

UTILITY RATE DESIGN: A CONSUMER PERSPECTIVE

Note: This presentation does not reflect the views of any current or future client.



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“UTILITY OF THE FUTURE”

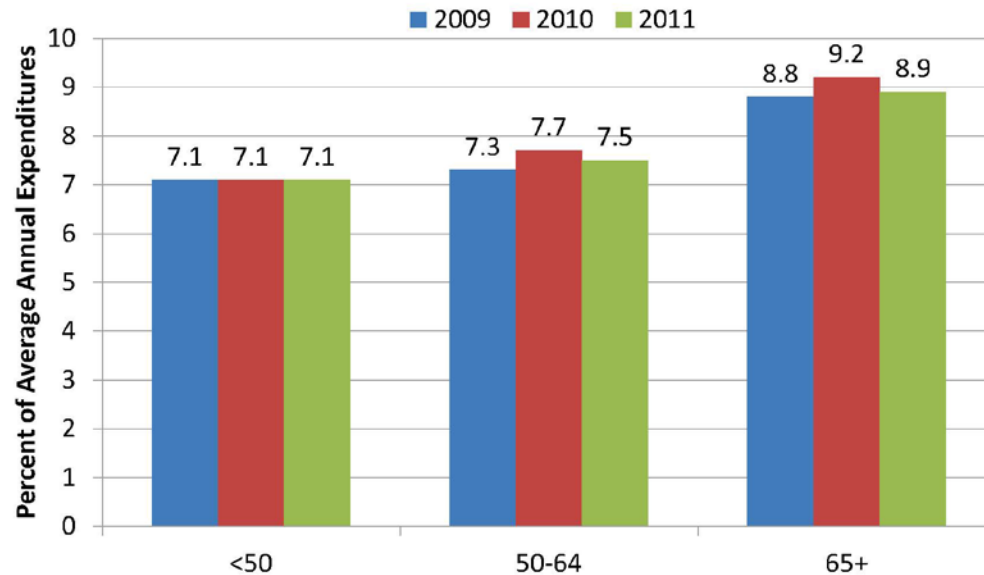
- This phrase is commonly associated with mandates to increase distributed energy resources (DER), renewables, efficiency, and policies to reduce reliance on greenhouse gas emissions.
- Consider potential change in role of utility to be the neutral “platform” to allow markets to develop for these consumer oriented services and products.
- Utilities must make substantial investments in grid modernization, AMI, reliability, and distribution investments to accommodate DER.
- Utilities need more assurance of recovery of sufficient revenues and earnings/profit with declining sales, including earnings incentives to undertake the new role.
- Customers must be “incented” and “empowered” to make changes in their usage of electricity and engage with third party providers.
- Residential customer rate design must be changed to respond to utility need for revenue stability and societal need to respond to “price signals.”

WHAT ARE THE RATE DESIGN CHANGES BEING PROMOTED?

- Increase the monthly fixed charge to stabilize utility revenues and “decouple” from reliance on the sales revenues linked to kWh usage.
- Promote or mandate time-varying rates, such as Time of Use, Critical Peak Pricing, Peak Time Rebates so that customers see the “real” price of electricity that varies by day or hour.
- Rely on demand charges in which the customer bill shifts cost recovery from kWh charges to kW charges—multiple a dollar amount by what the customer used during a short 30 minute-one hour period, again shifting revenues from variable to fixed charges.
- Increasing promotion of prepaid electric service as an “efficiency” program.
- Hey, did I mention proposals to require ratepayers to “bail out” older nuclear and coal plants in Ohio, Illinois, and New York?

