BOARD OF DIRECTORS
SPECIAL BOARD MEETING
Thursday, May 28, 2015 9:00 a.m.
OPALCO Conference Room
183 Mt Baker Road, Eastsound, WA

TRAVEL

Via Island Air
378-2376 / 378-8129 (cell)

From:
Leave FH 815 a.m.
Lopez 8:30 a.m. — Arrive Eastsound 8:45 a.m.

Return:
Leave Eastsound 12:00 p.m. — Arrive Lopez 12:15 p.m.
FH 12:30 p.m.

Via Ferry:

From:
Leave Lopez 6:55 a.m.
Leave Shaw 7:15 a.m. — Arrive Orcas 7:35 a.m.
Leave FH 8:30 a.m. — Arrive Orcas 9:15 a.m.

Return:
Leave Orcas 12:25 p.m. — Arrive Shaw 12:40 p.m.
12:40 p.m. — Lopez 1:00 p.m.
FH 2:00 p.m.

Orcas Power & Light Cooperative
Board of Directors
Special Board Meeting
183 Mt Baker Road
376-3549
May 28, 2015 9:00 a.m.

AGENDA

PAGES

WELCOME GUESTS/MEMBERS

Anne Falcon, EES Consulting

ACTION ITEMS

3 o WRECA Alternate Director

DISCUSSION ITEMS

4-15 o Revenue Shortfall

16-17 **MEMBER COMMENTS**

ADJOURNMENT

MEMORANDUM

May 22, 2015

TO: Board of Directors

FROM: Foster Hildreth, General Manager

RE: WRECA Alternate Director

Chris Thomerson was the previous alternate director for the WRECA Board of Directors. A new alternate director is needed from the OPALCO Board.

WRECA's next Board of Directors meeting and annual meeting is planned for June 15-17 in Spokane.

MEMORANDUM

Date: May 22, 2015

To: Board of Directors

From: Foster Hildreth, General Manager

Subject: 2015 Revenue Shortfall

OPALCO and its members are faced with an enormous revenue challenge. In 2008, there was a conscious choice not to raise rates during the recession, despite increasing expenses. And now, the unprecedented warming trend of the past year has accelerated the revenue shortfall. Typical kWh usage went down and member billings remained relatively flat and well below the amount budgeted.

The purpose of this meeting is to continue discussions and develop solutions for our current $600,000 revenue shortfall. The result of this discussion will assist us in refining mitigation strategies for recommendation at the June Board meeting. Our goal is to implement required rate adjustments in the July 2015 billing period.

Similar to other electric utilities in the Pacific Northwest, OPALCO is experiencing unprecedented revenue shortfalls associated with declining kWh sales due to warm weather. Based on our resulting decline of kWh sales, OPALCO's revenue and corresponding rate structure needs to be adjusted as soon as possible to meet revenue requirements and RUS loan covenants. As of April 2015, Heating Degree Days (HDD) are down 36% below normal. The 2015 budget to actual shortfall of kWh sales is 4,443,958 kWh (5.6% less than budgeted) through April. The cumulative revenue shortfall through April is approximately $600,000 (~6% less than budgeted). This warmer than expected weather trend is anticipated to continue and will require ongoing evaluation and potential adjustments.

Despite increasing the rates in 2015, the unprecedented warm weather trends have resulted in:

- fewer HDD (~36%),
- reduced kWh sales (~5.6%),
- lower member $ bills (on average) and,
- accelerating revenue shortfall for 2015 (~6%).

Options to mitigate revenue shortfall include the following (for detail, see attached EES – Revenue Shortfall Options):

1. Increase overall rates
   Residential = $0.0200/kWh in addition to all kWh blocks (e.g. $0.0855 + $0.0200 = $0.1055)
   Commercial = $0.0100kWh in addition to all kWh blocks (e.g. $0.0870 + $0.0100 = $0.0970)
2. Develop a cost adjustment charge (expense based)
   Not calculated
3. Revenue decoupling (current shortfall $600,000 / total kWh sales X member usage)
   Residential = $0.0175/kWh (Jan-Jun shortfall) plus variable $/kWh (Jul-Dec shortfall/surplus)
   Commercial = $0.005/kWh (Jan-Jun shortfall) plus variable $/kWh (Jul-Dec shortfall/surplus)
4. Variable cost of service rate ("minimum bill")
   Residential = 250 kWh min ($27.50 to $40.00): est. range $0.11/kWh - $0.16/kWh
   Commercial = 250 kWh min ($25.00 to $35.00): est. range $0.10/kWh - $0.14/kWh

Note: Staff will be system testing the preferred option(s) in preparation for the June board meeting.

Attachments:

1. Revenue Shortfall Options (EES Consulting)
2. Proposed Rate Design for OPALCO (Dr. Jerry Whitfield)
3. "Electric Utility Residential Customer Charges and Minimal Bills" White Paper (Jim Lazar)

EES Consulting

May 15, 2015

TO: Foster Hildreth

FROM: Anne Falcon

SUBJECT: Revenue Shortfall Options

Introduction

OPALCO is currently experiencing a significant shortfall in revenues year to date due to low energy sales. The shortfall is continuing from 2014 and OPALCO is no longer able to weather the shortfalls without increasing rates. In order to address this issue, OPALCO has requested that EES review several rate proposals and provide a discussion and evaluation of each option. This memo will describe possible options available to the OPALCO Board and provide a list of considerations for each option.

Option 1: Adjust overall rates

OPALCO recently implemented new rates based on the 2015 budget and the 2015 load forecast. Due to mild weather, energy sales and therefore revenues have been lower than projected creating a shortfall of more than $600,000 to date.

