

# BC HYDRO SITE C CLEAN ENERGY PROJECT

## FORT ST. JOHN Public Information Session Wednesday April 6, 2011

Notes from a question and answer period held with members of the community and representatives of the Site C Project Team on Wednesday April 6, 2011 at the Pomeroy Hotel, 11308 Alaska Road, Fort St. John.

**PRESENTERS:** Dave Conway, BC Hydro, **Facilitator**  
Siobhan Jackson, BC Hydro  
Judith Reynier, BC Hydro  
Andrew Watson, BC Hydro  
Andrea Travers, BC Hydro, Recorder  
Paul Higgins, BC Hydro  
Don Wharf, BC Hydro  
Alex Izett, BC Hydro  
Mike Porter, BGC Engineering  
Martin Devonald, BGC Engineering  
Lauren Simpson, Keystone Wildlife  
Matt Begg, AMEC

**STAKEHOLDERS:** Ernie Reimer  
Lynne Thompson  
Neil Thompson  
Lynda Peterson  
Larry Peterson  
Brad Culling  
Roberta Kuropatwa  
Jim McNight  
Janice McKnight  
Caitlin Vince  
Bruce Citwyl  
Bruce Lantz  
Jane Norman  
Allan Norman  
Grace Fika  
Diane Culling  
Larry Evans  
Verena Reznicek  
Ron Reznicek  
Julie Cowie  
Randal Adam

Angela Horner  
Duane Horner  
Karen Goodings  
Edward Stanford  
Fred Jarvis  
Tony Atkins  
Adam Greenwood  
Emily Goodman  
Remi Farvacque  
Jim Little  
Margaret Little  
Steve Hinderman  
Philip Dyck  
Danielle Yeomand  
Steve Roe  
Bruce Christensen  
Cheryl Christensen  
Andrea Morison  
Ken Forest  
Jake Hughson  
C. Austin  
Graham McCanber (sp?)  
Bruce Simard  
Ruth Ann Darnall  
Arthur Hadland  
Roger Lythall

**MEDIA:**

Kim Molina, Moose FM  
David Bell, Astral  
Jennifer Fernandes, Northeast News  
Ryan Lux, Alaska Highway News

Format: The record notes that the Open House commenced at 7:00 p.m. and participants were encouraged to view the display boards and use the opportunity to have one-on-one discussions with BC Hydro personnel. At 8:00 p.m. participants were seated for a presentation and for a question and answer session. The session ended at approximately 9:25 p.m.

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**KEY THEMES:**

- Participants expressed concerns about the potential change in climate associated with the reservoir.
- Participants asked to what extent BC Hydro is studying climate change.
- Participants asked about the safety design of the dam and asked if risk factors were being considered in relation to one another.

- Participants expressed concerns about the future condition of agriculture in the region if the project proceeds.

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The presentation and question and answer session was called to order at 8:00 p.m. There were approximately 50 people present.

*The following abbreviations will be used: Q: Question, A: Answer, and C: Comment.*

**1. Welcome and Introduction of the BC Hydro Project Team**

Round table self-introductions were made. The Facilitator noted that a record of the meeting was being made. The record will not be verbatim, but rather detailed notes which will form part of the consultation record and will be available on the project website. Every attempt has been made to secure the correct spelling of participant names. BC Hydro apologizes for any misspellings.

**2. Presentation**

The BC Hydro team provided a presentation outlining the status of the proposed Site C project and field study activities that will be taking place this year.

Slide 1 & 2: Introductions / Meeting Purpose / Environmental Assessment / Stage 3 Consultation / Other Stage 3 Work

No questions received.

Slide 3 & 4: 2011 Field Studies Update / Agenda

No questions received.

Slide 5: Field Studies Underway – Climate Monitoring, Air Quality, Wildlife

No questions received.

Slide 6: Dam Site Investigations

No questions received.

Slide 7: Shoreline Geotechnical Investigations

No questions received.

Slide 8: Heritage Study Program

No comments received.

Slide 9: Agricultural Assessment Study

No questions received.

Slide 10: Reservoir Clearing Plan Investigations

No questions received.

Slide 11: Spring Start – Garter Snakes, Fish & Aquatics, Noise Monitoring & Sediment Transport

No questions received.

Slide 12: Upcoming Field Studies

No questions received.

Slide 13: Q&A

No questions received.

Slide 16: Next Steps

No questions received.

**3. QUESTION/ANSWER/COMMENT PERIOD – Facilitator**

It was the intent of this session to allow participants time to question or comment on the project.

