BC HYDRO'S RATE DESIGN APPLICATION (RDA)

Presentation to the BC Agriculture Council (BCAC)

March 30, 2015

BC hydro

FOR GENERATIONS

AGENDA

- Background on BC Hydro's Rate Design Application (RDA)
- Characteristics of farm and irrigation customers
- Existing rates for farms and irrigation customers
- Issues to consider as part of the RDA
- Next steps

OBJECTIVES FOR TODAY

- To inform, educate, and identify issues that could be explored further
- To answer any questions you have
- To get your feedback on how best to consult with farm and irrigation customers as BC Hydro moves forward with developing the RDA

RDA 101

- BC Hydro is a regulated entity and its rates need to be approved by the BC Utilities Commission (BCUC)
- The last rate design application was in 2007
- An RDA is a broad examination of all rates and tariff policies and one of the first steps is a Cost of Service analysis
- BC Hydro designs its rates in consideration of multiple objectives such as cost recovery, fairness, efficiency, simplicity, and customer acceptance.
- Specialized rate design applications have taken place since 2007
  - Residential Inclining Block rate (RIB) - 2008
  - Large General Service rate (LGS) – 2010

ITEMS INFORMING PROPOSED 2015 RDA SCOPE

1. Previous BCUC decisions, in particular:
    i. *2007 RDA*
    ii. *2008 Residential Inclining Block (RIB) Application*
    iii. *2009 FortisBC COS/RDA*
    iv. *2010 Large General Service (LGS) Application Negotiated Settlement*
    v. *2012 Dawson Creek/Chetwynd Area Transmission Project (DCAT) Certificate of Public Convenience and Necessity (CPCN) proceeding*
    vi. *2013 RIB Re-pricing Application*
    vii. *2014 FortisBC Farm exemption from RIB*
2. Relevant Industrial Electricity Policy Review recommendations and November 2013 BC Government responses
3. Approved November 2013 Integrated Resource Plan (IRP)

2015 RDA SCOPE

- RDA focus is updating/amending rates and terms and conditions of service
- All 7 customer classes: Residential, Small General Service (SGS), Medium General Service (MGS), LGS, Irrigation, Street Lighting and Transmission
- COS, and Rebalancing within confines of section 58.1 of the *Utilities Commission Act* (*UCA*) (maximum 2 percentage point increase per year)
- Transmission and Distribution extension policies
- Electric Tariff terms and conditions

2015 RDA TIMELINE

- BC Hydro plans to file module 1 of the RDA in September 2015
- Farm and irrigation related issues will likely be addressed in module 2, which is tentatively scheduled for mid 2016
- However, some farm related issues may arise in module 1:
    - For example, module 1 will include a review of the residential RIB rate and stakeholders may ask about the interaction of the RIB with the RS 1151 exempt flat rate, which largely contains residential farms.
- We expect to engage multiple farm / irrigation stakeholders beginning in Fall 2015.

FARM / IRRIGATION REGULATORY BACKGROUND

2007 BC Hydro RDA

- BC Hydro proposed rate rebalancing, which would have impacted farms and irrigation customers (along with other groups)
- BCUC noted that farms take service under a variety of rate schedules and asked BC Hydro to review the appropriateness of different rates
- BCUC stated that BC Hydro should have a rate strategy for its agricultural customers

2008 BC Hydro RIB

- RS 1151 flat rate created - exempted farms from the RIB.
- BC Hydro stated it would review conservation rates for farm customers when similar rates considered for SGS customers

FARM / IRRIGATION REGULATORY BACKGROUND

2010 FortisBC RDA

- FortisBC proposed rate rebalancing

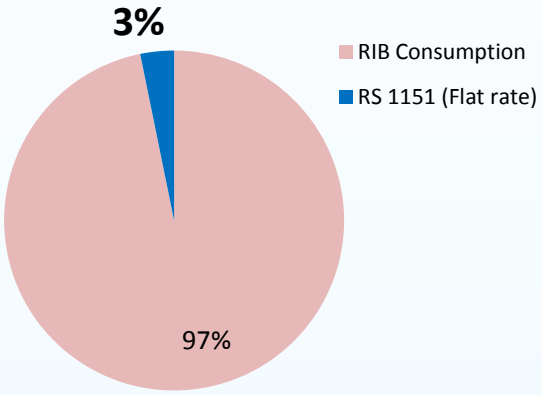
2014 FortisBC Exemption from RIB

- BCUC directed a review of farm rate options, including those that could encourage energy conservation, and an exploration of the costs / benefits of separately metering a single family dwelling from the rest of the farm

CUSTOMER CHARACTERISTICS

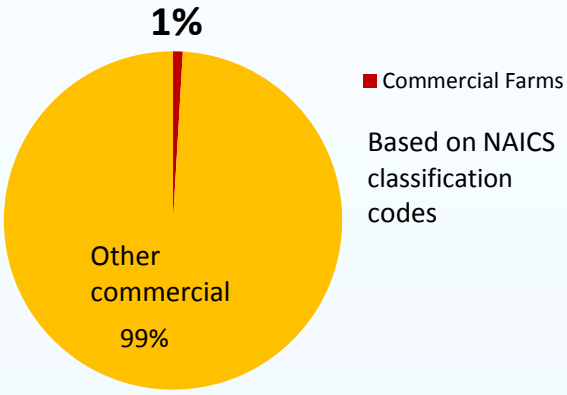
- BC Hydro serves farms on a variety of rates including residential rates, commercial rates, and irrigation rates
- In F2014, BC Hydro served about 16,700 farms on residential rates, 1,900 farms on commercial rates, and 3,000 irrigation customers.
- In terms of energy sales residential farms account for about 600 GWh, commercial farms about 170 GWh, and irrigation about 70 GWh.