Energy Expenditures: Age 50+

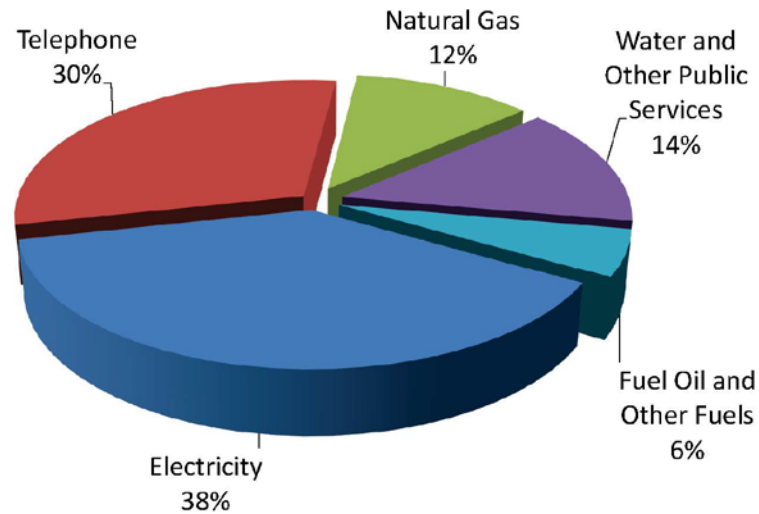
Figure 1. Utility Expenditures Comprise a Higher Percentage of Average Annual Expenditures for Consumers Age 50+



Source: AARP Public Policy Institute analysis of 2009, 2010, and 2011 Consumer Expenditure Surveys.

ELECTRICITY IS LARGEST EXPENDITURE

Figure 2. Expenditures on Electricity Comprise the largest Portion of Utility Expenditures for 50+ Consumers



Source: AARP Public Policy Institute analysis of 2011 Consumer Expenditure Survey.

CURRENT TRENDS: RATE DESIGN IS A ZERO SUM GAME

- Whatever the level of rate charges, the entire rate design must recover the test year revenue requirement for each class. For every dollar that is recovered via fixed or demand charges, a dollar less needs to be recovered from the energy charge. The converse is also true.
- Many utilities are protected with “bill stabilization,” “decoupling,” and “lost sales revenue” mechanisms OR THEY WILL FILE A RATE CASE



DEMAND CHANGES REQUIRE ADVANCED OR DIGITAL METERS

- One of the key motivations for proposing demand charges and other “dynamic” rates is the presence of advanced or digital meters
- Demand changes require customer usage data on at least 30 minutes or hourly increments (but customers don’t see this information!)
- Most AMI systems do not record “demand” factors in any case.
- We knew this would happen!

DEMAND CHARGES: COMPLEX RATE DESIGN ISSUES

- Is this charge linked to distribution service in restructuring states? How would this charge be integrated with the pass through of default generation supply service?
- Is this individual peak demand or system peak demand?
- How calculate the value in terms of customer response for peak load reduction and impact on generation supply prices? [What if you don't need peak load reduction? Or you can't predict the impact of rate design on peak load reduction?]
- Does this kW demand charge change monthly? Annually?
- Does this rate option require expensive AMI systems? If not, how is "demand" measured?
- Consider costs of education, customer interaction, complaints, and political backlash.

WHO ARE THE LOSERS?

- Whose bill will increase with demand charges or fixed monthly charges?
Who pays their fair share for mandates and subsidies for efficiency and solar programs?
- Crucial to do a complete bill impact analysis of all customers and evaluate different impacts on:
 - Low use customers
 - Low income and fixed income customers
 - Renters/multi-unit residents

WHO ARE THE WINNERS?

- Who are those who are likely to benefit from demand rates and higher fixed monthly charges?
 - Upper income: investments in home improvements, new technologies and appliances; income or credit rating to purchase solar
 - Better education: understand complex rate designs and bills; time and energy to learn and respond
 - Single Family Homeowner

RESIDENTIAL DEMAND CHARGES

- Is this being promoted to ensure that solar customers pay their fair share? In response to the scare that Distributed Generation will eliminate utility revenue streams?
 - Consider alternative rates for solar customers and customers with electric vehicles
 - Don't overreact to DER; it is still a pretty small portion of generation supply and the "solar on every roof" vision is impractical and very inefficient

RESIDENTIAL DEMAND CHARGES

- Is this being promoted to respond to the utility “death spiral” and loss of sales revenues?
 - Where are the efficiencies and performance standards?
 - Proliferation of unregulated affiliates and mergers and acquisitions to benefit shareholders
 - The “death spiral” is highly overrated in actual fact.