- Q: *Ken Forest*: I am a land owner outside FSJ and Hudson’s Hope and a member of the PVEA. I saw in your literature that you are going to address some aspects of climate change and I saw on your slides that you are setting up wind monitoring, temperature and humidity monitoring, but my real question is what are you doing to take a look at long term climatic impacts in this area? It is pretty hard for you to get but you can take a look at current research and ask what local climatologists are forecasting in the next 20, 30, 40, 50 years of this region because this dam has a lifetime of 70 to 100 years, or possibly more. The questions that I have are centered around things like this.
- I know there are people that think there are no such things as climate change, but 97% of climatologists across the planet would disagree with that. If you take a look at things that have happened in the last year...look at Japan where we had an

earthquake and possibly 20,000 people have died, but nobody pays attention to the 139,000 that have died in the USSR last summer because of their drought and fires. If we take a look past Japan where there was a tremendous amount of flooding because of torrential downpours and monsoons and 2 million people lost homes. Take a look at Australia this year and the record breakers there. Climatologists would suggest that it will not be “business as usual” over the next 20, 30, 40 or 50 years, instead we will be in record breakers for a lot of that. I was in New Zealand a little while ago and they had five years of straight drought. Most of their electricity is generated by hydro and there were brownouts because their dams weren’t full. Your dams are good battery back-up as long as they are full. What happens if there is no water? What happens if we hit a five to seven year straight drought? What happens to our dams and electricity in the province? What happens if we suddenly switch and end up in two straight years of torrential downpours? Can your dam handle that? Maybe you aren’t worried about that in the first 10 or 15 years, but how about 20 years? Or 60 years? What about the people that are living here with children, what is going to happen to the dam and the valley and so on then? So my question is what kind of research are you doing around that versus some local studies here? Thank you.

A: *Siobhan Jackson*: If I can paraphrase the two questions in there. One is what research is BC Hydro involved in or aware of regionally in terms of looking ahead at climate change? And how are we considering those potential changes in climate in terms of inflows to the dam? I think those are the two questions.

So the climate change question, BC Hydro got involved a number of years ago sponsoring a major research program, as the primary provider of funds, at the University of Victoria called the Pacific Climate Impacts Consortium (PCIC). It’s a joint partnership with universities and it targets watersheds. PCIC has built climate models for watersheds in British Columbia, including the Peace River watershed, as well as one on the Columbia and one on the coast. So that research is exactly what you are talking about and BC Hydro initiated that work.

Also related is a Glacial Melt Study. Glacial melt is an insignificant contributor to inflows in the Peace River. So that research is something that our agricultural team is going to look at. I won’t try to summarize everything they have done. It is available on their website – they are called PCIC. In a nutshell, they took the climate change scenarios from around the world which downscaled them and made them relevant to B.C. It’s pretty exciting research and we are just starting to digest the first results, which were provided last year to BC Hydro’s own climate and meteorological team. So, BC Hydro is extremely involved in the work you have just described and our project will be able to use that work in terms of looking at and understanding the resources that may be affected in consideration of climate scenarios out to 2050, which is the timeframe that they are projected to, current year and 1950, so they did it out to three timeframes.

A: *Andrew Watson*: On the engineering side, violent storms are something that are considered when planning. The design criteria for the spillway for a dam far exceeds the maximum flood that has been recorded. What we do is look at maximum probable precipitation event, which is the worst possible storm that is

on any record in the area and we actually rotate it and translate it around the basin. We have actually done that at Williston, Dinosaur and Site C. Then we combine those to include any assumptions about the run-off and how quickly it can flow into the reservoir. So we also test that. We go beyond storms that have ever been recorded in the area, and we move storms into areas they have never been before and then we can test those against the design. Climate change is very much a part of the considerations when you come up with design criteria for the spillway.

Q: *Arthur Hadland:* I have a few things that I would like to bring up since I have a bit of an audience. One is at the last meeting (BC Hydro Presentation to Land Owners Meeting - February 23, 2011) I asked about the soil stability and the 2009 report (Peace River Site C Hydro Project – Reservoir Shoreline Impacts: Methodology and Criteria, Klohn Crippen Berger Ltd. and SNC – Lavalin Inc. 2009). I think if BCUC were involved, which unfortunately I think they are outside of this, you wouldn't be at this meeting right now because the word uncertainty shows up so many times in this report. The question I asked at the other meeting is do you understand or have you looked into what Montmorillonite clay soils are?

A: *Andrew Watson:* Yes, we are very much aware of Montmorillonite which is a type of smectite clay family in the area, as well as many other areas.

C: *Arthur Hadland:* The report doesn't reference it all, it just covers it with a very broad brush. I really question if there is any understanding of where the instability is in that whole lower reservoir. The two upper dams are of course in bedrock but this will not be and I suspect that this actually creates a lot of uncertainty.

A: *Andrew Watson:* There are investigations at the dam site. There have been about 30 of these large exploratory holes, or adits, for deep testing of the soils. It is one of the reasons the design of the dam is a short stubby dam to meet those design loads.