Residential



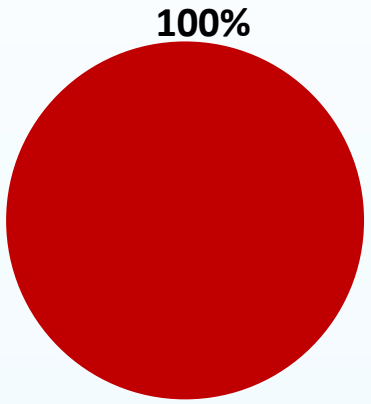
Total = 18,347 GWh

Commercial



Total = 18,177 GWh

Irrigation



70 GWh

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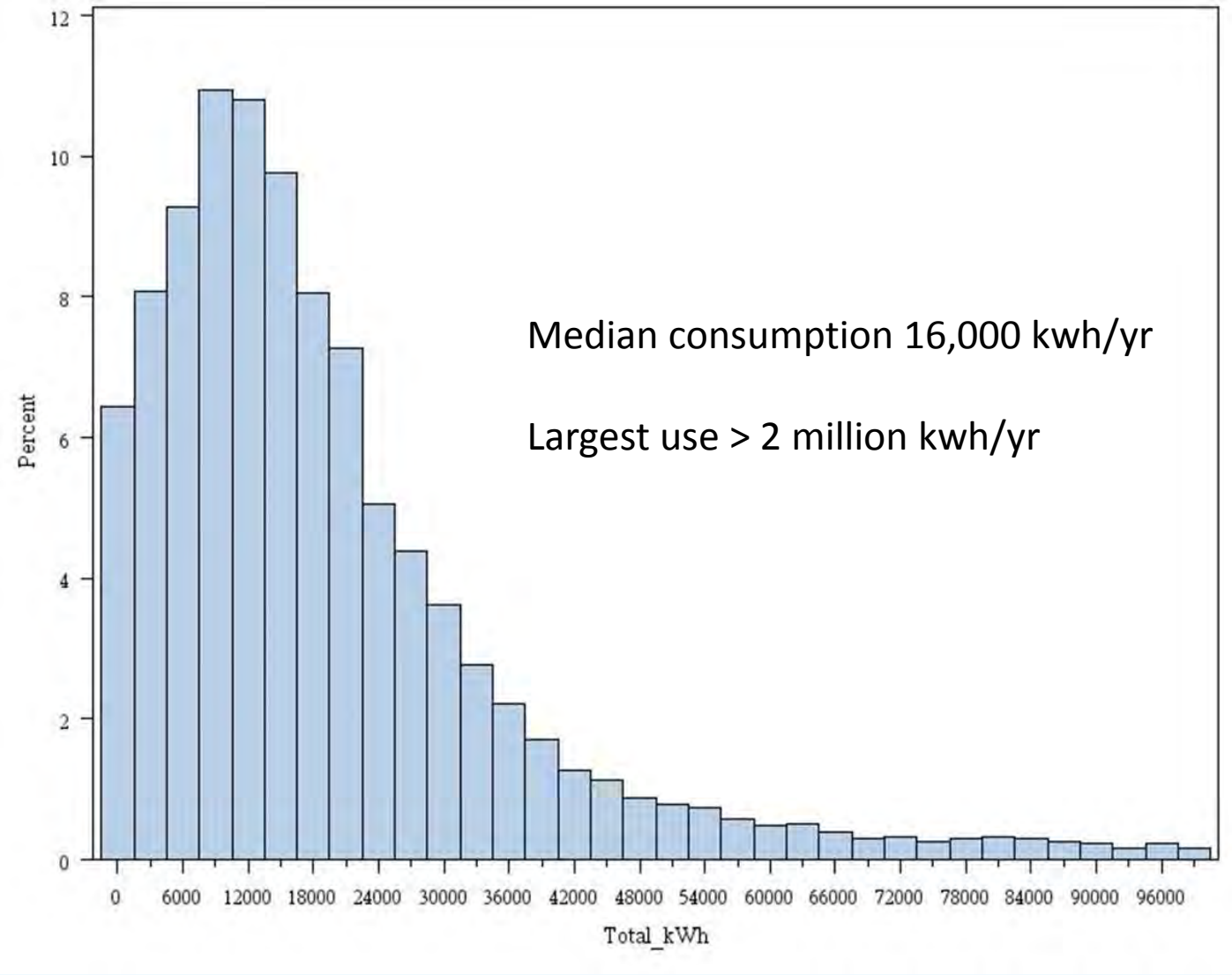
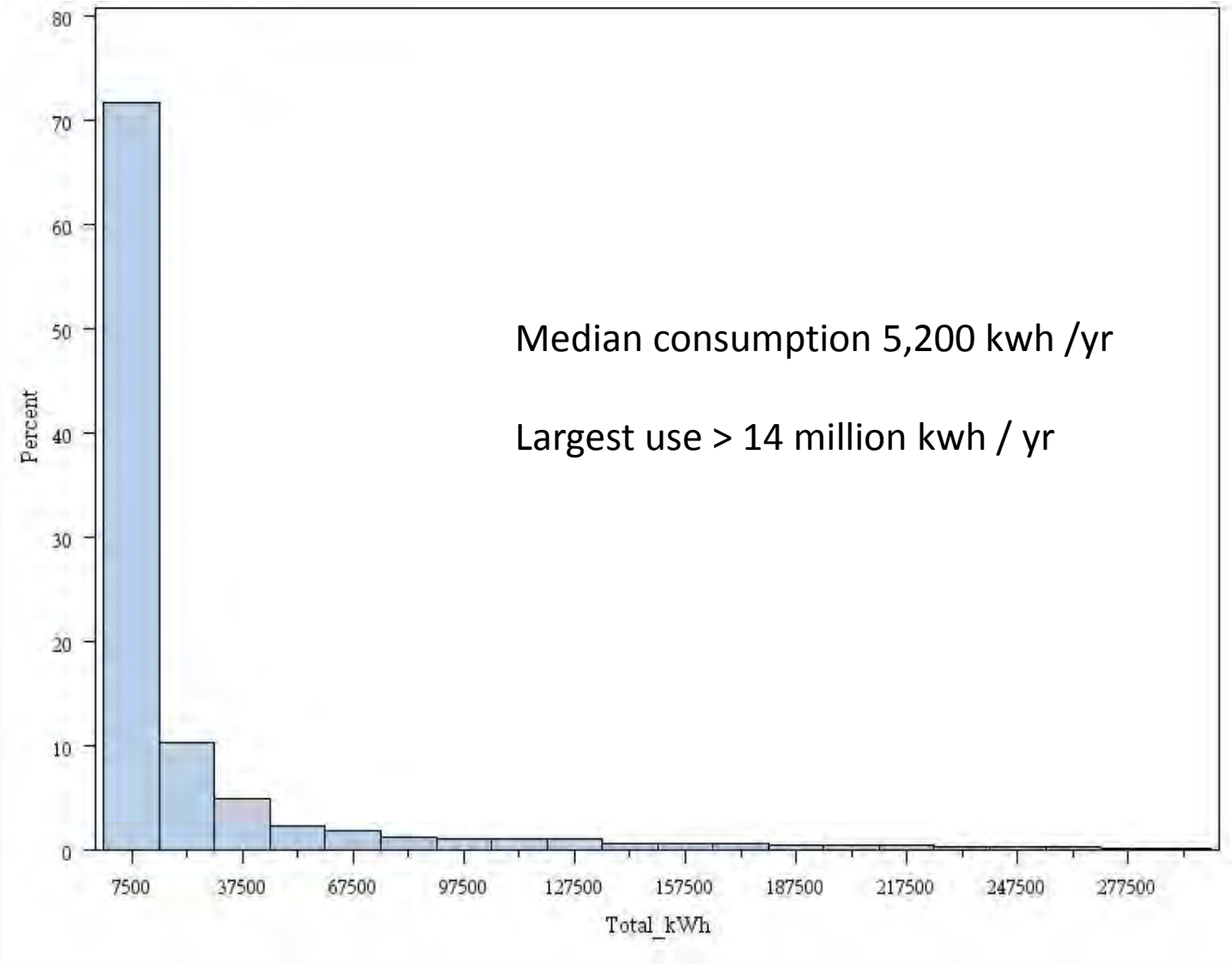
RESIDENTIAL FARMS



