Request for Input on Non-Integrated Area Rates, Terms & Conditions and Customer Service

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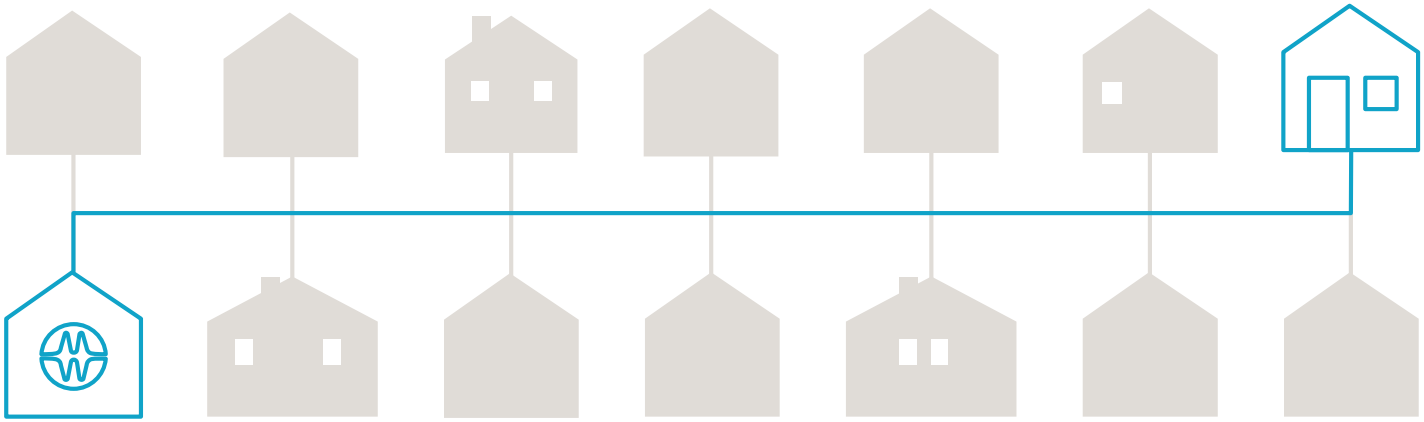

January 2017

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Why are we here today?

- To seek input from you on the
    a) Design of Zone II electricity rates;
    b) Terms & Conditions of Service; and
    c) Customer Service Improvements

for Non-Integrated Areas as we consider what, if any, changes are needed and should be applied for with the BC Utilities Commission.

Your input and input from other customers will be considered as we prepare our rate design application expected to be filed later in 2017.

The Rate Design Process

- Our Rate Structures and Terms & Conditions of Service are reviewed periodically by the BC Utilities Commission
- We develop a Rate Design Application which examines whether any changes are needed and proposes changes in some cases.
- In developing the Application, we seek input from Customers, First Nations and Stakeholders.
- Customers, First Nations and stakeholders can participate in the Commission's public review process
- Commission considers the merits of proposed changes and must approve any changes to the Rate Structures and the Terms & Conditions of service.

What is Rate Design?

Some questions we ask…

- Is the rate understandable to customers?
- How do your rate structures compare with other rates for remote customers in North America?
- Are costs spread fairly amongst customers?
- What influences customers' electricity use?
- Does the rate encourage efficient electricity use?
- How do the rates align with Government Policy (e.g. "Postage Stamp" rates, Climate Leadership Plan, etc.)
- What might some options look like?

Are there other questions or issues that you think we should be considering?

Rate Design Application

Module 1 (2015)

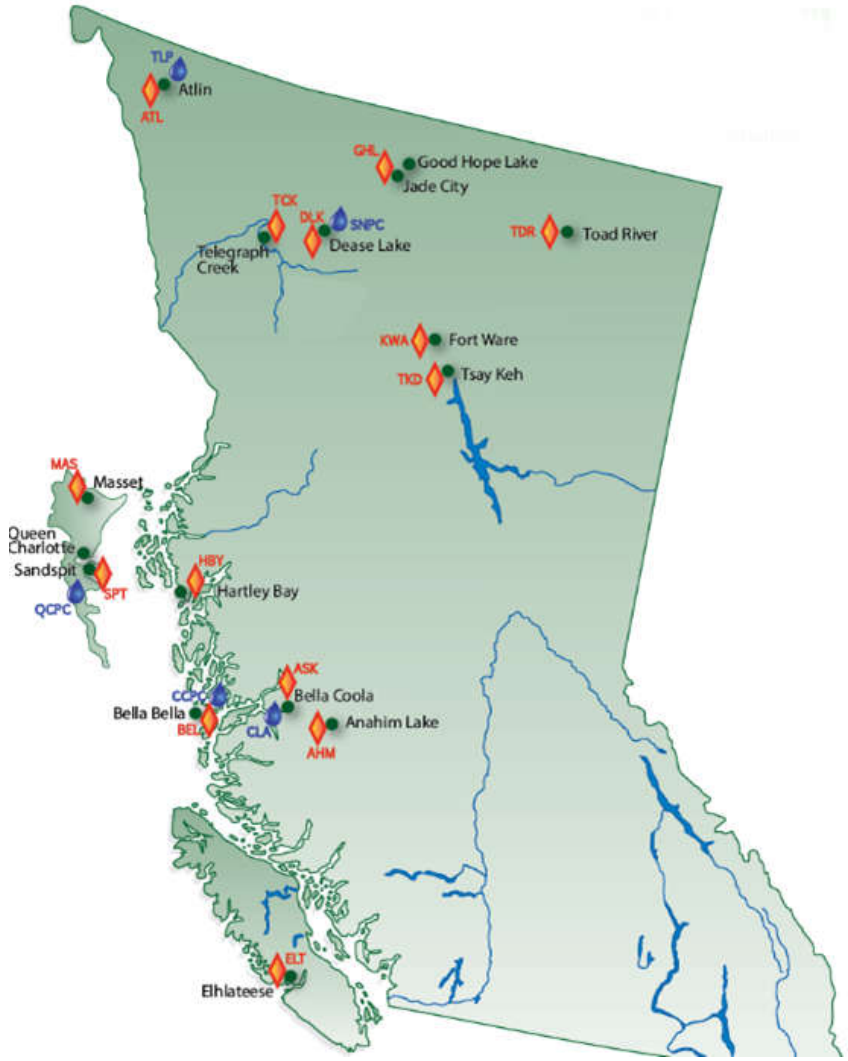
- Filed in September 2015 / Decision issued on January 20, 2017
- Reviewed main rates for customers on the Integrated System (**Rate Zone I**) and general terms and conditions of service