Q: *Arthur Hadland:* Ok then. I would like to feel there is some credibility in the reports, but the 2009 report did not give me any certainty.

Just to carry on further, you are covering off a whole bunch of issues, but this may be more appropriate for Dave. In 1981 the regional board did a lot of deliberation about whether they wanted to see this river destroyed or whatever, and the resolution came up, I will just quote it verbatim: "The Regional District is opposed to the project, that is Site C, unless BC Hydro provides the compensation, mitigation, monitoring program measures discussed in this position paper." The position paper covers off a whole lot of different issues. The one thing I feel is missing now is that the resolution was predicated on the point of view that the BCUC, the honest power broker, would be involved. The so called *Clean Energy Act*, I don't think it is any of the above.

It is pretty obvious that Site C was turned down in 1982 because the stories we were told by BC Hydro, people were basically threatened or blackmailed by BC Hydro representatives at that time that there would be brownouts or blackouts if it weren't constructed. So today, how many years are we ahead, and there is no such thing. I don't think that there's been any justification provided for the money and

the energies that are being expended, not only by Hydro, but by the people in this room, the people in the community. So I think that is the frustrating thing and I think that we as citizens feel we have done our fair share. We as citizens in this community feel this way.

A: *Dave Conway*: So from the perspective of a response ...

Q: *Arthur Hadland*: First of all, are you aware of this resolution?

A: *Dave Conway*: Yes, actually I am and I have read it.

Q: *Arthur Hadland*: Did you know that it had been renewed?

A: *Dave Conway*: I was aware that the District is looking at the potential if the project moves forward, but I am not sure what your position is today.

Q: *Arthur Hadland*: In 2009 the Board basically iterated again that they supported the original resolution, but BCUC is missing today. So I guess where is the confidence in the project?

A: *Dave Conway*: In response to that, the oversight of the British Columbia Utilities Commission for the Site C project and a number of other large projects was removed by the government through the *Clean Energy Act*. But where the confidence is, and I am going to let Siobhan talk about this, but I will start it off. From a certification perspective when you get your environmental assessment there are certain things that are written into the certification that you need to do, and I would think that that is part of it. The other piece is that government has asked us to look at what potential benefit or legacy benefits could be moving forward. You are well aware of it, during Stage 2 we did ask the question about what potential benefit or legacy benefits could be to local governments and to stakeholders. We were specifically asked to do that by government, to collect information about what those may look like. We then heard a wide range of ideas. To generalize, some were related to infrastructure, some were related to impact preparation, some were related to things like a trust fund, and so those sorts of ideas are there. But related to insurances from a certification perspective, Siobhan is there anything you can add to that?

A: *Siobhan Jackson*: The Environmental Assessment process includes, I think the name has recently changed, essentially a table of commitments, and those would be a condition of our permit. Today many of our conditions are embedded in our water licence which covers many of the parameters. The table of commitments includes an audit and follow-up process and we would have significant mitigation, monitoring and follow-up programs as part of this project.

Q: *Arthur Hadland*: Where I am coming from as a community citizen is stewardship. Stewardship of our resource, stewardship of our valley. There are a number of resources not being addressed. Stage 2 absolutely blew past it. The first one that I can address is agriculture. I think there was a one-liner in the Stage 2 report that was very ambivalent about agriculture. Another thing that I have here, and this is a resolution carried by the UBCM, is about food security for British Columbia, and it notes whereas man are adaptable to shortage of food and where population is growing at a rapid rate, British Columbia was 73% self-sufficient at producing the province's food requirements in 1985 and was 48% in 2006. And whereas the BC Agricultural land base is less than 5%, the result is that the UBCM prevails on

municipal government to work with stakeholder associations to develop and implement strategies and policies to ensure B.C. can be self-sufficient in food production by 2020.

We have Class 1 and 2 lands in the Peace River Valley, and anywhere else down to Hope they don't have those high quality lands. They aren't being utilized properly today because the people have been under a cloud since 1957, since potential dam sites were identified. Unfortunately Site C was not removed as a potential site, along with Site E. That one I think is very critical, and I think I am going to let that one float.

The other ones are that in 1996 the Peace River was declared a heritage river. I don't see that being addressed anywhere in the stuff that is here; it is just totally ignored. The other is the historical aspects. I heard you are looking for old cabins and stuff, but Hydro paid for that report that identified the 1794 Rocky Mountain Fort. That is the first known permanent human inhabitation in B.C., yet that is ignored. It should be a national historic site. Followed by that is the Yale Fort 1820, I don't know if you guys know this, but I didn't see it in any of the stuff. There is the Rocky Mountain Portage Fort in 1806, that's where Simon Fraser came through. This was the gateway to British Columbia, and I think we should be preserving it rather than destroying it.

