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Electric Utility

# Retail Tiered Rate Methodology Study

City of Port Angeles

City Council Meeting

August 17, 2010



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*Choices must be made to ensure a reliable low-cost energy supply*

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# Agenda

- Study Objectives
- Wholesale Tiered Rate Methodology (TRM)
- Retail TRM Rate Design Options
- Questions / Answers

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# Retail TRM Study Objectives

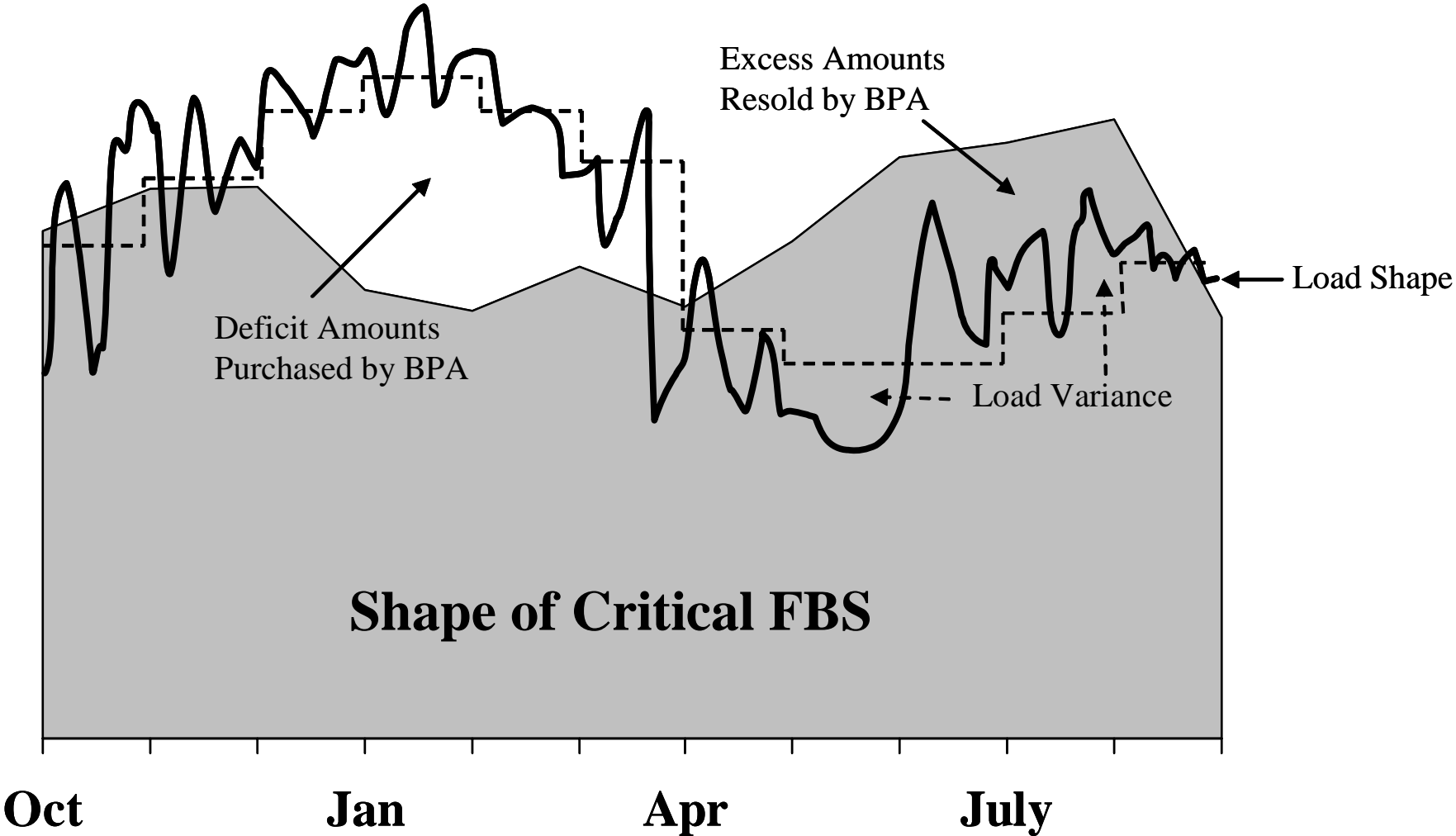
- Develop retail rate design NOT rates

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# Bonneville Power Administration (BPA)

