

Lalonde, Jan MEM:EX

From: Symes, Leslie MEM:EX
Sent: Tuesday, March 5, 2013 11:30 AM
To: MacLaren, Les MEM:EX
Cc: Fitzpatrick, Brigitte C EMNG:EX; Hohnsbehn, Cathy MNGD:EX
Subject: FW: Time Change: Clean Energy BC invites you to a Celebration Reception - March 13th 2013

Les; fyi – time change for the Clean Energy BC invite for next week. I don't know if Minister will be able to attend or not.

Cathy, fyi – I'm not sure if Steve has this in his calendar or not.

Leslie Symes
Executive Coordinator
Deputy Minister's Office
Ministry of Energy, Mines and Natural Gas
Phone: 250 952-0683

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From: Paul Kariya [<mailto:Paul.Kariya@cleanenergybc.org>]
Sent: March-05-13 11:11 AM
Subject: Time Change: Clean Energy BC invites you to a Celebration Reception - March 13th 2013

REVISION - UPDATE

An Invitation to a Celebration Reception "22 Years of Clean Energy in BC"

You are cordially invited to a reception hosted by the Clean Energy Association of British Columbia (CEBC).

Come and see the latest Showcase of clean energy projects being built in all regions of the province.

When: Wednesday, March 13th, 2013 from 7:00 pm to 9:00 pm
Where: Hotel Grand Pacific's Vancouver Island Ballroom (A brief formal welcome at 7:45pm)
With: MLA's, senior public servants and clean energy association members.

3 Celebration Questions

(Answers at the bottom of the page)

1. What % of the electricity in your own light bulbs comes from BC's competitively priced clean energy projects today:

5%	15%	25%
In 2020:	23%	33%
2. How much capital expenditure is being spent right this very minute on 12 clean energy projects currently under construction: \$1.6B \$2.6B \$3.6B

3. Which of BC's resource industries is the most progressive in developing Impact Benefit Agreements (equity and royalty provisions, training and employment) with First Nations:

Mining Industry

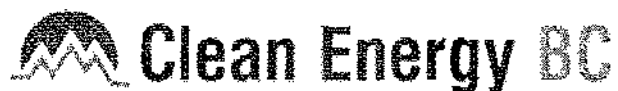
Forest Industry

Oil and Gas Industry

Clean Energy Industry

Please RSVP by the close of business on March 8th 2013 to Kristen McIntyre at 604.568.4778 or kristen.mcintyre@cleanenergybc.org

Paul Kariya
Executive Director



354-409 Granville Street | Vancouver, BC V6C 1T2, Canada
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paul.kariya@cleanenergybc.org

www.cleanenergybc.org

Answers: 25%, 33%, \$2.6B, Clean Energy



Clean Energy BC

April 8th 2013

Mr. Randy Reimann
BC Hydro
333 Dunsmuir Street
Vancouver, BC
Randy.Reimann@bchydro.com

Dear Randy,

RE: Portfolio Comparison Site C vs Clean Energy Project

I am writing to you to express CEBC's concern over the characterization of the cost of IPP power compared to Site C power represented in BC Hydro's recent Environmental Assessment filing.

BC Hydro estimates the cost of its proposed Site C project at \$110 per megawatt hour (MWh) and an alternative future illustrative "portfolio" of clean energy at \$181/MWh. These are portfolio numbers based on various assumptions which BC Hydro acknowledges result in "cost uncertainty . . . because they are feasibility- or conceptual-level estimates only." The unintended consequence is to add fuel to the highly politicized assaults by critics of the private energy sector.

We know that cost of power is not a simple metric.

The cost at which BC Hydro acquires energy from private power producers is frequently misunderstood and misinterpreted on two counts. First, that there will be a continuing advantage to the alternative of buying power on the spot market; second, that BC Hydro can provide new electricity supply from its proposed Site C project and Demand Side Management programs at lower cost than private power.

Part of the problem in understanding electricity costs results from the many variables that must be considered in *forecasting* costs over the medium to long term. However, *actual current* prices paid under private electricity contracts are recorded in BC Hydro's 2012 Annual Report - 10,827 gigawatt hours (GWh) in 2012 at \$67.97 per megawatt hour (MWh).

BC Hydro also records *actual long term* prices based on existing private power contracts. It records the "long run" weighted average blended cost of firm/non-firm private power purchased under the 2008 Clean Power Call at \$100.7/MWh. The CEBC notes that if liquidated damages and other price adjustments are taken into account, the weighted average cost of private power reduces to \$96/MWh.

Clean Energy BC is a registered charity in British Columbia.

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Clean Energy BC

CEBC notes that private power producers pay back to governments through income and property taxes, land lease payments, royalties, licences and permit fees and also provide substantial First Nations benefits. A 2011 analysis for CEBC by PriceWaterhouseCoopers estimated federal, provincial and municipal government tax revenues from then *existing* clean energy projects at \$378 million (\$2009) for the construction phase and \$167.3 million annually over the operations phase. Projected tax revenues from *potential* projects were estimated at \$2.3 billion for construction and \$750.3 million annually over the operations phase.

CEBC emphasizes that the basic power cost is not the only factor BC Hydro must consider and not the only criteria that should be applied to determine what is in the BC consumer's best interest. Most importantly, as BC Hydro itself states: *"Ratepayers are not exposed to market risk with the long-term price certainty, while project development responsibilities and costs are shifted to the IPP"*. Private investors take on the exploration and development costs and assume the risks associated with uncertainty around the public acceptance of new projects and the potential cost volatility associated with particular fuel sources.

Finally, the cost of private power frequently is cited as a major contributor to the rates BC Hydro charges consumers. The BC Hydro 2011 Revenue Requirements Application - withdrawn after strong opposition from ratepayers – painted a very different picture. In fact, the Application showed that most of the requested rate increase was allocated to the cost of renewing and expanding Hydro's publicly-owned assets while only 2.6% of the requested 32.1% increase was related to purchases from B.C.'s private power producers.

In fact, rates can be held at economically efficient levels if private power producers and BC Hydro employ their complementary skill sets. Private producers can focus on small projects with a range of technologies for which BC Hydro has no comparable advantage, while BC Hydro operates large scale storage hydro, provides a balancing function, and facilitates cross-border trading. Clean energy assets being built today and Site C will become tomorrow's 'heritage' assets. Their cost over the life of a 20, 30 or 40-year contract will be much lower than the cost of any new electricity to be generated at that time.

Sincerely,

Paul Kariya
Executive Director
Clean Energy Association of BC

Clean Energy Association of British Columbia

164 - 400 Glenview Street | Vancouver, BC V6B 1P3 Canada | Office: 604-593-4773 | Fax: 604-593-4721

Page 4



Thursday, January 3rd 2013

Deputy Minister Doug Konkin
Doug.konkin@gov.bc.ca

Deputy Minister Steve Carr
Steve.carr@gov.bc.ca

Dear Sirs:

Re: Net Metering and Micro-hydro Projects

We write you to request the provincial government please consider changes to provincial water regulations and energy procurement policies; specifically regarding micro hydro projects (projects under 500 kilowatts).

Micro hydro projects are built by small businesses, farmers, families and individuals wishing to produce clean energy to power their communities. These projects are typically built by developers using their own labour and the skills of local trades people. Unfortunately, developing micro hydro projects in British Columbia has become extremely difficult due to two barriers.

Micro Project Development Barriers

Permitting Requirements

Micro hydro projects typically have very small environmental impacts and simply put do not enjoy the same economy of scale as larger projects. Although very much smaller than other hydro developments, micro projects must proceed through the same water licensing process as larger "power-general" projects due to the broad definitions in BC's water licensing categories. The power-general regulatory process has been designed for much larger power plants and involves application fees that are extremely disproportionate to the size of micro projects.

Typically the impacts and scale of micro hydro projects are similar to small irrigation or domestic water supply systems. However, project developers are being asked by regulators to provide studies and details not suitable for small scale projects. Often the reason given for these

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requests is that "regulations require all power projects to provide this information", without actual or realistic consideration being given to the scale of the projects. Unfortunately these requirements easily render micro projects uneconomical. Below is a table of information micro hydro project developers would be expected to provide.

1 PROJECT SUMMARY	
1.1	Project Proponent
1.2	Overview of Proposed Project
1.3	Summary of Non-Provincial Agency Authorizations/ Approvals
1.4	Summary of Provincial Authorizations
2 PROJECT DESCRIPTION	
2.1	Project Planning and Design Approach
2.1.1	Project Background and Rationale
2.1.2	Location of Project and Mapping
2.1.3	Project Facilities
2.1.4	Labour Period Requirements
2.2	Environmental Setting
2.3	Energy Production and Market for the Product
2.4	Description of Land Requirements
2.5	Project Activities
2.5.1	Construction and Commissioning
2.5.2	Operations and Maintenance
2.5.3	Future Project Phases
2.5.4	Decommissioning Activities
2.6	Schedule for Development
3 SCOPE OF THE ASSESSMENT	
3.1	Scope of Issues & Valued Components
3.1.1	Spatial Boundaries
3.1.2	Temporal Boundaries
3.1.3	Baseline Environmental Conditions
3.2	Environmental Assessment methodology
3.2.1	Environments' Impact Assessment
4 ENVIRONMENTAL ASSESSMENT	
4.1	Aquatic Environment
4.1.1	Aquatic Habitat
4.1.2	Aquatic Fauna
4.1.2.1	Fish and Fish Habitat
4.1.2.2	Other Aquatic Species
4.1.3	Aquatic Vegetation
4.1.4	Water Quality
4.2	Atmospheric Environment
4.3	Geophysical Environment
4.3.1	Surface Hydrology and Hydrogeology
4.3.2	Geotechnical/ Slope Stability
4.3.3	Geomorphology
4.3.4	Seismicity and Geohazards
4.4	Terrestrial Environment
4.4.1	Wildlife and Wild Reptiles
4.4.2	Rare Plants, Plant Communities and Ecosystems or Park VCs
4.4.3	Forest and Range Considerations
4.4.3.1	Forest Health
4.4.3.2	Invasive Plants
4.4.3.3	Forest Resource Features
4.4.3.4	Range and Forage
4.5	Summary of Environmental Effects, Mitigation, and Significance
5 SOCIO-ECONOMIC ASSESSMENT	
5.1	Regional Economy
5.2	Resource Objectives, Land Use Plans or Other Designations
5.3	Implications for Adjacent or Overlapping Crown Land and Resource Values
5.3.1	Wildlife Protection
5.4	Navigation, Transportation, and Access
5.4.1	Roads, Bridges, and Railroads
5.4.2	Right of Way
5.4.3	Public Access
5.5	Water Rights

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5.5 Human Health and Safety	
5.7 Summary of Socio-economic Effects, Mitigation, and Significance	
6 PROJECT ENGAGEMENT ACTIVITIES	
6.1 Record of Engagement Activities	
7 FIRST NATION INFORMATION REQUIREMENTS	
7.1 Consultation Obligations of the Province	
7.2 Identification of First Nations	
	CONT.

CONT.	7.3 Project Setting - Traditional Use and Aboriginal Rights/Titles Issues in the Project Area
	7.4 Project Setting - Archaeological Resources
	7.5 Consultation with First Nations
	7.6 Potential Project Effects on First Nations Interests
	7.7 Contributions to First Nations
8 MONITORING PROGRAMS	
	8.1 Construction Environmental Monitoring
	8.2 Operational Environmental Monitoring
9 FEDERAL REQUIREMENTS	
10 SUMMARY OF COMMITMENTS AND CONCLUSIONS	
	10.1 Summary of Project Commitments
	10.2 Concluding Remarks

Obviously the above requirements are onerous for micro project developers. To contrast the above table, the developers of identically sized irrigation, water supply or "power-commercial" projects would be required to provide the following:

1 Project Description	
2 Design Aspects	
3 Geotechnical Considerations	
4 Sewer Considerations	
5 Project Related Considerations	
6 Land Related Issues	
	7.1 Affected Land
8 Water Related Issues	
	8.1 Water Quantity
	8.2 Water Quality
	8.3 Instream Requirements
	8.4 Affected Users
9 Construction Activities	
10 Safety Aspects	
	10.1 Downstream Consequences
11 Future Monitoring	
12 Related Considerations	
	12.1 Archaeological Assessment
	12.2 Environmental Assessments
	12.3 Remaining Environmental Concerns
13 Summary and Conclusion	

This amount of detail is more appropriate for micro projects given their scale.