I'll just finish off here with a comment and a question. The question is has there been any communication with Alberta? Has there been meaningful communication? Open and transparent? What do we know about it?

A: *Dave Conway:* I will pass the microphone over to Siobhan to talk about Agriculture and Heritage aspects, but in regards to contact with Alberta, yes, there has been trans-boundary water use conversations. Those conversations are being led by the Province of British Columbia with the Province of Alberta and the Northwest Territories. We have BC Hydro representation but we are not leading those discussions.

Q: *Arthur Hadland:* Is that information available?

A: *Dave Conway:* I don't know Arthur, I will have to check and see.

Q: *Arthur Hadland:* Please do; that would be great. I don't know anything about that. I think we have a neighbour next door and there should be full disclosure, full discussion and I don't see it happening.

A: *Siobhan Jackson:* With regards to agriculture, we didn't initiate that assessment during Stage 2. Our focus was baseline studies for the early-start studies that require multiple years of data, such as fish and wildlife. The Agricultural Assessment will be done and it will be part of the environmental review of the project. For the Heritage program, we didn't specify in the report but we have many times spoken to our awareness, knowledge and BC Hydro work that has identified many of the archaeological sites. The forts are archaeological sites so they are included when we talk about the many archaeological sites in the valley. The follow-up work at the two forts you mentioned, Rocky Mountain and Yale Fort, as well as the sites downstream, most have been fully researched and excavated by Simon Fraser University in the mid-1980s. The location is still

there, but largely the research is fully done. There is a great book “Prophecy of the Swan” which describes the work they did and the context of the archival research, the records, the logs. It is an excellent book and it documents well what was learned through the excavations.

Q: *Arthur Hadland*: I have read the book and I do agree, it is one thing we will agree on tonight, it was a wonderful read. And I would hope that BC Hydro would be considering it, but I don’t see any evidence of it. The other is agriculture, why not take that at a provincial context? You are doing it in isolation and I guess that divide and conquer works as well but I think it should be looked at as a provincial thing. You have not involved the Ministry, as far as I can see. I think they have been left off and that is a flaw in the process. Anyhow, I will let the next person speak now, but I want to capitalize four things that I see as deterrents, other than the fact that BCUC is not involved, which is deplorable. One is the dollars. Whatever this is going to cost, the alternative of using natural gas is a fraction of the cost. Put it near where the energy load is, in the Fraser Valley, and use all the natural gas resources that we are providing the province. The uncertainty thing – the uncertainty of the engineering, and I read that report that was done on the sink holes at the W.A.C. Bennett and definitely I was left with the knowledge that there was uncertainty the whole way through with the dam reaching halfway in its life span. I don’t see any meaningful stuff happening with Alberta. It’s not one short river in B.C. it’s a river all the way through northern Canada. And the last one is where are the First Nations? I don’t see anything happening there? Are those secret negotiations? Because they put forward a very strong proclamation that they were not in favour of anything to do with Site C when they delivered that message to the Legislature last September, I was there.

Anyway, those are my comments. I sure hope this thing doesn’t go ahead.

Q: *Bruce Simard*: I am the General Manger with the Regional District. And Siobhan you mentioned the work of PCIC and the environmental report. I am a bit familiar with it and I am very much waiting for them to put it in a form that non-Ph.D.’s can understand. One aspect of the work I am concerned with is the importance of keeping in mind potential effects downstream of this dam. The PCIC work only extends upstream of the dam, it does not extend below the dam. I am wondering what BC Hydro is doing to extend or if they intend to extend climate change research below the dam?

A: *Siobhan Jackson*: I am not sure. That’s a program at U.Vic. that PCIC have been leading with the universities. My understanding is that it is not specific to just the upper watershed. It’s to predict scenarios, and there are three different scenarios that would apply to the region I believe at large. I would have to go double check that.

Q: *Bruce Simard*: I ask that you go check it out. I have looked it up, and I understand the watershed basis, and if I understood correctly, it is only dealing with watersheds above the dam, and it would be good to understand what are the climate change effects on the greater portion of the farmland and major population in the region, as well as downstream effects. If you could look into that and get back to me it would be great.

A: *Siobhan Jackson*: Sure.

Q: *Diane Culling*: So Andrew this question is for you. I recently read a paper and the primary authors were from Hydro Quebec and the secondary authors from Ecole Polytechnique, it was about the risk factors associated with dam failures and the authors were proposing that we reassess risk factors from a linear way of thinking to where you look at interactions between risk factors. So now bearing that in mind, let's look at some potential interactions that could be associated with dam failure at Site C or perhaps the Bennett dam.