- New BPA wholesale tiered rates begin in October 2011
  - Tier 1 low-cost power “take or don’t take, but pay”
  - Higher fixed costs and lower variable costs
  - Conservation can postpone higher-priced Tier 2 power

# Shaping Critical FBS to Load Following Product

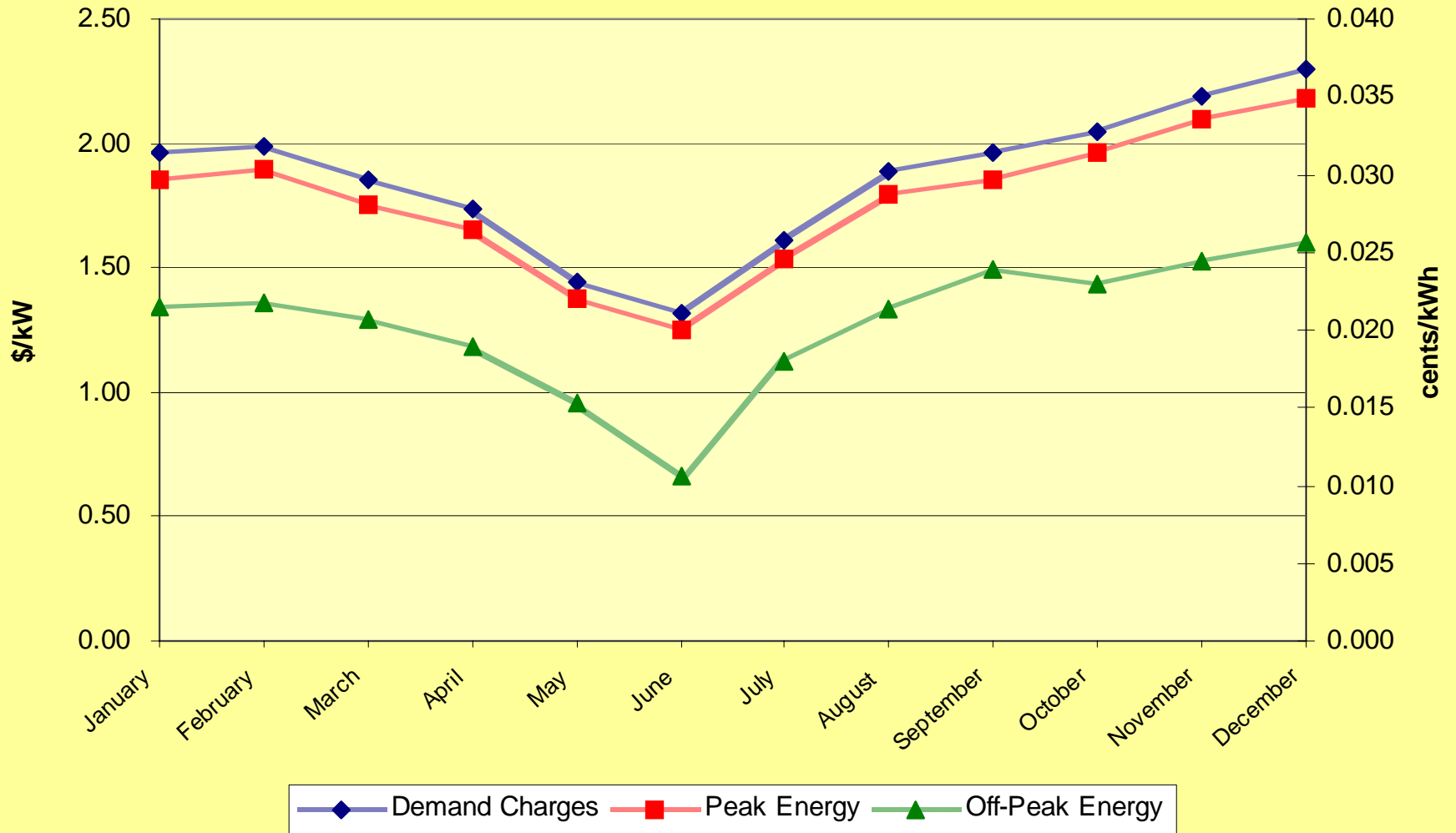


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# Wholesale Power Bill Elements

- Current wholesale power bill with melded rates
  - **Four elements:** demand, peak energy, off-peak energy and load variance
- Future wholesale power bill using TRM
  - **18 elements:** composite charge and 17 others

# City of Port Angeles 2010 Wholesale Power Costs



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# Retail Rate Design Challenges