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Requiring the same permitting criteria for micro projects also causes delays for larger hydro power developments as regulators may spend their limited resources evaluating micro projects to an equal degree.

Project Electrical Interconnection

When micro projects wish to sell electricity, they must interconnect to the BC Hydro grid. Under the current BC Hydro process, micro projects connect under the Standing Offer Program (SOP). This program offers a standard rate for energy to projects from 50kW to 15MW.

However, the interconnection costs that BC Hydro charges micro project developers to connect to the grid under the SOP are approaching the costs of the micro projects themselves. For example, a recent BC Hydro study³ determined that the interconnection of a typical 100kW generator would cost \$302,000. To put this size in context, the maximum power a single family home can draw from the grid is usually 50kW. These interconnection costs are prohibitive, and are very likely due to process as opposed to electrical necessity. These costs have contributed to the current situation in BC where no new micro hydro project has been developed since the mid 1990's.

The difficulty in developing micro projects and connecting them to the provincial power grid has also been recognized by the BC Utilities Commission. In a recent decision (G-57-12, May 2012) they have directed BC Hydro to evaluate connection options for micro projects.

Proposed Solutions

Permitting

As mentioned above, power-commercial applications have a simplified permitting process. The commercial water power category is defined in the BC Water Regulations as a water use that:

"is used by the licensee or may be sold by the licensee to immediate family members, employees or tenants of the licensee where the licensee's power development or developments does not exceed an authorized capacity of 499 kW..."

³ Revised Conceptual Screening Assessment Results, Anaerobic Digester Pilot (CH4 Biogas) Project, October 18, 2011, File Reference: DGI-DSC-11 10.02



...is used for the extraction or processing of natural resources or the manufacturing of products, in a primary industrial facility in which the licensee has an interest of more than 50%, or is used in a facility that is adjacent to and integrated with a primary industrial facility"

CEBC proposes to remove the words "to immediate family members, employees or tenants of the licensee". This would allow projects up to 499kW to be licensed under this category. The application fee for a commercial license is also half of the power-general category.

Alternatively, a new "power-micro" category could be created. It is expected that this category would simply be defined as "water used to produce power where the development does not exceed 500kW".

Both of the above solutions would, we believe only require an order in council to implement.

Interconnection

BC Hydro currently has a procurement process for small projects up to 50kW, called the Net Metering Program (NMP). Projects are connected to the grid for a flat fee of \$600.00, and energy prices paid to developers are based on prices offered in the SOP. CEBC proposes to expand the NMP to allow projects up to 500kW to participate. Net metering programs in Alberta, Ontario and Nova Scotia have already been expanded to 500kW or higher.

For multiple technical reasons (including the typical use of low voltage induction generators or inverters), grouping projects up to 500kW into one program is the simplest solution. Micro projects interconnecting through the NMP would be assessed under an appropriate scope and would be charged a flat connection fee. Project developers would be expected to pay for service drops, metering and reconductoring in the same way as any other new BC Hydro customer. However, as is the current situation for new customer loads under 500kW, projects under 500kW would not be expected to pay for system improvement costs such as substation upgrades.

Implementing a change in the NMP would require a BC Hydro application to the BCUC. BC Hydro is already going through the evaluation and reporting process regarding this issue due to the BCUC's recent order in May 2012.



Next Steps

CEBC wishes to meet with FLNRO, MEM and BC Hydro staffs to discuss the suggestions in this letter and determine the best way to allow micro projects to move forward again in BC. May we suggest a meeting during the week of January 22nd 2013?

In the meantime we welcome your review of this material and any comments and questions you may have.

Thank you.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Paul Kariya", written over a horizontal line.

Paul Kariya
Executive Director

Drafted by: Heather Johnstone, GRB ✓
Approved by: Sue Bonnyman, Director GRB ✓
Paul Wieringa, A/ADM, EAED ✓
G. Cho, DMO-CI
CLIFF NO.: 75005

Dr. Paul Kariya
Executive Director
Clean Energy BC

Email: Loch.McJannett@cleanenergybc.org

pc: Doug.Konkin@gov.bc.ca

Dear Dr. Kariya:

Thank you for your emailed January 3, 2013 letter regarding Net Metering and Micro Hydro Projects. Your letter is timely.

Permitting Requirements

In your letter you express concern about the water licensing information requirements for micro hydro projects, relative to larger scale Power-General projects. You included an excerpt from the *Development Plan Information Requirements*' Development Plan Template Index developed by the Ministry of Forests, Lands and Natural Resource Operations (http://www.for.gov.bc.ca/Land_Tenures/documents/publications/DPIR.pdf). The purpose of the *Development Plan Information Requirements* and Development Plan Template is to provide clarity and guidance on the information required. Further, it is to ensure consistency in application review throughout the province.

Regional Water Managers need to have sufficient understanding of what is being proposed to make the appropriate decision on a water licence application. The level of details required is commensurate with the size and complexity of a project. In the case of small projects with no or negligible impacts to the environment and public safety, the information required in most Development Plan sections could be provided in one or two short paragraphs. In contrast, a larger more complex project might require a detailed (consultants') report to address a Development Plan section information requirements.

Power-Commercial water licence applicants are required to provide the same information, except for Power-General specific information, such as energy market. The Power-General project application requirements include all provincial permit requirements, whereas the requirements for Power-Commercial are for water licensing only.

As discussed with Provincial water licensing staff, it may be useful for Clean Energy BC (CEBC) to develop, with input from Provincial staff, sample Development Plan Template responses for typical micro hydro project applications.

There is ongoing discussion about the \$5,000 application fee for both Power-Commercial and Power-General water licences for projects of 20 megawatt (MW) capacity or less. Possible approaches to address the perceived disparity in this fee could include implementing a sliding fee scaled relative to project size. Such an approach would require an Order in Council to implement.

Project Electrical Interconnection

I understand that, since September 2012, BC Hydro and CEBC are meeting and have been engaged in discussion on Net Metering and Net Metering interconnection requirements. The issue around interconnection costs was raised in BC Hydro's Net Metering filing with the BC Utilities Commission (BCUC). As per the BCUC decision that you reference (G-57-12, May 2012), BC Hydro will be submitting to the BCUC a report on the Net Metering program for F2012 by March 31, 2013. BC Hydro is committed to exploring their existing interconnection requirements to determine how it may be possible to streamline the requirements and costs.

The impetus for the Net Metering program was to enable residential and small commercial customers to offset their load and potentially sell some of their excess generation (calculated over an annual basis) back to BC Hydro. A 50 kilowatt (kW) project size is consistent with the maximum amperage and voltage at which most residential and many commercial customers take electricity service. This BC Hydro position has been consistently supported by the BCUC. Expanding Net Metering to 500 kW or higher changes it from a program of load displacement to full self-generation with the costs for interconnection, including system upgrades, being imposed on all ratepayers and the benefits for selling electricity going to the generators. The BCUC has been clear that any changes to the existing Net Metering program not incur material cost shifting between program participants and ratepayers.

BC Hydro is assessing this by looking at what other jurisdictions are doing in their programs. This jurisdictional review is considering the requirements of other jurisdictions and how they have established the project threshold sizes. It is also looking at other barriers to developing small scale projects between 50 kW and 2 MW in capacity.

You reference the current situation for new customer loads under 500 kW not being expected to pay for system improvement costs such as substation upgrades as is listed in BC Hydro's tariff. With this, the expectation is that the new customer is bringing a "load" that will require supply from BC Hydro rather than a customer who wants to deliver supply without any substantial load.

Next Steps

It would be appropriate to bring this Net Metering discussion forward to the next CEBC – Ministry of Energy, Mines and Natural Gas strategic policy forum, and to engage Provincial water management staff, i.e. the Provincial Water Comptroller, in that forum

discussion. My ministry staff will be consulting with your office and the Provincial Water Comptroller to confirm a suitable date.

Thank you for writing and raising these points of discussion.

Sincerely,

Steve Carr
Deputy Minister
Ministry of Energy, Mines and Natural Gas

Johnstone, Heather EMNG:EX

From: Paul Kariya [Paul.Kariya@cleanenergybc.org]
Sent: Monday, January 14, 2013 9:37 AM
To: Bonnyman, Sue EMNG:EX; Brunson, Lynn FLNR:EX
Cc: Kristen McIntyre; Cutler, Scott EMNG:EX; Johnstone, Heather EMNG:EX
Subject: RE: Wind Tenure Improvement - Clean Energy BC

Txs Sue

Sure that would be great

Paul

Paul Kariya
Executive Director



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From: Bonnyman, Sue EMNG:EX [<mailto:Sue.Bonnyman@gov.bc.ca>]
Sent: January 14, 2013 9:35 AM
To: Paul Kariya; Brunson, Lynn FLNR:EX
Cc: Kristen McIntyre; Cutler, Scott EMNG:EX; Johnstone, Heather EMNG:EX
Subject: RE: Wind Tenure Improvement - Clean Energy BC

I would be happy to arrange a room here at 1810 if that suits, for 1 pm as suggested by Paul.

Sue

From: Paul Kariya [<mailto:Paul.Kariya@cleanenergybc.org>]
Sent: Monday, January 14, 2013 9:18 AM
To: Brunson, Lynn FLNR:EX
Cc: Bonnyman, Sue EMNG:EX; Kristen McIntyre
Subject: Re: Wind Tenure Improvement - Clean Energy BC

Txs Lynn

This is great. We will be prob be at Blanchard. If you could secure a meeting room that would be appreciated. 100 pm Jan 23.

Paul

Sent using BlackBerry

From: Brunsdon, Lynn FLNR:EX [<mailto:Lynn.Brunsdon@gov.bc.ca>]
Sent: Monday, January 14, 2013 09:13 AM
To: Paul Kariya
Cc: Bonnyman, Sue EMNG:EX <Sue.Bonnyman@gov.bc.ca>; Kristen McIntyre
Subject: RE: Wind Tenure Improvement - Clean Energy BC

Hi Paul. That time works for me. I'm not sure where the best location is to meet. Are you at 1810 Blanshard that day or closer to the Leg? If you let me know we can find a meeting room and I will speak to Sue.

Lynn Brunsdon
Senior Analyst, MFLNRO
250-356-5101

From: Paul Kariya [<mailto:Paul.Kariya@cleanenergybc.org>]
Sent: Monday, January 14, 2013 8:18 AM
To: Brunsdon, Lynn FLNR:EX
Cc: Bonnyman, Sue EMNG:EX; Kristen McIntyre
Subject: Wind Tenure Improvement - Clean Energy BC

Lynn and Sue,

I am wondering if James Griffiths and I could meet with you and Sue in Victoria on the captioned subject on Jan 23, 2013. I have to be in Victoria for other meetings on this date so if your scheds would permit, this would be great. 1:00Pm or after would be ideal. Perhaps 1 hour.

Wind tenure improvement has been a standing item with us and before the next CAC meeting, I thought it would be good to size up where things are at.

Thanks and Happy New Year (I think we can still say this)

Paul

Paul Kariya
Executive Director



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Johnstone, Heather EMNG:EX

From: Johnstone, Heather EMNG:EX
Sent: Thursday, January 31, 2013 6:09 PM
To: 'Eric Redmond'
Subject: RE: Net Metering and Micro Hydro Regulations

Hello Eric:

I will plan to call you on your land line when

s.22

I have just been assigned to this file and welcome the opportunity to discuss it with you.

Regards,

Heather Johnstone, M.A.Sc., P.Eng.
Policy Advisor, Electricity
Ministry of Energy, Mines and Natural Gas
ph. 250 952-0887 fax 250 952-0258

From: Eric Redmond [<mailto:eredmond@Synex.com>]
Sent: Thursday, January 31, 2013 1:06 PM
To: Johnstone, Heather EMNG:EX
Subject: Net Metering and Micro Hydro Regulations

Heather,

I have been in touch with Loch McJannett from Clean Energy BC, and he has told me you are the point of contact for the ministry's assessment of potential changes to the regulations regarding net metering and water licensing for micro hydro projects. I have been quite involved with this issue the last couple years and have been working with CEBC, BC Hydro, BC Sustainable Energy Association and other developers to advocate for improvements.