Module 2 (2017)

- Looking at rates, terms and conditions that apply to customers not connected to our Integrated System (**Rate Zone II and IB**), including:
  - Residential rates
  - General Service rates (commercial & other customers)
  - Terms and Conditions of Service
  - Extension policy (fee for new customers connecting to the electrical system)
  - Street lighting rates (apply to BC Hydro's entire service territory)

Non-Integrated Area Overview

- About 6,800 customer accounts
- 14 remote service areas and 2 rate zones
  - **Zone IB** – Bella Bella District; served by hydroelectricity
  - **Zone II** – All other customers; mostly served by diesel



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Key Electricity Terms

Demand

- Amount of electricity used at a particular point in time
- Common unit of measurement is the Kilowatt or kW, which is equal to 1000 watts; e.g. 10 x 100 watt lightbulbs would use 1 kilowatt of electricity.
- Demand for electricity is charged for in rates for larger commercial customers (e.g. – hospitals, offices, processing plants, etc.)

Energy

- Describes the amount of electricity used over a period of time
- Unit of measurement is the Kilowatt Hour or kWh, which is equal to the electricity consumption of 1,000 watts over an hour period of time (e.g. 10 x 100 watt lightbulbs turned on for 1 hour).
- All customers are charged for the energy consumed

Zone II Rates

Three Zone II specific customer rates: Residential, Small General Service and General Service

- Two main components to these rates:
  - **Basic Charge** – Fixed daily charge for fixed customer service costs
  - **Energy Charge** – Variable charge based on energy consumed; demand also a factor for General Service rates.
- Rate structures largely unchanged over the last 20 - 30 years

Zone II Rates (Continued)

The total revenue collected from all Zone II customers is less than the total cost of serving all Zone II customers. The cost of electricity generation and service in remote communities is higher; the difference is recovered from Zone I customers.

Rates partially incorporate the principle of “postage stamp” rates across BC while also encouraging efficient energy use:

- Basic charges and first tier portion of energy use based on the current Zone I rates
- The second tier portion of energy is priced higher to cover some of the higher cost of serving Zone II customers.

Zone II Residential Rate

Basic charge

- **19.57 ¢** per day
- Applies to each single family dwelling

Energy charge

- Electricity use measured in kilowatt hours (kWh)
- First 1500 kWh of electricity use per month is **9.93 ¢** per kWh
- Over 1500 kWh is **17.07 ¢** per kWh

Comparison of Zone II and Zone I Residential Rates

Rates (as of October 2016)	Residential Zone I Rate (Residential Inclining Block)	Residential Zone II Rate
Basic Charge (¢ / day)	18.35	19.57
Consumption Threshold (kWh/month)	675	1,500
Rate up to Threshold (¢ / kWh)	8.29	9.93
Rate above Threshold (¢ / kWh)	12.43	17.07

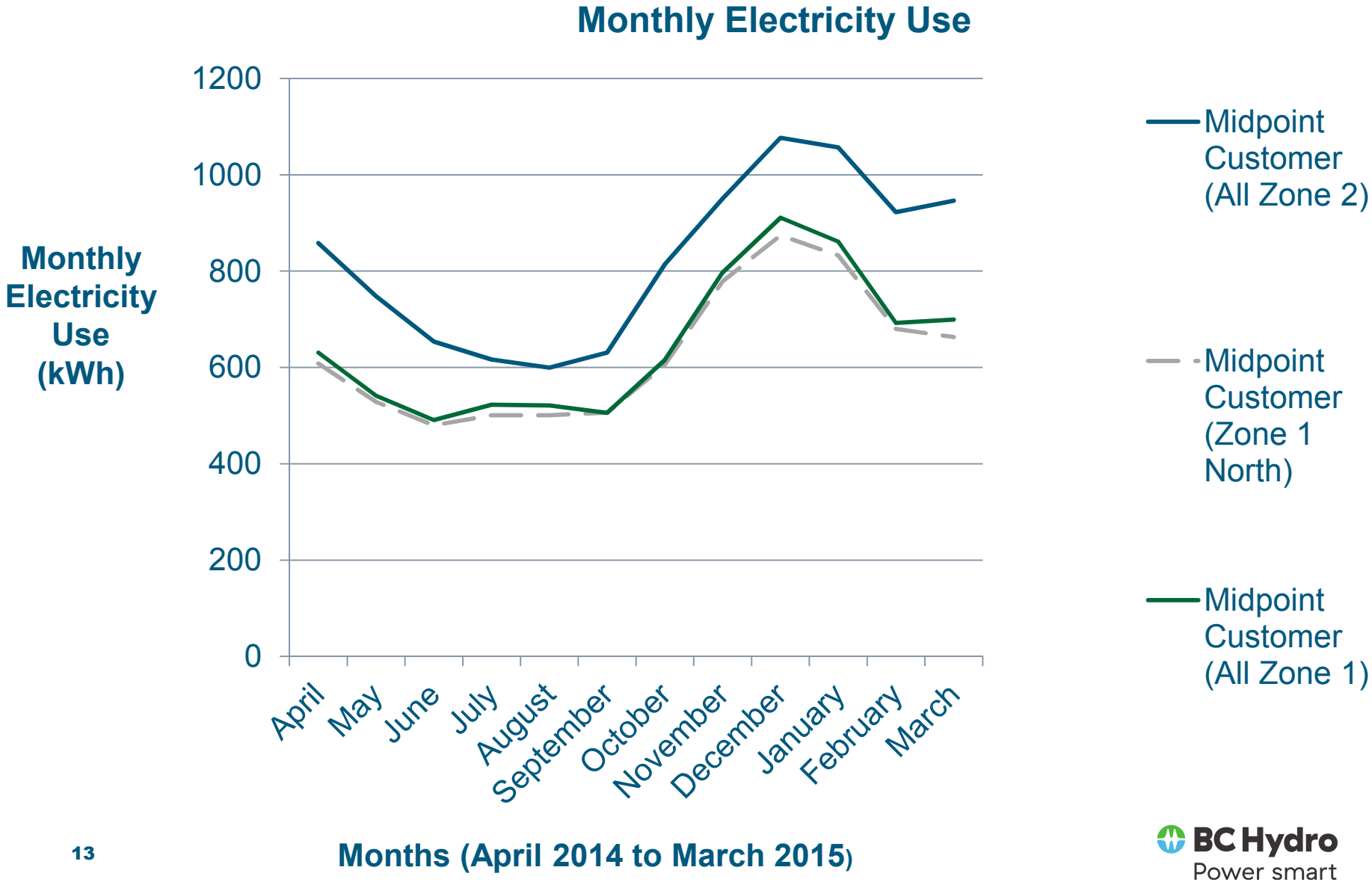
- Residential customers in Zone II do not always pay more than Zone I customers
- Whether a customer is better off on the current Zone II versus Zone I residential rate depends on the amount of electricity used