- BPA is shifting revenue risk to its utility customers under TRM
  - Power contracts are “take or don’t take, but pay”
- Higher fixed/lower variable costs under TRM
- Automated Metering Infrastructure system and Customer Information System (CIS) must be compatible with any new rate design
  - Hourly & monthly based rate schedules not considered

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# Rate Design Goals

- The City of Port Angeles is committed to cost-based rates
  - Wholesale power costs
  - Distribution system costs

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# Rate Design Objectives

- Understandable
- Provide revenue stability
- Cost-of-Service based
- Equitable across rate classes
- Recovers costs
- Affordable
- Defendable
- Easy to administer
- Legal
- Competitive with neighboring utilities
- Promote conservation and demand response

# Retail Rate Design Options

- **Existing melded rate structure**
  - Base charge, flat energy charge and applicable demand charge
- **Inclining block rates w/o demand**
  - Base charge and applicable demand charge
  - Energy rates increase with increasing consumption blocks
- **Seasonal Time-of-Use (TOU) w/o demand**
  - Base charge and applicable demand charge
  - Peak and off-peak energy charge
- **Seasonal TOU with demand rates**
  - Base charge
  - Demand charge based on each customer's monthly peak load
  - Peak and off-peak energy charge
- **Retail TRM rate**
  - Mimic BPA's wholesale TRM rate structure with base charge recovering up to 90% of revenues, load shaping charges/credits, marginal demand rates and Tier 2 rates at market prices

# Retail Rate Design Options

## Evaluation

Rate Design Goals	Existing Melded	Inclining Block w/o Demand	Time-of-Use w/o Demand	Time-of-Use w/ Demand	Retail TRM
Revenue Risk from Fixed Charges	Highest Risk	Variable Risk	Variable Risk	Variable Risk	Lowest Risk
Impacts which Customers Adversely?	NA	High consumption customers	High consumption customers	High consumption customers	Low consumption customers
Encourages Conservation	Yes	Yes	Yes	Yes	No
Encourages Demand Response	No	No	No	Yes	Yes
Encourages Shifting Loads to Off-Peak Periods?	No	No	Yes	Yes	Yes

# Retail Rate Design Options Evaluation

Rate Design Goals	Existing Melded	Inclining Block w/o Demand	Time-of-Use w/o Demand	Time-of-Use w/ Demand	Retail TRM
Added Rate Administration Complexity	Low	Medium	Medium	Medium	Very High
Encourages Economic Development	Neutral	Neutral	Neutral	Neutral	Very Negative

# Retail Rate Design Recommendation

- **Seasonal Time-of-Use with a demand charge is the recommended rate design for all customer classes**
  - Winter and summer seasons
    - Customer base charge
    - Peak and off-peak energy charge
    - Inclining block demand rate
  - Similar to City's current Municipal Water Pump rate design and an optional time-of-use rate schedule available to all City Electric Utility customers since 2007
- **Sends correct price signal without too much complexity**
  - Complies with Public Utility Regulatory Policy Act (PURPA)
- **Encourages customers to**
  - Shift energy loads to lower-priced off-peak hours
  - Reduce peak demand and winter energy consumption
- **Peak and off-peak energy should reflect BPA's time of use periods**
  - Demand may be modified to reflect City's requirements

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# Retail Rate Design Recommendation

## ■ Ramp up conservation efforts

- Seasonal rate means that energy is priced correctly in the winter months
  - Higher winter energy rate sends an appropriate rate signal
  - Reinforces conservation program efforts in areas such as insulation and heat pumps
- Demand response projects for all customer classes
  - Avoid exceeding contract demand quantity, maintain similar load shape to BPA, and mitigate critical peak periods