Would you be available for a phone call this afternoon to discuss these issues?

Regards,

Eric Redmond, P.Eng.
Sigma Engineering
400-1444 Alberni Street
Vancouver BC
V6G 2Z4
ph: 604 688 8271 ext 394
cell: 778 869 9802
eredmond@synex.com

Ferguson, Susan M EMNG:EX

From: EMNG DMO Correspondence EMNG:EX
Sent: Friday, February 15, 2013 4:12 PM
To: 'Paul.Kariya@cleanenergybc.org'
Cc: Konkin, Doug FLNR:EX; Bonnyman, Sue EMNG:EX
Subject: 75005 - Net Metering and Micro Hydro Projects
Attachments: 75005 Kariya to Konkin & Carr, Jan 3, 2013.pdf

Mr. Paul Kariya
Executive Director
Clean Energy BC

Dear Mr. Kariya:

Thank you for your January 3, 2013 letter regarding net metering and micro hydro projects. I am pleased to respond on behalf of myself and Mr. Doug Konkin, Deputy Minister, Ministry of Forests, Lands and Natural Resource Operations (FLNR).

Permitting Requirements

In your letter, you expressed concern about the water licensing information requirements for micro hydro projects relative to larger-scale, power-general projects. You included an excerpt from the Clean Energy Project Development Plan Information Requirements' Development Plan Template Index, which was developed by the FLNR and can be found at

http://www.for.gov.bc.ca/Land_Tenures/documents/publications/DPIR.pdf. The purpose of the Development Plan Information Requirements and the Development Plan Template is to provide clarity and guidance on the information required and ensure consistency in application review throughout the Province.

Regional water managers need to have sufficient understanding of what is being proposed to make the appropriate decision on a water license application. The level of details required is commensurate with the size and complexity of a project. In the case of small projects with no or negligible impacts to the environment and public safety, the information required in most Development Plan sections could be provided in one or two short paragraphs. In contrast, a larger, more complex project might require a detailed (consultant's) report to address a Development Plan section information requirements.

Power-commercial water license applicants are required to provide the same information, with the exception of power-general specific information such as energy markets. The power-general project application requirements include all provincial permit requirements, whereas the requirements for power-commercial are only for water licensing.

Further to discussions with provincial water licensing staff, it may be useful for Clean Energy BC (CEBC) to develop, with input from provincial staff, sample Development Plan Template responses for typical micro hydro project applications.

There is ongoing discussion about the \$5,000 application fee for power-commercial and power-general water licenses for projects of 20 megawatt (MW) capacity or less. Possible approaches to addressing the perceived disparity in this fee could include implementing a sliding fee scaled relative to project size. Such an approach would require an Order-in-Council to implement.

Project Electrical Interconnection

I understand that since September 2012, BC Hydro and CEBC have met and discussed net metering and net metering interconnection requirements. The issue around interconnection costs was raised in BC Hydro's Net Metering filing with the British Columbia Utilities Commission (BCUC). As per the BCUC decision you reference (G-57-12, May 2012), BC Hydro will be submitting a report to the BCUC on the Net Metering Program (Program) for fiscal year 2011/12 by March 31, 2013. BC Hydro is committed to exploring its existing interconnection requirements to determine how it may be possible to streamline the requirements and costs.

The impetus for the Program was to enable residential and small commercial customers to offset their load and potentially sell some of their excess generation (calculated over an annual basis) back to BC Hydro. A 50 kilowatt (kW) project size is consistent with the maximum amperage and voltage at which most residential and many commercial customers take electricity service. This BC Hydro position has been consistently supported by the BCUC. Expanding net metering to 500 kW or higher changes it from a program of load displacement to full self-generation with the costs for interconnection, including system upgrades, being imposed on all ratepayers and the benefits for selling electricity going to the generators. The BCUC has been clear that any changes to the existing Program not incur material cost shifting between Program participants and ratepayers.

BC Hydro is assessing this issue by looking at what other jurisdictions are doing in their programs. This review is considering the requirements of other jurisdictions and how they have established the project threshold sizes. It is also looking at other barriers to developing small scale projects between 50 kW and 2 MW in capacity.

In your letter, you reference the current situation for new customer loads under 500 kW not being expected to pay for system improvement costs such as substation upgrades, as is listed in BC Hydro's tariff. With this, the expectation is that the new customer is bringing a load that will require supply from BC Hydro, rather than a customer who wants to deliver supply without any substantial load.

Next Steps

It would be appropriate to bring this net metering discussion forward to the next CEBC - Ministry of Energy, Mines and Natural Gas (EMNG) strategic policy forum, and engage provincial water management staff (i.e., the Provincial Water Comptroller) in this forum discussion. EMNG staff will contact your office and the Provincial Water Comptroller to confirm a suitable date.

Thank you, again, for writing and raising these points of discussion.

Sincerely,

Steve Carr
Deputy Minister
Ministry of Energy, Mines and Natural Gas

Johnstone, Heather EMNG:EX

From: Bui, Tuan FLNR:EX
Sent: Friday, April 5, 2013 1:28 PM
To: Hartley, Brenda FLNR:EX; Davidson, Glen W FLNR:EX; Murphy, Brian EAO:EX; Haberl, Kevin J FLNR:EX; Brunsdon, Lynn FLNR:EX; Webber Atkins, Garth FLNR:EX; Hoyt, Jeff S ENV:EX; Bonnyman, Sue EMNG:EX; Johnstone, Heather EMNG:EX; Vieweg, Mark FLNR:EX; Carr, Michelle EAO:EX; Horsman, Natasha EAO:EX
Subject: Agenda and Action items for Monday's CAC meeting
Attachments: 2013 Final.docx Not Responsive CEP CAC Agenda April 8

Attached please find the agenda for Monday's meeting along with the action items from the last meeting.

In addition, presentation materials can be downloaded from the SharePoint site below in the "April 2013" folder:

<https://spc-ilmb.gov.bc.ca/Prjs/IPP/CEP%20Client%20Advisory%20Committee%20Minutes%20and%20Material/Forms/AllItems.aspx?InitialTabId=Ribbon%2EDocument&VisibilityContext=WSSTabPersistence>

Thanks,
Tuan



Agenda **CEP Client Advisory Committee**

Wednesday, April 8, 2013
 Clean Energy BC
 354-409 Granville Street
 Vancouver, BC
 9:00 A.M. – 1:00 P.M.



Dial in: s.15, s.17 **Participant ID:** s.15, s.17

Time	Topic	Lead
9:00 AM	Welcome and Review of Agenda	Co-Chairs
9:05 AM	Review of previous Action Items	Co-Chairs
9:15 AM	Update: Profession Reliance	Garth Webber Atkins
9:30 AM	Discussion: Overlapping Tenures http://icw.agf.gov.bc.ca/g/clad/Documents/LPSB/overlapping_tenures.pdf	Lynn Brunsdon & Tuan Bui
9:40 AM	Presentation: <u>Protecting Vulnerable Species: A Draft Five-Year Plan for Species at Risk in British Columbia</u>	James Quayle (MoE)
10:00 AM	Water Rentals	Glen Davidson
10:15 AM	EAO Update: <ul style="list-style-type: none"> The agreement on CEAA application in BC Operational Improvement Initiative 	Michelle Carr & Natasha Horsman (EAO)
10:50 AM	Update: OPPR	Brenda Hartley
11:05 AM	Discussion: <ul style="list-style-type: none"> Revisit the intent of CAC (Paul) Update on CEBC situation today (Paul) What government is working on (Brenda) Strategic Plan for CAC (CEBC) Priority Issues (All) 	Paul Kariya & Brenda Hartley
12:00 PM	Lunch	
12:30 PM	Discussion: Process for New Applications for Investigative Use Licences for Water Power Clean Energy Projects	Alec Drysdale (FLNRO)
12:45	Action Item Review	Tuan Bui
12:50 PM	Additional items brought forward	
1:00 PM	ADJOURN	

Johnstone, Heather EMNG:EX

From: Paul Kariya [Paul.Kariya@cleanenergybc.org]
Sent: Wednesday, April 10, 2013 8:42 PM
To: 'jpartyka@aeoliswind.com'; 'nicholasheap@canwea.ca'
Cc: Bonnyman, Sue EMNG:EX; Johnstone, Heather EMNG:EX; 'GGeankoplis@Finavera.com'; 'JamesGriffiths@seabreezepower.com'; 'csmith@finavera.com'; Palmer, Charlie GTWY:IN; 'jpuetter@aeoliswind.com'
Subject: Re: Responses to issues raised during Monday's meeting re: PNCP guidance

We have a draft letter of reply in process. It is to say txs, we've come along way and resolved most of the issues - credit to Matt. But we still have a couple of issues we have not closed on. So in principle we are okay but there is still work to be done. That is is comital as CEBC and CANWEA will get.

We should get it out tomorrow

Paul

Sent using BlackBerry

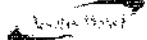
From: John Partyka [mailto:jpartyka@aeoliswind.com]
Sent: Wednesday, April 10, 2013 05:57 PM
To: 'Nick Heap CANWEA' <nicholasheap@canwea.ca>; Paul Kariya
Cc: 'Bonnyman, Sue EMNG:EX' <Sue.Bonnyman@gov.bc.ca>; 'Johnstone, Heather EMNG:EX' <Heather.Johnstone@gov.bc.ca>; 'Greta Geankoplis' <GGeankoplis@Finavera.com>; 'James Griffiths' <JamesGriffiths@seabreezepower.com>; CSmith@Finavera.com <CSmith@Finavera.com>; 'Palmer, Charlie GTWY:IN' <CPalmer@hemmera.com>; jpuetter@aeoliswind.com <jpuetter@aeoliswind.com>
Subject: RE: Responses to issues raised during Monday's meeting re: PNCP guidance

Hi Paul, Nick: I assume that one of you will let Matt know that the group is satisfied (or not) with his updated version of the document. I had a quick look at the updates provided by Matt, and am OK with his edits. My biggest concern was that indirect residual impacts should be carved out of any offset considerations (financial or habitat). That concern was handled very explicitly throughout the document. He did include indirect residual effects in consideration of mitigation and reclamation, and any risk factors that would affect offset multipliers, but without Charlie's input I am not sure if that is a big problem. Perhaps Charlie could comment. Given the time constraints, I think this is as good as we will be able to get to without another round of discussions and feedback. Please let me know if you have any other thoughts on the document.

Best regards,

John.

John Partyka
VP Corporate Development
Aeolis Wind Power Corporation
250.655.0330



200 – 9800 McDonald Park Road
Sidney, BC V8L 5W5 Canada

This e-mail message is intended only for the person(s) named above and may contain confidential or privileged information. If you are not the person named or have not been authorized by them, please notify the sender immediately and delete this e-mail and any attachments without reading, saving, or forwarding.