One option for OPALCO would be to recalculate rates with a lower load forecast and including the existing shortfall to ensure full recovery for the remainder of the year.

Pro	Con
Full Revenues will be collected	OPALCO just raised rates. A new permanent rate increase may not be perceived favorably by OPALCO members
Cost of service price signals will be retained (energy, demand and member cost components)	Rates will remain in place, even if energy sales increase and the shortfall is reversed

The rate increase could be performed as a percent increase in all rates, increase in the monthly fixed charge or as an increase in the energy charge only. Another option would be to establish a minimum bill. However, it is difficult to collect a significant amount from a minimum bill design since the utility is already collect revenue equal to the minimum from the majority of members.

Option 2: Develop a Cost Adjustment Charge

The second option available to OPALCO is to develop a Cost Adjustment Charge (CRC). This charge would be set based on a predetermined formula that calculates the shortfall (surplus) and determines the rate adjustment on a monthly or quarterly basis. Often cost adjustments are calculated based on cost changes, such as increased or decreased power supply costs.

Pro	Con
Will result in collecting additional revenues based on cost deviations	Is normally tied to power cost changes, not energy sales
Full revenue requirement will be collected eventually	Developing the formula and design of the cost recovery charge
Cost of service price signals will be retained for the most part (energy, demand and member cost components)	Members do not see the full benefit of energy efficiency, thus limited incentive to conserve energy
Utility is protected from variation in costs	Increased rate volatility to members
Reduce overall risk to the utility	May not collect sufficient revenue to cover fixed costs
Can be implemented only when needed	Will increase the bill for all members
	Increased risk to members

Prior to implementing a CAC the following policy decisions must be made:

- Determine the calculation of the costs that will needed to be collected in the CAC (revenue, power cost, etc.)
- Determine the period of adjustments (monthly, quarterly or annually)
- Determine the collection methodology ($/kWh, $/month, etc.)

Option 3: Revenue Decoupling (Tracker)

Revenue Decoupling is often used by Investor Owned utilities (IOU) to discourage promotion of increased energy sales and to encourage conservation. Commissions realize in order for IOU's to encourage conservation and reduction in average energy use, IOU's had to be indifferent to the amount of energy sales. Decoupling is a rate adjustment mechanism that breaks the link between how much energy the utility sells and the revenues it collects to recover the fixed costs of providing service.

Decoupling requires a balancing account which keeps track of the over or under collection of revenues each month. The utility then calculates the decoupling charge during each period.

Balancing account amount = allowed (budgeted) revenues – actual revenues

Decoupling charge = balancing account balance/Kwh sales (either actual or projected)

The period between adjustments can be monthly, quarterly or some other length of time.

The difference between a revenue decoupling and a cost adjustment charge is that revenue decoupling is directly associated with changes in energy sales, while a cost adjustment charge is targeting changes in costs. Otherwise, the two adjustments work in a similar manner.

Pro	Con
Full revenue requirement will be collected eventually	Developing the formula and design of the decoupling policy
Cost of service price signals will be retained for the most part (energy, demand and member cost components)	Members do not see the full benefit of energy efficiency, thus limited incentive to conserve energy
Utility is protected from loss of sales thus can promote energy efficiency and distributed generation	Increased rate volatility to members as the tracker will go up or down.
Fixed costs will be collected from members without penalizing low users with a high fixed charge	Will increase the bill for all members
Reduce overall risk to the utility	Increased risk to members
Can be implemented only when needed	Members may assume no limit on spending
Retains demand rate for peak price signal	Will still allow member generators to be subsidized by all (Minimum bill can solve this issue)

Prior to implementing a Revenue Decoupling policy, the following policy decisions must be made:

- Determine the mechanism for decoupling revenues from sales (revenues per member, predetermined revenue requirement, non-power supply revenue requirement, etc.)
- Develop a plan for reconciling actual to budgeted revenues
- Determine the period of adjustments (monthly, quarterly or annually)
- Determine the collection methodology ($/kWh, $/month, etc.)
- Determine the timing of the adjustments (current or deferred)
- Determine the term of the adjustment

Option 4: Variable Cost of Service Rate

The last option available to OPALCO is the proposed Variable Cost of Service Rate. This rate would determine the monthly rate by the following calculation:

Class minimum bill = Class fixed cost / Services within class

*Class cost of supplying energy = Monthly budget * Class allocation factors*

Class Cost of Service Rate = Class cost of supplying energy /class monthly kWh supplied

*Member bill = Class minimum bill + Class cost of service rate * kWh consumed*

Pro	Con
Revenue will equal revenue requirement	Retroactive Ratemaking
Promotes distributed generation	Rates will change by month and year
May promote energy efficiency	High rates in the summer, lower rates in the winter
Will collect fixed costs of the utility	Low rates when usage is high, high rates when usage is low
Meets Cost of Service	Members will assume OPALCO has no limits on spending
Never needs a rate increase	Will still allow member generators to be subsidized by all (Minimum bill can solve this issue)
	Does not encourage peak load shaving
	Seasonal members will not pay anything when not in residence. (Minimum bill may solve the issue)
	Increased rate volatility to members
	Encourages fuel switching causing rates to further increase

The biggest issue with this rate design is that it sets the monthly rates after the members have consumed the energy. This policy goes against the retroactive ratemaking doctrine which states that utilities cannot set rates on a retroactive basis and is the reason the Washington Utilities and Transportation Commission (UTC) was established. This methodology would result in no published rates and the members would not know how much they need to pay for each kWh prior to use. Subject to check by OPALCO's legal team, this approach is unlikely to hold up in court.

Summary

The choice in front of OPALCO staff and Board is not easy. Based on my review, the Variable Cost of Service rate is not a viable option. However, OPALCO can implement a revenue decoupling tracking mechanism and charge to ensure collection of the full budget revenue requirement. The important aspect of this design will be to educate the members on the purpose, limitations and fairness of this option.

