Info Session Date and Location
February 23, 2005
UNBC 7 - 172 Bentley Centre
3333 University Way, Prince George, B.C.

Attendees

<table>
<thead>
<tr>
<th>Name</th>
<th>Interest/Organization</th>
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<tr>
<td>Daniel Schwanke</td>
<td>Interested Citizen</td>
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<tr>
<td>Marion Schwanke</td>
<td>Interested Citizen</td>
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<tr>
<td>Tom Michael</td>
<td>District of Mackenzie</td>
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<td>Wayne Cripps</td>
<td>District of Mackenzie</td>
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<td>Sandra Kinsey</td>
<td>Interested Citizen</td>
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<td>Carol Fairhurst</td>
<td>Interested Citizen</td>
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BC Hydro/IEP Representatives

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<tr>
<th>Name</th>
<th>Organisation &amp; Department</th>
<th>Role</th>
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<tr>
<td>David Conway</td>
<td>Manager of Community Relations for BC Hydro North</td>
<td>Host/Facilitator/CR</td>
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<tr>
<td>Dorell Carlson</td>
<td>Power Planning and Portfolio Management</td>
<td>IEP Presenter/P3M</td>
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<tr>
<td>Victoria Grant-Smith</td>
<td>External Consultant</td>
<td>Note Taker</td>
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<tr>
<td>David Facey</td>
<td>Manager of Stakeholder Engagement</td>
<td>Workshop Facilitator for next day</td>
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Discussion Highlights

The following is a summary of the key discussions:

- Personal and individual responsibility for improved energy efficiency, mechanisms to affect efficiency such as stepped rates for residential consumption, escalating tariff structures with essential supply requirement as base line supply, rates should include full cost of electricity, including environmental costs, systems to ensure reliable priority supply (heat).

- Environmental concerns including impacts and individual responsibility, environmental considerations and the need for full cost accounting.

- Discussion around what the demand is, meeting demand needs, role and impact of Site C, Power Smart, biomass and cogeneration projects and power supply by many small projects vs. one big project.
• Improving technology of renewable energies (wind, tidal, wave).
• Generation close to load, transmission losses and transmission reliability for certain areas.

1. Welcome and Introductions
David Conway, BC Hydro Community Relations representative, formally welcomed everyone to 2005 Prince George Integrated Electricity Planning (IEP), and introduced the IEP team members. He gave a brief introduction to the 2005 IEP of which the purpose is to develop a long-term plan to meet BC Hydro’s customers’ needs over the next 15 to 20 years. The plan will set direction for short term and medium term planning, and is an ongoing process. The IEP is a complex process, which involves various tradeoffs. The stakeholder engagement process is designed to assist BC Hydro in finding out which factors are important to customers, for example reliability, cost, environment protection or regional specific issues. The 2005 IEP builds on the 2004 IEP process and future First Nations and stakeholder IEP engagement processes will be developed from the 2005 IEP. There is also a provincial IEP committee, which is tasked with developing a preferred portfolio and feedback from the evening’s session, which will be summarised and provided to the provincial committee. Input from the public is therefore very welcome and can be provided through the information sessions or online through the BC Hydro website. David Conway provided an outline to the evening’s program.

2. IEP Presentation
Dorell Carlson welcomed everybody to the evening session and encouraged participation throughout the 2005 integrated electricity plan development period. She gave a presentation on the IEP process, providing a brief overview of the purpose, lessons learned from 2004 IEP process, and the development and implementation of 2005 IEP process. The outcome of the IEP process was defined as a preferred portfolio, which is a mix of resource options, which would best meet future needs of British Columbia.

2.1 Questions and Discussion
Why renewal period of two years for IEP process?
The load forecast is updated on an annual basis in order to project the growth of electricity requirements and review the condition of existing resources. Information on various resources may also change over time and should be reflected in IEPs.

Who will undertake the next IEP, is it BC Hydro or will you engage with stakeholders and follow the same process?
Future IEPs will follow the same process and engage with stakeholders. In addition, as engagement progresses over the next IEP, the process will evolve with continued interaction.

What is the 20-year forecast of 20,000 GWh of load growth as per presentation in context?
1 GWh = 1,000,000 KWh. An average home uses about 11,000 KWh annually.
Since BC Hydro’s existing system is almost 11,000 MW; does this mean in 20 years we need to double production?
No, as the graph shows BC Hydro’s resources can meet current demand which is about 56,000 GWh. Forecast demand will grow to 73,000 GWh.

What is increase in the Demand and Supply graph based upon?
It is based on forecasts, which include a review of all three sectors: residential, industrial and commercial.

Is population considered?
Yes, population is an important factor in the residential sector.

Does this take into account Power Smart?
Power Smart is one of the key strategies to address growth in electricity requirements.

If we cut back on exports, will we have enough for ourselves at our current production?
Exports are discretionary; BC Hydro does not lock into long-term export contracts but takes advantage of export opportunities, by utilizing the flexibilities of the BC Hydro system to buy during low load hours and sell during heavy load hours. BC Hydro is a net importer of power.