From: Austin, Matt FLNR:EX [mailto:Matt.Austin@gov.bc.ca]
Sent: April-10-13 1:25 PM
To: 'Greta Geankoplis'; 'Nick Heap CANWEA'; 'Paul.Kariya@cleanenergybc.org'; 'James Griffiths'; 'CSmith@Finavera.com'; 'John Partyka (jpartyka@aeoliswind.com)'; Palmer, Charlie GTWY:IN
Cc: Bonnyman, Sue EMNG:EX; Johnstone, Heather EMNG:EX
Subject: Responses to issues raised during Monday's meeting re: PNCP guidance
Importance: High

Hello all,

Here is a list of the changes made to address the issues we discussed on Monday:

- the following footnote has been added to the definition of "assessment area": "The definition of "assessment area" used in this document is intended to compliment and support the approach used to defining assessment area in other processes, for example environmental assessment. What is important is that assessment area is defined in an ecologically relevant way that is necessary to evaluate the proposed activities against the foundational principle of "net neutral or positive effect"."
- In order to make it crystal clear that offsets are only required for direct project footprint activities this required some tweaking to a number of sections. These are shown in track changes pg 4, 10, 11, 22, and 23, most notably the part on offsetting not being expected for sensory disturbance has been rewritten to: "Offsets for impacts associated with sensory disturbance are not expected nor are offsets expected for indirect impacts that occur off of the project footprint. However, these indirect impacts outside of the project footprint are expected to be considered during the avoid, minimize and restore on site levels of the mitigation hierarchy. They may also be used to inform the use of multipliers when determining offset amounts and accounting for risk and uncertainty."
- habitat securement expectations refined to not include projects that are within herd ranges where habitat securement targets are met (we also added small footprint projects which has been the intent and practice but that hadn't been explicitly stated):
 - a) The requirement to consider habitat securement only applies to activities occurring in high elevation winter habitat, within herd ranges where habitat securement targets have not been met, and for projects where the project footprint exceeds 25 hectares. However, habitat securement options may be considered for any potential impacts.
 - b) Where actual securement options cannot be located, for projects with small project footprints (less than 25 ha), or within herd range areas where habitat securement targets are met, an alternative approach is to conduct a valuation of the cost of a hypothetical securement (based on recent transactions or tenure values). That valuation amount may then be voluntarily offered as an in-lieu payment to a third
- this caused us feel the need to revised the language about the consideration of habitat securement options outside of the herd range where the impacts are expected to occur to ensure that options are not being compromised. "Where possible, prioritize areas for habitat securement within the same herd range. If habitat securement options are proposed outside the same herd range, support should be provided demonstrating that achieving habitat securement targets within that herd range are not compromised."

Please let me know have addressed the outstanding issues to your satisfaction asap.

Thanks,

Matt Austin | Project Director – Peace Northern Caribou Plan
Northeast Operations | Ministry of Forests, Lands and Natural Resource Operations

s.17

West, Michele L MEM:EX

From: MacLaren, Les EMNG:EX
Sent: Thursday, January 3, 2013 4:01 PM
To: Wieringa, Paul EMNG:EX; Barillaro, Scott W EMNG:EX
Cc: Fitzpatrick, Brigitte C EMNG:EX
Subject: Fwd: Net Metering and Micro-hydro Projects
Attachments: CEBC to BC Government Net Metering Position 130103 LM FINAL.pdf

Info. This will likely require a BN for a meeting to be scheduled later this month.

Les MacLaren
Assistant Deputy Minister
BC Ministry of Energy, Mines and Natural Gas
250-952-0204

Begin forwarded message:

From: "Carr, Steve EMNG:EX" <Steve.Carr@gov.bc.ca>
Date: 3 January, 2013 2:25:16 PM PST
To: "McLaren, Graeme EMNG:EX" <Graeme.McLaren@gov.bc.ca>
Cc: "MacLaren, Les EMNG:EX" <Les.MacLaren@gov.bc.ca>
Subject: FW: Net Metering and Micro-hydro Projects

For your necessary action as Acting DM. I have cc'd to Les MacLaren for his information as well. It appears that CEBC is requesting a meeting with FLNRO, EMNG and BC Hydro for sometime after Jan 22.

Cathy

From: Loch McJannett [<mailto:Loch.McJannett@cleanenergybc.org>]
Sent: Thursday, January 3, 2013 1:57 PM
To: Carr, Steve EMNG:EX; Konkin, Doug FLNR:EX
Subject: Net Metering and Micro-hydro Projects

Gents:

Please find attached correspondence relating to a members questions regarding Net metering and micro-hydro projects.

We welcome you review and consideration of the points presented.

Cheers and best wishes for 2013.

Loch

Loch McJannett

Vice President



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Office: 604.568.4778 | Toll Free: 1.855.568.4778 | Cell: 604.315.1530 | Fax: 604.568.4724

s.22

loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org



Clean Energy BC

Thursday, January 3rd 2013

Deputy Minister Doug Konkin
Doug.konkin@gov.bc.ca

Deputy Minister Steve Carr
Steve.carr@gov.bc.ca

Dear Sirs:

Re: Net Metering and Micro-hydro Projects

We write you to request the provincial government please consider changes to provincial water regulations and energy procurement policies; specifically regarding micro hydro projects (projects under 500 kilowatts).

Micro hydro projects are built by small businesses, farmers, families and individuals wishing to produce clean energy to power their communities. These projects are typically built by developers using their own labour and the skills of local trades people. Unfortunately, developing micro hydro projects in British Columbia has become extremely difficult due to two barriers.

Micro Project Development Barriers

Permitting Requirements

Micro hydro projects typically have very small environmental impacts and simply put do not enjoy the same economy of scale as larger projects. Although very much smaller than other hydro developments, micro projects must proceed through the same water licensing process as larger "power-general" projects due to the broad definitions in BC's water licensing categories. The power-general regulatory process has been designed for much larger power plants and involves application fees that are extremely disproportionate to the size of micro projects.

Typically the impacts and scale of micro hydro projects are similar to small irrigation or domestic water supply systems. However, project developers are being asked by regulators to provide studies and details not suitable for small scale projects. Often the reason given for these

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requests is that "regulations require all power projects to provide this information", without actual or realistic consideration being given to the scale of the projects. Unfortunately these requirements easily render micro projects uneconomical. Below is a table of information micro hydro project developers would be expected to provide:

1 PROJECT SUMMARY	
1.1 Project Proponent	
1.2 Overview of Proposed Project	
1.3 Summary of Non-Provincial Agency Authorizations/ Approvals	
1.4 Summary of Provincial Authorizations	
2 PROJECT DESCRIPTION	
2.1 Project Planning and Design Approach	
2.1.1 Project Background and Rationale	
2.1.2 Location of Project and Mapping	
2.1.3 Project Facilities	
2.1.4 Labour Pool Requirements	
2.2 Environmental Setting	
2.3 Energy Production and Market for the Product	
2.4 Description of Land Requirements	
2.5 Project Activities	
2.5.1 Construction and Commissioning	
2.5.2 Operations and Maintenance	
2.5.3 Future Project Phases	
2.5.4 Decommissioning Activities	
2.6 Schedule for Development	
3 SCOPE OF THE ASSESSMENT	
3.1 Scope of Issues & Valued Components	
3.1.1 Spatial Boundaries	
3.1.2 Temporal Boundaries	
3.1.3 Baseline Environmental Conditions	
3.2 Environmental Assessment methodology	
3.2.1 Environmental Impact Assessment	
4 ENVIRONMENTAL ASSESSMENT	
4.1 Aquatic Environment	
4.1.1 Aquatic Habitat	
4.1.2 Aquatic Fauna	
4.1.2.1 Fish and Fish Habitat	
4.1.2.2 Other Aquatic Species	
4.1.3 Aquatic Vegetation	
4.1.4 Water Quality	
4.2 Atmospheric Environment	
4.3 Geophysical Environment	
4.3.1 Surface Hydrology and Hydrogeology	
4.3.2 Geotechnical / Slope Stability	
4.3.3 Geomorphology	
4.3.4 Geology and Geochemistry	
4.4 Terrestrial Environment	
4.4.1 Wildlife and Wildlife Habitat	
4.4.2 Rare Plants, Plant Communities and Ecosystems at Risk VCs	
4.4.3 Forest and Range Considerations	
4.4.3.1 Forest Health	
4.4.3.2 Invasive Plants	
4.4.3.3 Forest Resource Features	
4.4.3.4 Range and Forage	
4.5 Summary of Environmental Effects, Mitigation, and Significance	
5 SOCIO-ECONOMIC ASSESSMENT	
5.1 Regional Economy	
5.2 Resource Objectives, Land Use Plans or Other Designations	
5.3 Implications for Adjacent or Overlapping Crown Land and Resource Values	
5.3.1 Wildlife Protection	
5.4 Navigation, Transportation, and Access	
5.4.1 Roads, Bridges, and Railroads	
5.4.2 Flight Path	
5.4.3 Public Access	
5.5 Water Rights	

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5.6 Human Health and Safety	
5.7 Summary of Socio-economic Effects, Mitigation, and Significance	
6 PROJECT ENGAGEMENT ACTIVITIES	
6.1 Record of Engagement Activities	
7 FIRST NATION INFORMATION REQUIREMENTS	
7.1 Consultation Obligations of the Province	
7.2 Identification of First Nations	
	cont.

cont.	7.3 Project Setting – Traditional Use and Aboriginal Rights/Title Issues in the Project Area
	7.4 Project Setting – Archaeological Resources
	7.5 Consultation with First Nations
	7.6 Potential Project Effects on First Nation Interests
	7.7 Commitments to First Nations
8 MONITORING PROGRAMS	
	8.1 Construction Environmental Monitoring
	8.2 Operational Environmental Monitoring
9 FEDERAL REQUIREMENTS	
10 SUMMARY OF COMMITMENTS AND CONCLUSIONS	
	10.1 Summary of Project Commitments
	10.2 Concluding Remarks

Obviously the above requirements are onerous for micro project developers. To contrast the above table, the developers of identically sized irrigation, water supply or “power-commercial” projects would be required to provide the following:

1 Project Description	
2 Design Aspects	
4 Geotechnical Considerations	
5 Seismic Considerations	
6 Project Related Considerations	
7 Land Related Issues	
	7.1 Affected Land
8 Water Related Issues	
	8.1 Water Quantity
	8.2 Water Quality
	8.3 Instream Requirements
	8.4 Affected Users
9 Construction Activities	
10 Safety Aspects	
	10.1 Downstream Consequences
11 Future Monitoring	
12 Related Considerations	
	12.1 Archeological Assessment
	12.2 Environmental Monitors
	12.3 Remaining Environmental Concerns
13 Summary and Conclusion	

This amount of detail is more appropriate for micro projects given their scale.

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Requiring the same permitting criteria for micro projects also causes delays for larger hydro power developments as regulators may spend their limited resources evaluating micro projects to an equal degree.

Project Electrical Interconnection

When micro projects wish to sell electricity, they must interconnect to the BC Hydro grid. Under the current BC Hydro process, micro projects connect under the Standing Offer Program (SOP). This program offers a standard rate for energy to projects from 50kW to 15MW.

However, the interconnection costs that BC Hydro charges micro project developers to connect to the grid under the SOP are approaching the costs of the micro projects themselves. For example, a recent BC Hydro study¹ determined that the interconnection of a typical 100kW generator would cost \$302,000. To put this size in context, the maximum power a single family home can draw from the grid is usually 50kW. These interconnection costs are prohibitive, and are very likely due to process as opposed to electrical necessity. These costs have contributed to the current situation in BC where no new micro hydro project has been developed since the mid 1990's.

The difficulty in developing micro projects and connecting them to the provincial power grid has also been recognized by the BC Utilities Commission. In a recent decision (G-57-12, May 2012) they have directed BC Hydro to evaluate connection options for micro projects.

Proposed Solutions

Permitting

As mentioned above, power-commercial applications have a simplified permitting process. The commercial water power category is defined in the BC Water Regulations as a water use that:

"is used by the licensee or may be sold by the licensee to immediate family members, employees or tenants of the licensee where the licensee's power development or developments does not exceed an authorized capacity of 499 kW...

¹ Revised Conceptual Screening Assessment Results, Anaerobic Digester Pilot (CH4 Biogas) Project, October 18, 2011, File Reference: DGI-DSC-11.10.02



...is used for the extraction or processing of natural resources or the manufacturing of products, in a primary industrial facility in which the licensee has an interest of more than 50%, or is used in a facility that is adjacent to and integrated with a primary industrial facility"

CEBC proposes to remove the words "to immediate family members, employees or tenants of the licensee". This would allow projects up to 499kW to be licensed under this category. The application fee for a commercial license is also half of the power-general category.

Alternatively, a new "power-micro" category could be created. It is expected that this category would simply be defined as "water used to produce power where the development does not exceed 500kW".

Both of the above solutions would, we believe only require an order in council to implement.

