# 

# Revenue Shortfall Analysis

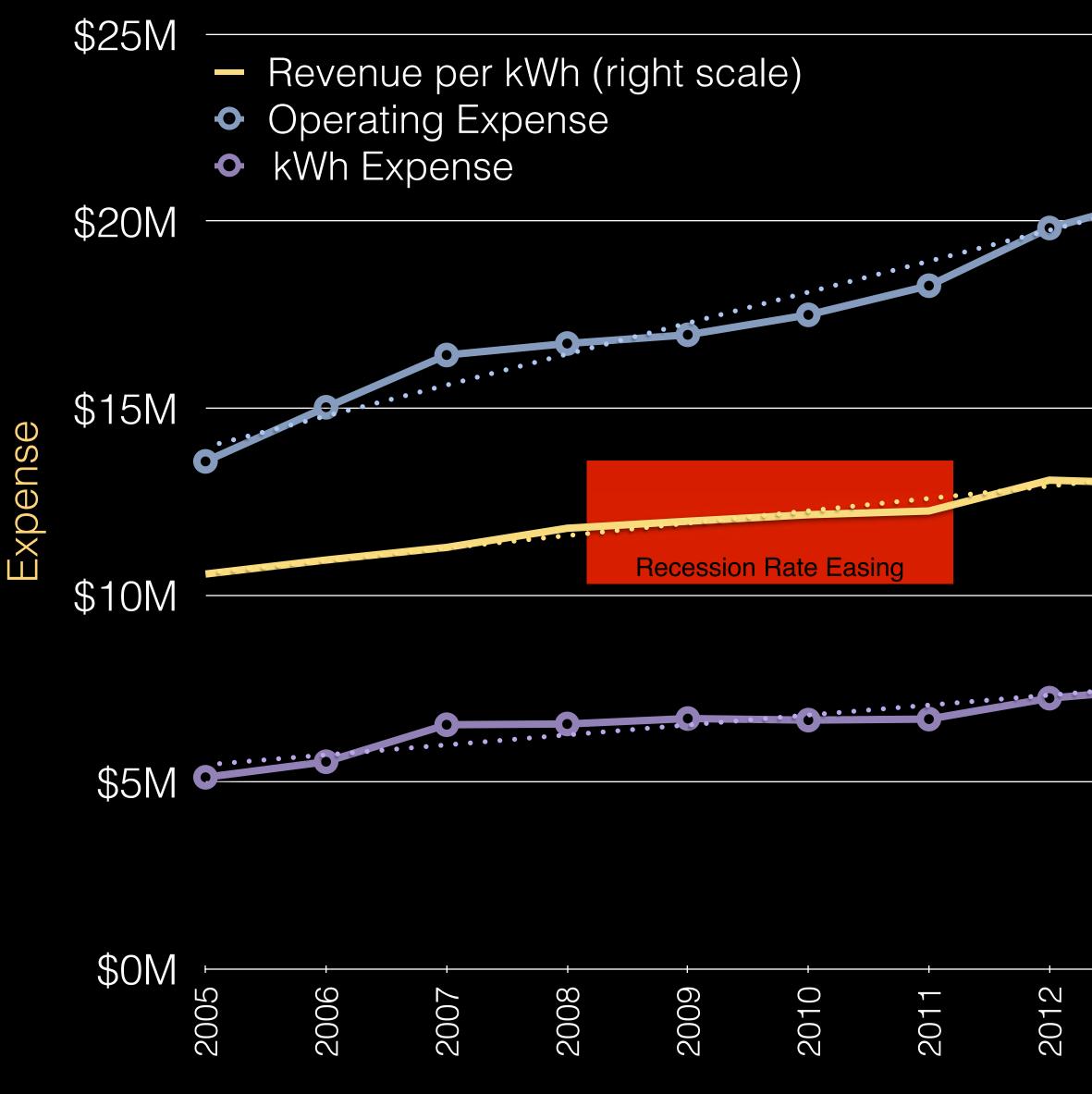
There are two distinct challenges we face.

Revenue has not kept pace with costs.

Unprecedented warming has reduced energy usage.

Revenue has not kept pace with costs.

# Revenue And Expense Trends



Source: OPALCO

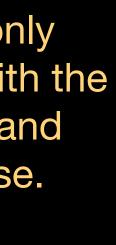
	\$0.20		ŀ
6.1%	\$0.16		
3.1%	\$0.12	e per kWh	
5.7%	\$0.08	Revenue	
	\$0.04		
2013 <mark>-</mark> 2014 <u>-</u>	\$0.00		

## <u>leadline</u>

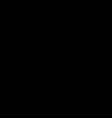
OPALCO revenue has grown at only 3.1% annually, not keeping up with the 5.7% growth of energy expense and 6.1% growth of operating expense.

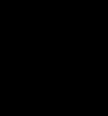
### lotes

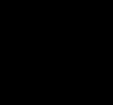
Growth rates are average annual

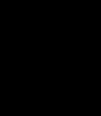


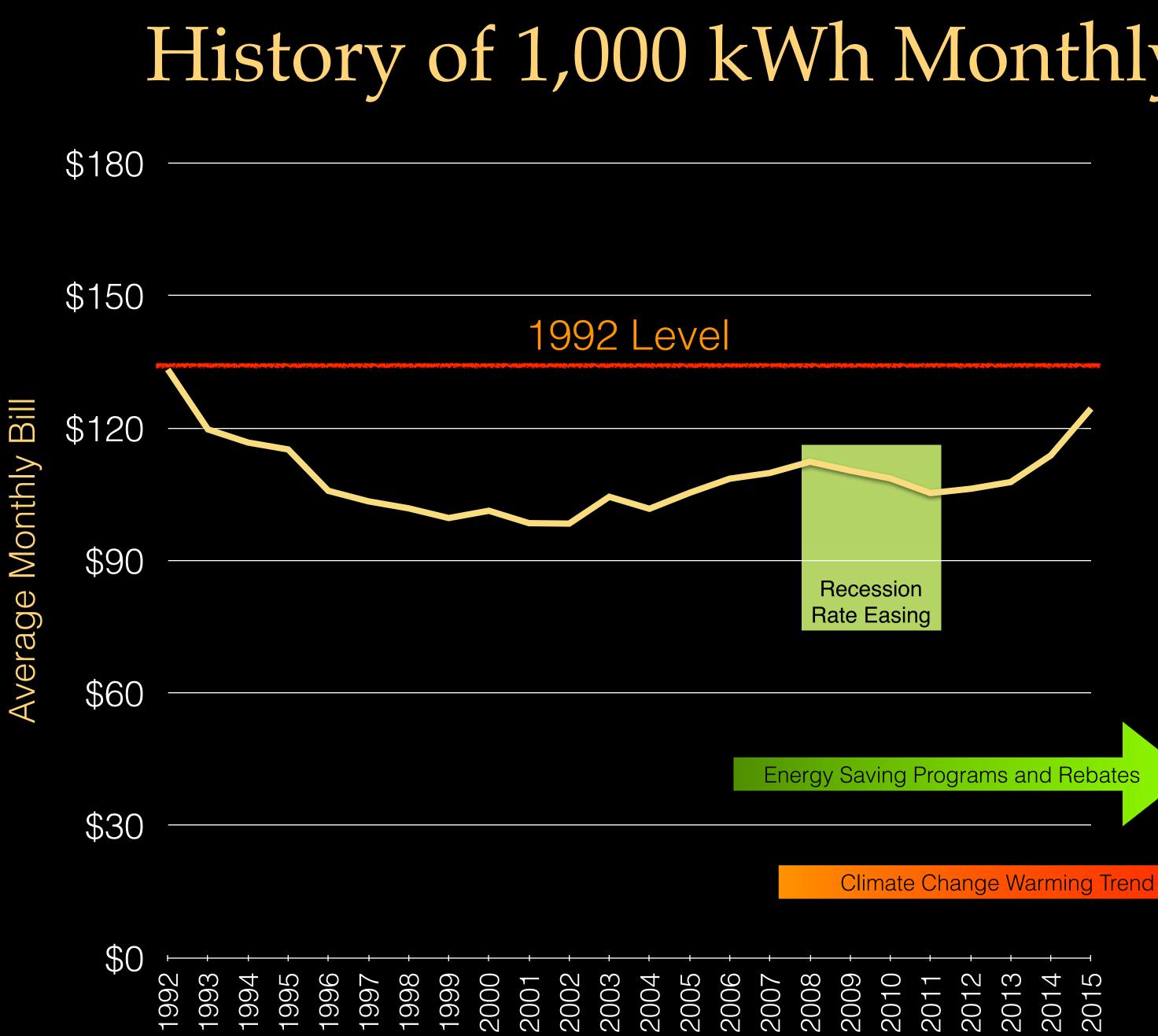












Source: OPALCO

# History of 1,000 kWh Monthly Bill Inflation Adjusted

#### Headline

- OPALCO 2015 rates are lower than they were 23 years ago
- Rate has <u>decreased</u> an average of -.29% per year, 1992 through 2015