Median consumption 16,000 kwh/yr

Largest use > 2 million kwh/yr

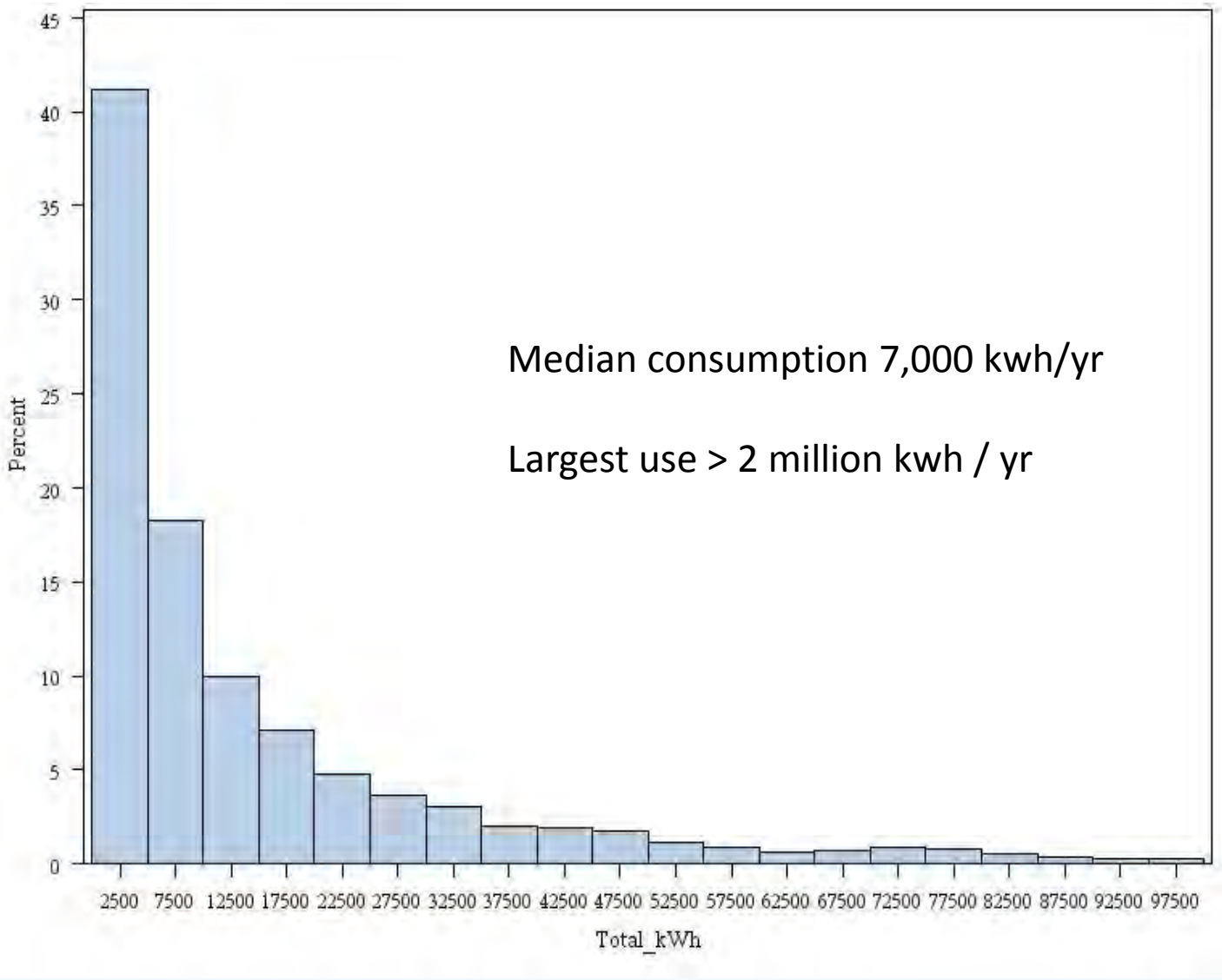
COMMERCIAL FARMS



Median consumption 5,200 kwh /yr

Largest use > 14 million kwh / yr

IRRIGATION CUSTOMERS



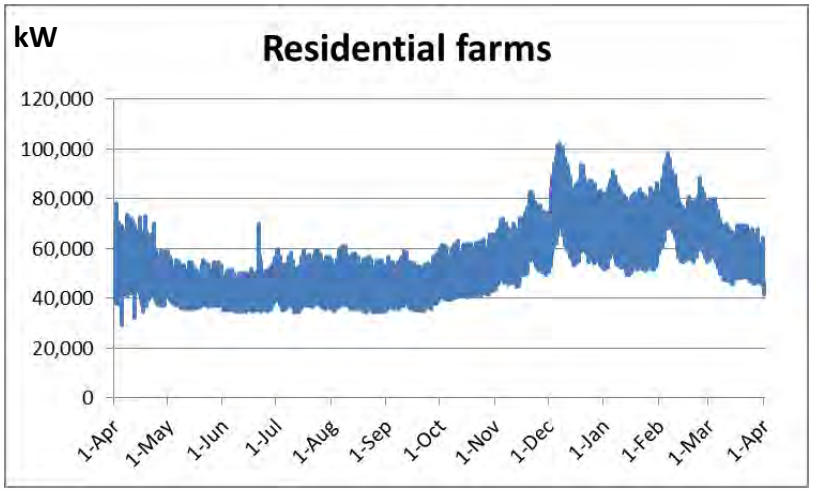
Median consumption 7,000 kwh/yr

Largest use > 2 million kwh / yr

PEAK LOAD – A SIGNIFICANT COST DRIVER

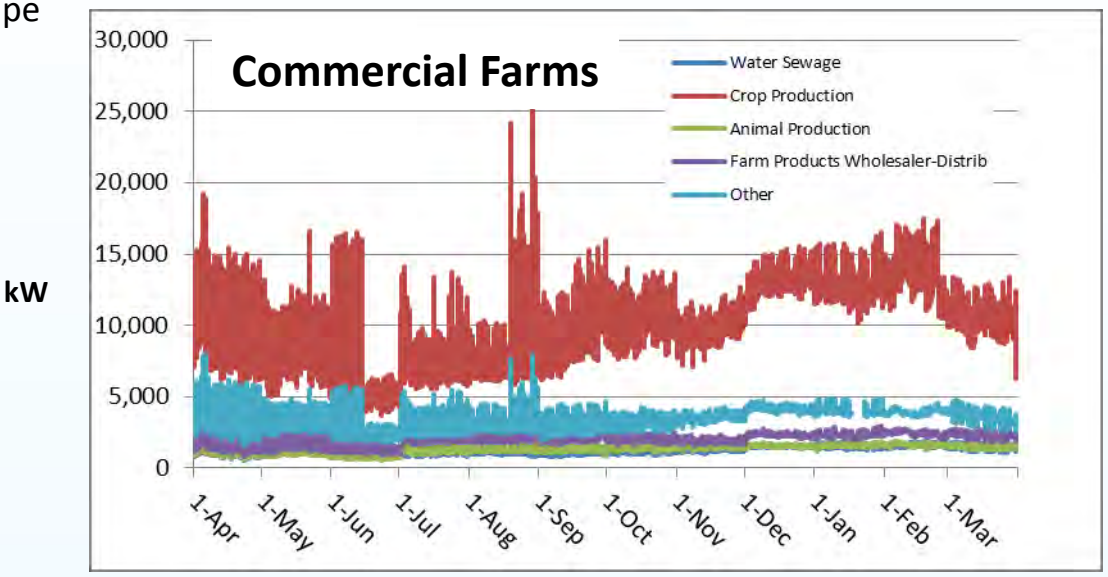
- Almost 50% of BC Hydro's costs are "demand related" and dependent on when customers use electricity rather than how much they use.
- Generation and transmission demand costs are driven by the system's winter peak.
- Distribution costs are driven by peak loads in specific areas and on specific circuits.
  - In F2013 there were 219 distribution substations on the integrated system
  - 85% of the stations were winter peaking (188 substations)
  - 3% were dual peaking (the summer peak was within +/- 10% of the winter peak) (6 substations)
  - 12% were summer peaking (25 substations)

FARM AND IRRIGATION LOAD SHAPES



Winter peaking – very similar load shape to other residential customers

Different load shapes are one reason why residential rates do not equal commercial rates



Dual peaking – summer loads are significant, especially since half the consumption is related to crop production.