Interconnection

BC Hydro currently has a procurement process for small projects up to 50kW, called the Net Metering Program (NMP). Projects are connected to the grid for a flat fee of \$600.00, and energy prices paid to developers are based on prices offered in the SOP. CEBC proposes to expand the NMP to allow projects up to 500kW to participate. Net metering programs in Alberta, Ontario and Nova Scotia have already been expanded to 500kW or higher.

For multiple technical reasons (including the typical use of low voltage induction generators or inverters), grouping projects up to 500kW into one program is the simplest solution. Micro projects interconnecting through the NMP would be assessed under an appropriate scope and would be charged a flat connection fee. Project developers would be expected to pay for service drops, metering and reconductoring in the same way as any other new BC Hydro customer. However, as is the current situation for new customer loads under 500kW, projects under 500kW would not be expected to pay for system improvement costs such as substation upgrades.

Implementing a change in the NMP would require a BC Hydro application to the BCUC. BC Hydro is already going through the evaluation and reporting process regarding this issue due to the BCUC's recent order in May 2012.



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Next Steps

CEBC wishes to meet with FLNRO, MEM and BC Hydro staffs to discuss the suggestions in this letter and determine the best way to allow micro projects to move forward again in BC. May we suggest a meeting during the week of January 22nd 2013?

In the meantime we welcome your review of this material and any comments and questions you may have.

Thank you.

Sincerely yours,

Paul Kariya
Executive Director

West, Michele L MEM:EX

From: MacLaren, Les EMNG:EX
Sent: Friday, January 4, 2013 1:01 PM
To: Wieringa, Paul EMNG:EX
Cc: Fitzpatrick, Brigitte C EMNG:EX
Subject: Fwd: CEBC Strategic Planning Session - January 9, 2013
Attachments: Outline 2013(rev 2).doc

Hi Paul

Here is CEABC's request for the informal presentation at their planning session next week.

Les MacLaren
Assistant Deputy Minister
BC Ministry of Energy, Mines and Natural Gas
250-952-0204

Begin forwarded message:

From: Paul Kariya <Paul.Kariya@cleanenergybc.org>
Date: 4 January, 2013 11:47:07 AM PST
To: Jock Finlayson <jock.finlayson@bcbc.com>, Garry Wouters <gwouters@coastalfirstnations.ca>, Richard Stout <roninconsult@live.com>, "MacLaren, Les EMNG:EX" <Les.MacLaren@gov.bc.ca>
Cc: Office Admin <officeadmin@coastalfirstnations.ca>, Loch McJannett <Loch.McJannett@cleanenergybc.org>, Kristen McIntyre <Kristen.McIntyre@cleanenergybc.org>
Subject: CEBC Strategic Planning Session - January 9, 2013

Gents

Happy New Year and best wishes in 2013

Looking forward to our panel session with you on Jan 9, 2013. Attached is an outline for our day. If you could join us at 9:30 until 11:30, then lunch, this would be great.

See you next week

Paul

Paul Kariya

Executive Director



354-409 Granville Street | Vancouver, BC V6C 1T2, Canada

Office: 604.568.4778 | Toll Free: 1855.568.4778 | Cell: 604.818.1827 | Fax: 604.568.4724

paul.kariya@cleanenergybc.org

www.cleanenergybc.org

From: Paul Kariya

Sent: December 20, 2012 9:11 AM

To: 'Jock Finlayson'; 'Garry Wouters'; 'Richard Stout'; 'MacLaren, Les EMNG:EX'

Cc: 'Office Admin'; Loch McJannett; Kristen McIntyre

Subject: CEBC Strategic Planning Session - January 9, 2013

Jock (or Ken)

Garry (and Art is he is also available to join us)

Richard

Les

Gents,

Thank you for agreeing to be our guests on January 9, 2013. If you could join us from 9:30 am to Noon this would be great. We'll have a light lunch for you and then the board will spend the rest of the day identifying priorities for 2013.

Our facilitator is Zdenka Buric from National PR.

The participants are our board of directors and chairs of our committees – 15 – 16 people total.

Could I ask each of you to come prepared with a 6 – 8 opening statement/comment.

Jock – what are the fundamentals we all need to be mindful of in the global/NA/Canadian economy as it could impact energy developments in BC in 2013?

Gary – what are the dynamics in the NW as they relate to FNs and economic development – what is the role of clean energy?

Richard – sectors need to come together in BC – what is a possible go forward scenario between ratepayers and the clean energy sector on cost effective supply

Les – LNG/Mines/Upstream gas -- can you share the possible role for clean energy in the mix along with offsets/integration with BC Hydro (recognizing that you cannot betray confidences).

The balance of time will be used in a facilitated discussion. The goal is to inform clean energy association leaders about where organizationally it should expend its efforts in 2013.

Best wishes for Christmas and Happy New year – see you in January

Paul

Clean Energy BC
Draft(2) Agenda
January 9, 2013 – Brookfield Boardroom Bentall 5
8:00 – 2:30 pm

Time	Activity	Responsibility	Purpose	Notes
8:00 am	Welcome Objectives – Outline of Day Guests to join us at 9:30 am Roundtable Introductions	Paul – welcome Mike – welcome Zdenka - facilitator	Set expectations for meeting	<ul style="list-style-type: none"> Why meeting? Brevity, listening, turn cels off Respect working office – our hosts Brookfield
8:15 am	Review Current Plan - Vision, Mission, Priorities and Operational Plan Summary of Results - 2011/12	Paul After into plenary, Into 2 groups	Small Groups: Re-validate or revise Mission and Vision Examine Priorities and results 2011/12	<ul style="list-style-type: none"> Quick exercise Then into small groups. Report back in plenary Agreement on vision/mission
8:45 am	Update – Environmental Scan – 2013	Paul	Set stage – questions to think about for our panel Set stage – context for afternoon planning session	<ul style="list-style-type: none"> ED's outlook
9:15 am	Break – welcome guests	Paul – Introduce guests	External perspectives on context for clean energy	
9:30 am	“Changing Environment for Clean Energy in BC” Guests – panel -Jock Finlayson, BC Business Council -Les MacLaren, Ministry of Energy -Richard Stout, Assn Major Power Customers -Gary Wouters, Coastal First Nations	Moderated by Zdenka	Update environment scan, - NA and Canadian economies, -Government policies -BC market place -NW First Nations	<ul style="list-style-type: none"> Short opening perspectives from each panelist (5 - 6 mins) Q and A Discussion Summation
11: 30am	Break – Thank guests Lunch and Board Discussion	Paul		

Time	Activity	Responsibility	Purpose	Notes
12:15 pm	Brainstorming session on 2013 priority areas Small groups – note takers. Report back in Plenary	Zdenka, Mike	Gather and generate ideas <ul style="list-style-type: none"> • What needs to be done • Who can do it • Target audience • Deliverables 	<ul style="list-style-type: none"> • Break group into small groups • Flip charts & markers
1:15 pm	Reporting back - Participants Choose Priorities Identify 5 priorities	Zdenka	<ul style="list-style-type: none"> -plans for priorities area -streamline ideas in plenary 	<ul style="list-style-type: none"> • Voting dots
2:55 pm	Closing	Paul		-management to work with Planning Committee to generate Update Strategic Plan and 2013 Operating Plan – for next board meeting
3:00 pm	Meeting Concludes			

West, Michele L MEM:EX

From: MacLaren, Les EMNG:EX
Sent: Monday, January 28, 2013 8:44 AM
To: Wieringa, Paul EMNG:EX; Green, Dan L EMNG:EX; Eichenberger, Kathy EMNG:EX
Cc: Fitzpatrick, Brigitte C EMNG:EX
Subject: FW: Clean Energy BC letter to Premier Clark
Attachments: image001.jpg; ATT00001.htm; Letter to Premier Clark 130125 LM Rev 2 FINAL.pdf; ATT00002.htm

Info for now. We will probably get the referral from PO.

From: Carr, Steve EMNG:EX
Sent: Friday, January 25, 2013 2:43 PM
To: MacLaren, Les EMNG:EX; Hansen, Brian EMNG:EX
Subject: Fwd: Clean Energy BC letter to Premier Clark

Sent from my iPhone

Begin forwarded message:

From: Paul Kariya <Paul.Kariya@cleanenergybc.org>
Date: 25 January, 2013 1:54:30 PM PST
To: "OfficeofthePremier, Office PREM:EX" <Premier@gov.bc.ca>
Cc: "Minister, EMH EMH:EX" <EMH.Minister@gov.bc.ca>, "Dyble, John C PREM:EX" <John.Dyble@gov.bc.ca>, "Carr, Steve EMNG:EX" <Steve.Carr@gov.bc.ca>, "Sweeney, Neil PREM:EX" <Neil.Sweeney@gov.bc.ca>, Loch McLannett <Loch.McLannett@cleanenergybc.org>, Donald McInnes <DMcInnes@alterrapower.ca>, Kristen McIntyre <Kristen.Mcintyre@cleanenergybc.org>
Subject: Clean Energy BC letter to Premier Clark

Good Afternoon,

Please see attached letter from Clean Energy BC to Premier Christy Clark.

Thank you,

Paul Kariya
Executive Director



Clean Energy BC

January 25th 2013

The Honourable Christy Clark
Premier of British Columbia
Box 9041
Station PROV GOVT
Victoria, BC V8W 9E1

Dear Premier Clark:

Re: Clean Energy, LNG and British Columbia

At your earliest convenience we request a meeting with you and your Deputy Minister to discuss the critically important decision presently before the government, namely how best to power the province's new LNG industry? At your pleasure we would also welcome Minister Coleman to join us.

In September 2012 speaking before the World Economic Forum you stated, *"We have set a goal to have the cleanest LNG in the world. We want our LNG plants to be principally fuelled by renewables. We have a lot of hydro-electricity in the province. But it won't be enough. It is going to drive, we hope, a huge boom in investment in renewable technology across the province ... We are trying to create a private sector market for clean and renewable energy."*

The clean energy sector wants to help the province achieve this goal which can be found by using a balance of renewable energy, grid based electricity and natural gas. We believe there should be a strong commitment to increase the proportion of renewables over time as the LNG sector itself grows.

We understand that BC's LNG projects are in a competition with projects elsewhere in the world, especially the US and power (fuel) costs, system reliability and timeliness of approvals are key variables. Factors such as ratepayer costs, air quality, GHGs and overall environmental impact are critically important to First Nations, local communities and the province.

During the last decade BC established itself as a global leader with its Climate Action Plan, fuel standards, carbon tax and Clean Energy Act 2010. Our emerging LNG industry must be developed mindful of and consistent with the long term economic and environmental benefits for all British Columbians. The importance of global leadership is not to be under-estimated.

Clean Energy | Association of British Columbia

354 - 409 Granville Street | Vancouver, BC V6C 1T2, Canada | Office: 604.568.4778 | Fax: 604.568.4724 | www.cleanenergybc.org



Clean Energy BC

BC's clean energy sector today consists of approximately 60 companies operating 70 projects that contribute some 15% of the power that is on BC Hydro's grid. Another 12 projects (with possibly 10 more to come) that entered into electricity purchase agreements (EPA) in 2006 and 2008 are currently under construction. The capital expenditure for these 12 projects is \$2.6 billion. Direct jobs created total 2,100 of which 900 are held by Aboriginal people. Another 6,000 positions have been supported by the sector in communities like Port Hardy, Terrace, Dease Lake, Tumbler Ridge and also large urban centre such as Vancouver and Victoria. Over the 25 - 40 year life of these 12 EPAs, \$420 Million in revenue will be paid to First Nation partners. This is an example of the clean energy sector contributing to the Jobs Plan today. This is also a demonstration of proper risk transfer from the public to the private sector especially in these challenging times of funding constraints for both government and crown corporations.

From BC Hydro's 2012 Annual Report, the cost of electricity purchased from Clean Energy BC (CEBC) members was \$68.00 per MWh. The long-term cost of power from CEBC members in the 2008 Clean Power Call over the life of the EPAs is in the range of \$70.00 MWh after non-firm energy and renewable energy credits are included. These contracts all have fixed prices except for an annual ½% CPI escalator provision. These contracts represent extremely prudent long term value for BC, its ratepayers and their energy needs.

