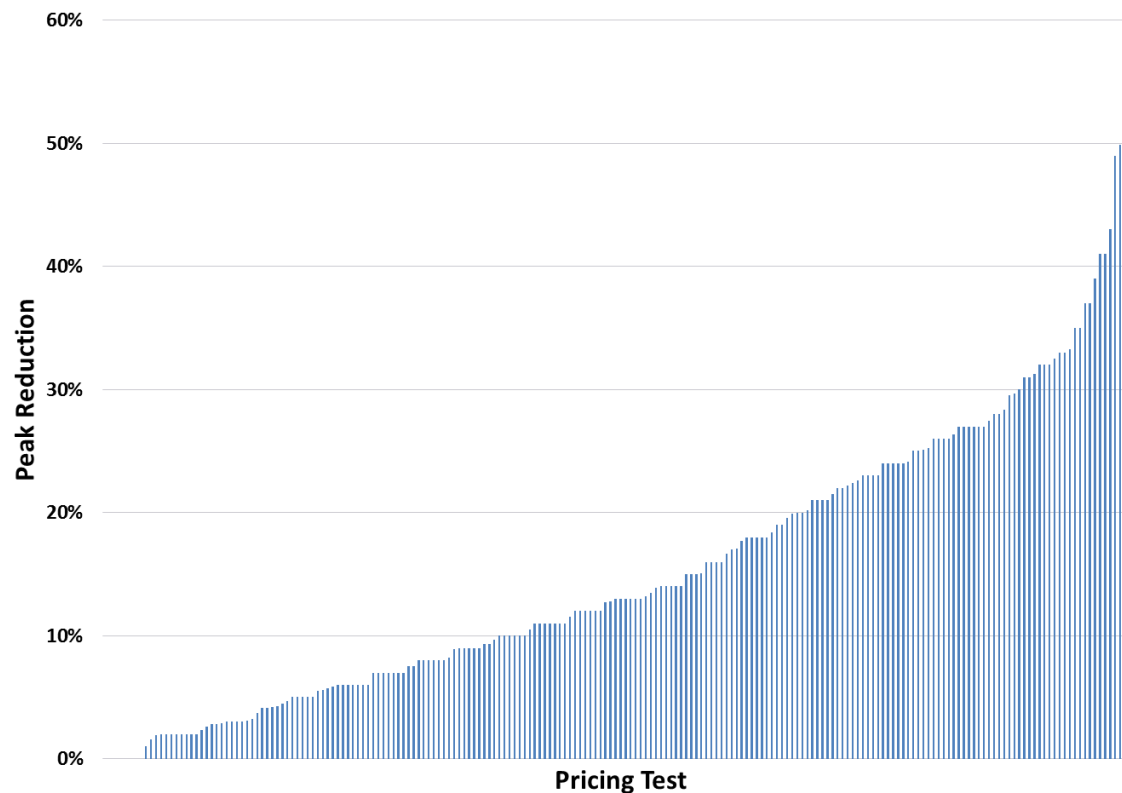
Over time, several concerns have been expressed about TVP by a variety of consumer organizations

Some are associated with the rollout of smart meters, which are a pre-requisite for TVP, while others are associated with how TVP would affect customer well-being