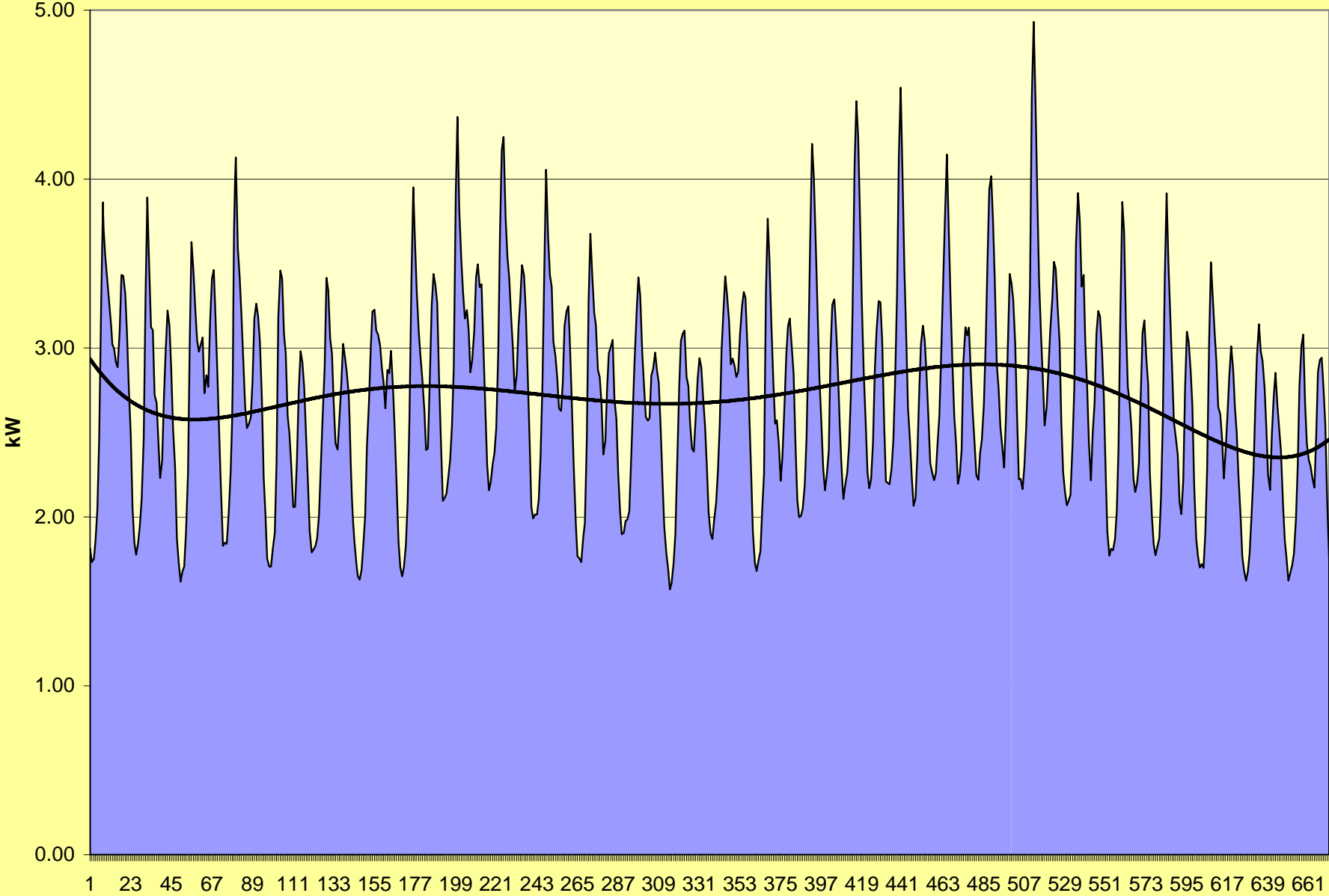
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# What is Demand?