PROPOSED RATE DESIGN FOR OPALCO:

REVENUE DECOUPLING PLUS MINIMUM BILL

Dr. Jerry Whitfield. Director District 4. May 2015

CASE FOR A NEW RATE DESIGN

Since 2009 OPALCO has experienced a significant decline in net operating margin as revenue increases have been exceeded by higher operating costs by a factor of 2:1. During 2014 revenue shortfalls were $1.4M and net margin declined to zero. This trend continues into 2015 despite recent rate increases. Immediate action is necessary to reverse this financial decline.

The underlying cause of the revenue shortfall is reduced sales of electricity resulting from a complex combination of warming weather patterns, conservation by members, more net metering from rooftop solar installations, and lifestyle changes. To offset revenue shortfalls OPALCO has been moving towards a rate design that more truly reflects its underlying cost structure of 63% fixed costs and 37% variable costs, by way of substantial yearly increases in the facility charge. Consequently $/KWh rates decline, approaching the wholesale cost of electricity from BPA. This rate design will ultimately (but not immediately) stabilize revenue requirements. However the impact on customers will be counterproductive to policy objectives that seek to reward low usage and protect low income customers. Higher usage will be encouraged by lower electricity rates and there will be less economic incentive for customers to invest in energy efficiency or rooftop solar. Members are generally not in favor of a high fixed charge rate structure.

Revenue stability can also be achieved in other ways, by strong financial reserves, frequent rate cases or revenue decoupling[1]. All of these methods allow the per KWh charge to continue to reflect substantially all of the costs of service which preserves the incentive to use electricity wisely.

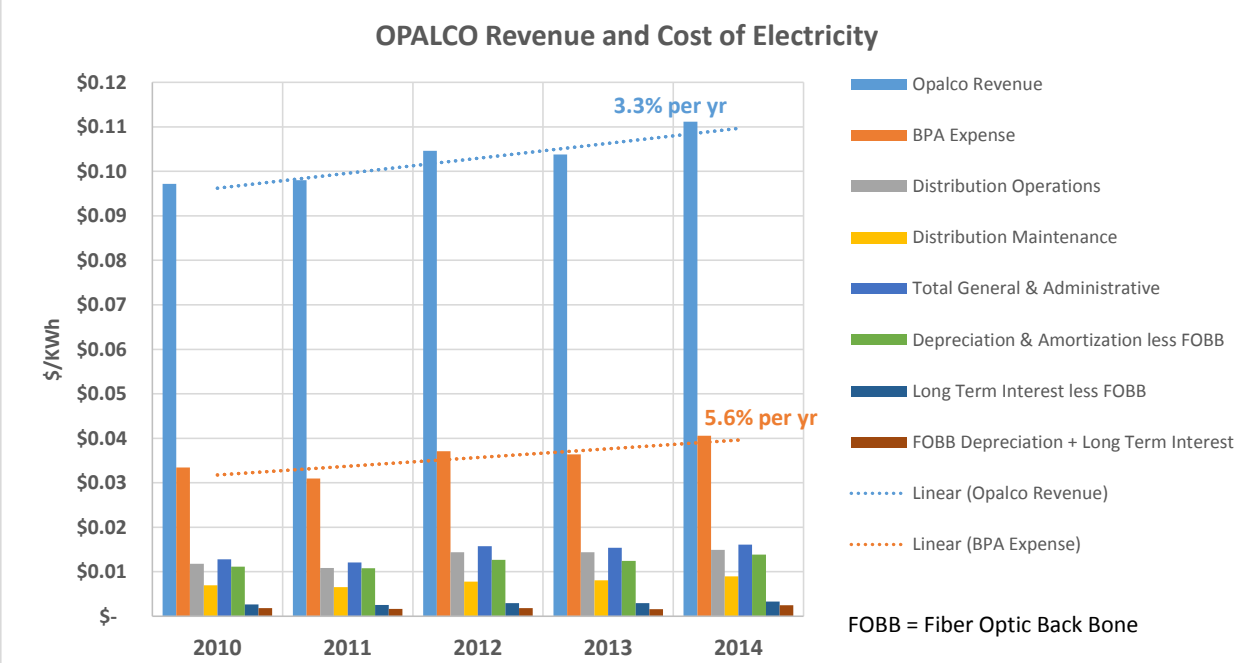
Revenue decoupling typically calculates a true-up (monthly or annually) which aligns actual revenues with required revenues[2]. Unfortunately, “true-ups” carry the same negative stigma with customers as surcharges.

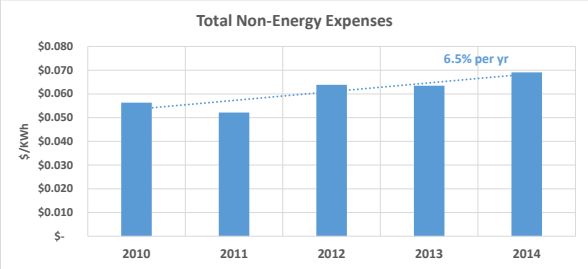
Revenue decoupling that incorporates a variable monthly KWh rate and a Minimum Bill is proposed as an optimum way of ensuring long term revenue stability along with incentives to use electricity efficiently, and not requiring regular rate cases or surcharges.