Given the estimated size of the LNG load predicted, natural gas generation should most certainly be part of the energy mix. However, gas has liabilities that need to be properly accounted for such as: long term price risk as a fuel, loss of royalties on gas used in the LNG production process and environmental costs due to emissions and GHGs. If the energy mix equation is too gas heavy, social license for LNG from the public may be significantly compromised, First Nations' support dissipated and efforts to enable and maintain a clean tech and clean energy sector lost for a generation or more.

Premier Clark, you have rightly identified that very few jurisdictions worldwide have the opportunity we do in British Columbia to develop a new LNG industry. Our natural and competitive advantage lies with coordination of BC Hydro's storage and transmission system with a mature clean energy sector with natural gas generation to assist with base load and peaking as and when necessary. By developing LNG in this manner, an electricity infrastructure will be built that enables province wide economic opportunities to be realized together with the associated Jobs Plan and Families First benefits.

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Clean Energy BC

CEBC's project developers, together with our technical and commercial supply chain membership bring globally respected results and experience to ensure BC meet its goal of securing an efficient LNG industry that itself can rightfully claim to be the cleanest LNG industry in the World.

We look forward to meeting and to expanding upon the discussion in this letter.

Sincerely,

Paul Kariya
Executive Director

Donald McInnes
Chairperson

cc:

Honourable Rich Coleman
Minister of Energy and Mines (Minister Responsible for Housing)

John Dyble
Deputy Minister to the Premier and Cabinet Secretary and Head of the Public Service

Steve Carr
Deputy Minister, Ministry of Energy, Mines and Natural Gas

Neil Sweeney
Deputy Minister, Corporate Priorities and Planning

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West, Michele L MEM:EX

From: Johnstone, Heather EMNG:EX
Sent: Thursday, January 31, 2013 3:44 PM
To: Bonnyman, Sue EMNG:EX
Cc: Cutler, Scott EMNG:EX; Buchanan, Jack EMNG:EX; Wieringa, Paul EMNG:EX
Subject: follow-up RE: Globe and Mail Violations Article, Paul Kariya's Letter
Attachments: Menezes 2012 Operational Non-compliance Report (Final) v Jn 29.pdf; Operational Non-Compliance at IPPs Presentation_Menezes 2012_Final v Jnpdf

These are the internal reports referenced in the VS article linked below

<http://www.vancouversun.com/technology/river+sector+regulatory+disarray+documents+suggest/7857949/story.html>

From: Bonnyman, Sue EMNG:EX
Sent: Thursday, January 31, 2013 9:41 AM
To: Wieringa, Paul EMNG:EX
Cc: Johnstone, Heather EMNG:EX; Cutler, Scott EMNG:EX; Buchanan, Jack EMNG:EX
Subject: FW: Globe and Mail Violations Article, Paul Kariya's Letter

FYI

From: Loch McJannett [<mailto:Loch.McJannett@cleanenergybc.org>]
Sent: Thursday, January 31, 2013 9:21 AM
To: Loch McJannett
Subject: Globe and Mail Violations Article, Paul Kariya's Letter

Morning:

The attached pdf contains the Globe and Mail article of January 29th entitled 'Violations at private power projects going unpunished' followed by Paul Kariya's letter to the Editor published in today's Globe and Mail.

Loch

Loch McJannett
Vice President



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**Operational Non-Compliance of Clean Energy hydro-power facilities
in the South Coast Region**

Date: March 29, 2012

Author: Charlene Menezes,
M.Eng., P.Geo.

Introduction

Recently, there has been an increased level of awareness and concern regarding the potential extent of non-compliance with water license conditions at many of the approximately two-dozen small hydropower facilities (a.k.a. Clean Energy Projects, or CEPs) presently operating in the South Coast region. To date, the Ministry of Forests, Lands and Natural Resource Operations (MFLNRO) has had limited capacity to respond to these non-compliance incidents.

The purpose of this report is to document the scope and causes of non-compliance at these facilities (via a summary of each operational facility's monitoring obligations and associated compliance), and to develop recommendations for addressing the issue. As such, this report will help to address potential environmental impacts associated with these incidents, and improve the overall ability of the provincial government to effectively manage this industry.

Methods

The Operating Parameters and Procedures Report (OPPR) is a document that describes:

- key operating parameters/requirements, some of which are identified in appropriate permits and licenses;
- procedures for how the project will be monitored (to verify compliance with water license conditions & commitments); and
- reporting commitments.

In particular, the proponent commits to monitoring licensed water use (ie. maximum flow diversion) and restrictions intended to mitigate environmental impacts of water use (e.g. instream flow requirements (IFR) and flow ramping), and identifies actions to be taken following any associated non-compliance. The OPPR commits the proponent to submitting an annual OPP compliance report that summarizes such incidents in the previous year. Ultimately, the OPPR enshrines the proponent's operational obligations at the facility and is intended to apply over the complete lifespan of the facility but may undergo revisions at the discretion of the Statutory Decision Maker (SDM) for water licensing.

The CEP compliance assessment project involved two general phases: review of each facility's OPPR, and a comparison of their 2010 OPP compliance report with the monitoring and reporting commitments made in the OPPR with respect to water use. This report does not consider compliance with other water license obligations such as the biological monitoring specified in the 'long-term environmental monitoring program'. An Excel spreadsheet entitled "CEP summary table updated March 2012" was created to include information compiled during both

parts of the project. It consists of a summary tab of key findings from all facilities. Each facility also has its own tab which contains specific details on its non-compliances. If a facility was not operational in 2010 (i.e. Upper & Lower Bear, NW Stave), does not have an OPPR (i.e. Soo, Sechelt, Brandywine), or did not submit a compliance report (i.e. Rutherford, Miller, Tyson), compliance data are not included in the Results Section below. Additional notes on the interpretation of OPPR commitments and data presented in the respective 2010 OPP compliance reports are provided in Appendix 1.

Results

Monitoring obligations described in the OPPR for facilities in the South Coast region are not consistent, particularly for facilities where 'leave to commence operations' (i.e. LCO) was granted prior to 2005 (Table 1). Non-compliances in IFR (or documented fish stranding) at several facilities have resulted in updated, more restrictive obligations (i.e. L. Mamquam, Furry, N. & S. Miller, U. Mamquam), but other pre-2005 facilities remain in operation without an OPPR (i.e. Soo, Sechelt, Brandywine). McNair, for instance, is scheduled to submit an updated OPPR at the end of March 2012.

Table 1. Compliance obligations for 25 facilities on the South Coast in 2010.

Facility	Year power generation initiated	Annual report submission	Monitoring				Agency notification	Mitigation efforts
			IFR	Maximum diversion	Ramping	Headpond stage fluctuation		
Soo	1994							
Sechelt	1997							
L. Mamquam	1996		■		■			
Brandywine	2002							
Rutherford	2004	●	■		●			
Furry	2004	●	■		■		●	●
N. Miller	2003	■	■		■			
S. Miller	2003	■	■		■			
McNair	2005		●					
U. Mamquam	2005	●	●		●		●	●
Fire	2009	●	●	●	●		●	
Douglas	2009	●	●	●	●		●	
Ripella	2009	●	●	●	●		●	
Stelke	2009	●	●	●	●		●	
Ashtu	2009	●	●		●		●	●
Fitzsimmons	2009	●	●	●	●	●	●	●
Tyson	2009	●	●		●		●	
E. Tobu	2010		●		●		●	●
Montrose	2010	●	●		●		●	●
Lamont	2010		●	●	●		●	●
U. Stave	2010	●	●	●	●		●	●
U. Clowhom	2011	●	●		●		●	
L. Clowhom	2011	●	●		●		●	
U. Bear	2012 (summer)							
L. Bear	2012 (summer)							
NW Stave	construction							

Notes: Shaded circle indicates recently updated obligations as per OPPR; shaded square indicates recently updated obligations as per OIRP.

Table 2 provides a summary of various types of non-compliance for the 16 South Coast region facilities required to submit monitoring data in 2010. It is observed that the five facilities with the greatest number of non-compliances in 2010 either obtained their LCO in 2010 (i.e. Montrose, U. & L. Clowhom, Fitzsimmons) or had operations changed (e.g. increased maximum diversion at Lower Mamquam).

Table 2. Summary of non-compliances of 16 facilities on the South Coast in 2010.

Facility	Total # of water use non-compliances	Period of monitoring (days)	Water use non-compliances per day	IFR	Ramping rate	Mitigation	Agency notification
L. Mamquam	22	279	0.12	7	45	0**	0*
Ferry	7	365	0.02	3	5	0	0
McNair	0	39	0.00	0	0	0*	0*
U. Mamquam	0	39	0.00	0	0*	0	0
Fire	2	393	0.01	0	2	0**	2
Douglas	2	357	0.01	1	1	0**	3
Tipella	1	365	0.00	1	9	0	0
Stokes	6	365	0.02	2	4	0**	4
Ashlu	6	378	0.02	0	6	0	1
Fitzsimmons	25	268	0.09	12	3	25***	25***
E. Toha	6	132	0.05	3	3	6***	2
Montrose	49	133	0.32	1	46	49***	49***
Lamont	6	365	0.02	1	5	4	6
U. Clowhom	1	347	0.00	2	1	1	0
U. Clowhom	92	290	0.32	2	92	0*	92
L. Clowhom	101	290	0.35	2	101	0*	101
Total	356			33	313	191	292

* indicates that value is shown as 0 only because facility was not obligated by OPFR to comply.

** indicates that non-compliances were counted because they were reported to agencies, despite not being obligated by OPFR to comply.

*** indicates that value was obtained by summing # of IFR and # of ramping non-compliances. Worst case scenario.

Note 1: Total # of water use non-compliances excludes 1 non-compliance for maximum duration exceedance (at Tipella and McNair facilities).

Note 2: No headpond stage exceedances found at Tyson facility.

Note 3: Period of monitoring at Ashlu includes data from 2011 (Jan - Apr).

As shown in Figure 1, the majority of non-compliances in 2010 were associated with ramping and the subsequent obligations to notify agencies and apply mitigative prescriptions (e.g. fish salvage).

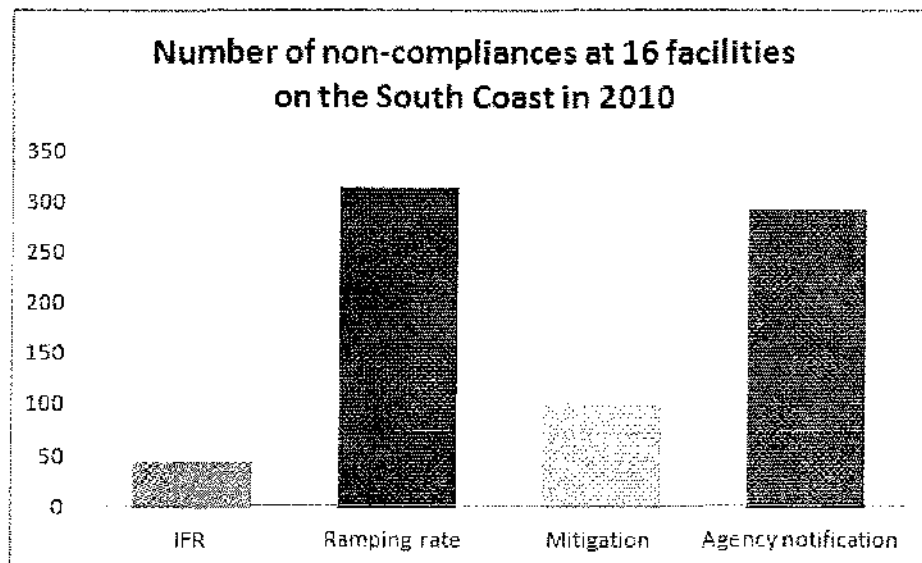


Figure 1. Number of non-compliances at 16 facilities on the South Coast in 2010.

Figure 2 summarizes the number of ramping non-compliances for each facility. The greatest number of non-compliances occurred at: Lower Mamquam (45) and Montrose (46), with the latter occurring over 2-3 months; and the Upper and Lower Clowhom facilities (92, 101), where ramping non-compliances occurred over a 10-month period.