Rate Approaches for Remote Residential Customers in other Provinces and States

Manitoba, Ontario, Quebec, Newfoundland & Labrador and Alaska

- Rates based on remoteness from system
- Customers pay an initial energy charge generally based on what residential customers on the integrated system pay and are then charged higher rates for electricity use above set thresholds
- In Manitoba, residential customers only charged one energy price equal to that of non-remote customers but electrical service is restricted to 60 amps (7200 watts)
- Lower thresholds at which the second tier (higher energy charge) applies in these jurisdictions

Average Residential Electricity Use



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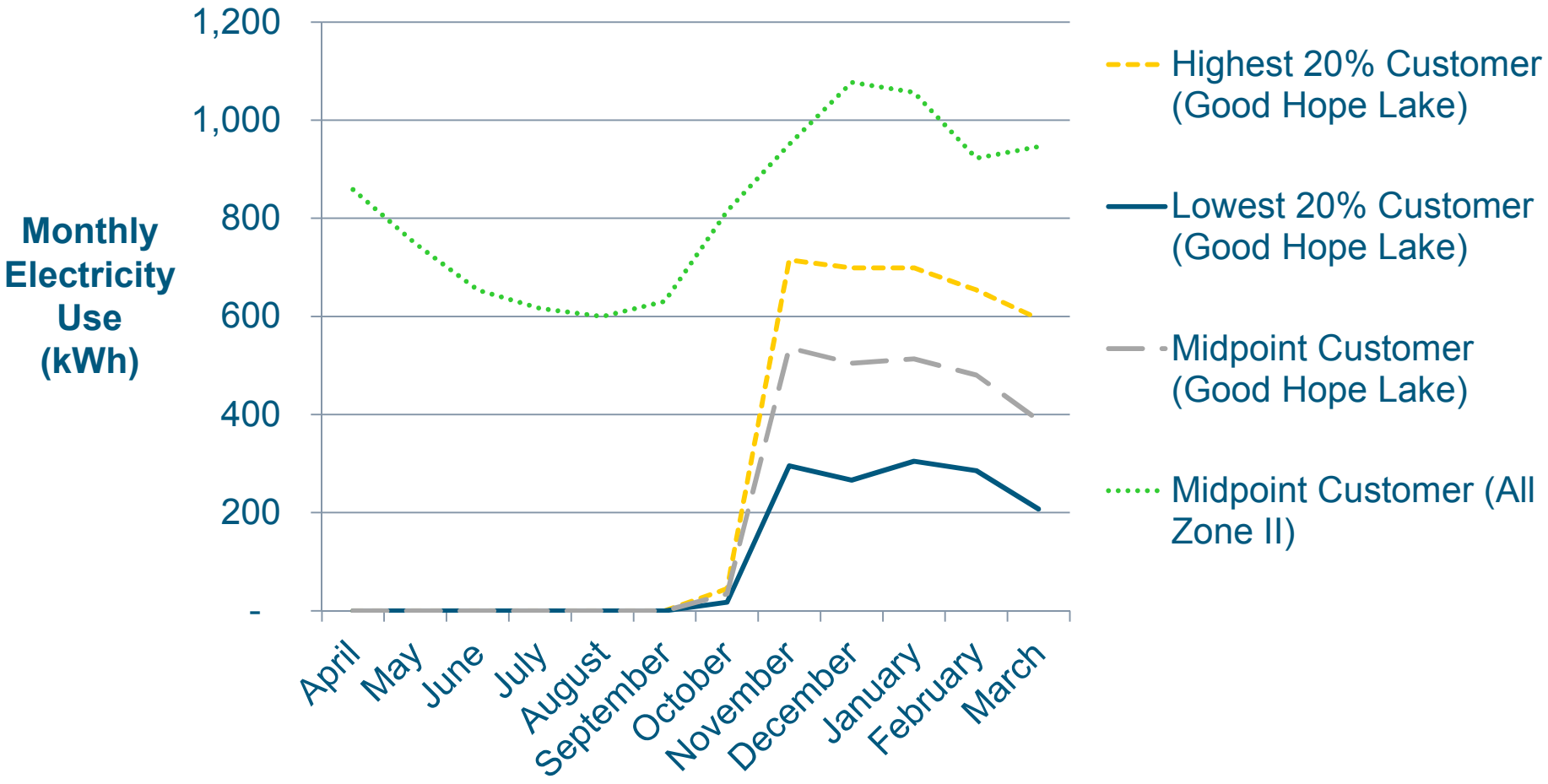
Good Hope Lake Residential Electricity Use