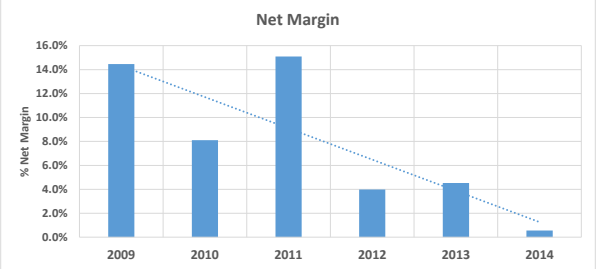
[1] Electric Utility Residential Customer Charges and Minimum Bills. Jim Lazar. Nov 2014. The Regulatory Assistance Project. www.raponline.org.

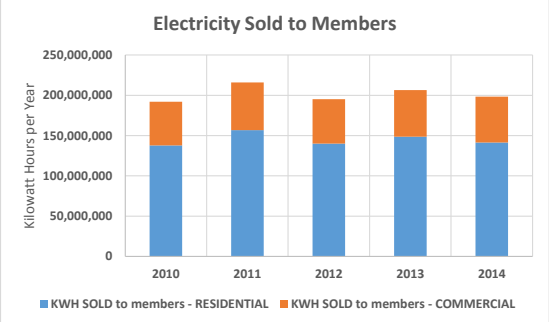
[2] Revenue Regulation and Decoupling. A Guide to Theory and Application. June 2011. The Regulatory Assistance Project. www.raponline.org.

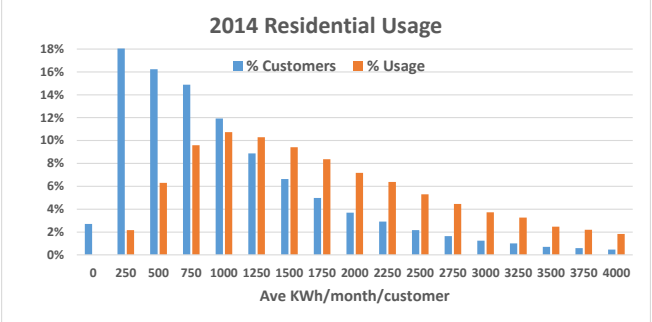
TRENDS IN THE COST OF OPALCO ELECTRICITY











METHODOLOGY

The formula is simple:

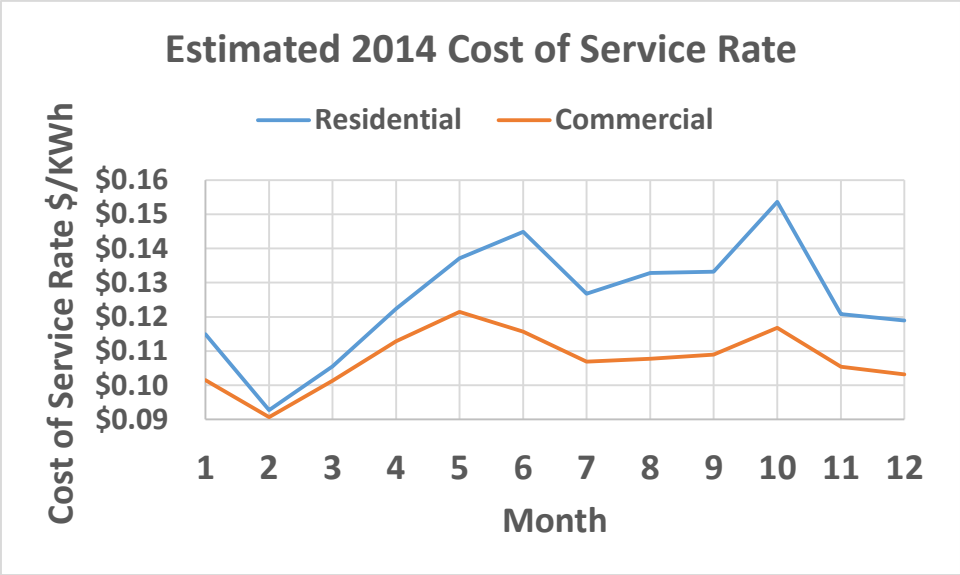
Monthly Required Revenue = Monthly Budget Revenue ($) (1)

Monthly KWh Rate]$_{R,C}$= Budget Revenue / Monthly KWh Sold ($/KWh) (2) For Residential and Commercial classes separately.

Member Monthly Electricity Bill = KWh Rate]$_{R,C}$*Monthly KWh used ($) (3)

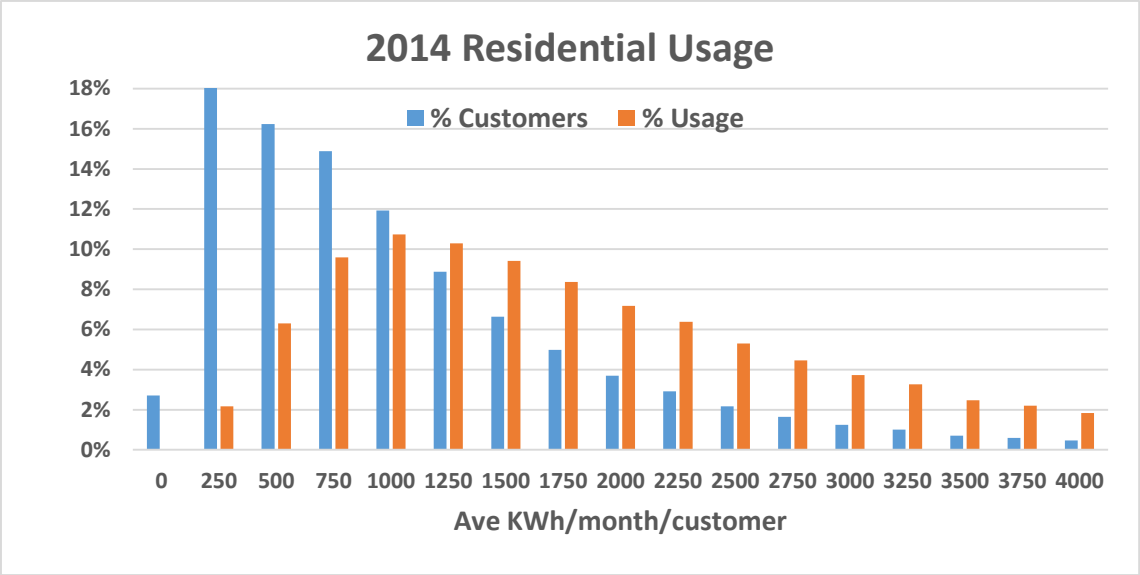
Monthly Required Revenue = $\sum_{R,C}[Member\ Electricity\ Bills]$ ($) (4)

