Info Session Date and Location
March 1, 2005
Prestige Inn
209 Van Horne St. S., Cranbrook, B.C.

Attendees

<table>
<thead>
<tr>
<th>Name</th>
<th>Interest/Organization</th>
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<tbody>
<tr>
<td>Stu Robinson</td>
<td>Contractor</td>
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<tr>
<td>Lloyd Sharpe</td>
<td>Aberfeldie/Elko CC Committee - Elko Resident</td>
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<tr>
<td>Jacki Rayman</td>
<td>Councilor, District of Sparwood</td>
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<tr>
<td>Rola Hogan</td>
<td>Cranbrook Resident</td>
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<tr>
<td>Gunner Kahn</td>
<td>Environment</td>
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<tr>
<td>Pat Daniels</td>
<td>Cranbrook Resident</td>
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<tr>
<td>Ward Pearson</td>
<td>Invermere Resident</td>
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<tr>
<td>Bob Jamieson</td>
<td>Energy Consultant</td>
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<tr>
<td>David Crampton</td>
<td>Consultant</td>
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<tr>
<td>Raphael Bonjou</td>
<td>Jaffray Resident</td>
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<td>Christian Bouchan</td>
<td>Jaffray Resident</td>
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<td>Richard LaRose</td>
<td>Jaffray Resident</td>
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BC Hydro/IEP Representatives

<table>
<thead>
<tr>
<th>Name</th>
<th>Responsibility</th>
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<tr>
<td>Diane Tammen</td>
<td>Community Relations Manager, Kootenay / Lower Columbia, BC Hydro</td>
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<tr>
<td>Kristann Boudreau</td>
<td>Stakeholder Engagement Manager, BC Hydro (Facilitator)</td>
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<tr>
<td>Samantha Petticrew</td>
<td>Technical Resource (Consultant to BC Hydro’s IEP Team)</td>
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<tr>
<td>Cindy Armstrong</td>
<td>Note Taker</td>
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1. Discussion Highlights
The highlights of the discussion that took place during the evening session are summarized as follows:
1.1 Resource Options to Consider:
- Different scales of biomass - facilities to match regional needs.
- Renewable energy sources such as solar, wind, wind and solar combinations, geothermal, mobile demonstration of renewable technologies.
- New opportunities for research, for example, wireless transmission, mobile steam turbines, calcination of hydro carbons.
- Subsidies for socially and environmentally friendly sources.
- Downstream benefits from the Columbia River Treaty.

1.2 Attributes to Consider:
- Lost jobs due to large Hydro construction, for example, relocation and flooding.
- Risk of climate change, greenhouse gases.
- Reliability.
- Global health impacts from air emissions.
- Environmental impacts.

2. Introduction/Overview
Diane Tammen welcomed attendees to the 2005 Integrated Electricity Planning (IEP) Information session. She made note that two main questions would be discussed later in the evening:

1. In developing future electricity resources, what are the most important factors to you?

2. Which of these factors would you be willing to pay more for?

Introductions were made and the session was turned over to Kristann Boudreau. During the introductions, a number of participants expressed interest in biomass and the potential for cogeneration.

2.1 An overview was provided on the following:

What is an Integrated Electricity Plan (IEP), why doe BC Hydro need an IEP and what are the steps required?

During this aspect of the overview the following questions and comments were made:

Does the comment “No net incremental environmental impact” include all net impacts and is this talking about present or future? 
An IEP team member replied that it was about meeting demand.
What are large hydro options in the Kootenay?
Murphy Creek and the Border Dam on the Columbia River.

A comment was made that biomass should be checked off for the Kootenays in the "Key Resource Options by Region” table displayed during the presentation.

- Regulatory Requirements

- 2004 IEP Outcome & Highlights

- General First Nations, Stakeholder and Kootenay Feedback

- Information from 2004 Kootenay feedback slide regarding support for use of generation technologies that use waste products was re-iterated by some of this session’s attendees.

- 2005 IEP objectives and stakeholder engagement.

A concern was raised as to why there was no one attending the session representing the mining and logging industry. This concern related to the potential for these industries to access the government through the backdoor. Also, since mines use large amounts of electricity, how is this addressed in BC Hydro’s plan?
The attendee was informed that this public information session was advertised, and that in addition, a wide variety of potential participants had been invited to the daylong workshop being held the next day.

How will the Kyoto Protocol be factored into the plan and what will BC Hydro’s true cost be for complying? How will the BC government address that in terms of paying for greenhouse gas offsets that will be included at the portfolio line and included in that phase? What system will BC Hydro use?
The attendee was advised that there is a system in the IEP that will account for those total costs and will include an offset of greenhouse emissions.

Nuclear is not something we want to do but I am curious as to cost and shouldn’t it be included for perspective?
It was pointed out that nuclear is not considered as an option because the provincial government has a no nuclear policy, but the suggestion to include nuclear for comparison purposes only was noted.

2.2 After the overview the following comments, questions, and observations were discussed:

What about solar energy?
Solar was considered in the 2004 IEP but the cost was quite high.

Was that an assumption for large units or homes?
Four different scenarios were considered.
Is there research taking place to have access for solar energy and how will it play out for the future for climate change? How much electricity would we save using solar power to heat water?

BC Hydro is not currently engaged in research about solar technologies.