SENDING THE “PROPER PRICE SIGNAL”

- First, you have to understand the “signal” being sent.
- Second, you have to have the means to respond.
- When the bill is “unbundled” and the rate tiers proliferate and the surcharges are listed, what is the “signal” and who can understand it?
- Utilities emphasize the total bill and require payment of a total bill amount to avoid disconnection

CAN YOU UNDERSTAND THIS PRICE SIGNAL?

Procurement Cost Adjustment <http://www.pepco.com/my-home/choices-and-rates/district-of-columbia/tariffs/> for monthly rate

	Billing Months of June – October (Summer)	Billing Months of November – May (Winter)
<u>Transmission</u> ²		
Minimum charge ***	\$ 0.12 per month	\$ 0.12 per month
In excess of 30 kwh	\$ 0.00704 per kwh	\$ 0.00704 per kwh
<u>Distribution</u> ³		
Customer Charge Residential	\$ 13.00 per month	\$ 13.00 per month
Customer Charge Master Metered Apartments	\$ 10.25 per month	\$ 10.25 per month
First 400 kwh	\$ 0.00759 per kwh	\$ 0.00759 per kwh
In excess of 400 kwh	\$ 0.02166 per kwh	\$ 0.01512 per kwh
Delivery Tax ⁴	\$ 0.0070 per kwh	\$ 0.0070 per kwh
Public Space Occupancy Surcharge ⁵	\$ 0.00205 per kwh	\$ 0.00205 per kwh
Administrative Credit	http://www.pepco.com/my-home/choices-and-rates/district-of-columbia/tariffs/ for monthly rate	
Sustainable Energy Trust Fund ⁶	\$ 0.00150 per kwh	\$ 0.00150 per kwh
Energy Assistance Trust Fund ⁷	\$ 0.0000607 per kwh	\$ 0.0000607 per kwh
RADS Surcharge ⁸	\$ 0.000294 per kwh	\$ 0.000294 per kwh
Bill Stabilization Adjustment ⁹	http://www.pepco.com/my-home/choices-and-rates/district-of-columbia/tariffs/ for monthly rate	
Underground Project Charge ¹⁰	\$ 0.00 per kwh	\$ 0.00 per kwh

CUSTOMER UNDERSTANDING:

Georgia Power Optional Residential Demand Rate

- **There are two ways to manage your bill on the Residential Demand Rate:**
- Avoid simultaneous use of major appliances. If you can avoid running appliances at the same time, then your peak demand would be lower. This translates to less demand on Georgia Power Company, and savings for you! Each month the demand resets after your meter is read.
- Shift energy usage away from the On-Peak time periods (2 PM – 7 PM, Monday – Friday, June-September, excluding holidays).
Here are four ways to shift usage:
 - Use a programmable thermostat to increase the temperature in your home to 78-80 degrees during summer weekdays
 - Use a timer on your water heater
 - Avoid using major appliances such as washers, dryers and dishwashers during the peak time period
 - Use a timer on your pool pump so that it automatically shuts off
- **Who could benefit from the Residential Demand Rate?**
- Customers who pay attention to WHAT appliances are running and WHEN the appliances are running
- Customers who have a programmable thermostat and have timers on other appliances

Commonwealth Edison/Exelon Proposed Bill to Mandate Demand Rates (SB 1585)

- Costs currently in fixed charges will stay in fixed charges, but legislation does not prevent new costs from being added in as fixed costs.
- Riders can stay in place at the election of the utility.
- 100% of distribution costs not collected through fixed charges, riders, or taxes will be collected through a demand charge.
- For ComEd, demand based on maximum usage for any 30 minute period between 6 am and 10 pm on non-holiday weekdays.
- Demand Rates will result in lower monthly customer charges.
- Also offer market-based TOU rates for supply.
- \$15m in recoverable expenses for education over a three year period.
- Utility can charge or credit any difference between actual and authorized rate of return annually