The KWh rate will vary depending on KWh sold, typically lower in winter heating months, higher in summer. See graph below for 2014.



All members pay based upon electricity usage every month, and the KWh rate reflects the full cost of service. This is a true volumetric rate design that by definition generates the required revenue every month. The annual budget process will be used to adjust rates up or down as necessary to meet revenue and other operating requirements. Achieving adequate Net Margins still requires strict management control and Board oversight of all operating expenses, which will ensure that key financial ratios are maintained to satisfy borrowing requirements.

Currently 18% of residential members use less than 250 KWh/month on average accounting for only 2% of usage in this rate class, see figure below. These are typically seasonal residents, members with low energy homes and with a high proportion of net metering. There is utility value to such members in being connected to the grid. It is proposed that a Minimum Bill be charged for any member using less than 250KWh in any single month.



MINIMUM BILL

Formula for monthly Minimum Bill:

If member usage is less than 250KWh for the month,

Minimum Bill = Monthly KWh Rate$]_{R,C}$ * 250 KWh ($) (5)

For 2014 the Minimum Bill would have varied between $23.18 (Feb) and $38.40 (Oct).

DISCUSSION

This rate structure has been designed to meet the following requirements:

- Satisfy revenue requirements each and every month.
- Reflect full cost and utility of service.
- Include rate adjustments in the annual budget process.
- Incentivize members to use electricity efficiently.
- Promote investment in energy efficiency and rooftop solar.
- Support low income members.
- Focus Management on controlling fixed expenses.

The Minimum Bill should not be confused with a Facility Charge for every member, each month.

NEXT STEPS

- Review by Board May 28th.
- Stress Test Analysis and critical review by Engineering.
- Seek member comments.
- Final review and approval at June Board Meeting.

Electric Utility Residential Customer Charges and Minimum Bills:

Alternative Approaches for Recovering Basic Distribution Costs

By Jim Lazar[1]

Electric utilities have certain costs that do not vary with the usage of electricity. It is generally accepted that these include the costs of metering, billing, and payment processing. These costs are most often recovered through what is variously called a "customer charge" or a "service charge" or a "basic charge." In the United Kingdom, this is known as a "standing charge."

Regardless of the title, it is a charge (usually less than $10/month for residential service) that is levied each month regardless of electricity usage, with additional charges applying for each kilowatt-hour of electricity consumed. For most utilities in the US, the customer charge covers the cost of billing and collection, and perhaps other customer-specific costs like meter reading, but not the costs of distribution facilities like poles, conductors, or transformers.

Nearly all electric utilities worldwide bundle the cost of distribution service, as well as the power supply cost, into a usage charge, calculated as a price per kilowatt-hour. This is consistent with how competitive firms price their products, whether it is gasoline, groceries, or hotel rooms: the price per unit recovers all of the costs involved in producing, transporting, and retailing of goods and services.

Some rate analysts argue that a portion of the distribution system – poles, wires, and transformers – constitute a fixed cost that does not vary with sales and should be included in the fixed customer charge. Some recent proposals from electric utilities reflect this view. This is controversial.

Many state regulatory authorities rejected this approach when they held hearings and made determinations under the Public Utility Regulatory Policies Act of 1978.[2] The Washington Utilities and Transportation Commission, for example, explicitly rejected the concept that distribution costs were customer-related in nature:

> *In this case, the only directive the Commission will give regarding future cost of service studies is to repeat its rejection of the inclusion of the costs of a minimum-sized distribution system among customer-related costs. As the Commission stated in previous orders, the minimum system method is likely to lead to the double allocation of costs to residential customers and over-allocation of costs to low-use customers. Costs such as meter reading, billing, the cost of meters and service drops, are properly attributable to the marginal cost of serving a single customer. The cost of a minimum sized system is not. The parties should not use the minimum system approach in future studies.*[3]

However, as sales have flattened or declined in recent years, and as more customers install on-site generating resources but remain dependent on grid services for some service, the concept of recovering distribution network costs in fixed charges has experienced resurgence.

Utility sales volumes in some regions have stagnated or declined as appliances, homes, equipment and systems become more efficient. Sales volumes also vary with weather, declining in mild years. Many state net-metering laws allow consumers installing rooftop solar arrays to incur net-bills for zero or very few kilowatt-hours, depending on the geographic location and the design of the net-metering tariff. To improve revenue stability, and to collect distribution system costs from PV customers, some utilities are arguing that "fixed" costs should be recovered in fixed customer charges. Some utilities are seeking customer charges of $20/month or more. In one extreme case, Madison Gas and Electric Company proposed a $69/month customer charge, to recover all costs except for fuel and purchased power expenses.[4] The Wisconsin PUC recently voted 2-1 to approve an increase in the customer charge to

---

1 Rich Sedano, Janine Migden-Ostrander, Brenda Hausauer and Camille Kadoch provided reviews.

2 Public Utility Regulatory Policies Act of 1978, 16 U.S.C. §§2601-2645 (1978). Available at: http://www.gpo.gov/fdsys/pkg/STATUTE-92/pdf/STATUTE-92-Pg3117.pdf.