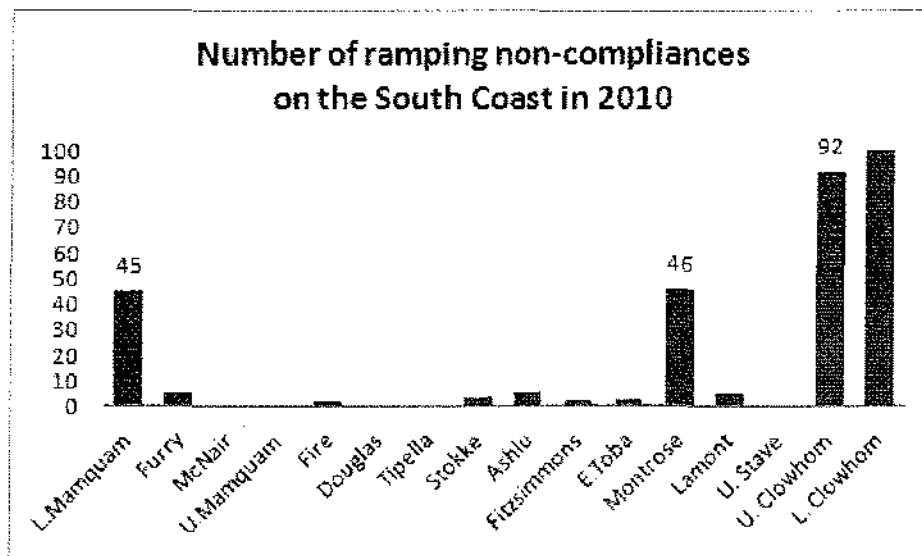


Figure 2. Number of ramping non-compliances on the South Coast in 2010.

The severity of ramping non-compliances cannot be reliably and consistently ascertained, as many facilities do not report duration and magnitude details within their compliance reports. Of those that do, average hourly rates for ramping non-compliances vary from 5 cm/h up to 25 cm/h. The duration of non-compliance events ranges from less than one hour up to eight hours (i.e. Ashlu).

With respect to non-compliance with IFR (Figure 3), Fitzsimmons had the greatest number (23). Although Furry technically reported one IFR incident, non-compliance events were ongoing for nearly two and a half months, and therefore, the 'one incident' warrants emphasis. When all non-compliances in IFR for all projects are considered, the average deficiency was relatively high (35% below IFR, ranging from 1% to 60%), with the duration of these IFR non-compliances ranging from a few hours to 10 days.

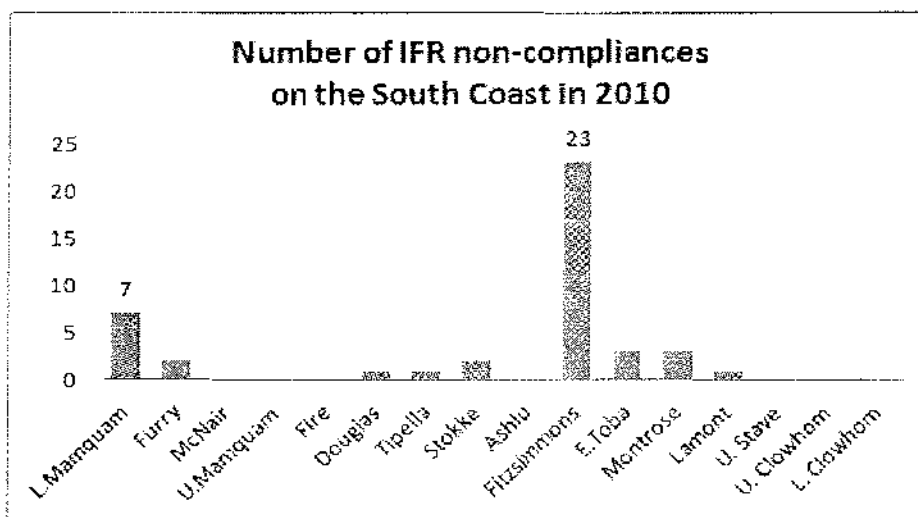


Figure 3. Number of IFR non-compliances on the South Coast in 2010.

As per Figure 4, fish strandings (and mortalities) occurred at three South Coast facilities in 2010 (Ashlu, L. Mamquam and U. Stave). Although non-compliance incidents which stranded or killed fish were reported, these numbers must be considered as the minimum as there is not a consistent level of monitoring, reporting and mitigation (search and salvage) in the OPP at all facilities. This results in many non-compliance events having an "uncertain" status with respect to fish stranding or killing. Where a non-compliance incident was categorized as "Yes", there were a total of 7 incidents which resulted in 94 confirmed fish mortalities (Table 3).

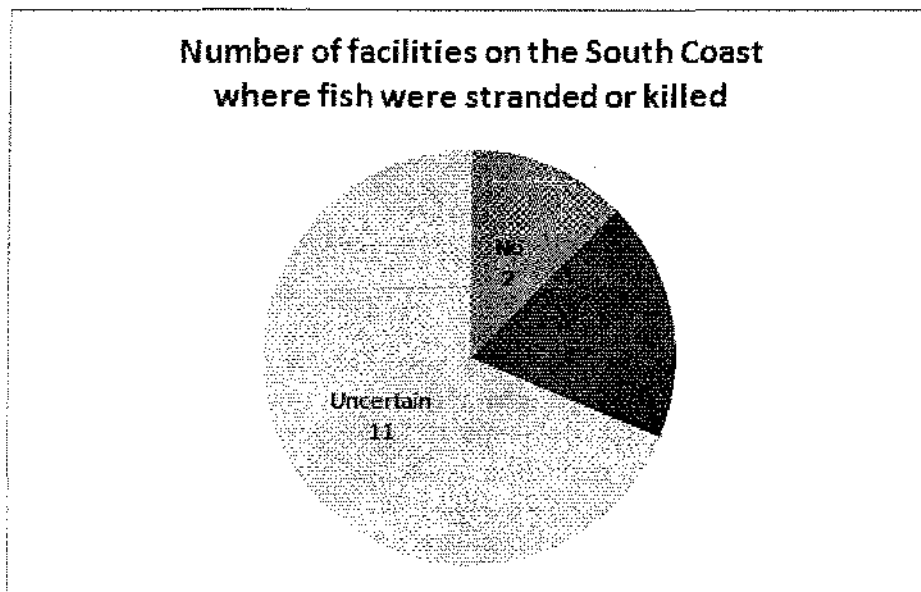


Figure 4. Number of facilities on the South Coast where fish were stranded or killed in 2010.

Table 3. Incidents on the South Coast in 2010 where fish were stranded or killed.

Facility	Period of monitoring	# of non-compliance incidents	# of incidents impacting fish	# of fish stranded	# of confirmed fish killed
L. Mamquam	Sep - Dec	13	3	1	1
Ashlu	Jan - Dec	4	3	166	87
U. Stave	Jan - Dec	2	1	52	6

Notes:

- Lower Mamquam had number of stranding incidents; not known how many fish were impacted.
- Ashlu was in commissioning in 2010, so not obligated to report incidents.

Discussion

- General issues:

1. **Operations during commissioning phase.** The Ashlu facility had an unusually-long period of commissioning during which time it is understood that the proponent was able to generate and sell power but not be held to constraints within the OPPR since an OPPR had not yet been finalized and accepted. This ambiguity has meant that incidents which occur at facilities during the commissioning phase cannot be considered non-compliant despite causing potentially harmful ecological impacts.

2. ***OPPR completion and revisions.*** Facilities have been granted leave to commence operations (LCO) without having their OPP and reporting obligations finalized. This is particularly concerning given that in the first year of operation, non-compliances are generally observed to be higher than in subsequent periods. Inadequate or delayed compliance monitoring can result from a facility being allowed to commence operations before commitments (e.g. ramping rates) are studied and enshrined in the OPPR. Furthermore, if/when OPPRs are updated, there is uncertainty as to whether these drafts have been reviewed and accepted by Water Allocation staff and are consequently binding.
3. ***Consistency among various operating documents.*** The OPPR is the primary document that enshrines obligations during operation; however, there can be several other documents, such as the OEMP (or 'Operations Plans' in older facilities), which specify some of the same parameters and procedures. It is important to ensure consistency among these documents so that there is no uncertainty regarding how the facility is being operated and monitored.
4. ***Missing stream gauge data.*** Facilities have been observed to operate through periods where there is no data, usually as a result of poor maintenance of stream gauge functionality. Such periods of missing gauge data have been reported to span from hours to multiple months in extreme cases (i.e. L. Mamquam, E.Toba/Montrose). The total number of IFR and ramping non-compliances should be consequently considered a minimum value as compliance cannot be confirmed during these periods.
5. ***Unreported incidents.*** . Certain facilities have experienced a number of IFR and ramping non-compliances according to their annual reports. In some of these cases, no notification reports were submitted to the agencies following the incident. The lack of notification was explained in later annual reporting by deeming the effects as insignificant (e.g. Montrose). In cases where notification requirements exist, unreported incidents constitute non-compliance (unless they are permitted within their OPPR to define insignificance based on pre-defined criteria). In certain cases there may be justification for modifying non-compliance thresholds or required methods used to define these thresholds, such as when non-compliances are not attributable to project operations (i.e. avalanches). However, these modifications should be made through formal changes to the OPPR, not through justifications made within annual reporting.
6. ***Absence of flow ramping guidelines.*** At particular facilities (e.g. Harrison cluster, which includes Fire, Douglas, Tipella, Stokke, Upper Stave & Lamont), ramping has been assessed only during start-ups and shut-downs rather than over the full period of operations (i.e. during flow-following). Even at facilities where ramping events due to flow-following, minimum start-up flow, or minimum shut-down flow are singled out, the group of events themselves or their effects are dismissed as insignificant (e.g. E. Toba, Montrose). This issue is largely a result of the lack of consistently applied guidelines for ramping thresholds and related timing requirements, combined with attempts by some proponents and operators to apply non-standardized approaches. Joint industry-agency

flow ramping guidelines are currently under development, but have yet to be finalized or released to industry.

7. *Follow-through in completion of mitigative actions in event of non-compliance.* The absence of subsequent mitigative efforts such as the search of sensitive sites and fish salvage poses a high risk to fish and fish habitat values at facilities where there are known to be species of concern and limiting life stages. In some cases, a facility's OPPR does not commit to this undertaking because of the difficulty accessing the site in a timely manner (e.g. U. & L. Clowhom). In other instances, despite access issues, facilities do commit to mitigate in their OPPR, but then consistently breach this obligation and attribute it to the facility's isolation (e.g. Montrose).

Additionally, the quality of the search to determine fisheries impacts during non-compliance can be constrained by the number of sensitive sites that require assessment before the stage/flow returns to being in compliance.

8. *Adopting protocol without agency approval.* Examples of this issue include deviations from DFO default ramping rates, and criteria for excluding ramping events from classification as non-compliant (natural events, short-duration events minimally exceeding threshold). Also, with respect to the requirement to undertake mitigative actions, certain facilities have not adhered to this if the plant shut-down was followed by an "immediate restart", but no definition of this is provided. The use of flawed stage correlations between gauge sites and sensitive sections (e.g., U. & L. Clowhom) serves as another illustration of this point. Similar to point #5 above, these decisions have been made without the requisite changes to the proponents' OPPR. If changes to ramping thresholds or associated methodology are required, these should be done through formal modifications to the OPPR, as per approval by the SDM. Also, with respect to the requirement to undertake mitigating actions, certain facilities have not adhered to this if the plant shut-down was followed by an "immediate restart", but no definition of this is provided. The use of flawed stage correlations between gauge sites and sensitive sections (e.g., U. & L. Clowhom) serves as another illustration of this point.

9. *Incident follow-up.* There has been a lack of resources (staff, database tools) at MFLNRO to track/monitor compliance at various facilities. Ultimately, there is limited compliance and enforcement (C&E) of the water use obligations. Environmental Monitors (EMs) are required onsite to monitor compliance during construction, but there is limited agency oversight during the operational phase.