ARIZONA HAS A SUCCESSFUL DEMAND RATE OPTION

- Arizona Public Service: 11% of their residential customers enrolled on a TOU demand rate option
- Rate calculator on website
- Promoted to customers with high monthly average use and timers; demand based TOU average monthly usage is 2,000 kWh compared to 700 kWh on inclining block rate or 1,300 kWh for energy only TOU rate.
- Rates range from 4.4 cents for off peak to 8.8 cents on peak; demand charge is \$13.50 kW in summer and \$9.30 per kW in winter
- VERY TARGETED AND REFLECTS CLIMATE AND USAGE CRITERIA; bundled service

DO YOU REALLY BELIEVE MOST CUSTOMERS CARE OR UNDERSTAND ABOUT HOURLY PRICES AND “DEMAND” FACTORS FOR THEIR APPLIANCES?

- Customers will be engaged if the options are understandable, easy to implement, automated where possible, result in measurable bill savings, and presented by a trusted advisor.
- Demand rates are likely to result in “surprise” bills that cannot be known in advance.
- Most Likely Success with Peak Time Rebates and Direct Load Control (“set it and forget it”) that rely on “carrots” instead of “sticks.”
- The market for rooftop solar is possible only with taxpayer and ratepayer subsidies (net metering) that are not sustainable in their current form in the long run
- Consider rate design for customers with “different” load profiles, such as solar and EV customers. Consider the obligation for all customers to pay their fair share of distribution system charges and investments, including low income programs.

EVALUATION OF RATE DESIGN CHANGES: FACT BASED ANALYSIS

- Who are the winners and losers? Bill impacts for a wide range of demographic and housing types should be known in advance and are key to evaluate and consider by regulators: “average” bill impacts are not reliable
- Consider short term costs and long term estimated predictions; risk analysis is crucial to identify and consider since we know from experience that regulators and policy wonks do not predict the future accurately
- Can you explain it to customers without technical jargon or economic theory?
- Is it fair to lower use, low income, fixed income and multi-unit customers?
- Are you predicting generation supply cost reductions? Or other predicted benefits in performance or affordability? Who assumes the risk of achieving these benefits?

PREPAY ELECTRIC SERVICE IS PARTICULARLY HARMFUL TO LOW INCOME

- This is a pernicious proposal that equates “deprivation” with “conservation.”
- Marketed as “option” but in reality it is mandatory if you lose service in Texas and want to avoid a upfront deposit.
- Increased incidence of unregulated disconnection of service.
- Higher fees and costs for pre pay customers to feed their essential electric service.
- Another “benefit” from AMI!

RATE DESIGN POLICIES: IF I RULED THE WORLD!

- Allocate grid or distribution costs fairly because ALL customers rely on the grid for reliable and universal service.
- Consider the total impact of all subsidies and investments to support “utility of the future.” identify and prioritize investments based on bill impacts and “value” to all customers.
- All customers should receive a “default” or “basic” electric service based on a rate design that avoids volatile bill impacts or that are likely to penalize lower usage customers.
- There is nothing unfair about bills based on kWh usage; this traditional rate design sends a “signal” that more usage equals higher bill
- Customer charges should reflect costs of customer specific charges and not common distribution charges

RATE DESIGN POLICIES: IF I RULED THE WORLD!

- Focus on rewards for reducing usage during critical peak events and subsidize automated systems rather than mandating time varying rates
- Demand charge rates are highly unlikely to be reasonable or appropriate for vast majority of residential customers
- Offering rate options may be reasonable but should be approved only where benefits to all customers exceed the costs, including customer education and ongoing bill analysis.
- Solar customers should pay their fair share of distribution services and costs

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