Unique Circumstances

- Good Hope Lake and Jade City became BC Hydro customers in October 2015 and are the newest communities to join BC Hydro's Non-Integrated Areas as a Zone II customer
- Limited consumption information compared with other Zone II communities
- The following graph covers the first six months of consumption as BC Hydro customers from October 2015 to March 2016 (Fall 2015 to early Spring 2016)
- Winter is the highest consuming period for most BC Hydro customers

Good Hope Lake Residential Electricity Use



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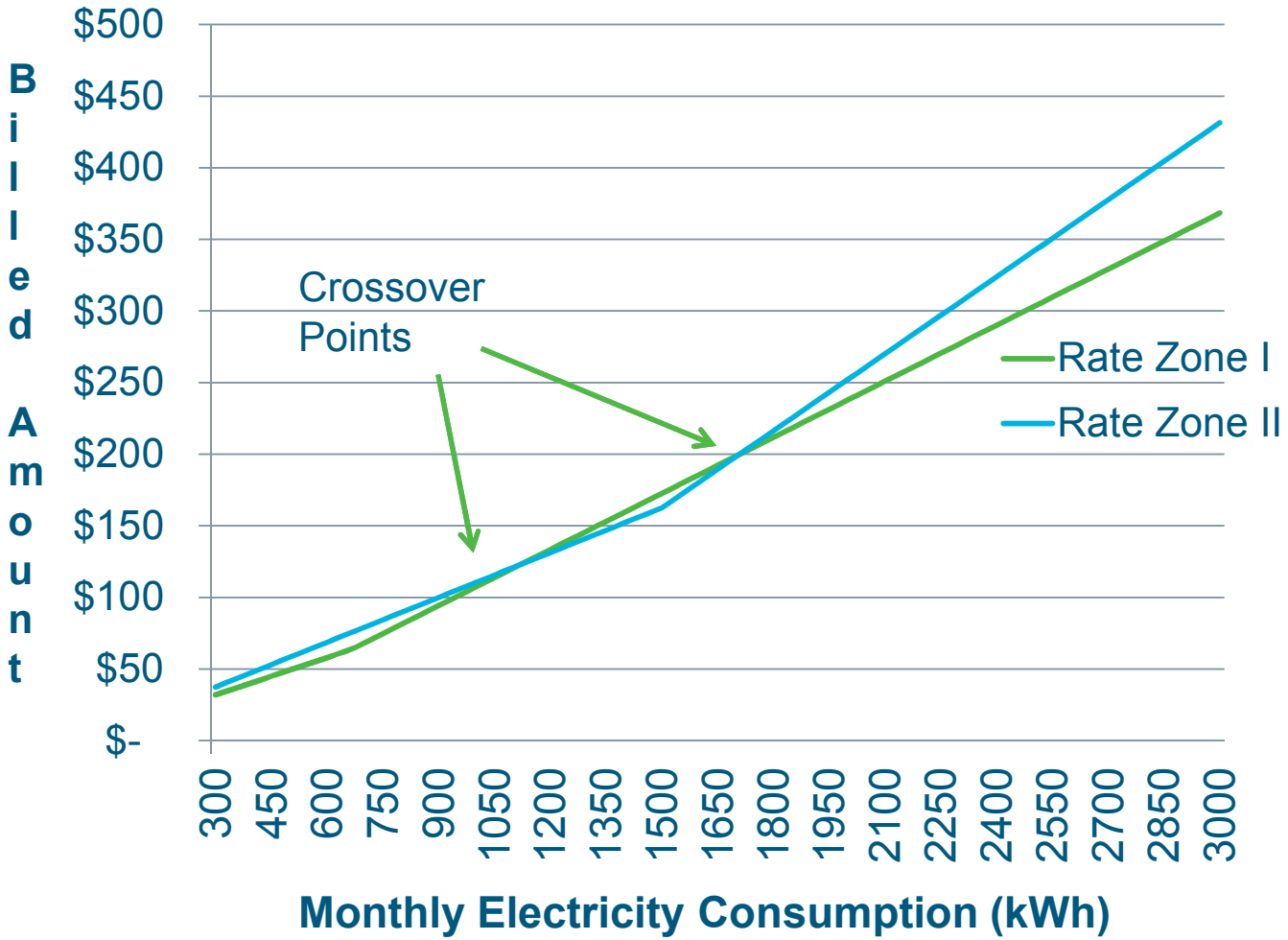
Rate Zone II and I Residential Customers Monthly Bill Comparison



- Electricity bills for customers on Zone I and II residential rates are similar but Zone II bills are more expensive at higher consumption levels

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Who is more likely to be a high user of Electricity?

Results of a 2012 survey of Zone II residential customers identified the following factors correlated with higher levels of electricity use:

- Homes: Single detached homes (+ 2500 square feet, full basement, heated garage/ workshop, built between 1976 and 1985)
- Household: account holder 35-54 years old, 4+ residents, lived in year round
- Appliances: 1 or more full freezers, dishwasher, TV, Internet Router, +30 lightbulbs
- Part or full-time business operated at residence
- Electricity as main heating fuel source:
    - Electric space heating (baseboard &/or portable heaters)
    - Electric water heating (larger hot water tanks (over 180L or 40 gallons))

What makes Zone II usage different from other residential customers?

Differences between Zone II vs Zone I Residential Customers

- Higher percentage of single detached homes and mobile homes in Zone II
- Water heating almost entirely heated by electricity in Zone II whereas most Zone I customers in single detached homes heat water with natural gas

Similarities between Zone II vs Zone I Residential Customers

- Percentages of residents per account quite similar across Zones II and I
- Percentage of customers using electricity for space heating similar across Zones II and I

BC Hydro planning to look at the data further to see if there is more information that would help us to understand how Zone II customers use electricity.

Are there any other customer characteristic questions or issues that you think we should be considering?