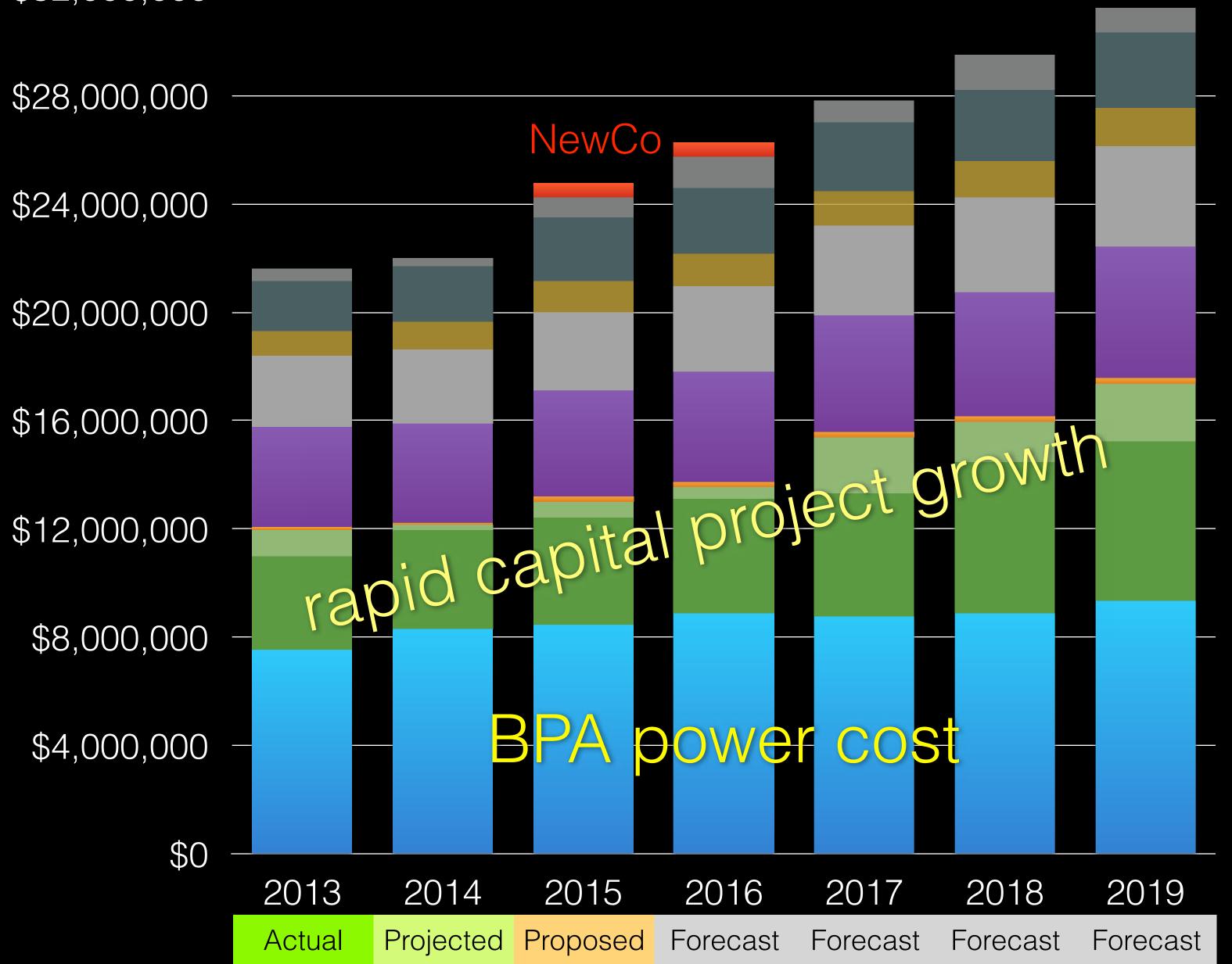
#### Notes

- 1992 through 2015, Residential
- Monthly bill for average OPALCO member usage of 1,000 kWh/month
- Monthly bill includes all Facility, Usage and Demand Charges.
- Rate increases postponed during 2008 -2011 recession and after effects, to ease economic impact on county.





\$32,000,000



Start-up Investment in NewCo Energy Savings Operations Member Services G & A All Other Accounts Permitting/Environmental Future Capital Planning **Current Capital Projects** BPA power cost



Unprecedented warming has reduced energy usage.



# We are in the midst of an unprecedented change in weather

The trends and analysis that follow are not unique to OPALCO

Every energy provider in the Northwest is experiencing similar impact "Those with heavy residential member base are hurting the most."



# Bill = Rates X Weather

# Warmer = Smaller Bill Colder = Larger Bill

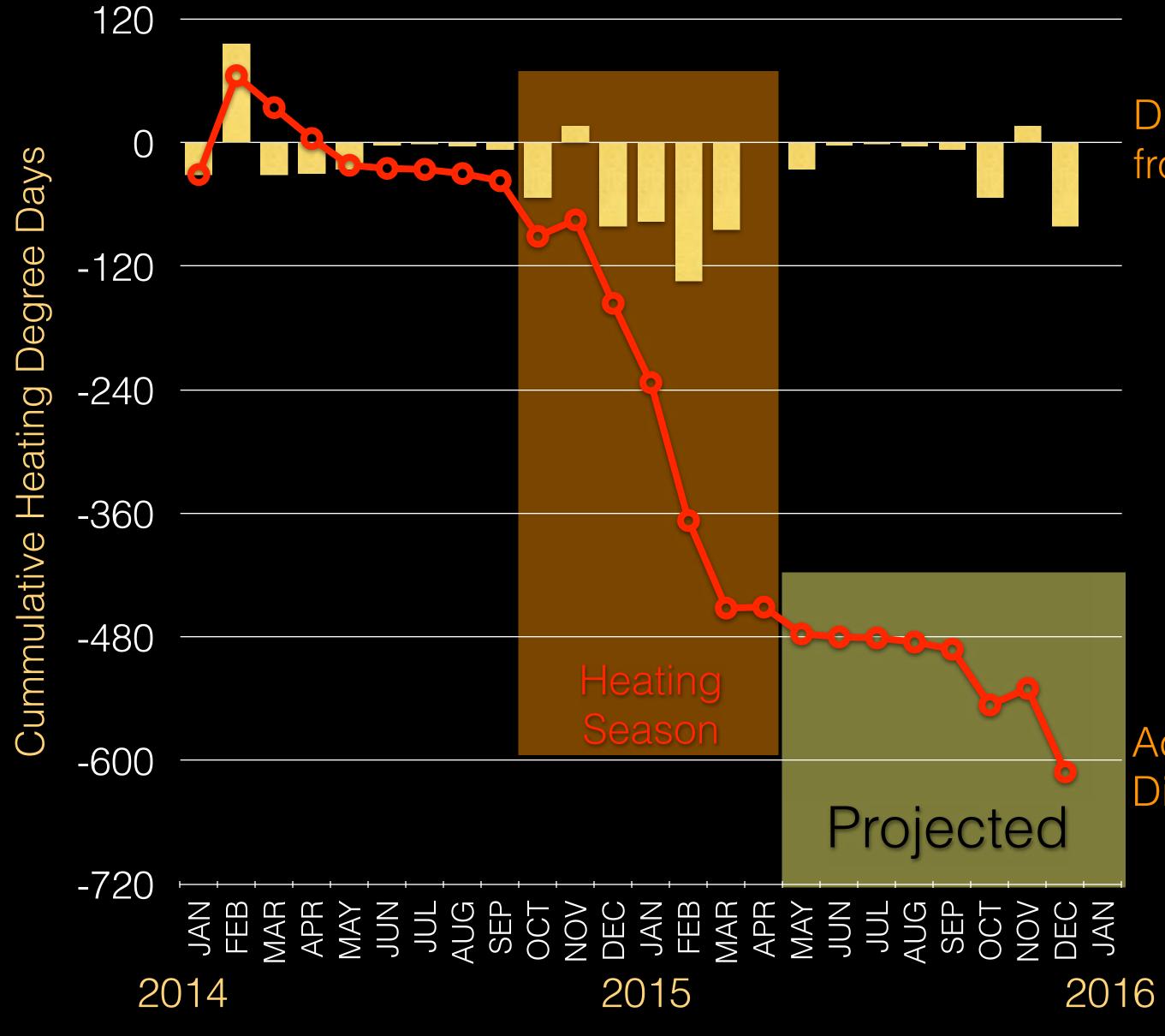
"A rate increase may not lead to an increase of member bills."

# Bill = Rates X Weather



Billing Periods	Apr 2014
Billing Days:	03/12/2014 to 04/11/2014
Days in Period:	30
Total Current Charge:	\$189.83
Total Usage:	2,228.00
Average Usage:	74.27
Max Temperature:	55°F
Min Temperature:	32°F
Avg Temperature:	46°F





Source: OPALCO HDD data (KFHR 50 degree)

# Heating Degree Days

### <u>Headline</u>

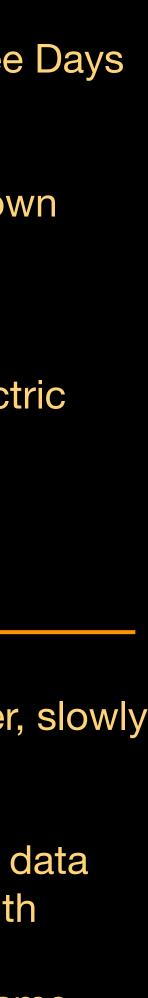
#### Difference from Normal

- A major decline in Heating Degree Days (HDD) started in October 2014
- In 2015, through April, HDD is down 36% from normal
- This is happening all over the Northwest region, with every electric utility and co-op

### Notes

Accumulated Difference

- HDD accumulate quickly in winter, slowly in summer
- Average/Normal is an average of data from 2000 through 2013, by month
- Projected HDD based on 2014 same month HDD



# Billed Versus Actual Cost as a % of Total Cost

#### Typical Residential Bill

#### Usage Charge

top heavy leads to over charging in cold winters and undercharging in warm winters

> Facility Charge

> > 2015



2014

#### Actual Costs

#### **BPA Electricity Cost**

#### **Operations/Facility Cost**

For decades, the Facility <u>Charge</u> has only recovered a fraction of the actual Facility <u>Cost</u>.

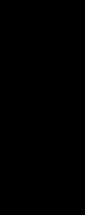
*The bottom line is that we must cover the cost to run our operations. Historically, we have done so through energy (kWh) usage charges.* With warmer temperatures, usage goes down and that creates revenue volatility for the Co-op. The new rate structure will gradually correct this weak link in the system so the Co-op can sustain the level of electric service that members demand.