3 WUTC v. Puget Sound Power and Light Company, Cause U-89-2688-T, Third Supp. Order, P. 71, 1990.

$19/month for Wisconsin Public Service Company.[5]

An electric utility has a defined revenue requirement, determined by their regulator. A higher customer charge therefore means a lower per-kWh rate will be required. This has important impacts on the utility and its customers. Utility revenue is stabilized by a high customer charge, independent of weather, conservation, or other impacts on sales. However, the impacts on customers of high customer charges can be inconsistent with policy objectives:

- Small-use customers, such as apartment dwellers, low-income households, and second homes will receive much higher electric bills; the vast majority of low-income consumers are also low-use consumers. This is anathema to public policy objectives that normally tend to protect low-income customers and/or reward low usage;
- Urban area residents who use natural gas for space and water heat will receive much higher electric bills;
- Large-use customers, including large single-family homes in suburban and rural areas without access to natural gas most often will receive lower electric bills, depending on the existing utility rate design; and
- The lower per-kWh prices that result when a significant portion of costs are recovered in a fixed monthly customer charge will stimulate consumption. This creates consequences for incremental utility investment and for the environment. It also reduces the economic incentive for careful customer energy management practices and investment in energy efficiency measures by increasing pay-back periods.

There are several ways besides high fixed charges to address utility revenue stability issues:

- **Financial Reserves:** The traditional approach has been to set rates in a manner that recovers distribution and power costs in a per-kWh charge, and expect utilities to have adequate financial reserves to manage the volatility that occurs with weather. This is reflected in the 40% – 50% equity ratios allowed for electric utilities in determining the cost of capital.
- **Frequent rate cases**: If regulators hold rate proceedings every year or two, there is little time for sales volumes to deviate far from the level used to set volumetric rates.
- **Revenue Decoupling:** Many regulators have adopted revenue regulation mechanisms that calculate a true-up at the end of the month or year to align actual revenues with allowed revenues.

All of these methods allow the per-kWh charge to continue to reflect substantially all of the costs of service. By structuring rates this way, regulators preserve the consumer incentive to use electricity wisely.

Rate Designs with Minimum Bill Charges

One alternative to address utility concerns for revenue adequacy in addition to Revenue Regulation and frequent rate cases is a concept known as a "minimum bill." A minimum bill guarantees the utility a minimum annual revenue level from each customer, even if their usage is zero. The vast majority of customers, who consume the overwhelming majority of energy, have usage that exceeds those low thresholds. For these customers, a minimum bill "disappears" when the usage passes that level, and the customer effectively pays a volumetric rate to cover both power supply and distribution costs.

It is important to understand that a very small number of customers will be adversely affected by the minimum bill, because a large majority of all customers have usage in excess of the minimum billed amount. Figure 1 compares the number of customers served at each usage level, and the kilowatt-hours used by those customers at each usage level. Only a few percent of the customers, using less than one percent of the energy, have usage below 150 kWh per month in this illustrative example, and are arguably not making a meaningful contribution to system costs when those costs are built into the per-kWh charge.

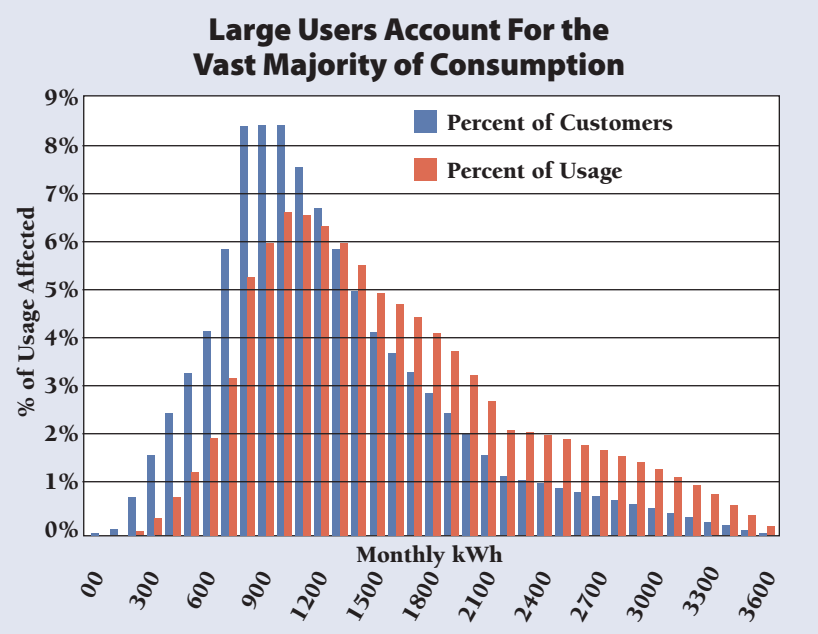
Table 1 compares three example residential rates, all designed to produce the same total level of residential revenue for an illustrative utility with average usage for this example of 1,000 kWh/month/customer.

- **Low Customer Charge:** $5/month, to cover billing and collection
- **High Customer Charge:** $20/month, to cover billing, collection, and a portion of distribution costs
- **Minimum Bill:** $5.00/month to cover billing and collection, with a minimum bill of $20 (which applies if usage falls below 150 kWh/month).

4 Application of Madison Gas and Electric Company for Authority to Change Electric and Natural Gas Rates, Docket 3270-UR-120, April 9, 2014. Available at: http://psc.wi.gov/apps40/dockets/content/detail.aspx?dockt_id=3270-UR-120.