Zone II Small General Service & General Service Rates

Rates

- Small General Service – Customer demand is less than 35 kW
- General Service – Customer demand is 35 kW or greater

Basic charge

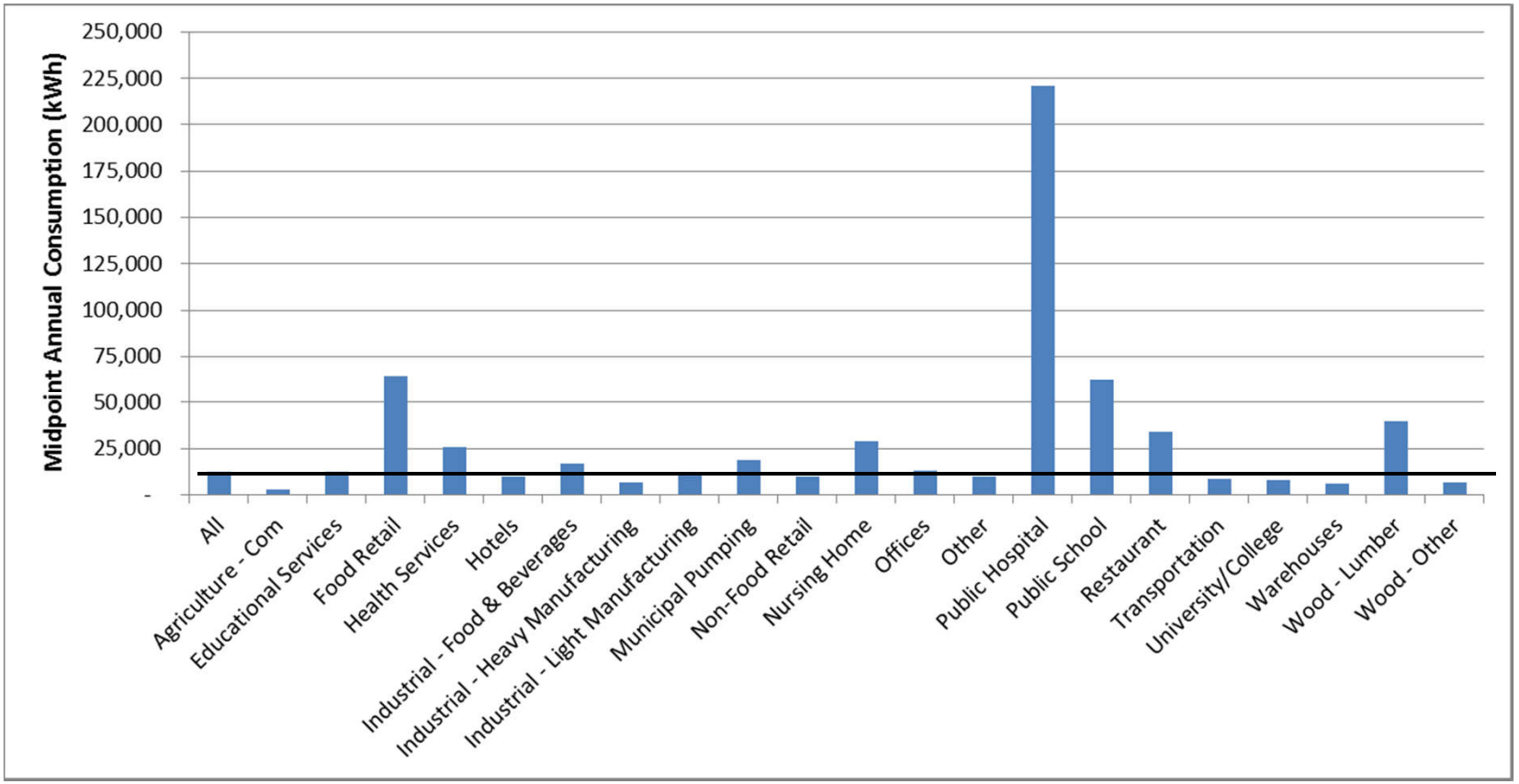
- **23.47 ¢** per day

Energy charge

- Initially **11.16 ¢** per kWh up to a certain consumption threshold and **18.58 ¢** per kWh beyond threshold amount
- Threshold for Small General Service customers is 7000 kWh / month
- Threshold for General Service Customers is 200 kWh per kW of electricity demand
    - Discounts available if customer uses their own transformer or takes electricity at higher (primary) voltage;
    - Minimum charge based on Zone I rates

Zone II Small General Service & General Service Rates

Annual Electricity Consumption (Mid-Point Customer Type)



- Electricity consumption varies widely by type of business/organization

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Possible Rate Options

- Presenting a few broad options for discussion
- We do not currently have a leading or preferred rate option for Zone II customers
- Seeking your input regarding these rate options which will help inform BC Hydro's preferred option
- Evaluation considers a number of factors including fairness, bill impacts and customer understanding

Potential Options

1. Status Quo (No Changes)
2. Apply Zone I rates in Zone II
3. Full Cost Recovery - Increase Zone I rates to cover Zone II cost of service
4. Retain separate rates but make changes to the rate structure

Option 1 – No Change to Rate Structures

No bill impacts for this option

Pros

- Stability of rate structure as current rates have been in place for a long time
- Because the basic charge and the first tier of the energy use are based on Zone I rates, it partially reflects a province-wide “postage stamp” approach:
  - As a majority of Zone II customers do not exceed the threshold between the Tier 1 and Tier 2 energy charge, most customers already pay equivalent of Zone I rates
  - Higher consuming customers are subject to a higher energy charge that encourages conservation during the winter heating season and is closer to the cost of generation
- Tier 2 energy price appears to have historically discouraged electric space heating in Zone II:
  - Percent of residential customers who have reported using electricity as a space heating fuel is lower in Zone II than in Zone I despite natural gas not being available
- No administrative changes required

Option 1 – No Change to Rate Structures

Cons

- Rate structures do not fully reflect “postage stamp” principle
- Continued under recovery of costs from Zone II customers
- Unlike Zone I residential rate structures, the residential energy charge threshold of 1,500 kWh per month only encourages conservation from the highest consuming customers

Option 2
Make Zone II rates the same as Zone I

Bill Impacts

Residential Customers

- Over 90% of residential customers would see some reduction in their bills over a 12 month period.
- Typical Zone II customer bills would go down by around 8% or $65 over a 12 month period.
- Highest and low consuming customers would see the largest bill reductions.