#### 2015 Facility Charge

1984

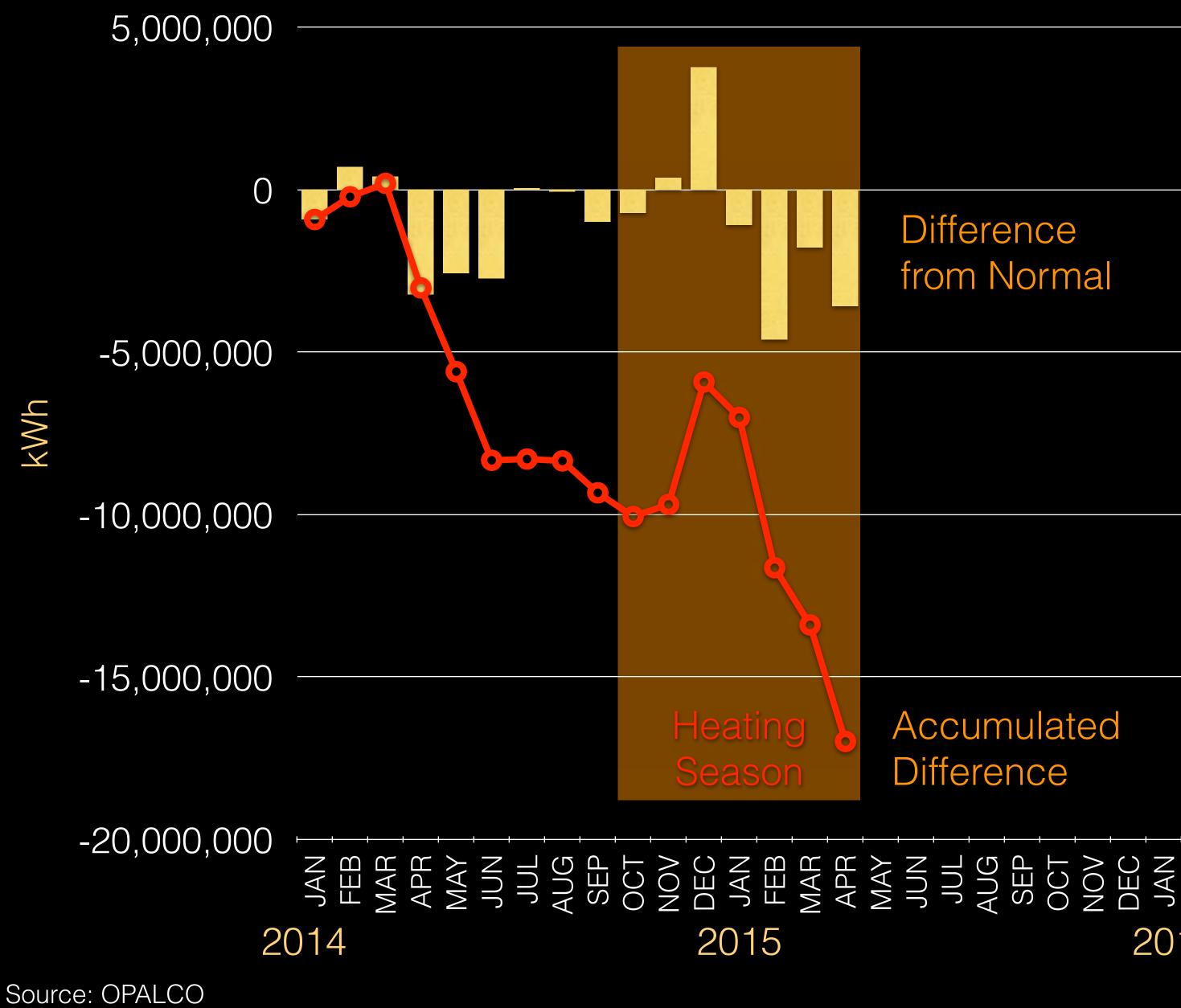
2004

2014





# kWh Consumed



#### Headline

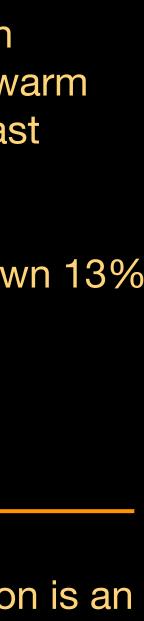
- Consumption of energy has fallen dramatically, driven primarily by warm weather, especially during this past winter heating season
- In 2015, through April, kWh is down 13% from normal

#### Notes

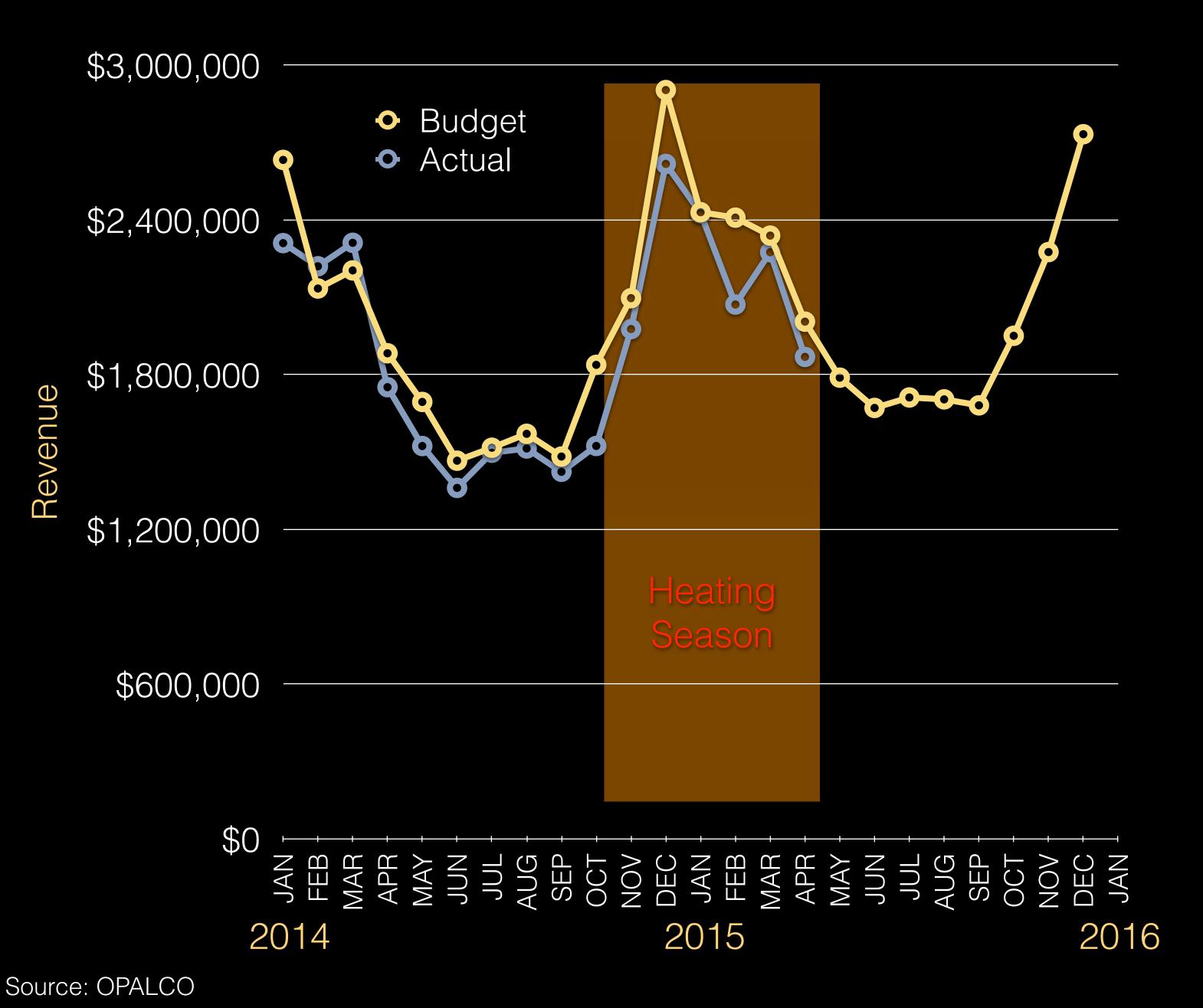
Average/Normal kWh consumption is an average of data from 2000 through 2013, by month