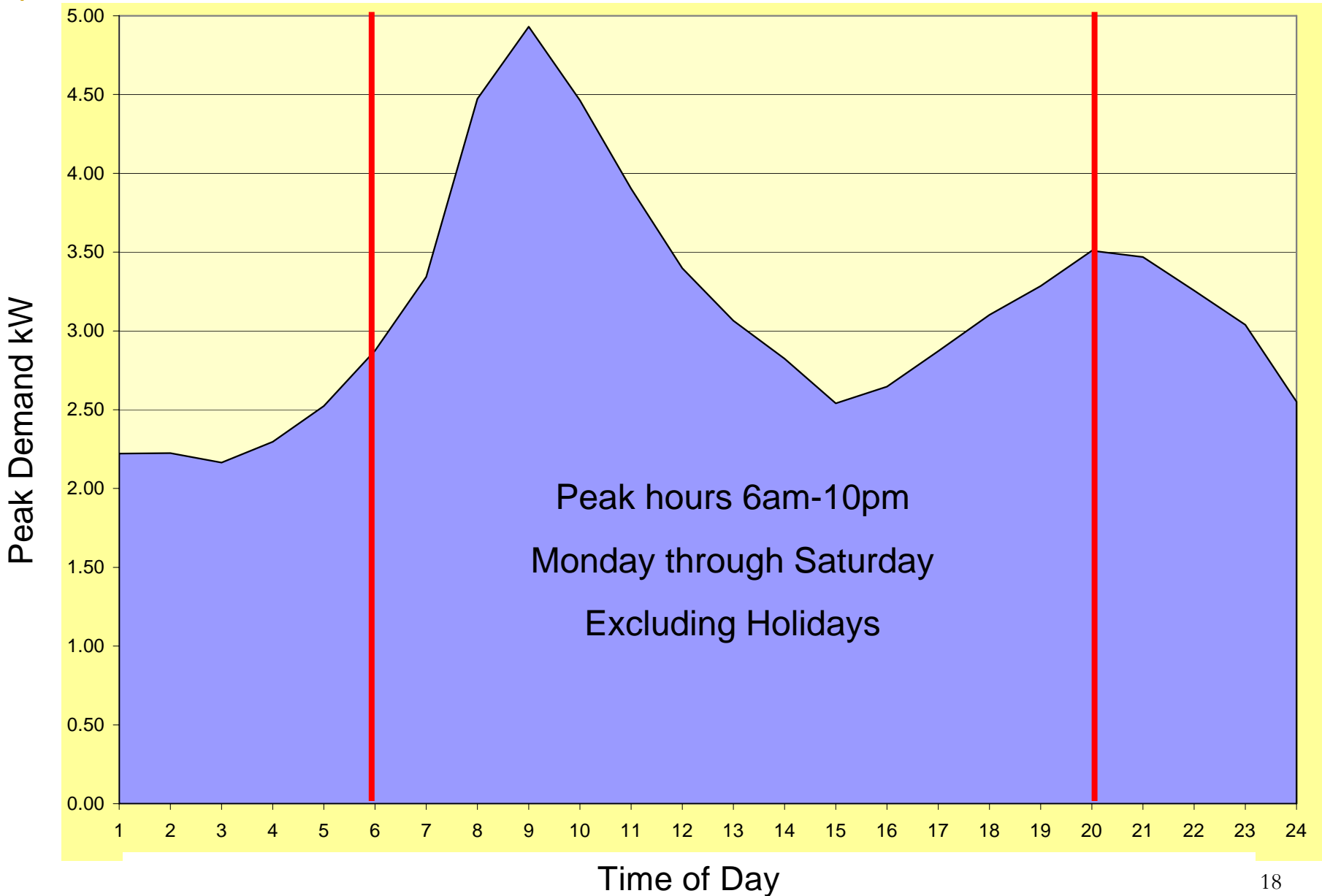
- Demand (kW) is the highest peak hour rate of energy consumed over a meter reading period
  - Current retail demand rates are from \$3.35/kW to \$4.15/kW, depending on rate class
  - New Tier 1 wholesale demand rate anticipated \$8.50/kW
    - Coincident with distribution system peak vs customer peak