Small General Service Customers

- About 70% of customers would see some increase in their annual bills.
- Typical Zone II annual customer bill would go up by about 1% or $16.
- Highest consuming customers would see bill reductions as they wouldn't be exposed to a Tier 2 energy charge.

Option 2
Make Zone II rates the same as Zone I

Pros

- Having the same rate for Zone I and II customers is consistent with the “postage stamp” principle.
- Applying the same rates for both Zone I and II customers will reduce both the number and complexity of rates and should be easier for BC Hydro to administer.
- While this option would increase the under recovery of costs from Zone II customers by $1-$2 million, Zone I customers would be minimally impacted (rates would increase by a fraction of a per cent).
- Zone I rates as proposed are no more difficult to understand than Zone II rates.

Option 2
Make Zone II rates the same as Zone I

Cons

- Option does not address and slightly increases the under recovery of costs from Zone II customers
- The Zone I residential rate is designed around the Zone I customer use profile (i.e. – it doesn't reflect Zone II usage profiles, which are 100-200kWh/month higher than Zone I

Option 2
Make Zone II rates the same as Zone I

Additional Considerations

- Because the Tier 2 energy charge for Zone I residential customers is lower than which exists for Zone II, customers may use more electricity which could:
  - Create electric system constraints, which could require increased investment
  - Increase the amount of under recovered costs from Zone II customers;
  - Increase the level of greenhouse gas emissions

Other Options

Full Cost Recovery

- Increase revenue from rate to equal cost of service
- Encourages fair apportionment of costs among customers
- Would significantly increase costs (and bill impacts) for Zone II rate customers by a factor of 3 – 4.
- Departure from postage stamp pricing principles compared with Options 1 or 2

Retain Separate Rates for Zone II customers but make changes to the rate structure

- Adjust energy charges
- Relook at thresholds

Do you have a preference for one of the potential options shown?
Aside from paying the lowest cost, are there other factors or rate options that you think we should be considering?

Street Lighting Rates

Rates for Customer-Owned Overhead Streetlights and BC Hydro-Owned Streetlights

- Postage stamp rates apply across BC Hydro service territory
- BC Hydro-owned street light rate based on a fixed monthly rate per type of light fixture and its wattage, which covers the capital, operating and maintenance costs of installed equipment.
- Customer-owned street light rate based on a monthly wattage or an energy charge (if metered).

Street Lighting Rates

BC Hydro's focus in Module 2 is developing a proposal for BC Hydro-owned LED street lights, which consume less energy and have lower maintenance costs, but higher capital cost than traditional streetlights.

- Currently evaluating LED equipment from multiple sellers
- Meeting with customers across BC to understand lighting preferences, technical requirements and to seek input on roll-out options for LED lighting.

Terms & Conditions of Service

- General Terms & Conditions apply to all BC Hydro customers

- Last reviewed in the 2007 Rate Design Application
- Currently under review as part of Module 1 Application
  - We proposed updates to the standard charges to reflect actual costs and to make it easier for customers to understand
  - We made a commitment that we would seek input from Non-Integrated customers on proposed changes to Terms & Conditions of Service as part of Module 2

Proposed Changes to Standard Charges for all Customers

Standard Charge	Current	Proposed	Rationale
Minimum reconnection charge	$125	$30	Reflects current cost
Late payment charge	1.5% / month	1.5% / month	Recover costs & encourage payments
Returned cheque / payment charge	$20	$6	Reflects actual costs paid to bank
Account Charge	$12.40	$12.40	Reflects current cost
Meter Test Charge	$125	$181	Reflects current cost
Security Deposits	2-3 times average monthly bill	Up to 2-3 times average monthly bill	Flexibility to better reflect risk of non-payment

- In Module 1, BC Hydro proposed some changes to standard charges to reflect current cost and circumstances
- Most charges either unchanged or reduced

Distribution Extensions

A Distribution Extension is required where the local electrical distribution system needs to be expanded or improved to serve a customer.

Examples include:

- Building a distribution line to extend the distribution system to reach a new home, subdivision, or building where no electrical service exists,
- Building to a distribution line or replacing transformers to meet an existing customer's increased needs.

Distribution Extensions

For Distribution Extensions, Zone II customers are required to pay:

- Service connection charge (the cost to install the meter and the service wire);
- Estimated construction cost of the extension (e.g. poles, wires, transformers, etc.) plus the present value of net operating and maintenance costs;

Also, if the customer and BC Hydro both agree, BC Hydro may also assume ownership and maintenance of customer-built distribution facilities on private property subject to both an inspection fee and the customer paying the present value of operating and maintenance costs, provided they are built to BC Hydro's construction standards.

We are currently planning to seek input from stakeholders in respect of BC Hydro's Distribution Extension policy in early 2017. If you would like to be added to the distribution list for this activity, please contact bchydroregulatorygroup@bchydro.com by January 13, 2017.

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Customer Service Improvements

Considering improvements to customer service in the Non-Integrated Area:

- Posting our business practices for customers on our website
- Extending repayment periods, looking at how changes can be made to allow for someone else to guarantee customer credit (as alternative to security deposit)
- Piloting a winter moratorium on residential disconnections for non-payment in 2016/2017; delaying disconnections for medical reasons
- Establishing a Low Income Advisory group
- Looking into coordination of INAC housing funded projects with Electricity Conservation Assistance Program (ECAP) upgrades

What other customer service issues facing remote communities should we consider?
How can we make the above initiatives efficient and workable?

Next Steps

We will continue to seek input on the design of electricity rates for Non-Integrated Areas as we consider what, if any, changes are needed and should be applied for with the BC Utilities Commission in Summer 2017.

We would appreciate your input and comments on Zone II rates structures, terms and conditions and the materials covered in this presentation by January 13, 2017.

Contact Information:

- **Email:** bchydroregulatorygroup@bchydro.com

  Indicate “Attention 2015 RDA” in the subject line.