#### Accumulated Difference

2016

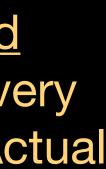


## Revenue: Budget Versus Actual

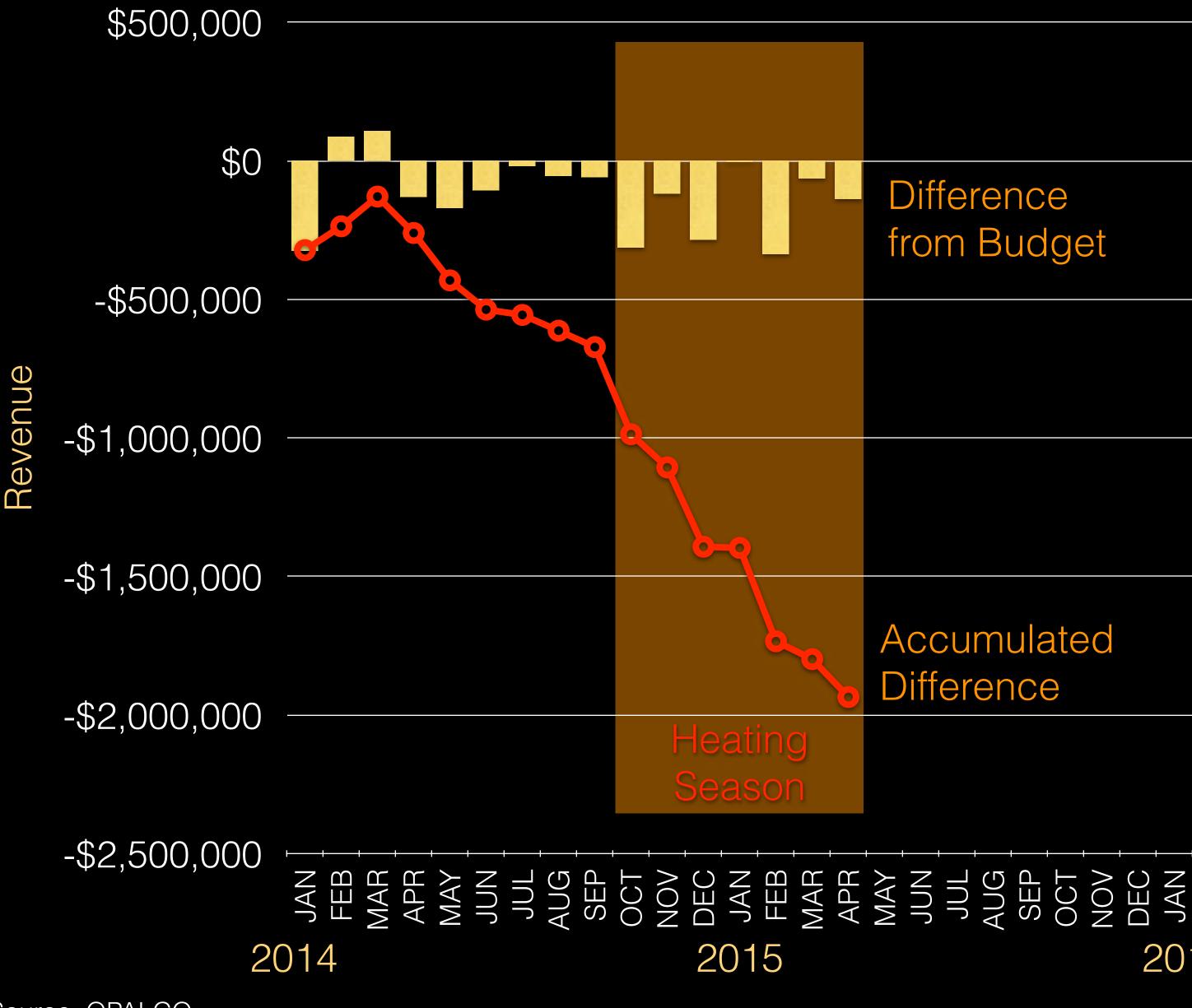


### Headline

With the warming trend, and despite rate increases, in every month since March 2014, Actual revenue has been less than Budget



## Revenue: Budget Versus Actual



Source: OPALCO

#### <u>Headline</u>

Driven primarily by warm weather, 2014 revenue was \$1.4 million less than Budget. During the 2014/2015 heating season the revenue decline accelerated to almost \$2 million shortfall.

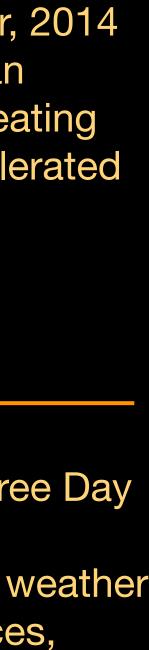
#### Notes

Budget is based on Heating Degree Day projections from OPALCO's load forecast, based upon long range weather projections from numerous sources, including BPA.

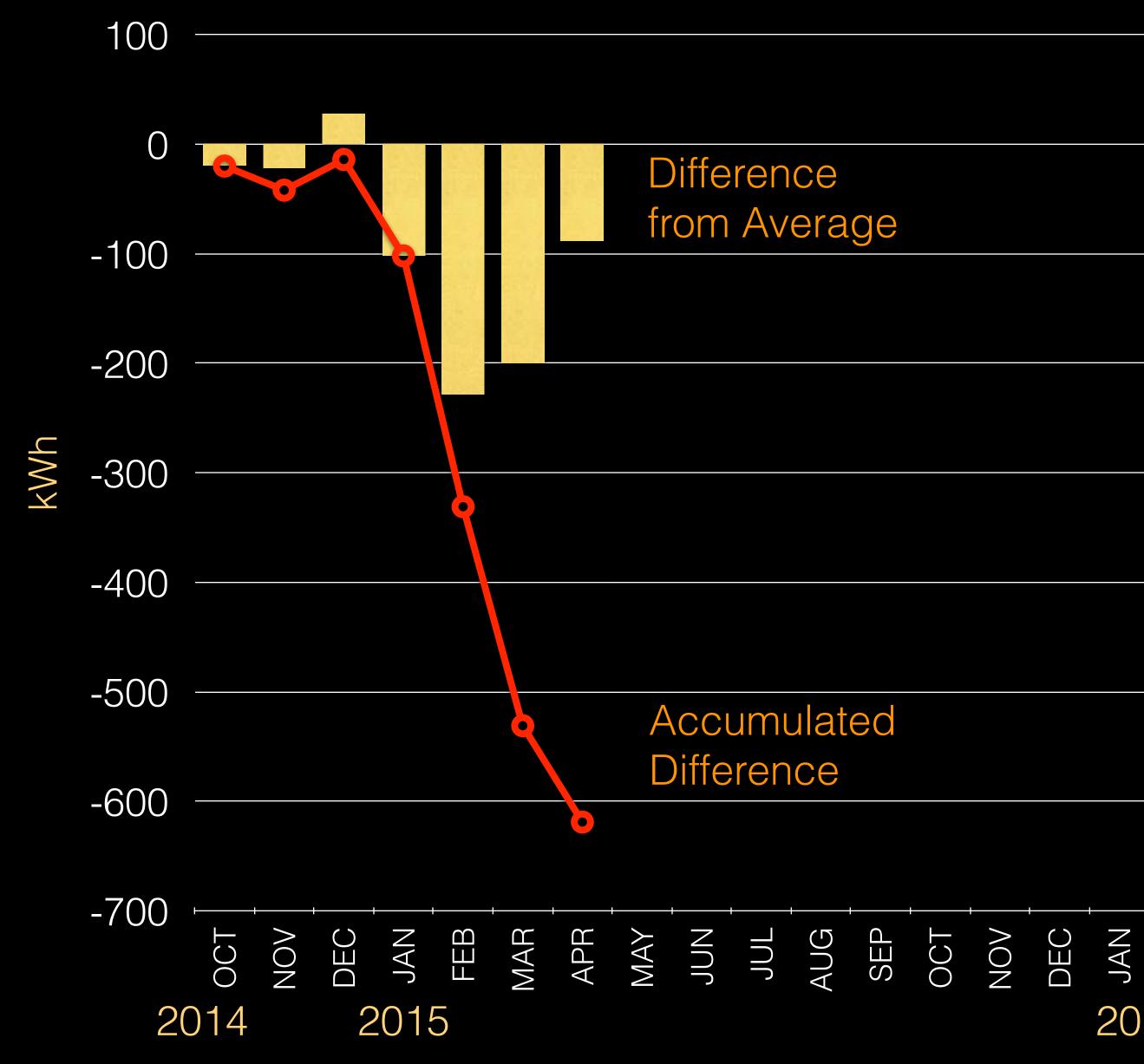
#### Difference from Budget

Accumulated Difference

2016



## Average Residential kWh Consumed: 2014/2015 Heating Season



Source: OPALCO

#### Headline

The average residential OPALCO member used much less energy during the 2014/2015 heating season

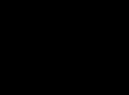
#### Notes

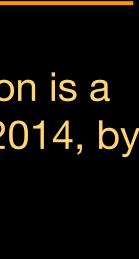
- Average/Normal kWh consumption is a 10 year average - 2005 through 2014, by month
- Average Residential member uses about 1,000 kWh per month.