I Street - 1201 Feeder  
February 2010 Average Home Demand

R<sup>2</sup> = 0.0509



# What is Demand?

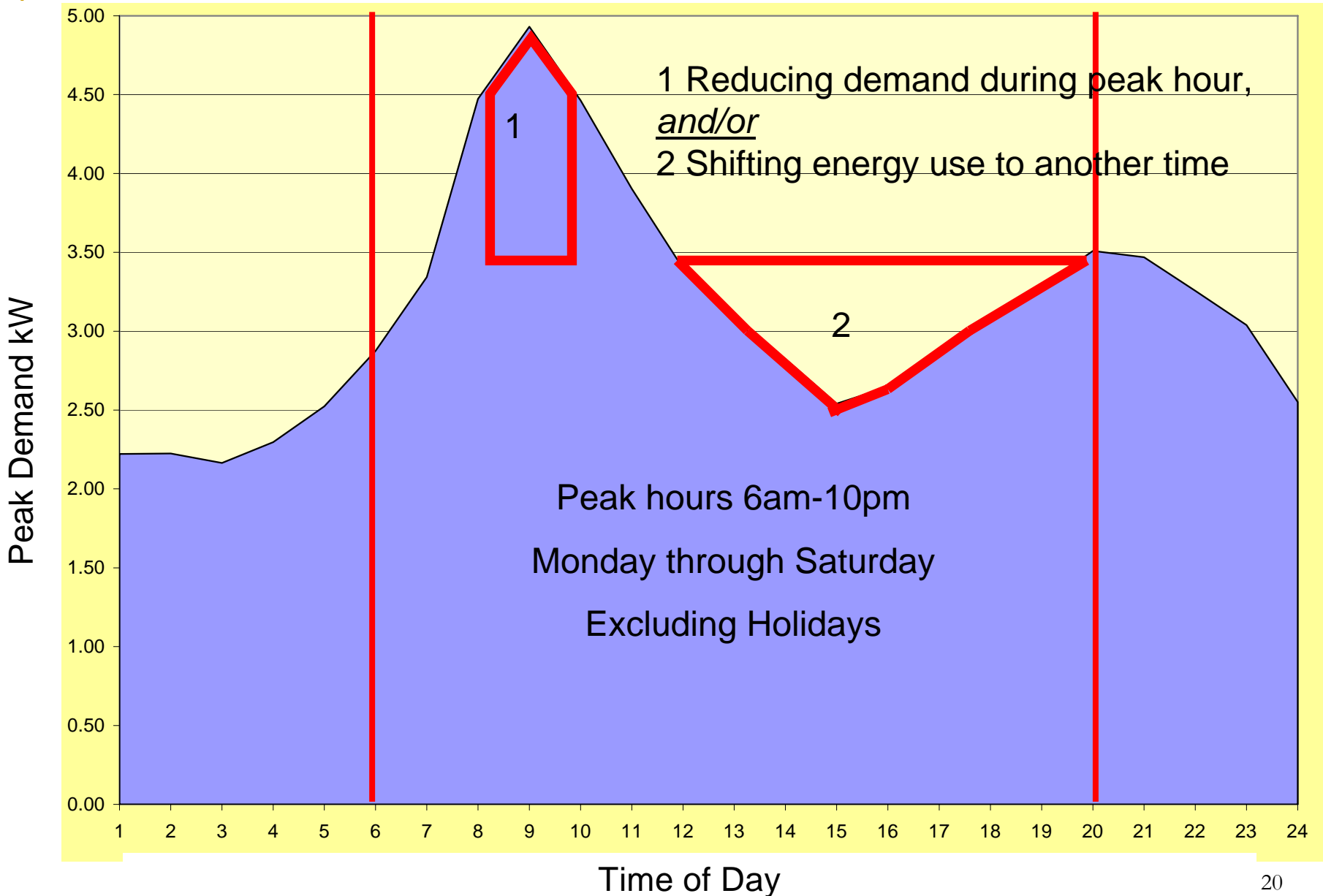


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# What is Demand Response (DR)?

- Changes in consumption patterns in response to changes in electricity prices during a specific time period
  - DR reductions are usually needed during peak times in the winter and summer

# What is Demand Response?



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# Demand Response Strategies

- There are three basic demand response strategies:
  - **Load shedding** (curtailment), simple, shuts off a device during peak events, typically fewer than 10 times/year
  - **Load shifting**, more sophisticated, moves loads away from heavy load hours and system demand peaks, sometimes by preheating or precooling, other times by delaying an activity (clothes dryers, dishwashers, etc.)
  - **Load shaping**, very sophisticated, constantly fine-tunes system consumption and demand in real time to resemble generation system load shape

# Retail Rate Design Recommendation

- **Consider increasing residential monthly base charge**
  - Model suggests base charge is too low
    - Base charge of \$11.00 unchanged since 1993; CPI adjusted value equals \$16.61 in current 2010 dollars
  - Discount Customer impact considerations

Residential Customer Monthly Base Charge Comparison								
Mason #1 PUD	Puget	Tacoma Power	Port Angeles	Clallam PUD	Mason #3 PUD	Grays Harbor PUD	Peninsula Light	Seattle
\$16.60	\$7.25	\$5.50	<b>\$11.00</b>	\$15.00	\$15.00	\$11.00	\$16.39	\$3.50

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# Proposed Timeline

- August 2010
  - Consideration and approval of rate design by City Council
- September 2010
  - Incorporate rate design into AMI system agreement
- October 2010
  - Internal and external communication plan activities begin
- June 2011
  - AMI System and residential DR installation complete w/ new rate design embedded
- Fall 2011
  - BPA Wholesale TRM becomes effective
  - New retail rates set by City Council
- January 2012
  - New retail rates become effective

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# Recommendation

- Approve the findings and recommendations of the Retail Tiered Rate Methodology Study to incorporate a seasonal time-of-use rate with demand into the Advanced Metering Infrastructure Project, which will be used to set retail rates for all Electric Utility retail customer rate classes in the fall of 2011

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# Questions?

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