- **Mail:** BC Hydro - Regulatory Group – Attention 2015 RDA
  16th Floor, 333 Dunsmuir Street
  Vancouver, BC V6B 5R3

- **Web:** 2015 Rate Design Application Website: www.bchydro.com/2015rda

Request for Input on Non-Integrated Area Rates, Terms & Conditions and Customer Service

Questions & Comments

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Request for Input on Non-Integrated Area Rates, Terms & Conditions and Customer Service

Supplemental Information

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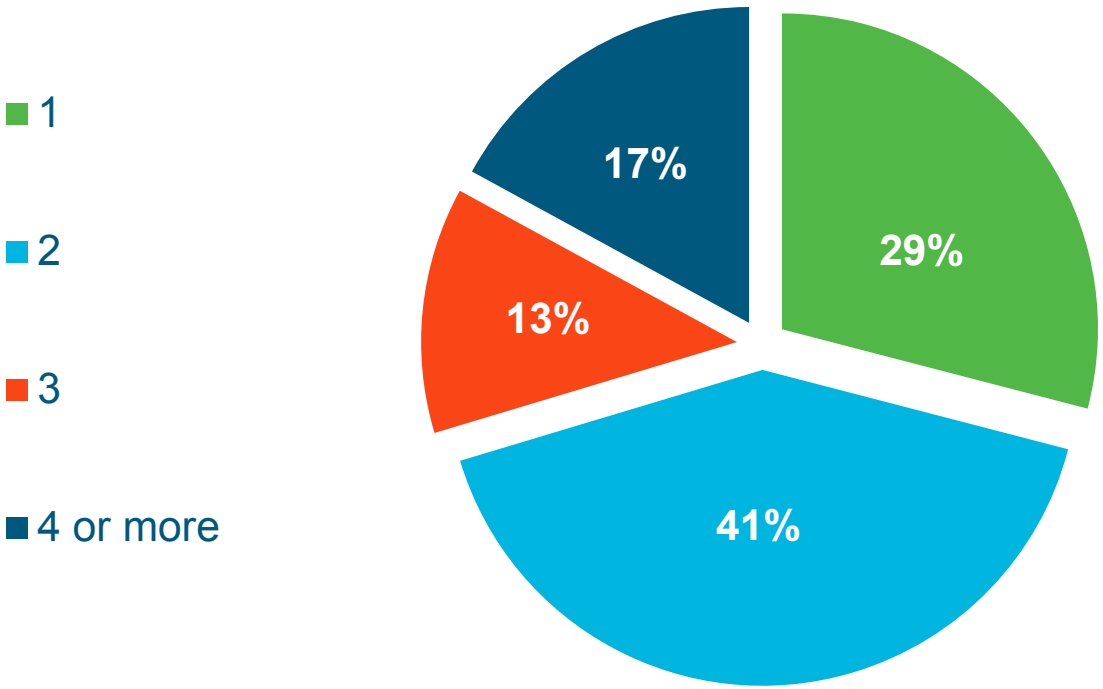
Residential Customer Characteristics

Residents Per Account

- 70% of Zone II accounts (1 or 2 customers living in home)
- Quite similar overall to split of other Zone I customers (1-3% difference)



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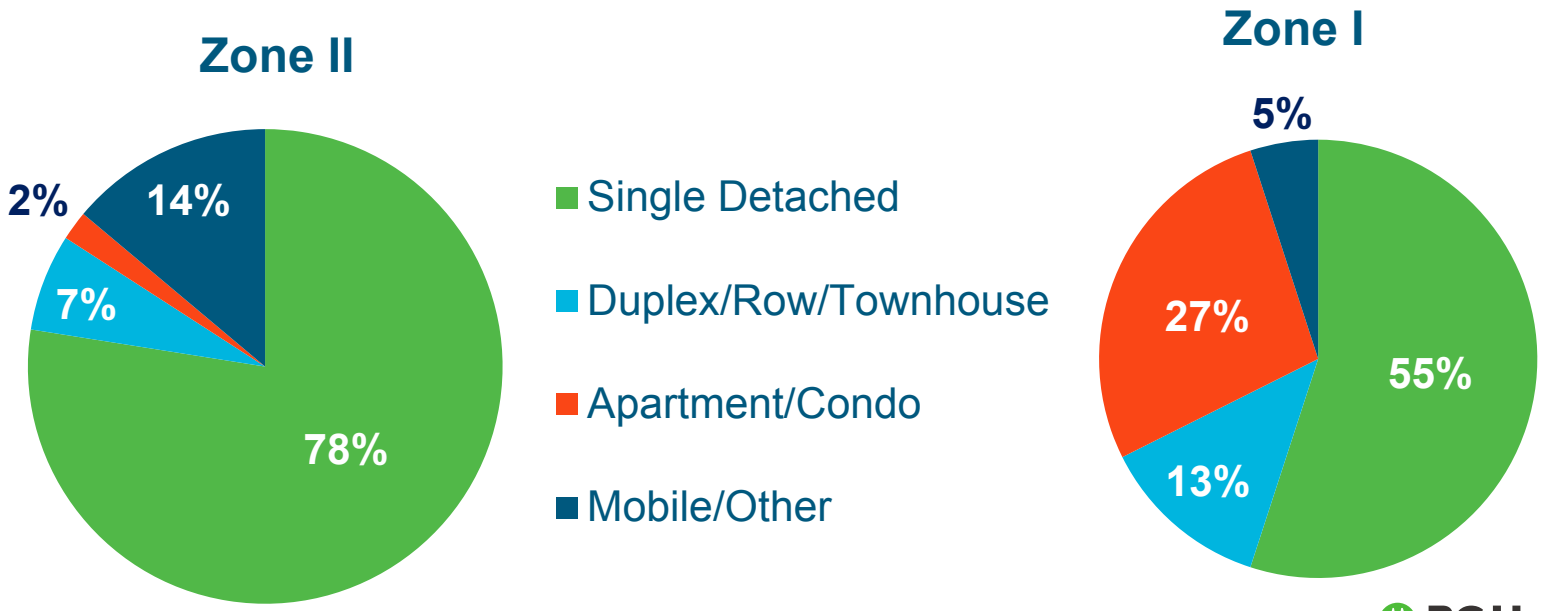
Residential Customer Characteristics