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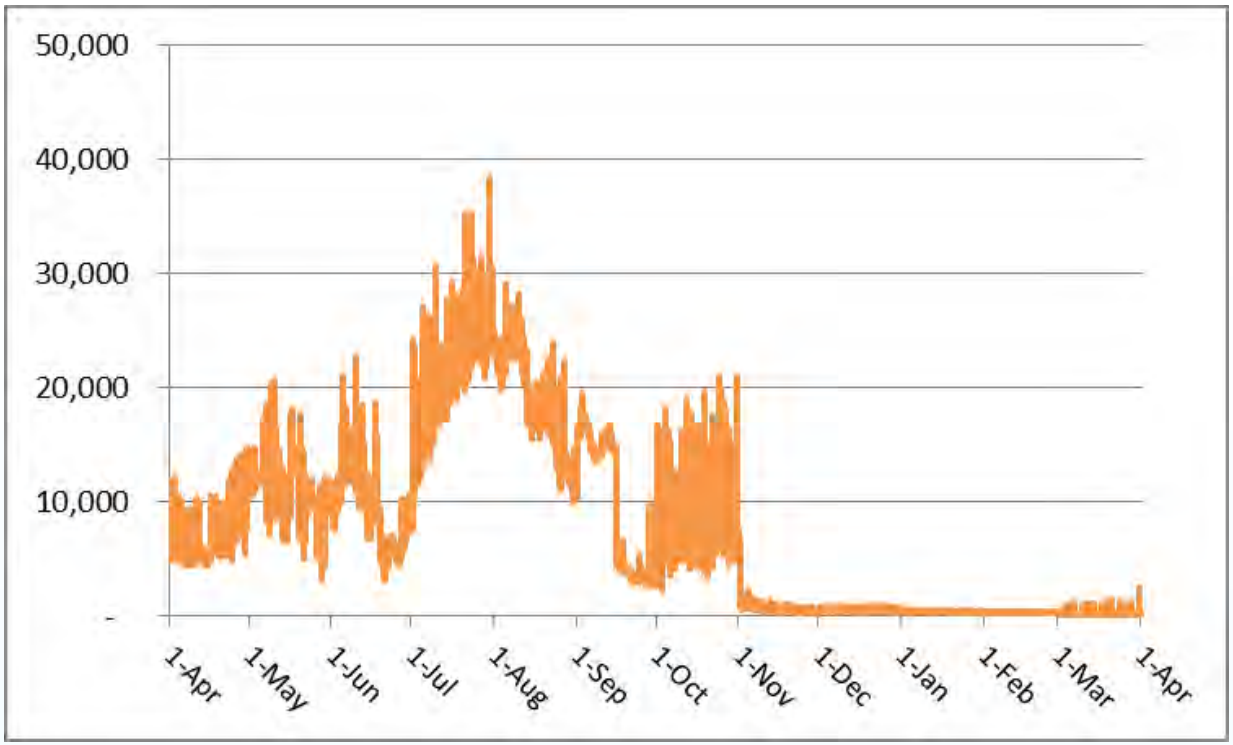
FARM AND IRRIGATION LOAD SHAPES

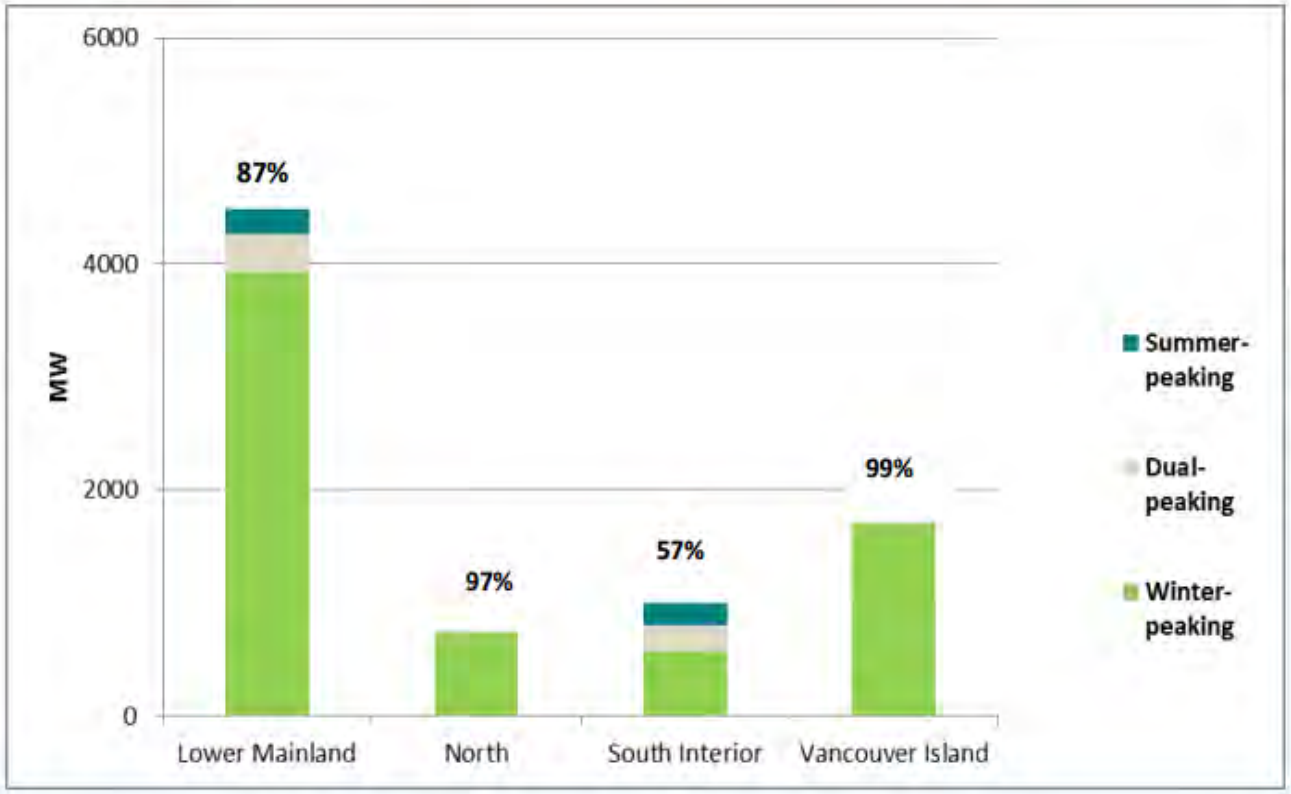


Irrigation loads are clearly summer peaking so they are not assigned any Generation Demand or Transmission costs in BC Hydro's draft F2016 COS study.