We know that historically in the last 20 or 30 years we have induced seismic activity in this region in response to the oil and gas industry. We also know that there was a 5.4 magnitude earthquake downstream of the proposed Site C that I believe they don't think was associated with oil and gas activity. Now W.A.C. Bennett Dam also had problems at year 28 of its life, two sinkholes that I believe were associated with something left in the dam, which made it not 100 per cent because of the settlement at the core associated with that piping, a factor contributing. So now we start thinking about the fact that we also have a valley historically prone to landslides. I believe in the last hundred years there have been four major landslides that have blocked the river at least partially. So there is our scenario.

And now we bring in that scenario, in addition to the conventional one that we have, we are bringing in the shale gas and fracking and we are relatively new in this area and we don't understand the implications of this induced seismic activity associated with injecting fracking water. We have fracking occurring adjacent to the Bennett Dam, Farrell Creek, and we have it occurring in close proximity to the proposed Site C dam.

So if we take the Hydro Quebec paper and look at potential interrelated factors and the impact that could be missed if Hydro is looking at it linearly and looking at potential risks in isolation of one another. If we have fracking-induced seismic activity that isn't significant enough to crack the dam face or make any obvious damage to the dam, but is significant enough to initiate shifting of core materials that could be happening over time. Now suddenly there is something that could potentially weaken the dam face. And then we have, BC Hydro's own report says, three million metric tons of sediment will be deposited in the reservoir annually because of the Halfway mainly. So then suddenly from the 1980s there was modelling of potential landslides over top of the dam. I can't see where they were looking at this model taking into consideration the long term effects of potentially three million tons of sediment being deposited annually on the upstream face of the dam, which would change the profile of the dam face, so that is another risk factor.

If we had a slide in the situation where we had a weakened core, all of that material building up and then we have a slide that could potentially go over top the dam, we have significant potential for a failure, so my question is to you, are you looking at these effects and what do you understand about the potential for

induced seismic activity based on the relatively new oil and gas activities going on adjacent to the existing and proposed sites.

A: *Andrew Watson:* Thank you very much for the question. We do look at things like systems engineering when we look at multiple contributing factors in engineering designs. I'll start with the induced seismicity. During the earlier natural gas work they didn't really have a handle on the injection pressures as much as they do today and they did induce a number of smaller earthquakes. There was the magnitude 5.4 about 70 kilometres from the dam site. Both those reasons have contributed to the increase in seismic hazard in the design criteria at Site C. It is one of the bigger changes in design requirements actually. In the 1980s it was deemed to be part of the continental plate and very low seismicity in the area. It moved to more of a moderate seismicity as part of the design work we did during Stage 2. We looked at if we were living with this design what type of changes would we make. The historic design is not necessarily the best solution, so the last couple years we have looked at different arrangements that potentially come up with a better solution.

The fracking that they do now at the Montney formation, which is close to the dam site there, about 1.5 kilometres down, they do control the fracking there. It is quite deeper than the injections that were done before. But the design hazards for the site would far exceed any kind of earthquake from that, but we certainly look at the combination of that with other elements. As far as the sediment, the sediment from this reservoir is really driven from the Halfway, not the Moberly which is closer to the dam site. It would actually take hundreds of years for the sediment to make its way to the dam, and as it did it could actually help stabilize the slopes.

It is a good comment and we do look at factors like that.

Q: *Jim Little:* My question is that from what I have seen here in terms of agriculture, you are pretty much sticking yourself right in the valley. I want to give a little bit of history. My wife and I have a land on Highway 29. Prior to Site One (Peace Canyon Dam), we used to be able to get two crops of hay per year. Since Site One went in, because of the fog in the fall we can't get two crops a year now because it doesn't dry. And the neighbours south of us, who have long since passed away, also could not get their crops to dry. Beyond that, in the winter time, like in cold weather and this past year is a good example of it, we got significant ice fog in our valley. All the trees look beautiful but you see little birds just falling out of trees frozen. They have no place to nest in that tree. They freeze up their little bodies and they can't handle it, you find them dead on the ground that's because of the ice fog. If the dam is built, you are going to see significantly more ice fog and cold winters like we have just come through. Not just where we live but Fort St. John and right to the border. The river will be running at least two degrees higher below the dam once the water goes through another set of turbines and in cold weather that will fog in and if anything there is a good chance that you won't be using the airport. That's my first question.