2016



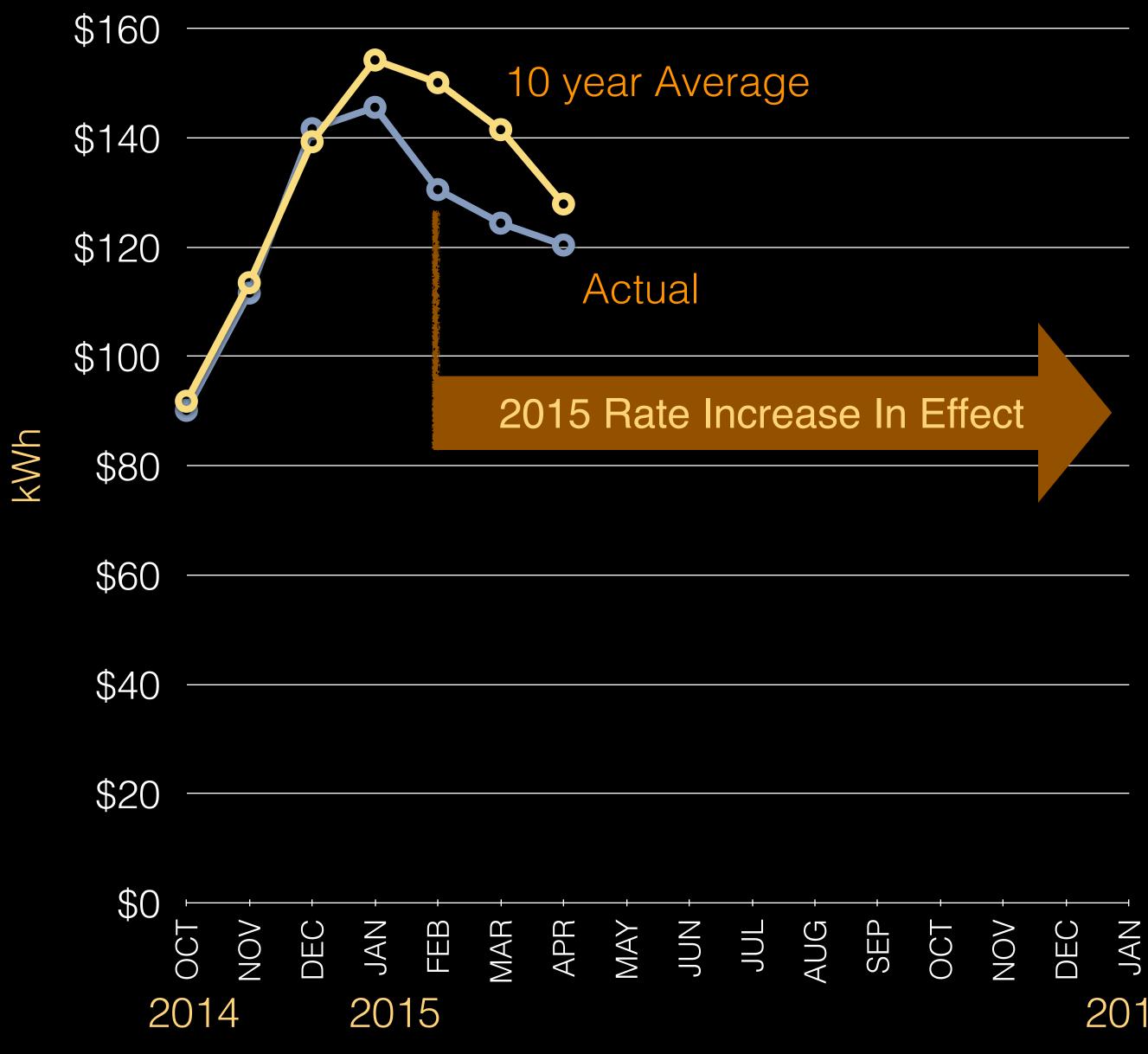








# Average Residential Bill: 2014/2015 Heating Season



Source: OPALCO

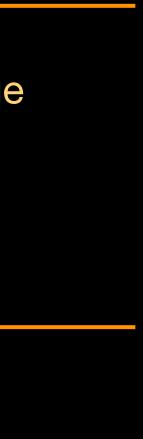
#### Headline

Despite rate increase, the average residential bill decreased

#### Notes

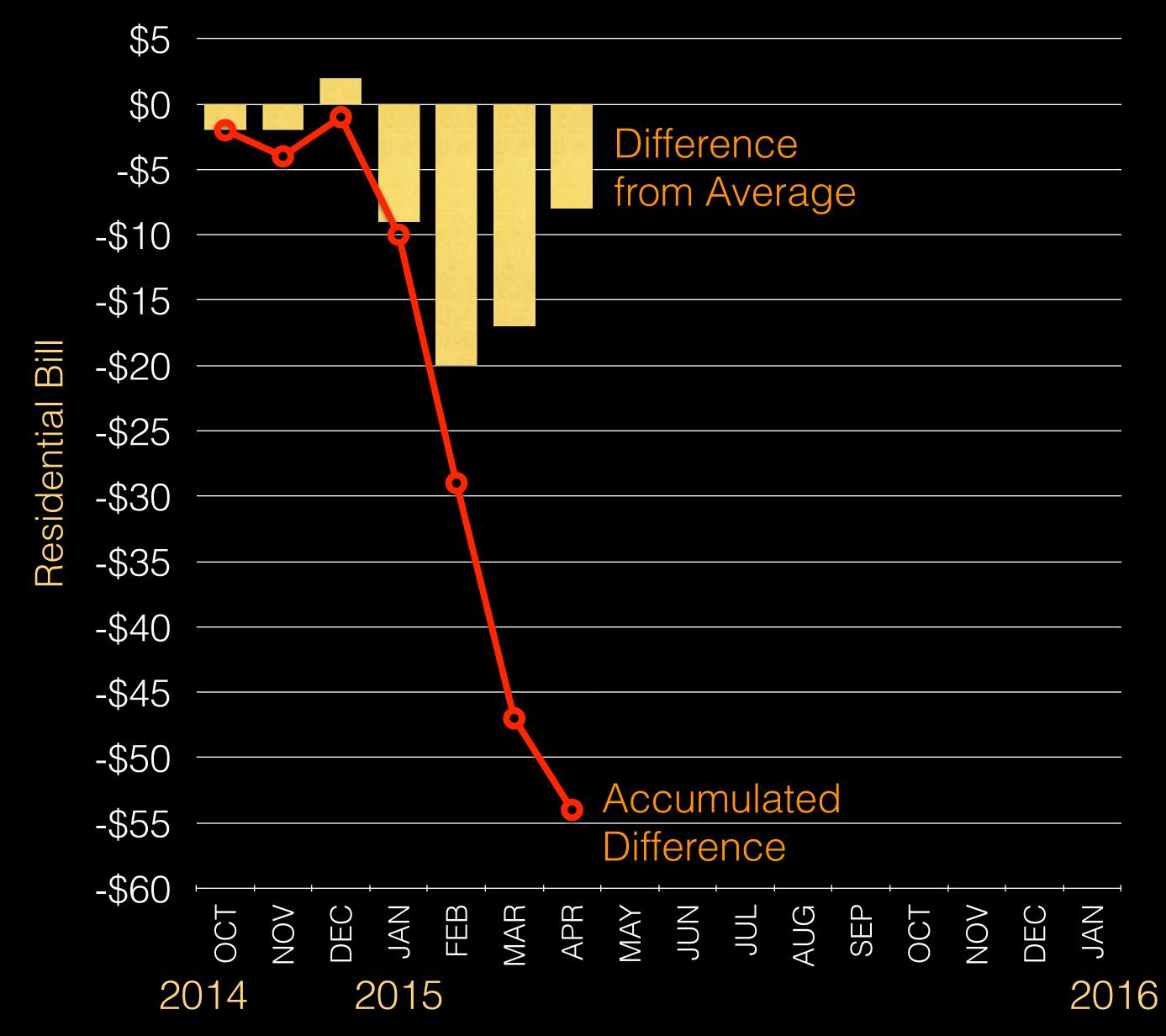
- Average/Normal residential kWh consumption is a 10 year average - 2005 through 2014, by month
- Average is not inflation adjusted







# Average Residential Bill: 2015 Heating Season



Source: OPALCO

#### <u>Headline</u>

Despite the rate increase, the average residential bill has <u>decreased</u> about 10%

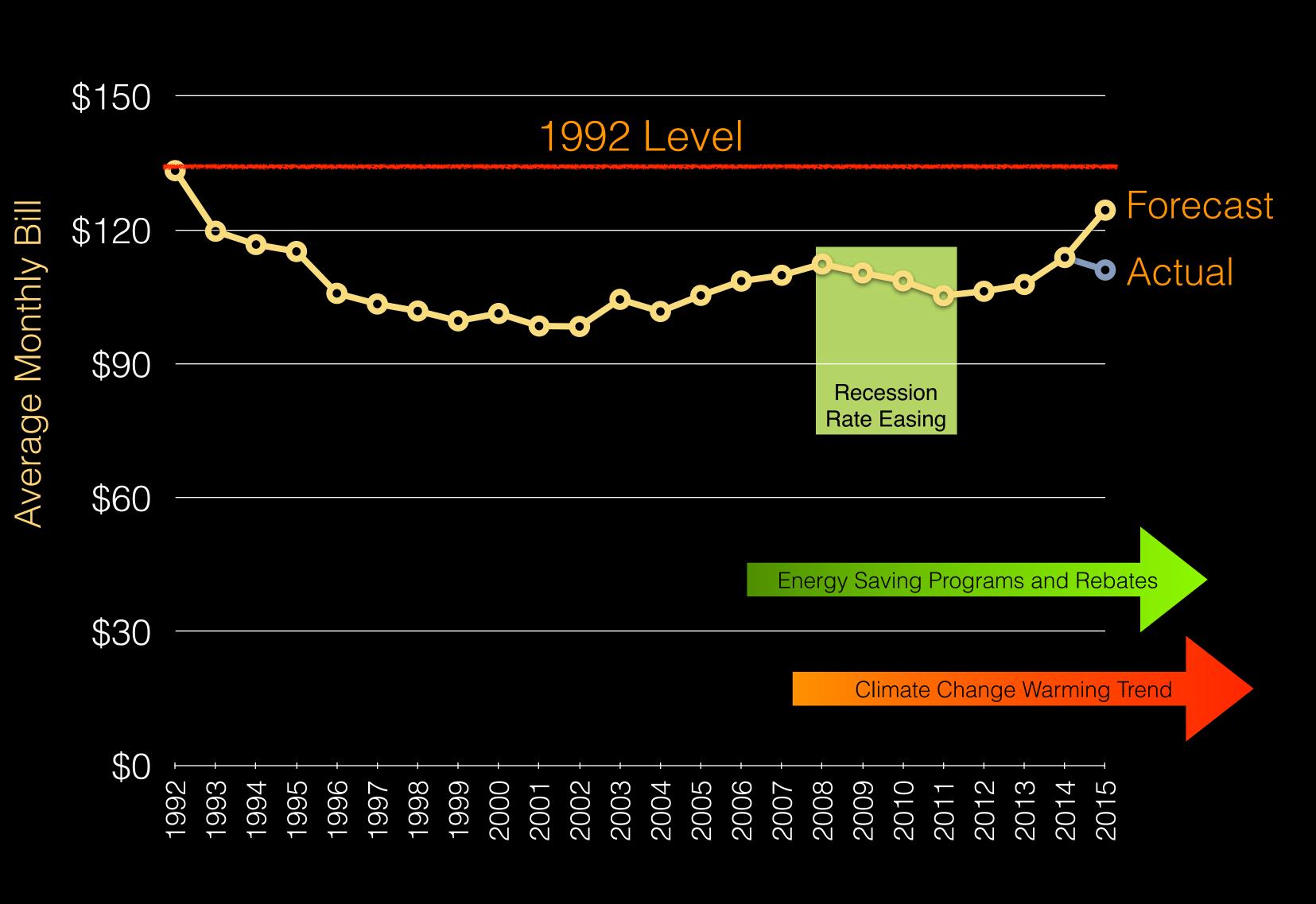
#### <u>Notes</u>

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# History of 1,000 kWh Monthly Bill Inflation Adjusted