I focus on the latter and address a few often-cited concerns

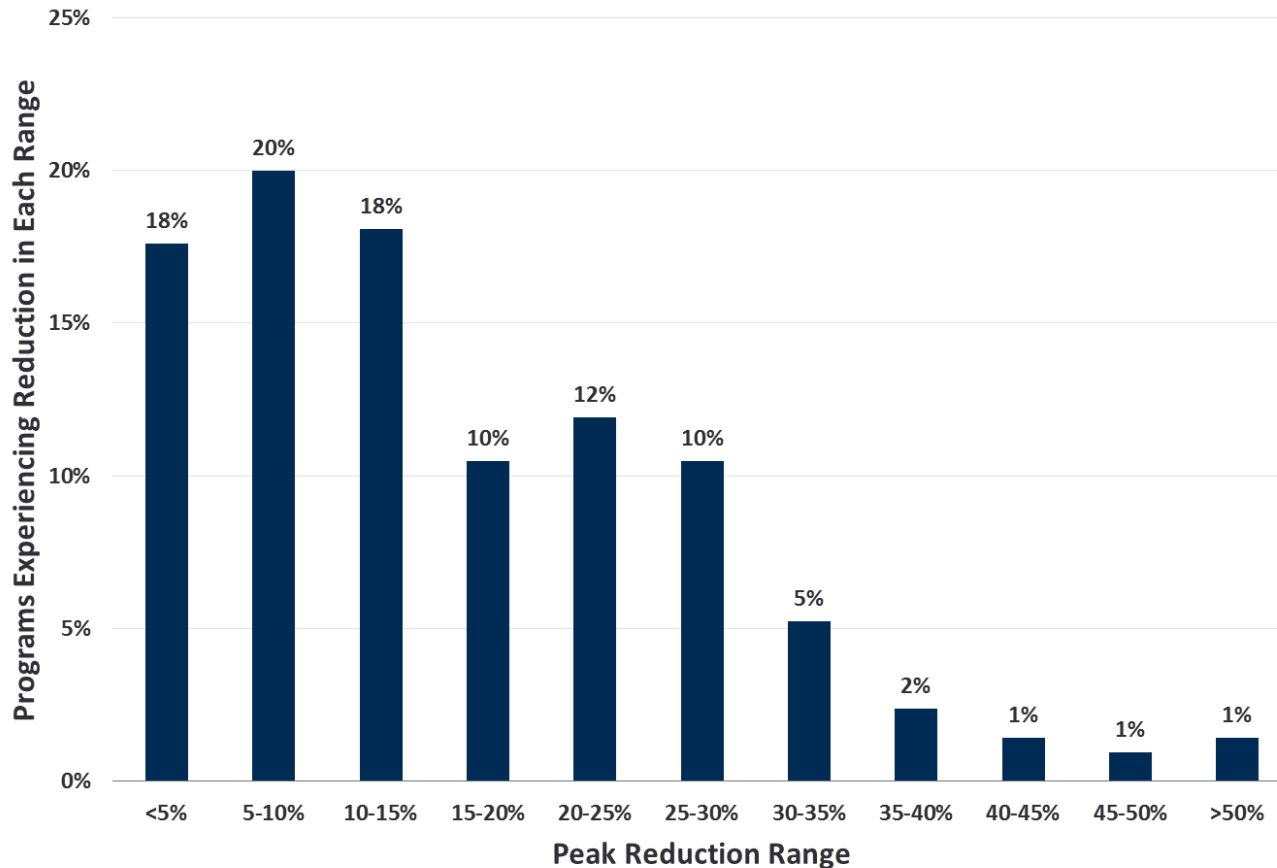
Concern #1: Customers won't respond to TVP

Because results vary widely, some conclude that we have learned nothing about customer response



Source: Faruqui, Ahmad. "Arcturus." The Brattle Group.

60% of the tests have produced peak reductions of 10% or greater



Source: Faruqi, Ahmad. "Arcturus." The Brattle Group.

Concern #2: Customer response won't persist

Customer response has persisted in long-lived pilots

- California, Washington, D.C., Oklahoma for 2 years
- Maryland for 4 years

TOU programs have been in place for decades

- The French *tempo* tariff goes back to 1965
- Arizona's TOU rates go back to 1980

Concern #3: Customers have never encountered TVP

Today's consumers experience TVP in routine transactions every day, except when it comes to their purchase of electricity

In the modern economy, TVP is pervasive. It is to be found in a wide range of industries: airlines, bridge tolls, freeway lanes, groceries, hotels, railroads, rental cars, sporting events, and theaters

Even some parking meters display a form of TVP

Concern #4: Customers don't want TVP

Customers have reported high levels of satisfaction with dozens of TVP pilots and programs in Australia, Arizona, California, Canada, District of Columbia, Connecticut, Ireland, Japan, Michigan, Maryland, Oklahoma, just to name a few

No one has to get up at 2 am to do their laundry

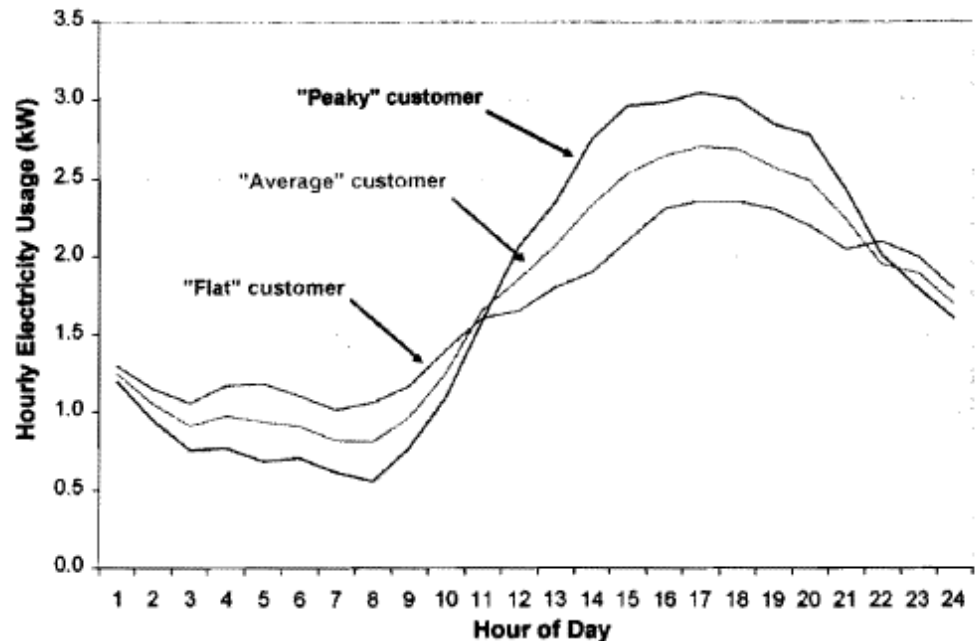
Most customers value the opportunity to save money by making small adjustments in their energy lifestyle