There was discussion of biomass potential in the Kootenays, and a number of different comments were made regarding biomass:

- There is so much biomass availability in the Kootenays and it is just being slashed and burned.
- Biomass seems expensive.
- BC Hydro should consider research around biomass using processes to trap carbon dioxide.
- Biomass has benefits including less forest fire risk however it needs to be on an economic scale.
- Biomass is not renewable. It was noted that trees are renewable and that biomass has net zero greenhouse gas emissions since trees are considered part of the carbon cycle.
- Can a mobile plant be made to do this? Small plants would need to be within 40-50 km of the resource.
- Discussion took place regarding new technology on calcination of hydrocarbons providing 2-3 times more energy than straight burning of biomass.

3. Group Exercise

The following is a summary of responses, questions, comments and discussion of the two questions raised in the introduction, as well as one additional topic:

3.1 In developing future electricity resources, what are the most important factors to you?

- Jobs lost through flooding of land for new large hydro projects (not just jobs created).
- Risk of climate change.
- Reliability: we need more back up from other sources.
- What are we doing here to offset this? What about transmission costs? How much is lost through transmission lines? Reduction of transmission losses could be made up here. Do we have a way of keeping losses in batteries? That would not be efficient.
- Would it change future needs if we kept all the power for ourselves and didn’t sell to the U.S.A.? How would that affect the downstream benefits?
- Greenhouse gases should be included in cost factors.

3.2 What new sources of electricity would you like to see considered over the next 20 years?

- Biomass (including different scales of facilities).
- Solar with photovoltaics.
• Mobile steam turbines.
• Calcination of hydrocarbons (new technology).

• **Do we have a comparison between solar and storage technologies?** Has BC Hydro done any studies? Batteries have a short life; therefore running on solar would have a major cost in replacing batteries. If you can sell the excess back to BC Hydro that would help with the cost of storage. You are depending on the U.S. to help keep rates low. Solar might help with keeping power in BC. Customer generation could be based on parity - sell back to Hydro for same price that it’s bought from Hydro.

• **Has there been research by BC Hydro on studying wireless transmission energy?** BC Hydro representatives replied that BC Transmission Corporation (BCTC) would be the Crown Corporation involved in transmission research. We would need to find out if this is an area where BCTC is doing research.

• **Conserve power or supply more electricity?** People will need to stop using so much power or we will have to build a large cogeneration plant or a big dam. Why can’t we just generate through the dams we have? If we develop small hydro options they will become more expensive. Power Smart is where you should be going with saving power and money.

• **BC Hydro’s Resource Smart program includes the redevelopment or upgrading of existing BC Hydro facilities.** For example, Aberfeldie is being redeveloped to provide more power. Most of the power produced by the Columbia system is going to the Lower Mainland where the population is.

• **Wind power is does have impact: it has an esthetic cost.** BC Hydro representatives responded that it is expensive. The high cost of wind is largely because it is not dependable and since BC Hydro has an obligation to meet reliability standards, it must also ensure that wind facilities also have backup in the BC Hydro system.

• **Are there studies on using wind availability on the transmission system total?** You would have to have enough wind in one spot to meet the demand at all times. Wind power in BC would allow us to keep more water in storage in dams. It was responded that wind has a dependable capacity of about 15 per cent of the time (15 per cent of 8760 hours in a year that one turbine can potentially generate). There would be an additional cost, as it can’t provide reliability. We haven’t tapped the wind resource in BC. The Provincial IEP Committee is considering wind. Windmills are not esthetic so why not use solar panels which are lower to the ground and also explore having a wind and solar combination.

• **Would BC Hydro consider developing a mobile unit that demonstrates this new technology and provide sources and costs for consumers?** It would help if they could explain new technologies and what’s available. BC Hydro could be the catalyst to create a demand or an opportunity for small companies specializing in new technologies, which
would then flood the market. Most people won’t switch to new technologies, as they would have to change existing systems in their homes, which would be costly.

- **Which fuel is the cleanest?** Natural gas is cleaner in terms of emission.

- **What about coal gassification?** There are health costs for coal.

- **Why is geothermal not on the regional checklist?** The list on this slide is not exhaustive. It is part of the resource options inventory.

3.3 Which of these factors would you be willing to pay more for?

- **Net Metering Program.** If BC Hydro prepared to purchase power at a reasonable cost it would provide an opportunity for other alternative sources of electricity in communities. In response it was noted that BC Hydro has a number of programs - net metering is one. If individuals were to put solar panels on their house, BC Hydro should provide subsidies and if there is excess, to provide it back to Hydro. At what price is BC Hydro buying back re: net metering? A reply was made to get back with that price.

  **Note:** At the end of each year, on the customer’s anniversary date, BC Hydro will credit the customer for any remaining excess generation at the rate provided for the Net Metering Rate Schedule of 5.4 cents per kilowatt-hour. At BC Hydro’s discretion, this credit will either be applied to the customer’s future bills, or BC Hydro will make a one-time payout to the customer.

- **The power (from new sources) is going to cost much more.** All cheap options are used up - people would pay for solar energy and would pay more, as it is environmentally friendly.

- **When you initiate a new industry it will cost more to start up but not in the long term.** If new technologies come into play they will drop in price, for example, prices of computers now compared to when they first were initiated.

- **New energy is still less expensive than gas.** People will have to be convinced costs will be more.

4. Summary of Meeting and Next Steps

Attendees were informed that notes from the evening’s session would be posted on the BC Hydro website (www.bchydro.com/iep). A phone number and e-mail address were provided should any questions arise or for more information. A summary of the 2005 IEP timeline was provided concluding with a mention that another round of regional sessions currently scheduled to take place in the fall of 2005.
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