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#### <u>Headline</u>

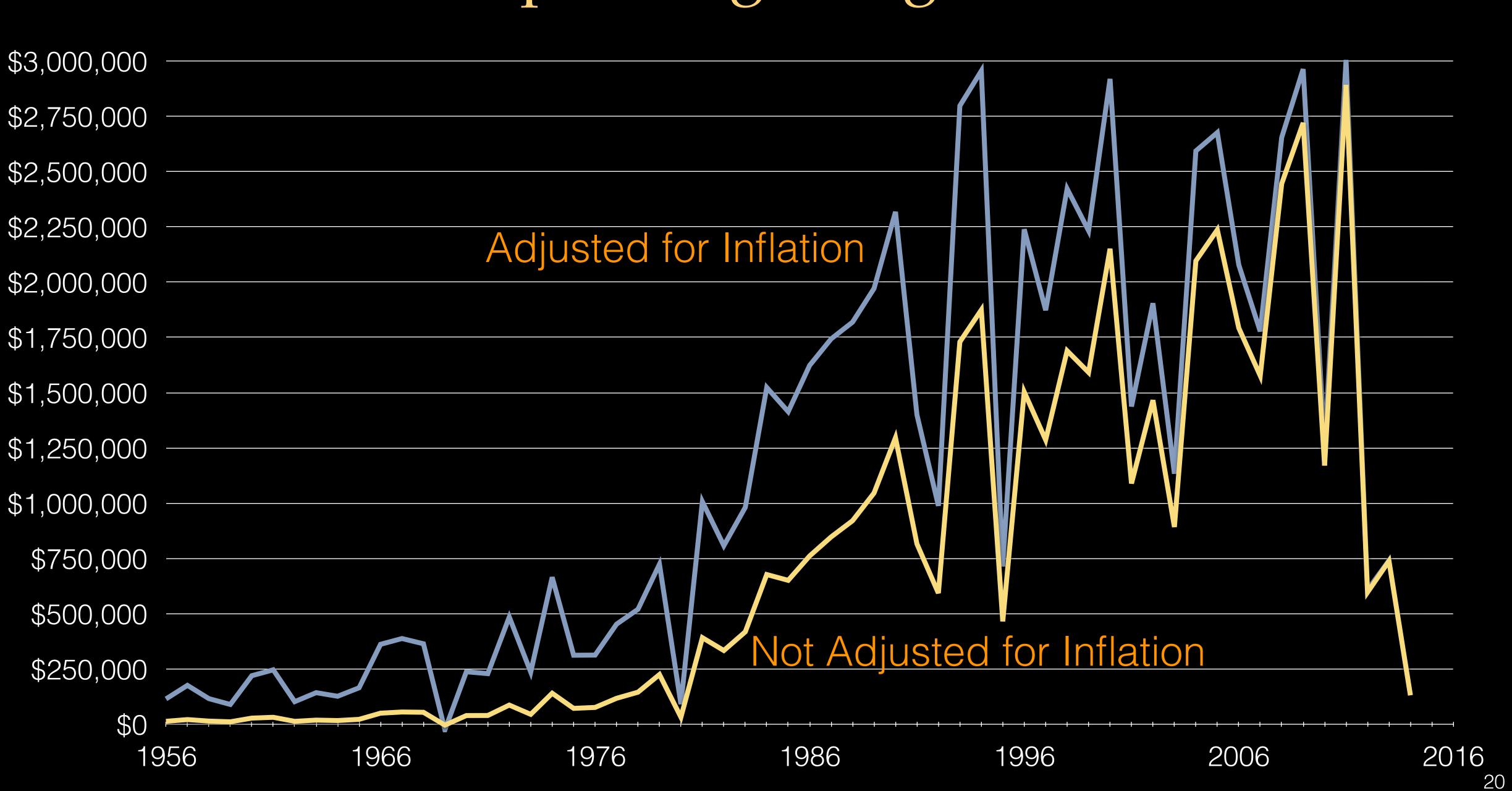
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#### <u>Notes</u>

- 1992 through 2015, Residential
- Historically, average OPALCO member usage has been 1,000 kWh/month
- Monthly bill includes all Facility, Usage and Demand Charges.
- Rate increases postponed during 2008 -2011 recession and after effects, to ease economic impact on county.



# Operating Margin



# Traditional Rate Setting Principles

- Rates should meet revenue requirement
- Rates should be cost based
- Rates should be "Just, Reasonable and Not Unduly Discriminatory or Preferential" – "Fair and Equitable"
- Rates should be easy to understand and administer
- Rates and the cost allocation process should conform to generally accepted rate setting techniques
- Rates should provide revenue stability to the utility and rate stability to the consumer

# Billed Versus Actual Cost as a % of Total Cost

#### Typical Residential Bill

#### Usage Charge

top heavy leads to over charging in cold winters and undercharging in warm winters

> Facility Charge

> > 2015



2014

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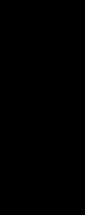
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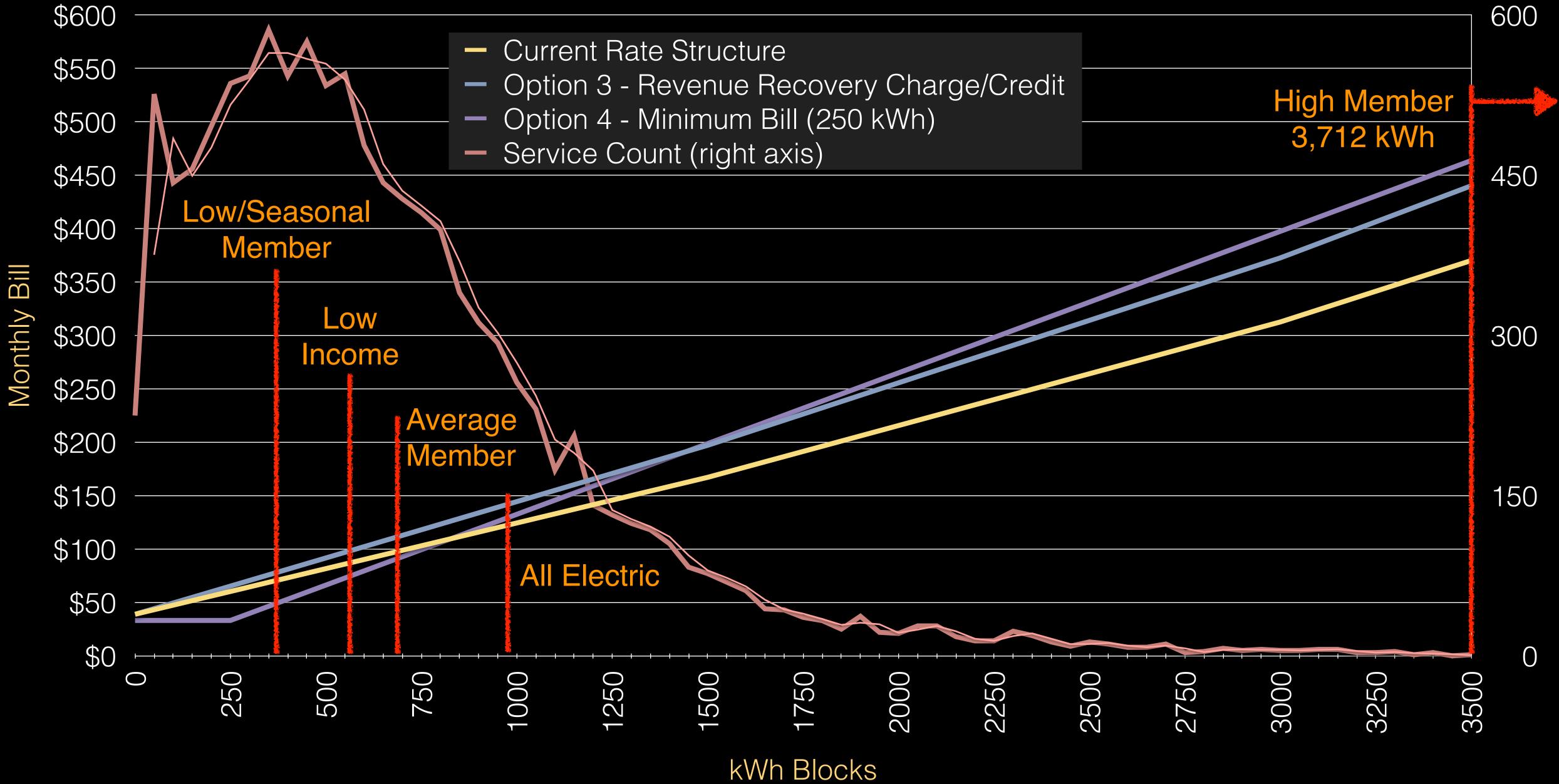




# Traditional Rate Setting Principles

Residential	Current	Option 1	Option 2	Option 3	Option 4
		general rate increase 2¢	expense based CRC	revenue based RRC	variable kWh with m
Base/facility Charge	38.90	38.90	38.90	38.90	depends on r
Usage Charge (¢/kWh, first block)	8.55¢	10.55¢	8.55¢ + calc	10.30¢ + calc	est. 13.25¢ a
Meets revenue requirement	Didn't				
Cost based					depends on r
Fair and Equitable					depends on r
Easy to understand and accept			×	×	×
Easy to setup and administer		🖌 very			🗶 setup
Conform to rate setting techniques					×
Provide revenue stability to the utility	trending that way				
Provide rate stability to the member			×	×	×
Withstand legal challenges					×
Encourages EE&C	trending lower				
Avoids fuel switching					🔀 market
Avoids bill shock (comparative)					🔀 high-use
Weather-driven Volatility	less	×	×	×	×