- My second question is in 2001 or 2002 the provincial government refused another dam being built right below Site One and the reason they gave was because of First Nations values in the valley. So my question is if it wasn't good enough to allow that project to go ahead, why would Site C be good enough for the province to build right below Fort St. John?
- A: *Siobhan Jackson:* The climate studies that we are conducting use a couple of tools that are state of the science climate modelling. The in-valley meteorological stations will help with model validation for our weather forecasting model which is similar to those used to look at five day weather forecasting. The weather model is used to predict change to weather variable with the reservoir. Would that body of water change the weather is the hypothesis, because we've heard concerns about this before. The climate or weather model being put in place will help us answer these questions and we are building it in concert with the water temperature model that you mentioned so that we can understand what the water temperature profile in the reservoir will be. We actually don't know yet. We put a hypothesis out that there will be a temperature change. We are running the water temperature model to understand the layers within the reservoir, where the intakes are, and how that will translate into temperature changes up or down by season with the dam in place. We are doing all the research I think you are asking us to do in terms of helping to answer what would be the local or micro-climate effects in the region with the development of the reservoir and the temperature shift downstream. Through the environmental review we will be able to work with that information and the answers that we get from the model and be able to help put some answers to the questions that you have asked.
- Q: *Dave Conway:* Jim, the second part that you asked related to the other dam, I am not aware of the proponent who was suggesting that, so I can't comment related to that. Andrew, are you aware of it?
- C: *Andrew Watson:* No, I am not aware of it.
- A: *Siobhan Jackson:* Was it the Peace Canyon Energy Corporation? They didn't propose a dam, my understanding is that they proposed some in-water turbines, not a dam, but I am not aware of the reasons that the proposal was denied.
- Q: *Jim Little:* I don't have access to that, but bottom line, the reason it was because of First Nations values and that's my point.
- A: *Siobhan Jackson:* I don't have access to that information either.
- Q: *Randy Adam:* It has been 37 years since the first of these meetings that I went to. And we are still talking about what kind of studies need to be done. It is amazing. But anyway, you were talking about forestry and I am wondering if a study has been done to determine what the forestry capability of the valley would be?
- Q: *Siobhan Jackson:* Forestry capability?
- Q: *Randy Adam:* Forestry capability.
- Q: *Siobhan Jackson:* Like what those trees will grow into?
- Q: *Randy Adam:* What the sustainable forestry potential of the valley may be.
- A: *Siobhan Jackson:* The studies we are doing are forest inventories which are to understand the current conditions of the valley. We also have ecosystem mapping

- which helps us understand the ecosystems and their current stage of change. And over the years since the Bennett Dam was put in place, there has been substantial work done by Dr. Church to understand the changes to geomorphology and related vegetation growth on the bank with transmission regulation. I hope that answers your question.
- Q: *Randy Adam:* Well, no. If we are going to propose a project like Site C that is being promoted as an economic benefit to the province for a variety of reasons, we should also be looking at the negative considerations, and one of those would be what if the valley was a designated forestry area what potential economic impact could the valley have on this area if it was a sustainable forest. Is that being considered?
- A: *Siobhan Jackson:* We don't have a study framed in that manner.
- Q: *Randy Adam:* But you are doing it for agricultural?
- A: *Siobhan Jackson:* Yes we are, that is normal practice for agricultural studies to examine agricultural capability to reflect the way that agriculture is managed in the province.
- Q: *Randy Adam:* I don't know if I agree with you, but anyway, I think it would help if that were also considered for a study. I will put pressure on BC Hydro to get that study going. I have one more question. Since the W.A.C. Bennett Dam went in, there has been a pretty remarkable change in the river flow downstream so I would like to know the cumulative impact on the river from the facilities. What have been the impacts over the years? And what the impacts of Site C will be on the fish and the moose and everything downstream because of the change in the river flows.
- A: *Siobhan Jackson:* On the aquatic program we are in year 10 of what we call the large river fish indexing program. We have that program on the Peace and Columbia rivers to understand the different areas of the river and species composition. And some of the things that we have learned are where are the transition points, between the upstream Mountain fish species and when they transition into the Alberta fish species, for example. All of the work that we are doing describes the current species mix. We don't have the data to describe the change over that old period of time, but we do have the data to understand the current aquatic environment. Forty years on, it will probably have stabilized and transitioned.
- Q: *Randy Adam:* I would like to suggest that BC Hydro provide a best estimate of what the impacts would be on fish and river flow and be able to extrapolate that for Site C so we have an idea of what the difference may be.
- Q: *Larry Peterson:* I didn't come here this evening to say anything, but I just couldn't sit here anymore. I have been involved with Site C project for 37 years. I have spent hundreds of thousand of hours on it. My family and I have been personally impacted by it. There isn't a day that goes by that I don't think about it. We have every word spoken at the BCUC hearings in our files in our library for the last 37 years.

I notice that an ungulate was crossing Taylor flats in the first picture there and you might want to research that and find out what kind of ungulate track that was. I have found over the years that the way BC Hydro has gone about this process has been an insult. I think this process that we are in now I would term an “insultation” process. The studies that were done by Thurber we felt were very incomplete, but this process that we are in now is a politically sponsored activity to justify a political end which is to build a dam. So I am very cynical which is why I haven’t said much. I think I have said just about everything that I need to about the dam. But somehow the thing that came to my mind is the main concerns with agricultural which is not so much the changing of the lands but the changing of the climate. In the first studies it was concluded that there would be no more Class 1 climate there, it would be at best Class 2. So the impact on the land that would be remaining is easily overlooked. So to me your studies are like taking a snapshot of climate and other things and trying to justify a project that would impact the area here for a long time. That’s why I have a problem with it, and a lot of people here have a problem with it as well.