5 Content, T. (2014, November 6). State regulators approve 83% increase in Green Bay utility's fixed charge. *Milwaukee Journal-Sentinel.* Retrieved from: www.jsonline.com.

Figure 1



This shows that for the average customer, the three rate designs produce almost identical bills. With a high customer charge rate design, because the $20 customer charge is collecting $15 more than the $5 low customer charge, the price per kWh is lower by $0.015/kWh. For the minimum bill rate design, however, less than 1% of kWh sales will typically be to those customers using under 150 kWh/month. This group has historically been limited to unoccupied dwellings; more recently, it has come to include customers with solar PV systems that produce as many kilowatt-hours as they consume, but remain dependent on the grid to serve as a "battery" taking excess production during the day, and supplying power when the sun is not shining.

Therefore, there will not be a lot of revenue recovered by the minimum bill charge, leaving most of the revenue requirement recovered by the volumetric charge. The per-kWh rate would only be reduced by about $0.001/kWh (1%) as a result. Under this rate design, very small-use customers, such as PV customers whose panels produce as many kilowatt-hours as the house uses, would pay slightly higher bills. However, as nearly all usage by customers remains priced at a cost-based rate that includes all of the costs of producing and distributing electricity, the low-use PV customer would have negligible usage charges.

Table 1

	kWh	Low Customer Charge	High Customer Charge	$20 Minimum Bill*
Customer Charge		$5.00	$20.00	$5.00
Minimum Bill				$20.00
Per-kWh Charge		$0.10	$0.085	$0.099
Customer Bills	10 kWh	$6.00	$20.85	$20.00
	100 kWh	$15.00	$28.50	$20.00
	200 kWh	$25.00	$37.00	$24.80
	500 kWh	$55.00	$62.50	$54.50
	1,000 kWh	$105.00	$105.00	$104.00
	1,500 kWh	$155.00	$147.50	$153.50
	2,000 kWh	$205.00	$190.00	$203.00

**The minimum bill will only apply when customer's usage is so low that their bill falls below $20.*

Impact on Usage

Electricity usage varies with the price paid. Higher kWh charges create greater incentives for consumers to turn out unneeded lights, manage thermostat settings, and invest in more efficient appliances, windows, and insulation. There is an economic science tool, price elasticity, which measures the expected change in consumption if prices change. Economists variously estimate the price elasticity of demand for electricity in the range of -0.1 to -0.7, with some long-run estimates going higher. An elasticity of -0.2, meaning that a 1% increase in price results in a 0.2% decrease in the quantity demanded, is considered a conservative estimate of long-run price elasticity.

The high customer charge rate design results in a 15% lower price per kilowatt-hour compared to the low customer charge rate design. Assuming an elasticity of -0.2, that would imply that customers would consume about 3% more electricity (-0.2 elasticity x 15% change in rate = 3% change in usage) as a result of the lower per-kWh price.

The minimum bill rate form, on the other hand, only reduces the price per kWh by 1% compared to the low customer charge rate design; assuming the same elasticity factor, the minimum bill design would increase usage by only about 0.2% among customers using more than the minimum billed quantity, when compared with their usage under the low customer charge rate form.

There is, however, a chance that the very small users might increase their usage up to the 150 kWh minimum. With this $20 minimum bill, customers using less than

150 kWh per month would see no change in their bills if they increased usage up to 150 kwh. But, since only a small percentage of customers use that little power, even if they did so, usage would not increase very much.

Evaluating a choice between a $20 fixed customer charge and a $20 minimum bill charge, we would expect about 15 times as much additional usage under the $20 fixed charge as under the $20 minimum bill charge.

Impact on PV Customers

Part of the concern that is raised by utilities is that customers with solar PV systems are "net-metering" to zero kWh, and paying only the customer charge in a monthly bill. These customers remain dependent on the grid for storage and shaping of their daytime energy production. Solar advocates argue that the grid is receiving a more valuable product – daytime renewable energy – than it is providing to the customers at night from conventional generation, and that this is a form of rough equity.

A minimum bill would ensure that a PV customer with net consumption of zero would still contribute to system costs. In the example, these customers would pay $20 per month. But, rather than distort the rate design for all customers, only the low-consumption consumers would be affected, allowing rates that continue to reflect all system costs to be applied to the overwhelming majority of energy sales.

Advantages and Disadvantages

A rate design that uses a customer charge combined with a kWh charge is simple to understand and administer. It provides a clear price signal for each kWh. If the customer charge is lower, the per-kWh charge is higher. However, the public is used to doing business for other purchases with a zero customer charge – grocery stores, gas stations, and virtually all other retailers only charge customers for what they buy, not for the privilege of being a customer (membership warehouse clubs are exceptions, with fees designed to weed out "browsers" from their stores.) There may also be conflict with intended outcomes for low use customers.

A minimum bill rate design has an advantage in that the per-kWh price is higher, more closely reflecting long-run marginal costs (all costs are variable in the long run). This rate design encourages prudent usage, better aligned with investment impacts from consumption and investment in energy efficiency. This means customer choices about usage and, importantly, energy-related investments, will be informed by electricity prices that reflect long run grid value. The disadvantage is that, for the very small number of customers whose usage is below the "minimum," this rate design provides no disincentive at all to using the minimum amount of electricity. It can be perceived to have a disadvantage of encouraging additional usage by those users with usage below the minimum billed amount, but there are very few of these customers, and their prospective additional usage increase is minimal. Users in this group may argue that the minimum bill is unfair to them.

Finally, a minimum bill rate form ensures that second-homes, which may have no consumption during the off-season, contribute to utility revenues. This is sometimes presented as an economic justice issue, since second homes are generally held only by upper-income consumers.