They are however assigned a proportion of distribution cost in the COS study

DISTRIBUTION PEAK LOADS – A REGIONAL PERSPECTIVE

Extracted from BC Hydro's June 19, 2015 COS presentation



The graphs show the percentage of the non-coincident regional peak load that is winter peaking

Demonstrates that some distribution cost should be assigned to summer peaking loads (such as irrigation)

EXISTING RATES FOR FARMS

- 2007 RDA decision noted that farms take service under a variety of rate schedules and expressed concern that farms be served on appropriate residential / commercial rates

- Tariff classification of residential vs. commercial farms is not clear

- In most cases, residential farm loads are mixed use with a single point of metering such that all consumption (single family dwelling + farm load) is billed on a residential rate.

RESIDENTIAL RS 1151 RATE

Customers can qualify for RS 1151 if they DO NOT:

1) use electricity in any dwelling other than a Single Family Dwelling
2) process products from other farms
3) use electricity for commercial purposes not ordinarily done on a farm (e.g. no boarding of animals belonging to others); or
4) have more than a small roadside stand to sell their products.

- Based on a review of historic tariff documents, these four criteria date back to the 1960's. They can be difficult to apply consistently and are somewhat open to interpretation (i.e. what's the size cut-off for a "small roadside stand"?)
- BC Hydro requests that residential customers provide a copy of their Property Assessment to validate farm classification
- If a farm customer does not meet the Tariff's four qualifiers for RS 1151, they are placed on other residential or commercial rates.

RESIDENTIAL RS 1151 RATE

Larger residential RS 1151 customers are given the option to be billed on MGS (demand > 35 kW) or LGS rates (demand > 150 kW).

Although MGS and LGS rates have demand charges ($/kW), they have lower energy costs and some residential farm customers would likely save money by moving to these commercial rates (to be confirmed).

Customer group	F2016 Rates
Residential (RS 1151)	9.55 ¢/kWh
SGS	10.73 ¢/kWh
MGS	8.98 ¢/kWh (+ demand $)
LGS	5.79 ¢/kWh (+ demand $)
Irrigation	5.16 ¢/kWh

RESIDENTIAL RS 1151 RATE

- Despite optionality, there are more than 550 residential farm customers on residential service that may be better off on MGS or LGS service.

- The largest residential farm customer has a peak load approaching 500 kW, while a normal single family house has a peak load around 8 kW.

kW demand	# of RS 1151 accounts	
0 to 25 kW	16,004	
25 kW to 35 kW	393	
35 kW to 150 kW	516	Eligible for MGS
Over 150 kW	46	Eligible for LGS

RESIDENTIAL FARM ISSUES TO BE ADDRESED AS PART OF THE RDA

These are likely issues, not necessarily proposals from BC Hydro

1. **Should residential farms continue to be exempt from the RIB rate?**

   Should a separate threshold be used to put these farms on a two step conservation rate?

   - RIB customers consume an average ~11,000 kwh/yr while residential farm customers consume an average ~16,000 kwh/yr

2. **Should BC Hydro change the eligibility criteria for the exempt RS 1151 flat rate?**

3. **Should larger residential farms be moved to MGS / LGS? Should all farms be on commercial rates?**

   Currently customers are given option to take MGS / LGS service; however, most larger residential farms choose to remain on a residential rate despite the fact that many may be paying more than necessary

4. **Should BC Hydro require separate metering for farm and residential use?** Should metering policies depend on the size of the load?

COMMERCIAL FARM RATES

- Commercial farm customers are billed on either SGS, MGS, or LGS rates and BC Hydro continues to consult with a broad group of RDA stakeholders on these different rates
- Commercial rates are being explored as part of module 1 of the RDA and the outcome will inform the review of farming issues in module 2
- BC Hydro held commercial rate workshops on January 21, 2015 and February 11, 2015
- The next RDA workshop on commercial rates is scheduled for June 9, 2015

IRRIGATION RATES

The irrigation rate was originally conceived as a low priced promotional rate available during the summer when waters would be spilled if not used to generate electricity

In the past the rate has been re-priced to align with the fact BC Hydro can store electricity for use during other times of the year

Draft F2016 COS results

Rate Class ($million)	Generation Costs	Transmission Costs	Distribution Costs	Customer Care Costs	Total Cost	Total Revenue	Updated Rev/Cost Ratio
Residential	987.83	367.19	617.71	69.12	2,041.85	1,917.57	93.9%
GS Under 35 kW	183.88	57.81	118.44	7.55	367.69	411.82	112.0%
MGS < 150 kW	168.42	51.60	77.20	2.06	299.28	360.50	120.5%
LGS > 150 kW	529.69	147.49	159.60	2.04	838.82	836.14	99.7%
Irrigation	2.99	0.00	4.05	0.06	7.09	6.04	85.2%
Street Lighting	12.30	4.75	10.75	0.81	28.62	38.39	134.1%
Transmission	702.67	172.00	0.01	1.68	876.36	889.32	101.5%
Total Classes	2,587.78	800.84	987.77	83.32	4,459.70	4,459.79	100.0%

BC Hydro estimates that it is recovering ~85% of irrigation-related costs through existing rates

IRRIGATION RATES

The rate includes a Minimum Charge equal to about $5 per kW of connected load for a period of 8 months whether the service is used or not.