At the first hearings Ross Husdon, a Ph.D. in Agriculture, signed off on a report on land capability. And he classified our farm as Class 3 and 4 producing lesser grains for cereal and porridge products, when in fact it was Class 1 capability by Canada Land Inventory Assessment. Your team before hatched a plan without talking to any landowners to move us all over to Del Rio which is supposed to be a Class 1 land, but in actuality is actually a Class 3 and 4, and thought that we would be happy about that. There are so many holes in this entire process that it is an insult and I had to say a few words about it. I could go on forever.

The only time that I have been at a forum where this was objectively looked at was at Royal Roads University two years ago when my wife and I were invited to present on agriculture and the valley. First Nations were there, you were there, all the Ministries, and we spoke to about 40 masters program students from all walks of life, all ages and at the end of the presentation, they broke into seven study groups, and six of the seven concluded that the integrity of the food production for this valley should be the number one issue and it should not be sacrificed for power.

- Q: *Ernie Reimer*: I am a retired old fogey and I was on the Site C impact committee in the early 80s representing recreation users and I am a lover of the Peace. I noticed with interest that you are spending thousands of dollars on researching nests for garter snakes, bats, and for other critters to investigate their well being. You never did say if they drown what you will do then. I encourage you to spend some money as well on a species called homo sapiens. I am one of them, a man. I am a grandfather. For 45 years I have canoed the Peace with my children and my grandchildren. They think it is utopia. How many people have you spoken to, the thousands that are on canoes, boats, tubes and so on, to whom this is heaven?
- A: *Siobhan Jackson*: The focus of the presentation tonight is on field work planned for the current season. And we have completed already a two year recreation and angler creel survey in 2008 / 2009 where we were asked to document the sites, the

formal sites that people were using and get a handle on the numbers and nature of activities. We have that report available on our website.

We also have, because it is not field work we didn't talk about it tonight, the socio-economic study that will cover 21 subjects including recreation, tourism, schools, housing, labour, economics, all of the human side. So we are definitely doing it, but the focus tonight is on the field work that we will be doing so that is why it sounded like there is an emphasis on the critters and not the humans.

Q: *Tony Atkins:* Will you be carrying out any actual clearing activities or any access road construction or are you just looking at it at the moment? Will you be carrying that out during this period of time?

A: *Andrew Watson:* The access roads will be for investigations, not for the project.

Q: *Tony Atkins:* Ok, so you will be doing some clearing. Do you have to ask anyone about that clearing or do you just go ahead and do it?

A: *Andrew Watson:* We seek permits from government, the Province, as well as discussions with First Nations to okay the clearing.

Q: *Tony Atkins:* Secondly, for construction materials, will you be intensifying your search for materials in the reservoir area and not damaging areas outside the area?

A: *Andrew Watson:* Yes, that is a real focus.

Q: *Tony Atkins:* And is there a real possibility that all of the fill will be taken from the reservoir area itself? Or will you need to go wider?

A: *Andrew Watson:* We will need to go wider for some material.

Q: *Tony Atkins:* I noticed in your critter studies the one that's missing are the bears. Now Yellowstone to Yukon (Y2Y) has made a big point of trying to keep a corridor open, stuff that I don't understand, but they really want to do that. They have given the idea that construction of the Site C reservoir will break this corridor. Are you doing any studies on bears?

A: *Siobhan Jackson:* Paul Higgins is our wildlife program lead, I will let him answer.

A: *Paul Higgins:* At this point we haven't started to do anything on bears. As part of the Technical Advisory Committee (TAC) process, bears were discussed. What we have done is focus our studies on the highest priorities. But as we go into the Environmental Assessment process, I am sure it will come up and we will discuss with the government agencies and get input from others on whether we should be studying the effects on that corridor and bears in particular.

C: *Dave Conway:* One thing I would add is that I know during Stage 2 we met with representatives from Y2Y and have heard from them, so it is not like information hasn't been provided to the stakeholders.

C: *Siobhan Jackson:* Paul mentioned the TAC process and during that we met extensively with the Ministry of Environment to discuss which species could potentially be affected by the project in a substantial way or by habitat. Black bears in particular have not been identified as having that as critical habitat therefore needing species specific survey. That's been the advice of the Ministry of Environment for BC Hydro.