Conclusion

The primary purpose of utility regulation is to enforce the pricing discipline on monopolies that competitive markets impose on most firms. Competitive firms nearly always recover all of their costs in the price per unit of their products. Therefore, any fixed monthly charge for electricity service represents a deviation from this underlying principle of utility regulation. The most commonly applied customer charges recover only customer-specific costs, such as billing and collection, in a fixed customer charge, leaving all costs of the shared system to be recovered in usage charges.

A regulator seeking to increase the contribution to utility system costs from those customers with minimal consumption can do so with either a higher customer charge, or establishing a minimum bill. The minimum bill option will ensure that all customers contribute to distribution costs, but without significantly stimulating consumption by higher-use customers or raising the bills of lower-income, low-use customers.

Forthcoming in Second Quarter, 2015: *Electric Rate Design for the Utility of the Future*. Watch for this on our website, www.raponline.org

Recipient: Foster Hildreth, General Manager
Name: Mark Schwinge
Email: mdschwinge@centurylink.net
Phone: 3603782036
Comment: Dear Mr. Hildreth,

Thank you for your recent newsletter. I have a three concerns about the progressively expensive facilities charge.

Last year I had installed a solar power system based on past years' actual KW usage. The new billing scheme removes, in significant measure, the incentive for such installations, since only 25% of charges will be associated with KW rates.

Also, by increasing everyone's facility charge, there is an inherent disincentive to conserve power since the KW rate will decrease and therefore become a smaller percentage of the power bill.

Moreover, this new scheme is highly disadvantageous to small households using fewer KWs than average. 54% of Friday Harbor Food Bank clients are single individual households. So, this pricing scheme hurts most those with lower KW usage and lower income.

I have two requests. First, that you share these concerns with the OPALCO Board Memb ers and Members Elect, and reconsider this new pricing structure. Second, if you will, please reply regarding these three points.

Cordially,

Mark Schwinge

From: Michael Riordan <mriordan137@gmail.com>
Date: May 6, 2015 at 3:31:57 PM PDT
To: Foster Hildreth <FHildreth@opalco.com>
Cc: Bob Gamble <bgamble44@gmail.com>, Jay Kimball <jay@mountaincedar.com>, Chuenchom Sangarasri Greacen <chomsgreacen@gmail.com>, Chris Greacen <chrisgreacen@gmail.com>, Fred Klein <fklein@orcasonline.com>
Subject: The New OPALCO Rate Structure

Dear Foster,

Thank you for taking the extra time at the meeting to discuss the new rate structure in more detail. You offered an explanation, based on historical rates, of why there were such big disparities between the various member classes, but I'm non sure I understand or accept it and will be digging further — into the Cost of Service Analysis by EES Consulting, which I have since found on the OPALCO web site. For example, the residential rates increase an average of about 7% per year and the small commercial by about 10% per year, while the large commercial increase only about 2% per year. Offhand, these disparities do not make sense to me.

I'm also concerned that these increases are coming almost entirely in the "facilities charge" rather than under electricity usage, as this will hit smaller users, those on fixed incomes, and those pursuing energy conservation measures and local energy sources particularly hard. They will also act as a disincentive for conservation and renewables. And as Chom Graecen has pointed out in recent articles, some portion of the surging costs of "grid backbone" over the next few years will benefit the broadband expansion but be included in the facilities charge and be levied upon all members. Even though perhaps only 25% (your figure, from our phone call) of the OPALCO members may opt for this broadband service, all of them will thus end up paying for a portion of its installation costs. This does not seem fair.

As I suggested to you, Jim Lett, Vince Daucinias and Winnie Adams at the meeting, I believe a better and fairer rate structure can be established using what I call a "base charge" that incorporates the facilities charge plus a baseline kWh usage per month, say 500 kWh in summer and 1000 kWh in winter. That would encourage smaller users to conserve energy and stay within those limits, although it would be difficult for many members to do. It would also encourage use of renewables. And it would provide the stable, reliable income stream that OPALCO needs to remain financially strong.

But from a first glance at the EES Consulting reports, it does not seem that this possibility was even considered; maybe on a deeper reading I will find it taken seriously. This is essentially what PG&E did so successfully in northern California when I owned residences there between 1981 and 2010. If you conserved energy and stayed within the baseline, you experienced modest costs for gas and electricity. If you were profligate, it began to hurt. Together with subsidies for energy conservation measures, it was part of what I call a "carrot and stick" approach to utility rate structures.

This is also what EWUA does on water charges. For a base rate of $45 per month, you get 5000 gallons of water; use more than that, and it begins to get costly. And if you have a guest house, you pay 50% more. This encourages conservation and provides the income stability EWUA needs to operate. And it's fair across the board for all members.

I've copied Winnie on this email, as well as others who've been in on the discussion. I'd appreciate it if you could forward it to Randy Cornelius, as well as to Jim, Vince and the other Board members. I plan to begin attending Board meetings to make the case for this approach.

With best regards, Michael

--
Michael Riordan
Physicist/Author
Now living on beautiful Orcas Island
106 Hilltop Lane
Eastsound, WA 98245

Subject: OPALCO contact mail from Tom Eagan

OPALCO website information request

Recipient:	Foster Hildreth, General Manager
Name:	Tom Eagan
Email:	saros@rockisland.com
Phone:	317-5327
Comment:	I would like to add my name to the growing list of members (30 years here) who are vehemently opposed to the proposed rate restructuring that the OPALCO board has put forward. This egregiously regressive approach will be a major hardship for low-income families, seniors, and is in direct opposition to the stated goals of energy conservation and local green energy production. Rewarding high usage and punishing low usage is bad enough, but a fixed 'facility' charge upwards of $70 per month is unconscionable. Thank you.