If our need is going to increase from 56,000 GWh to 73,000 GWh, are our transmission lines strong enough to handle this increase?
This would be influenced by where new generation facilities are located in the province and this is an important planning question. The key issue here is whether facilities are built in the load centre or outside load centre, which would drive a need to reinforce transmission lines.

Demand line on graph: Does this supply line not take into account all the Power Smart programs, which will be coming on line in the future?
Power Smart is really about reducing demand. In the future, additional Power Smart programs would flatten the demand-forecast line and thereby reduce the gap between demand and supply.

Does biomass include coal?
No, it includes anything grown such as wood waste, landfill gas.

Why is biomass not an option in the Kootenays?
Biomass likely does not show a checkmark in the Kootenays because BC Hydro is not aware of any proposed projects in that area.

General comment on small hydro:
Some areas like the northwest have great potential, however; the challenge is cost of transmission to get it out.

Will we be talking about specific regional resources?
Not to a great extent, but we welcome questions.
Cogeneration plant with Canfor: concerned that there has been no media update, heard that the project was over budget and was wondering if it was going forward? Response from the floor was that beehive burners have another two-year extension so there is no rush to get a cogeneration plant going. The response from BC Hydro is that BC Hydro has put $48 million to $81 million towards a project with Canfor. It is currently over budget and Canfor will carry the remainder. Wood waste will be brought in from Bear Lake area. The plant will be completed and online by the end of April and will shut down a number of existing burners. Benefits to BC Hydro are that cogeneration displaces load presently being taken by Canfor and assists in improving air shed. Additional comment from floor is that wood waste needs to be trucked in by road and it is a two-lane highway, which creates additional impacts.

Are there other cogeneration projects in the works? There is one in Kamloops that is similar to the Prince George project. The response from BC Hydro is that there is certainly a lot of interest in the northern area and there have been ongoing discussions around three projects which are waiting for the next general BC Hydro call for energy: Fort St James, Houston and Mackenzie.

Is call for energy through Power Smart? No, it would be a new competitive call for supply projects from the private sector.

Will there be an opportunity for “wannabees” to go to resource option workshop meetings? Yes, BC Hydro has a schedule of meetings, some coming up in early March. Additional information is available online at the BC Hydro website.

Will all of this presentation be on the website? Yes.

The following discussions took place around Site C:

How realistic is it to proceed with Site C? Where is BC Hydro in this process? BC Hydro’s response is that they are looking at the IEP planning process to inform future decisions by getting input on where Site C ranks with stakeholders as a preferred option. Site C has a 10 year plus lead time to build and a lot of work, such as studies and consultation, to be done before this project proceeds.

If Site C went ahead, what would it contribute to determine future energy needs? The project would produce energy capacity of 4,700 GWh, which would vary depending on water availability. This is equivalent to about a quarter of the growth in required energy over the next 20 years.

Is Site C run of river, that is, what goes in comes out and is there storage? The project would not store a lot of water and it takes advantage of the flow regulation provided by the Williston reservoir. The location for Site C is west of Fort St John. As presently defined, the size of the facility would be similar to the Peace Canyon plant. The dam would be about 150 feet in height and would flood about 11,000 acres. BC Hydro owns 7000 acres of the area; some is crown and some privately owned. There is some widening of
the river upstream towards Hudson Hope and some dykes would be required. Reservoirs would be elongated and would not be like the Williston Reservoir behind the WAC Bennett dam.

Will Site C take agriculture land?
Yes, it will take some agricultural land. Site C is listed as one of many resource options in the 2004 IEP. It is not a preferred option as no preferred resource mix has been determined yet; that is an output of the 2005 IEP. Input from the regional session is part of the process which determines what decision is made on Site C. Some funding for initial environmental assessments has been activated but outside of this pre-work, this project is not considered a preferred option because there has not been a decision. Part of the communication challenge will be people’s different understanding of what the project is, and how this may change over time.

What will happen to Moberly River?
There would be inundation up that river. We cannot give a distance.

Would all of Bearflats be flooded?
The response was not all of it.

Can we meet our expected power needs without a Site C and what is the possibility of producing the energy needs with many small projects?
Some energy requirements could be met by small projects. The typical energy production of a small hydro project is 100 GWh; therefore, we need to have many small projects. Gas projects like Duke Point produce 2000 GWh. That is a 250 MW CCGT – combined-cycle gas turbine, which is a more efficient technology than the Burrard gas-fired plant.

Is this a significant project?
Not necessarily, Burrard capacity is about 900 MW and its energy capacity is 6000GWh per annum. Burrard was considered to be about 10 per cent of the BC Hydro system, now it is probably slightly smaller. Burrard is important from a reliability point of view but given the age of the plant we need to consider the long-term plan for the plant.

Wind turbines?
Each turbine is about 1MW. They only operate about 30% of the time so they would produce about 2 GWh per year.

Is there much (tidal) power in the rapids off the top end of Vancouver Island?
The BC Hydro response is that we are not familiar with the location. However, tidal power overall is difficult since a large installation is needed to capture energy, which creates navigational problems. A brief explanation of a tidal scheme in Nova Scotia was provided and used to illustrate the need to consider ecological impacts.