During the non-irrigation season the energy rate of 5¢/kWh jumps to about 40¢/kWh

Possible topics for the RDA include:

- Appropriateness of Minimum Charge
- Treatment of irrigation loads in the non-irrigation season
- Alternatives to using Connected Load, when calculating the Minimum Charge, as opposed to actual metered peak demand

OBJECTIVES FOR TODAY

- To inform, educate, and identify issues that could be explored further
- To answer any questions you have
- To gather advice on how best to consult
  - Which groups? Best method(s): workshops, focus groups, surveys?

Was This Discussion Helpful? Comments? Are there other issues you think BC Hydro should investigate?

NEXT STEPS

- BC Hydro will be preparing its RDA application in the spring and summer with filing expected in September 2015
- We will also be planning future consultation for farm and irrigation customer and we will engage the BCAC

RDA website

More information on the RDA, including previous workshop presentations and stakeholder comments, can be found at:
https://www.bchydro.com/about/planning_regulatory/2015-rate-design.html

Contacts

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BC Hydro Rate Design Application
Meeting with BCAC

SUMMARY 2015-MARCH-30 9 A.M. TO 10 A.M. MINISTRY OF AGRICULTURE, ABBOTSFORD 1767 ANGUS CAMPBELL ROAD

TYPE OF MEETING	Topic Specific Stakeholder Meeting – Farm Customers
FACILITATOR	Justin Miedema, BC Hydro
PARTICIPANTS	Linda Delli Santi (Veg Greenhouse), Jack Dewitt (Pork/Cranberries), Reg Ens (BCAC Board), Paul Hargreaves (Dairy), Allen James (Poultry), John Penner (BC Eggs)
BC HYDRO ATTENDEES	Justin Miedema and Dani Ryan, Regulatory and Rates
AGENDA	1. Welcome & Introductions including review of draft agenda 2. Feedback and Questions during BC Hydro's presentation. 3. Closing Comments 4. Next Steps

MEETING MINUTES

ABBREVIATIONS

RDA ..... Rate Design Application
BCH ..... BC Hydro
BCAC..... BC Agricultural Council
BCUC.....BC Utiliies Commission
COS ..... Cost of Service
GS ..... General Service
KWh.....Kilowatt Hour
LGS.....Large General Service
NAICS.... North American Industry Classification System
RRA.....Revenue Requirement Application
RS.....Rate Schedule
TBD.....To be determined

1. *Welcome and Introductions*

Reg Ens opened the meeting by welcoming everyone and thanking participants for attending.

Dani Ryan reviewed the agenda and objectives and presented background on the RDA and past regulatory proceedings that may be of interest to agricultural customers.

Justin Miedema provided an overview of current farm and irrigation rates and customer characteristics, introduced issues under consideration for the 2015 RDA filing, and discussed next steps.

2. *Feedback & Questions during BCH's Presentation*

All – questions and discussion on BCH's presentation.

	FEEDBACK	RESPONSE
1.	**Slide 3** Does a Rate Design Application imply rate increases?	Not necessarily; BC Hydro normally seeks approval for rate increases by submitting an RRA to the BCUC. An RDA looks at how BCH's revenue requirement is recovered from different customer groups and it typically includes a COS study, which compares revenues and costs and may result in a realignment of rates to better match costs (i.e. rebalancing) such that some customers pay more while others pay less with no change in total revenue collected.
2.	**Slide 5** Does irrigation pay more than the cost of service?	The Irrigation rate currently recovers 85% of the COS based on the draft F2016 COS study.

BC Hydro Rate Design Application
Meeting with BCAC

SUMMARY 2015-MARCH-30 9 A.M. TO 10 A.M. MINISTRY OF AGRICULTURE, ABBOTSFORD
1767 ANGUS CAMPBELL ROAD

3.	**Slide 9** What is the definition of a farm, using blueberry processing as example with or without the residence?	Residential Service for farms is defined in the "Definitions" section of the BCH Electric Tariff[1]. A farm can process **its own products** for **non-retail** sale (i.e. wholesale). The Electric Tariff does not allow a farm to process produce or products coming from another farm(s), and does not allow retail sales to the general public except from a small roadside stand. Farms which do not meet the criteria for Residential Service are charged General Service rates.
4.	**Slide 10** Is there a max limit for farm usage on RS 1151?	No.
5.	**Slide 12** Are all irrigators on the irrigation rate? Is the rate tied to crop irrigation? Example of greenhouses needing water year-round.	BCH Tariff RS 1401 states this rate is available, "for irrigation and outdoor sprinkling where electricity will be used principally during the Irrigation Season."
6.	**Slide 14** Are customer load profiles consistent year over year?	Yes – the profiles are reasonably consistent. BCH is a winter peaking utility and the 16,700 residential farms have a load profile that is winter peaking and closely resembles the profile for the overall residential customer class. Commercial (or General Service) farms are generally dual peaking with a somewhat higher winter peak while irrigation customers are summer peaking and have minimal usage outside the irrigation season. These different load shapes lead to differences in the costs of serving customers and largely explain why different rates are charged to residential farms, commercial farms, and irrigation customers.
	Can BCH provide more specifics on NAICS codes - what does each mean i.e. water sewage? What other NAICS codes are used? Can BCH provide more information on residential farm NAICS codes?	BCH has a defined NAICs code for each commercial customer that aligns with an industry and business type. See the attached on the level of detail BCH can provide based on NAICs code.
	Can BCH explain the dip in Commercial Farms Jun-Jul profile?	Commercial farms are not a large homogenous group of customers. There are some very high consuming customers that drive the aggregate shape to have strange behavior. BCH will examine this dip further but weather, business cycles and heterogeneous customer mixes can cause dips in consumption behavior.
	Allen James (Poultry representative) believes most poultry members are on the Residential Farm rate rather than GS rates. He thinks it would be more helpful for customers to understand which rate class they are in, and	Agreed.