Dwelling (Housing) Type

- Much higher proportion of accounts for single family homes and mobiles than for residential customers in Zone I
- Smaller proportion of apartments and townhomes than in Zone I



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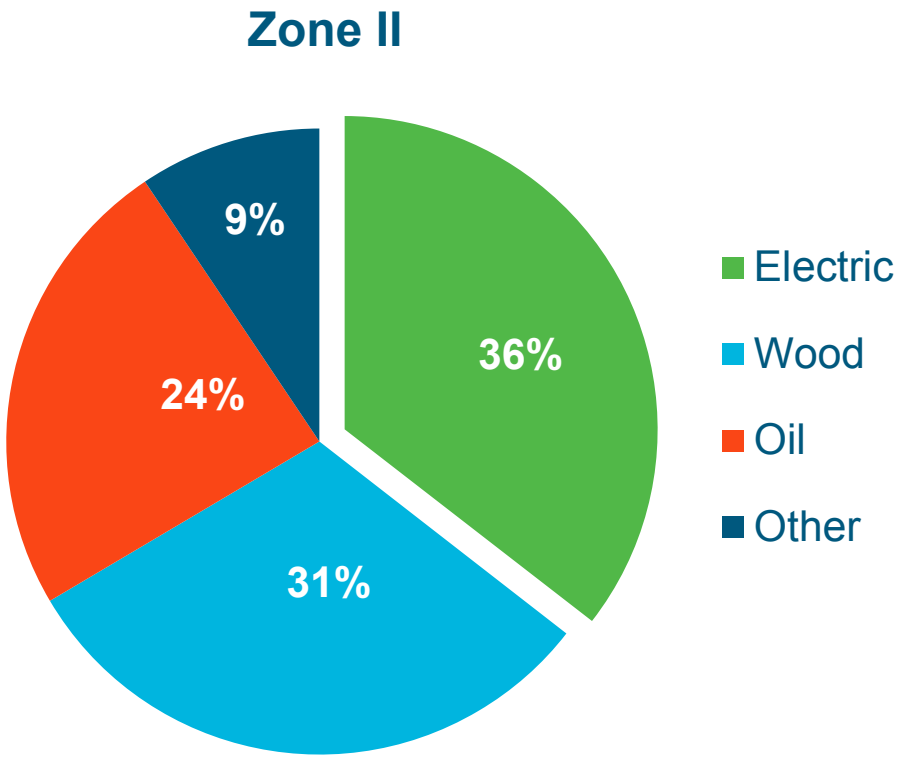
Residential Customer Characteristics

Main Space Heating Fuel



- Percentage of Zone II and Zone I customers choosing electric similar at (36% vs 41%)
- Electric space heating used less in both Zone II and I for single detached homes (32% and 29% of accounts)
- Natural Gas used by just over half of Zone I customers (not available in Zone II)

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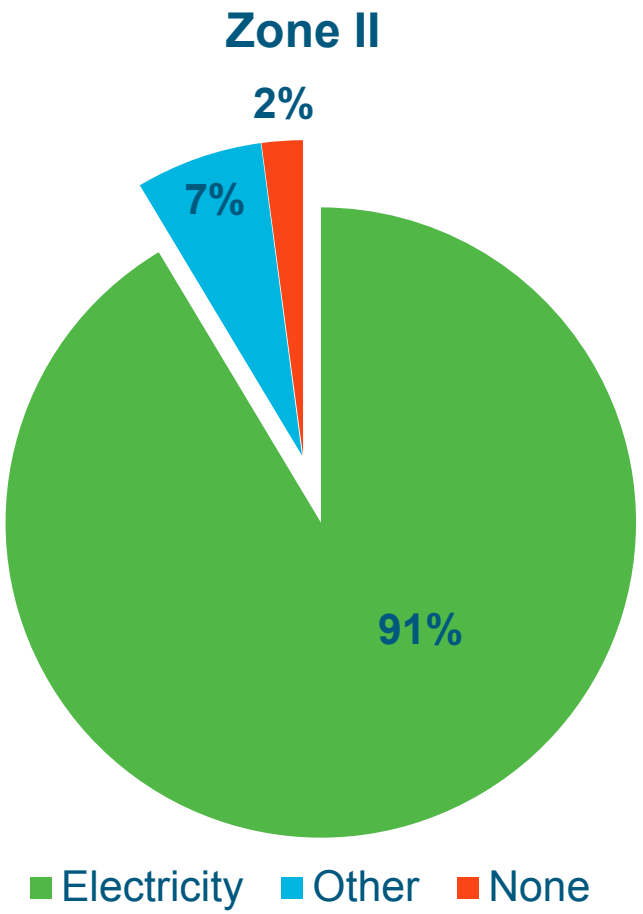
Residential Customer Characteristics

Main Water Heating Fuel



- For all dwelling types in Zone II, over 90% of main water heating is electric
- Far fewer residential Zone I customers heat water with electricity (36%)
- Most residential Zone I customers in single detached homes use natural gas for water heating (not available in Zone II)

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Typical Electricity Use by Appliance

Purpose	Appliance(s) & Frequency	Average use per month (kWh)		Average use per 60 day billing period (kWh)	
Lighting	4 * 100 incandescent bulbs lit for 5 hours per day.	60.8		120.0	
Lighting	4 * 18 watt LED bulbs lit for 5 hours per day.	11.0		21.6	
Cooking	Electric Range (usage varies widely - 1 hr per day used)	42.9		84.7	
	Microwave (30 min / day)	22.9		45.2	
	Coffee Maker (40 times/month)	10.4		20.5	
Hot Water	Electric Water Heater (Household of 2)	215.0		424.1	
	Electric Water Heater (Household of 4)	430.0		848.2	
House Cleaning	Vacuum Cleaner (4 times/month for 1 hour)	4.2		8.2	
Clothes Cleaning	Washer (Front vs Top Loading) - 33 Loads	10.9	18.9	21.5	37.4
	Dryer (1 load / day)	88.8		175.2	