- Q: *Tony Atkins:* So we need to talk to the Ministry of Environment and straighten them out do we? Okay. What role does the agricultural land commission play?
- A: *Siobhan Jackson:* We have had a couple conversations with the Agricultural Land Commission. In terms of a regulatory role we haven't determined what their role will be, but the Agricultural Land Commission is involved, and will remain involved, in reviewing the Agricultural Assessment. We met with them in January and plan to meet with them in two weeks, along with the Ministry of Agriculture to discuss the program, our approach and all of the components of our effects assessment.
- I just wanted to add about the question about the climate component with agriculture, our agricultural team includes two Agricultural Climatologists, Rod Davis and Rod Chilton to help us understand and take all the data from the climate team and understand how that will be applicable and relevant to the valley in terms of agricultural climate.
- Q: *Tony Atkins:* One more question. When will the studies that you are undertaking in Stage 3 be published?
- A: *Siobhan Jackson:* I'll start by going back to Stage 2. In that our commitment was to publish and produce all the environment studies during Stage 2 on our web site and in our office, some 35 reports. The work that we are talking about now is targeted towards the Environmental Assessment application and will be appended as supporting studies to the application.
- Q: *Tony Atkins:* Now I seem to remember that in some of the Stage 2 ones things were blacked out in them. I have heard that, but I do not know.
- A: *Siobhan Jackson:* I think the only redaction was the sensitive spawning habitat for bulltrout in order to protect the species. Where it was redacted there is actually brackets and in them it says redacted for species protection of spawning territory.
- Q: *Tony Atkins:* The Environmental Assessment process – when, how long, who appoints the people that will sit on it, and what is the process?
- A: *Siobhan Jackson:* I will start with the last question first. In terms of process we are process takers, the federal government and provincial government lead the Environmental Assessment process and through their legislation they have options for how they will plan that process and how it will roll out. We are also eager to hear the answer to that question. In terms of timelines, we anticipate filing the project description which will initiate that process in the next month or two. Once that is started, the timeline will play out. A possible timeline could take us through to mid-to-late 2013 for a decision point but we don't control the process or the timeline. About the appointing of the members, there needs to be a decision made by both the federal and provincial government as to the process and whether it will be run essentially by staff or by a panel. In the event of a panel, those Ministers will appoint members of the panel.
- Q: *Tony Atkins:* Will there be two commissions? One from the province one from the federal?
- A: *Siobhan Jackson:* That is a decision that they themselves will make. The province and the federal government have what is called a harmonization agreement. It provides options for them to harmonize that process should they wish. There have

- been recent examples in British Columbia of both separate processes and harmonized processes.
- Q: *Tony Atkins:* My second to last question, I noticed that you are studying possible impacts with the aim of impact avoidance. That was sort of a quote that I wrote down.
- A: *Siobhan Jackson:* So the general process for an effects assessment for any topic is that we understand current conditions, then we layer on the project in terms of change of current conditions. If there are adverse or negative effects, we look at strategies to potentially avoid those effects. For example, if there is a highway re-alignment could you move it and actually not impact that resource. Avoidance strategies are at the top of the list. If you cannot avoid the impacts, we look at mitigation strategies – is there something we can do to augment that resource. And then in some cases based on individual effects, agriculture is a good example, we often look to enhance their compensation strategy so we have impacted the resource here but is there something that we can do to help that value or that resource elsewhere. Programs to increase agricultural production in the region, research or irrigation, for example. Those kinds of things. So that is probably the order of how the investment would work.
- Q: *Tony Atkins:* One of the impacts that I want you to study is how can we do this without flooding the valley? In doing your studies, you have been doing them now for 30 odd years, there is a good chance in 30 more years we may still be studying it, in your studies what would you find that would stop you from building this project.
- A: *Siobhan Jackson:* Our role as a proponent is to complete the environmental studies to provide information on what the effects will be to the decision maker. It's to them to review the project and to weigh impacts and benefits, and ultimately to reach a decision based on whether those are acceptable. So that decision is in the hands of the federal and provincial Ministers ultimately.
- Q: *Tony Atkins:* So nothing that BC Hydro could find would say to them ok guys let's cut and run because this is not a reasonable thing.
- A: *Siobhan Jackson:* The decision point as we move from Stage 2 to Stage 3 is a decision on our part to enter the environmental review process and our intention is to complete, enter and prepare an application for review in the environmental review process.
- Q: *Larry Peterson:* In your last phase in your study on agriculture there was one sentence, one sentence in there that you would further study the thing. That is all there was in Stage 2. What kind of process is this thing? As far as climate goes, nobody came to ask me how we grew 2000 tons of potatoes on 1000 acres without irrigation. I don't expect anyone from BC Hydro to come and ask me that. How are you going to study land that has been a horse pasture for 15 to 20 years because of invasive species that were imposed on us. You cannot do a proper study. So I guess my last comment is that this is an entirely flawed process driven by a political agenda which is to build a dam.

**4. CLOSURE – Facilitator**

The meeting closed at 9:25 pm.