[1] See criteria 3 on page 7 of https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/tariff-filings/electric-tariff/00-bchydro-electric-tariff.pdf

BC Hydro Rate Design Application
Meeting with BCAC

SUMMARY 2015-MARCH-30 9 A.M. TO 10 A.M. MINISTRY OF AGRICULTURE, ABBOTSFORD 1767 ANGUS CAMPBELL ROAD

	options available, rather than discussing BCH's costs.	
	Reg Ens (BCAC) indicated that Greenhouses have higher consumption in the winter (lighting) while Cranberry producers use lots of irrigation-related power in October for end-of-season harvesting, which can occasionally extend into November.	
7.	**Slide 15** **Jack Dewitt** (Cranberry producers) asked why is the length of irrigation season defined but flexible upon request? Cranberry farms often need irrigation into November and will ask BCH to extend the season. Cranberry representative is very aware of off-season rate and is vigilant about turning off the main switch at the end of the season.	Tariff states that BCH "may, in its discretion extend the period by postponing the termination date to any date not later than November 30th". BC Hydro's system peak can occur in November, which may impose greater constraints on the system. For this reason, the irrigation season cannot necessarily be extended to include November given that the rate is priced on the assumption there are no generation demand or transmission demand costs assigned to the irrigation rate class. BC Hydro will review this issue as part of the RDA.
8.	**Slide 16** What is the cents/kWh difference for each rate that farm customers may choose between? How to assess best rate for a particular service?	The table on Slide 16 shows the ¢/kwh energy rates. Using historical billing data, BC Hydro intends to analyze the impacts of different rate options for farms as part of the RDA. Generally, a residential customer on the RS 1151 exempt rate would be expected to save money if their load is high enough to qualify them for LGS.
9.	**Slide 18** Definition of farm: if large quantity of farm products sent elsewhere to be sold, is it a farm? Can a farm choose the RIB rate? Reg Ens pointed out that StatsCan reports there are 20,000 BC farms.	See the response to question #3. Currently, farms on the exempt RS 1151 rate cannot choose to go on the RIB rate; however, customers on the RIB rate can switch to RS 1151 if they qualify as per the criteria described in the response to question #3. BC Hydro intends to explore this issue further as part of the RDA. The StatsCan estimate is slightly higher than BC Hydro's customer count for residential (16,700) and commercial (1,900) farms.
	Jack Dewitt (Cranberries) noted he has 4 meters, one each for: cranberries, dairy, hog barn and house. Is number of farms the same as number of meters?	Generally, there will be more meters than the number of farms, as some farms are submetered, but more work is required on this topic.
10.	**Slide 20** **Linda Delli Santi** (Greenhouses) asked how a customer can know when their peak demand occurs - when the billing cycle ends or when the meter is read? She expressed interest in more info on peak loads and mentioned that Texas utilities proactively email customers when their load is approaching peak monthly demand.	Energy consumption information is available online through MyHydro (bchydro.com/MyHydro) for some customers.

BC Hydro Rate Design Application
Meeting with BCAC

SUMMARY 2015-MARCH-30 9 A.M. TO 10 A.M. MINISTRY OF AGRICULTURE, ABBOTSFORD 1767 ANGUS CAMPBELL ROAD

11.	**Slide 21** Can the residential consumption be separated from the total farm usage? Winter farm usage not necessarily driven by residential use, greenhouses and other facilities using much lighting would drive winter demand.	To separate residential and farm consumption – usage would have to be metered separately.
12.	**Slide 22** How does rebalancing affect farm rates?	Rebalancing may increase or decrease residential, commercial, or irrigation farm rates but the overall revenue collected by BCH will not change as a result of rebalancing.
13.	**Slide 23** Is foundation for the existence of irrigation rate still true – potential spilled water during early summer and is BC Hydro surplus in the summer?	BC Hydro is generally surplus during the May to July freshet period when water levels in the hydroelectric system rise. Generally, BC Hydro does not spill water unless snowpack and water levels are significantly above normal.
	With respect to irrigation rates, how does the fixed charge (i.e. Irrigation Minimum Charge) and energy revenue compare with fixed and variable costs of service?	From a cost perspective, a minimum charge can recover the fixed costs of service. If irrigation service is not used in a given season, there are fixed costs associated with maintaining infrastructure (substation, distribution line, transformer, service connection, etc) to the customer. BC Hydro plans to review the application and level of the minimum charge as part of the RDA.
	Attendees observed that irrigation is under-recovering its COS by $1M and suggested this is a small proportion of total.	
	Does BC Hydro buy energy from Alberta?	Yes, since Alberta is a thermal system BC Hydro often purchases from Alberta overnight and stores the water for use during higher valued periods. Generally, BC Hydro exports more power to Alberta than it imports.
14.	**Slide 24** Minimum charge is so high that some customers don't use their irrigation service because there is no benefit from the cheaper energy rate.	BC Hydro plans to review the level of the minimum charge as part of the RDA.

3. Closing Comments

Linda Delli Santi (Greenhouses) and **Jack Dewitt** (Cranberries) expressed interest in future meetings in advance of RDA Module 2.

Stakeholders questioned whether the RDA engagement process is the right forum to learn more about BCH existing rates and policies, or whether a different form of outreach could be arranged to help agricultural customers understand how to choose the best rate for their service.

4. Next Steps

BCH and **BCAC** will circulate meeting minutes. **BCH** will consider holding further workshops with Cranberry and Greenhouse Growers associations before filing RDA Module 2.