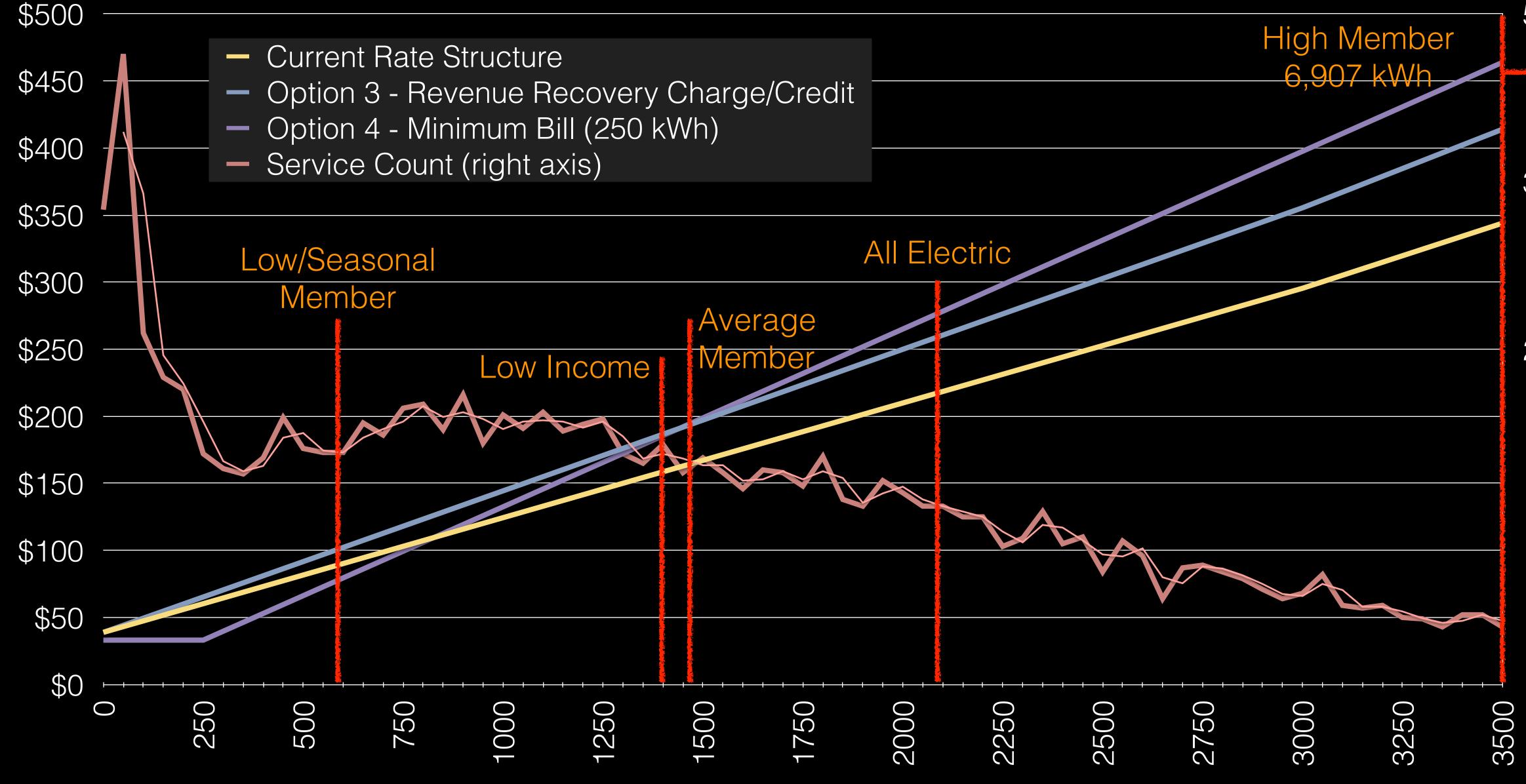




# Summer Comparison

Services Of Number

# Winter Comparison



Monthly Bill

kWh Blocks









Carbon Footprint in San Juan County Informed by the ongoing Integrated Resource Plan (IRP)

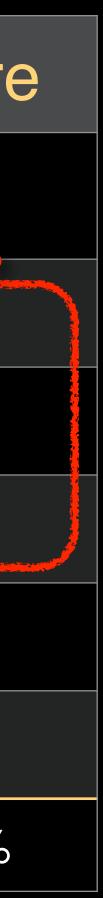


## San Juan County, Washington Carbon Footprints - Simplified Estimate

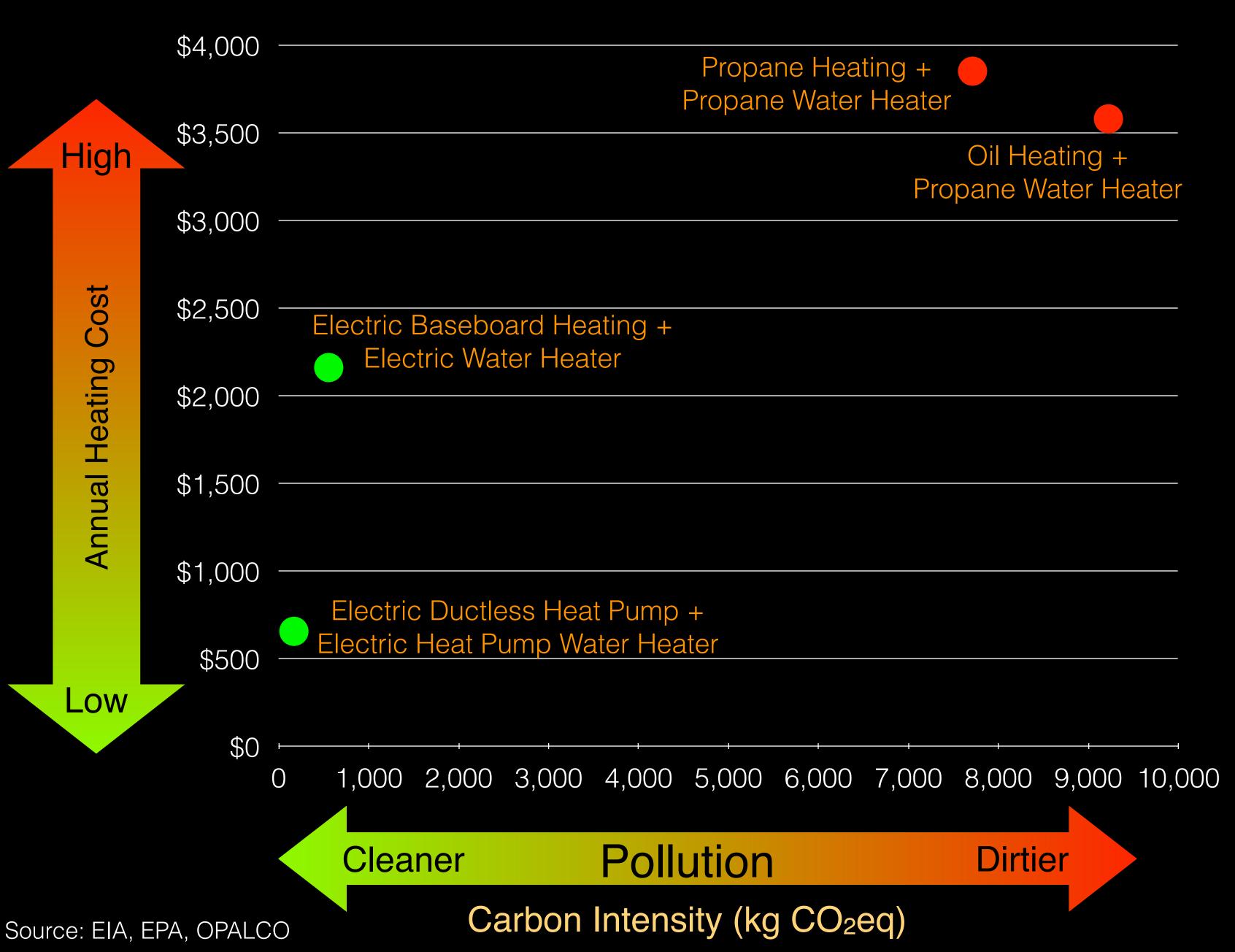
Fuel	Amount Used	CO2 Intensity	Tons CO2	Share
Electricity	215,000,000 kWh	48lbsCO2/MWh	5,160 T 43.228 T	10% <b>79%</b>
Gasoline	2,700,000 Gallons	8.9x10 <sup>-3</sup> MT/Gal	26,433 T	48%
Propane	1,896,750 Gallons	5.2x10 <sup>-3</sup> MT/Gal	10,849 T	20%
Wood/Other	1,802 cords	6,600 lbs/cord	5,946 T	11%
Agriculture			1,718 T	3%
Waste Treatment/Recycling			4,664 T	9%
Total			51,435 T	100%

~3.2 T/person/year





# Combining Home and Water Heating: Annual Cost and Carbon Footprint



#### Headline

An all electric home is about 2 to 6 times lower cost to heat the space and water, and 15 to 45 times cleaner, with much less wasted energy than propane or heating oil.