3. Group Exercise
At the request of the facilitator one working group was created and asked to discuss and prepare responses on each question. David Conway recorded the input of the group on a flip chart, after which the inputs were categorized into four groups: Customer Reliability and Supply, Environmental, Financial and Enablers.
Question 1: In developing future electricity resources, what are the most important factors to you?

General Groupings of discussion:

Customer reliability and supply
- Future needs.
- Inventory of needs: potential growth, projects.
- Brownouts to make people appreciate energy, reduce personal waste, reduce business waste: Power Smart for Business, cost factors drive change.
- Power Smart to reduce energy consumption.
- Reliability (at -40 Below wants furnace to work) = Transmission and production reliability.
- BC Hydro to set goals for what’s acceptable use standards.
- BC Hydro expected to provide leadership.
- Feeling that big impact projects will be in North and South interior.
- Consider DC transmission over long distances. Concerned over loss of power in transmission. It depends on conditions but is about nine per cent.
- Stepped rate for electrical use: reduce consumption.
- Voluntary curtailment for residential and commercial users: use incentives.

Environmental
- Brownouts to make people appreciate energy, reduce personal waste, reduce business waste: Power Smart for Business, cost factors drive change.
- Stepped rate to reduce consumption.
- Electricity conservation education: in cooperation with other utilities and local government. Learn from others.
- Micro Hydro makes sense: less impacts if done properly/ economic diversification/is it reliable?
- Feeling that big impact projects will be in North and South interior.
- Consider DC transmission over long distances. Concerned over loss of power in transmission. It depends on conditions but is about nine per cent.
- Locate generation close to load.

Financial
- Environmental issues:
  - causes of impact
  - effects
  - minimize environmental damage
  - Power Smart
  - people and individual footprint
  - cost incentive rates to reduce consumption
  - reward people for less consumption
- Keep BC Hydro Canadian, for example, no more Accenture arrangements since their parent company is in the Bahamas.
- Electricity conservation education: in cooperation with other utilities and local government. Learn from others.
• Consider DC transmission over long distances. Concerned over loss of power in transmission. It depends on conditions but is about nine per cent.

Enablers (question here as to whether it enables BC Hydro or the province)
• Keep BC Hydro Canadian, for example, no more Accenture arrangements since their parent company is in the Bahamas.
• Learn from other jurisdictions and educate the public.
• Electricity conservation education: in cooperation with other utilities and local government. Learn from others.
• Feeling that big impact projects will be in North and South interior.

Not Categorized
• Security = more lights. Value of electricity to society.
• Conflicting values/interests: increased need for security and greening of our living spaces, for example, big trees in Vancouver.

Questions and Discussion on Question 1
The following were questions and discussions relating to Question 1:

Is it possible for BC Hydro to create a two-code system for crisis management where users can switch to primary needs when limited supply?
California uses this system. BC Hydro does not do it, but it is a good option. It has worked with industry via curtailments but not commercial or residential customers. California’s experience is that when the program was initiated and announcements were made, the savings were achieved but later calls showed reduced savings. Participants felt that this was a factor of education and ownership.

What is the potential affect of NAFTA? Could we be required to export under NAFTA?
BC Hydro’s electricity trading is undertaken through Powerex which does not use long-term contracts, therefore avoiding this situation.

How long is long term?
Generally Powerex does not make any commitments over three years. There are provisions for specific buys for longer term, but they require higher-level approvals.

What is an enabler?
BC Hydro (through Powerex) will leverage trade opportunities to support benefits, for example, lower rates in BC.

Do we have any geothermal facilities?
The only area of exploration is Meager Creek north of Pemberton. A private company is working there trying to develop a geothermal facility. They are currently drilling. There is lots of potential in the province but much of it is in remote locations, like Mt Edziza.

Escalating tariffs structures:
BC Hydro uses stepped rates for industry. Participants noted that BC Tel has a rate system when you pay a minimal fee for the first hours of long distance and then the rate jumps.
Question 2: Which of these factors would you be willing to pay more for?

- **Reliability:** Only for certain essential needs and stepped rates after that.

**Environment**

- **Green power and environmentally responsibly delivered power:** Electricity that reflects true costs of energy production and its impact. Higher rate for higher environment impact electricity. Environmentally responsible.

- **Best Technologies** available, for example, coal and biomass for cleaner energy production

- **Renewable energies:** wind/tidal/wave.

**Financial**

- **Green power and environmentally responsibly delivered power:** Electricity that reflects true costs of energy production and its impact. Higher rate for higher environment impact electricity. Environmentally responsible.

- **Environmental Trade-off for generation close to load.**

4. **Summary of Meeting and Next Steps**

Dave Conway thanked everyone for participating and offering comments and input. Information relating to the IEP process can be seen online at the BC Hydro website. A second session will be held in the fall with feedback from the Provincial Committee.

**Additional items covered:**

- Notes to be mailed to Sandra Kinsey
- Feedback forms

**Contact Details**

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