Concern #5: TVP is unfair to low-income customers

Response

Surprisingly, the opposite is true

Under a flat rate structure, customers who consume more electricity during peak hours (“peaky” customer) effectively rely on customers who consume less during those hours (“flat” customer) to ensure that all costs are recovered in rates

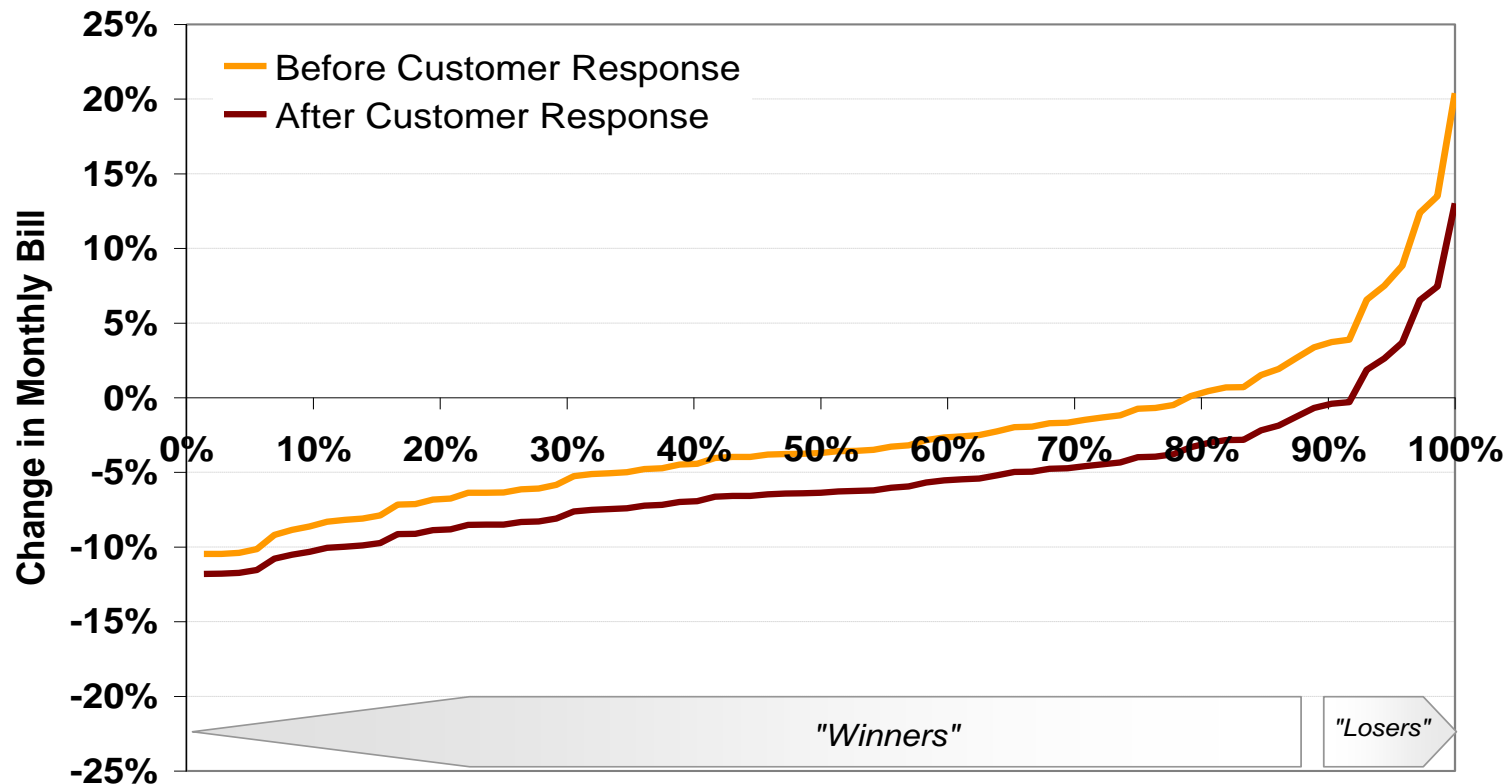


This implicit cross-subsidy is invisible to most consumers, and over time it can run into billions of dollars

Time-variant pricing avoids this problem

In fact, most low income customers will be better off under TVP due to their flat load profiles

Distribution of Dynamic Pricing Bill Impacts
- Low Income Customers on CPP Rate -



The Snakes



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Who do you think won the utility pricing structures debate and should be crowned Snake Pit Champion?



When poll is active, respond at **PollEv.com/sgcc16**



Text **SGCC16** to **22333** once to join

Mark Brown (Volumetric Flat)

22%

Stefanie Layton (Residential Demand Rate)

52%

Sanem Sergici (Time Varying Rates)

26%

0% 10% 20% 30% 40%