### Notes

 $\bullet$ 

- In a typical home, what is the total annual cost and carbon footprint, for various combinations of heating and water heaters?
- **GREEN** = Electric heaters  $\bullet$ **RED** = Propane/Oil







# Driving A Car: Annual Cost and Carbon Footprint

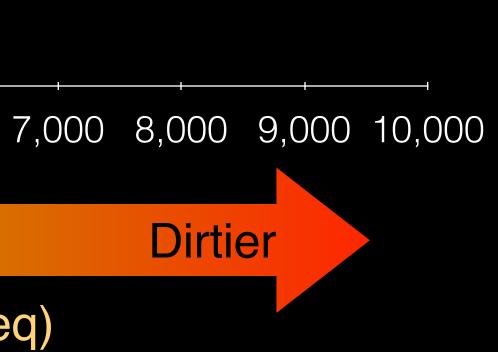
Sour	ce: EIA,	EPA, OPALC	0	Car	bon In	tensity	(kg C	O <sub>2</sub> e
			Clea	ner	Ρ	ollutio	on	
			0 1,000	2,000 3	3,000 4,	000 5,00	00 6,0	000
	Low	\$0						
		\$200		iles per k iles per k <sup>v</sup>				
		\$400	<b>EV - 3 m</b>	iles per k	Wh			
	Annual	\$600						
						ICE - 5	0 MPC	a Hyb
	rivin	\$800					ICE - 4	40 MI
	Driving Cost	\$1,000						
	st	\$1,200						
		\$1,400						
	High	\$1,600						
		\$1,800						

#### ICE - 20 MPG

#### ICE - 30 MPG

#### РG

orid

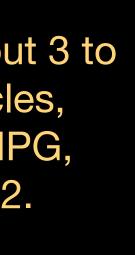


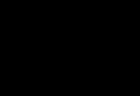
#### leadline

Electric vehicles energy cost about 3 to 10 times less than gasoline vehicles, depending on the MPkWh and MPG, emitting up to 200 times less CO2.

## Notes

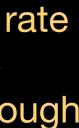
- Driving 10,000 miles per year
- Internal Combustion Engine (ICE) car getting 20 to 50 Miles Per Gallon (MPG)
- Electric Vehicle (EV) getting 3 to 5 miles per kWh of electricity (e.g. Nissan Leaf)
- Electric price is based on OPALCO rate plan through 2020. Regular octane gasoline price two year average through February 2015.
- **GREEN** = Electric Vehicles (EV) **RED** = Internal Combustion Engines (ICE)













# Energy Fair: Nissan Leaf Incentive

#### Wilson Nissan of Bellingham For any in stock 2015 Nissan Leaf, Wilson Nissan offers the following "Special Pricing" to any OPALCO Member

#### Example

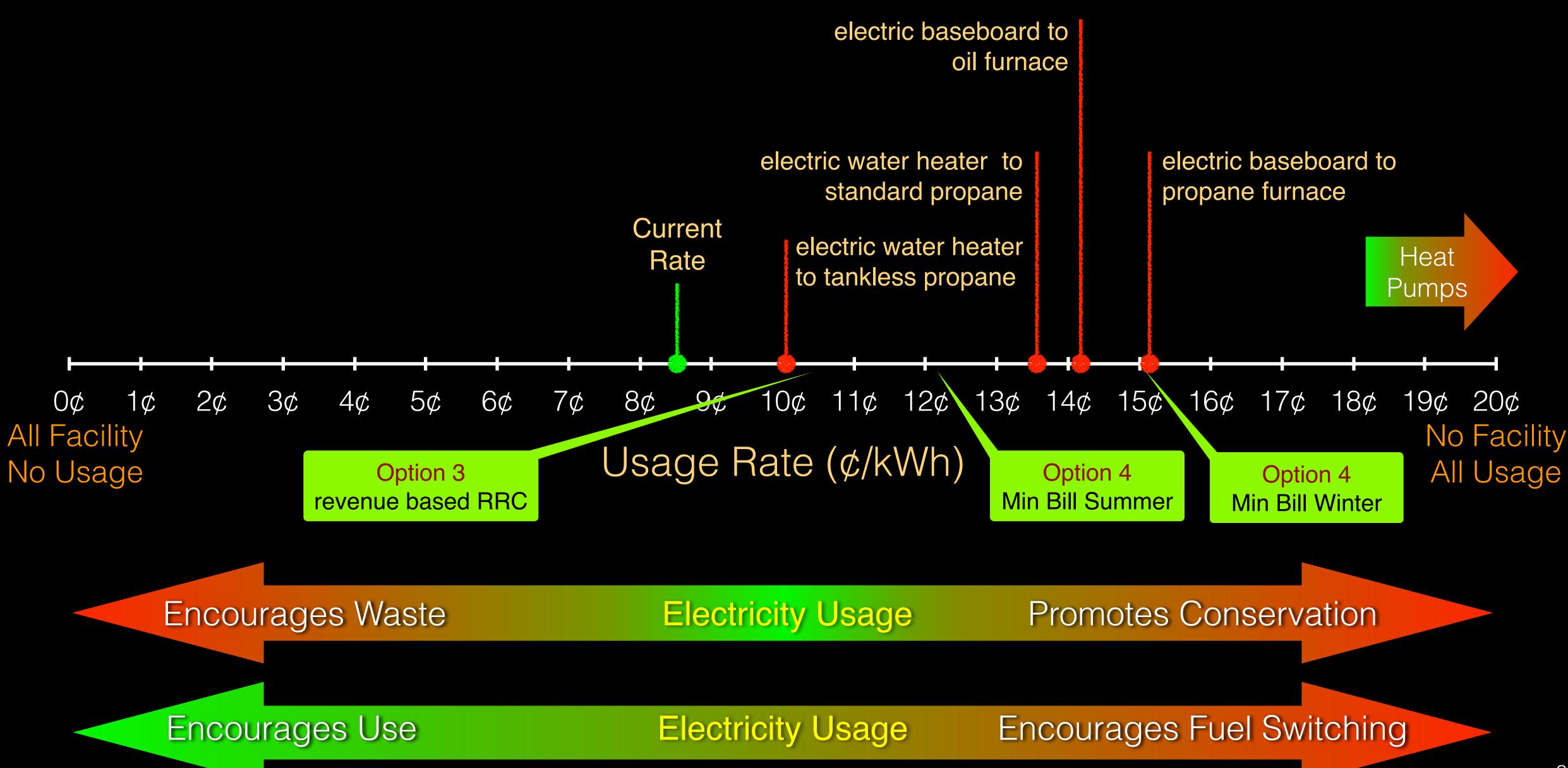
2015 Nissan Leaf S stock #N5246, equipped with Quick Charge Package, Floor Mats and Splash Guards

2015 Leaf model S				
MSRP	\$32,000			
Dealer Invoice	\$30,611			
OPALCO member discount	-\$1,000			
Net Price	\$29,611			
Nissan financing rebate*	-\$3,500			
Federal EV Tax Credit	-\$7,500			
No sales tax on EVs	\$0			
Net projected cost	\$18,611			

\*Nissan Incentives may vary depending on model and time of delivery

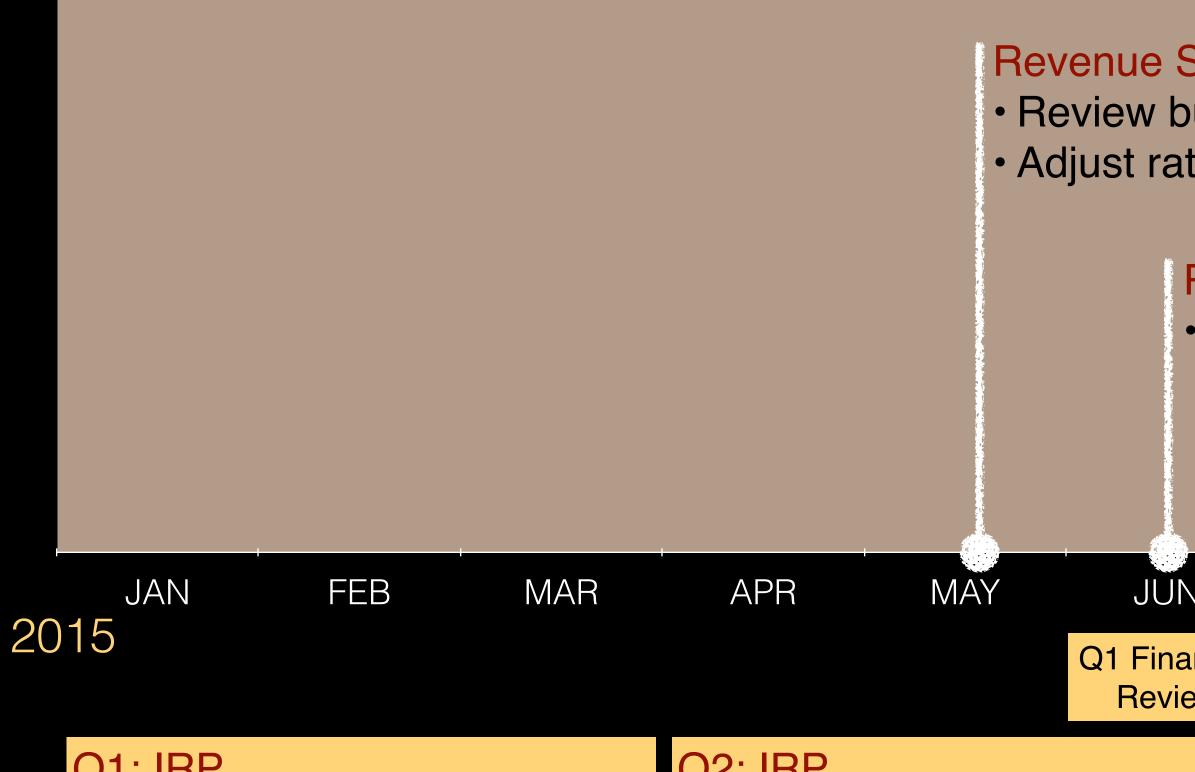


# Fuel Switching Analysis





# Budget, Rate and Integrated Resource Plan Time Line



#### Q1: IRP

- Development of Load forecast scenarios
- Development of BPA Power Supply modeling

#### Q2: IRP

- Research resource and efficiency options applicable to OPALCO
- Evaluate strategic alliances with other utilities

#### **Revenue Shortfall Review**

- Review budget versus actual
- Adjust rates accordingly for 2015 only, pending IRP results

#### **Revenue Shortfall Direction**

Formalize revised tariffs

	Reve • Imp	2016 Budget an Rate Process				
N	JUL	AUG	SEP	OCT	NOV	DE
ancial ew		Q2 Financial Review			Q3 Financial Review	
other				Q4: IRP • Present Ana • Finalize Rep	alysis of strategi	c alliand