- Recommendations for OPPR template modifications:

1. *Hydrometric monitoring procedures.* There is a need to be more precise about hydrometric monitoring procedures in the template: real-time stream gauges, with high sampling frequency, linked to PLC with appropriate alarm levels, with frequent operator review of data, and maintenance of gauge and rating curve.

2. **Maximum allowable diversion.** Verification that a facility is not exceeding the maximum allowable diversion as per their water license is currently done through submission of water license returns detailing energy production. As an additional check, the proponents should be directed to commit to including plant flow data in their annual compliance report, which will also enable regulators to easily verify times when the plant is not operating.
3. **Ramping rate monitoring protocol.** A number of specifications on ramping rate monitoring protocol from the soon-to-be released Flow Ramping Guidelines need to be added to the OPRR template. They include details on: how ramping rate is calculated; how ramping effects are assessed at sensitive sites; over what period of operations ramping effects are to be assessed; criteria for excluding ramping events from classification as non-compliant (magnitude, duration of short-term exceedances); specific reporting of magnitude (expressed as all of maximum hourly, average hourly, and total stage change) and duration for each non-compliance event.

The template should specify that proponents include a 'ramping non-compliance action flowchart' in their OPRR that outlines who does what, and when, in the event of a possible non-compliance.

4. **Agency notification.** In the past, there have been inconsistencies in expectations regarding the timing of initial notification to MFLNRO by the proponent in the event of non-compliance (either 24 hours or 48 hours from event). The timing of this and follow-up reporting needs to be resolved in the template.
5. **Remote facilities.** Particular consideration needs to be given to how remote facilities are expected to reasonably notify and mitigate following a non-compliance incident as this issue is not addressed at present.
6. **Timing of maintenance operations.** The timing of maintenance operations, which include headpond sediment flushing, and clearing of IFR pipe/gate obstructions needs to be addressed with due consideration given to fish spawning, in addition to the timing of high flows.

Recommendations

1. **Resolve commissioning phase ambiguities.** The uncertainty surrounding monitoring commitments during this phase relates to the need for OPRRs to be submitted earlier in the permitting process. It is recommended that acceptance of an OPRR as satisfactory be required by the Water SDM prior to initiation of wet commissioning. Furthermore, improved awareness and communication of monitoring and operational expectations during commissioning is required; agency staff needs to convey these expectations to their delegates (Independent Engineer, Independent Environmental Monitor) who in turn communicate them to the proponents of these facilities.

2. ***Clarify agency expectations with OPPR template.*** There is currently a wide range in the level of detail on monitoring and reporting offered by proponents in their OPPR, and consequently, monitoring and reporting commitments vary from facility to facility. To resolve this, it is recommended that an OPPR template be developed and approved for widespread reference.
3. ***Obtain updated OPPRs from proponents.*** Older facilities with out-of-date or no OPPRs should be required to submit updated documents once they have been advised of agency expectations. Specific actions include:
 - i. Obligate Soo, Sechelt and Brandywine facilities to develop and submit OPPR.
 - ii. Follow-up on McNair's OPPR, which is expected at the end of March 2012.
 - iii. Obligate Fire, Douglas, Tipella and Stokke facilities to update their OPPR to include commitments to mitigate.
 - iv. Obligate Clowhom facilities to update their OPPR to include commitment on mitigation, despite facility's isolation.
 - v. Obligate E. Toba and Montrose facilities to update their OPPRs to reflect their commitment to including plant flow data to monitor maximum diversion.
 - vi. Obligate Tyson, Miller and Rutherford facilities to reproduce obligations made in updated operating documents in revised OPPRs.
 - vii. Obligate L. Mamquam and Rutherford facilities to update their OPPRs to reflect the full suite of commitments (monitoring, mitigating and reporting).
4. ***Wide release of approved flow ramping guidelines.*** A draft version of these guidelines has been developed and submitted by the consultant in December 2011. Approval of the final document and its release to proponents and consultants needs to be expedited.
5. ***Improve communication and coordination with the Water Allocation section.*** Monitoring and reporting obligations during operation need to be finalized before the granting of Leave to Commence Operations (LCO). Action on this general recommendation requires the cooperation of Water Allocation staff that is responsible for issuing the LCO. A further recommendation, in light of continuous revisions to OPPRs, is that the OPPR status for each facility be clarified by Water staff to avoid future uncertainty. Specific actions include:
 - i. Resolve outstanding acceptance by Water Allocation of Feb 2011 Lower Mamquam OPPR (draft).
6. ***Tracking of compliance issues through database tool.*** Currently, MFLNRO's Water Allocation and Ecosystems staff are notified about non-compliance incidents by email; their ability to respond to these issues is limited by the sheer number of facilities and incidents and agency resources. To assist with this, a CEP database is presently under development; it will allow tracking of non-compliance incidents, including details on occurrence and incident deliverables. Specific actions include:
 - i. Obtain annual compliance reports for Miller, Tyson and McNair facilities.
7. ***Re-establishing compliance monitoring program.*** Such a program could be similar to monitoring in the mid-2000's (Ecosystems Section - Scott Babakaiff) which involved

measuring downstream discharge at facilities at different times of the year and comparing the measurements to IFR requirements stipulated in the water license. Formal inspections and audits are mechanisms that could be used to improve compliance.

Appendix 1

Notes on interpretation of compliance with OPP

1. Certain older facilities do not have OPPRs but have included some monitoring obligations in their Operational Environmental Monitoring Plan (OEMP) or Operations Plan. These facilities were identified under the heading "OPP Monitoring Obligations" in the summary tab, under a newly created line item "Obligations specified elsewhere? If yes, Date, Version, Document" (i.e. Rutherford, Miller, Tyson). All the available documents were used to compile obligations, and comments have been inserted to note which commitments originated from which document.
2. For facilities that did not have an OPPR current to 2010, compliance was assessed against conditions identified in the water license and/or long-term environmental monitoring program report (i.e. L. Mamquam, Furry, U. Mamquam and Fitzsimmons). Although these facilities did not have a valid OPPR at the time, the conditions pertaining to IFR and ramping rate identified in the aforementioned documents would have been the same as those in an OPPR, had it been submitted. These obligations were subsequently enshrined in an OPPR document (see table below).

Facility	LTAM Report Submission Date	Period of Compliance Monitoring	OPPR Date
L. Mamquam	21 Dec 2011	Sep 2010 - Aug 2011	Feb 2011 (not accepted)
Furry	7 Mar 2011	2010	20 Jan 2012
U. Mamquam	Jul 2011	2010	Dec 2011
Ashlu	29 Jun 2011	Apr 2010 - Apr 2011	26 Jul 2011
Fitzsimmons	31 Mar 2011	2010	31 May 2011

The Ashlu facility was generating and selling power through a long period of commissioning in 2010 but not held to submit and follow an OPPR during this time. Although incidents at the facility cannot strictly be considered non-compliant over this duration, those that were reported as such to the agencies were recorded as non-compliance incidents.

Facilities that have updated their OPPRs since 2010 have been distinguished within the heading "OPP Monitoring Obligations" in the summary tab of the spreadsheet, under a newly created line item "OPPR updated since 2010?"

3. Typically, monitoring for compliance spans the calendar year with report submission occurring in March of the following year. However, at certain facilities, monitoring programs straddle two calendar years because of a mid-year start to the monitoring program (e.g. Ashlu, L. Mamquam, and U. & L. Clowhom). These cases were documented under the heading "OPP Monitoring Results for 2010" in the summary tab, under a newly created line item "Monitoring Period (if beyond 2010)".

This reviewer is aware that for certain cluster projects, or multiple projects with the same owner, the proponent has been known to request and obtain approval for staggered report submission; specific instances of this are unknown, but could be included in this row of the spreadsheet in the future.

4. The "Graphical Data" tab includes a "Summary Table of Number of Non-Compliances by Facility". For facilities with compliance data, the period of monitoring in days was tabulated here. This value was calculated by subtracting the approximate number of days of missing gauge data from the number of days in the flow monitoring period (e.g. Apr to Dec 2010).
5. There are instances where a number of ramping events occurred at around the same time, are caused by the same mechanism, and/or comprised a ramp-up and ramp-down. For ease of event interpretation, where possible, non-compliance events were grouped into incidents. These incidents can be identified on project-specific tabs by coloured highlighting (e.g. E. Toba).
6. Within certain compliance reports (e.g. Harrison cluster), the time series of hourly stage change was presented in graphical form, but specific details about the ramping non-compliance events were not provided. In these cases, the magnitude and duration of the non-compliances were interpreted from the plots by this reviewer; such values should be considered approximate and have been distinguished by a preceding tilde symbol (~) in the spreadsheet.
7. In their OPPRs, certain facilities did not commit to notifying agencies or undertaking mitigative steps in the event of a non-compliance and, as a result, they are not obligated to do so. The "Total # of non-compliances in mitigation after non-compliance" and "Total # of non-compliances in Agency notification after non-compliance" have been represented as "0*" in the summary spreadsheet (i.e. McNair, U. & L. Mamquam, U. & L. Clowhom) with explanatory notes at the bottom of the table.

Some proponents have consistently mitigated despite not committing to this in their OPPRs (i.e. Fire, Douglas, Stokke). The few instances where they have subsequently failed to comply were recorded in the spreadsheet with a non-zero number "XX**" and explanatory notes at the bottom of the table.

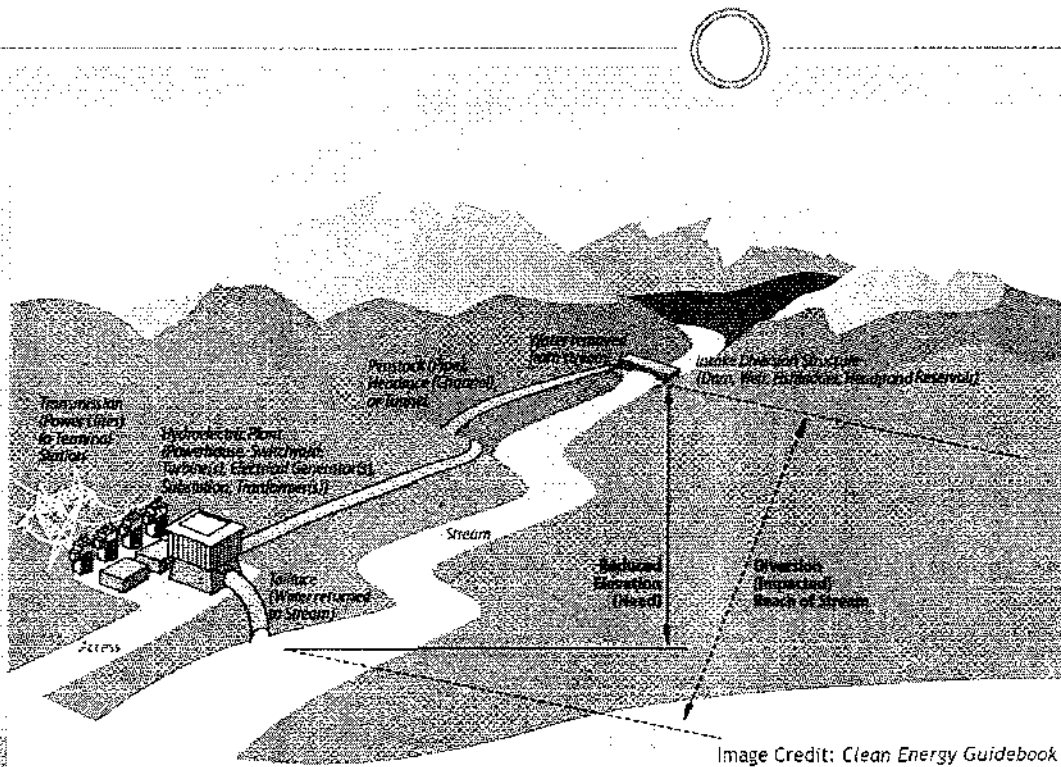
Two facilities reported non-compliance in maximum diversion (i.e. Tipella, McNair). McNair was not obligated to do so as per its OPR.

8. With respect to fish impacts, in some cases, searches were delayed and are therefore likely to be ineffective. The date of the search was noted (where known) under "Mitigative Efforts Undertaken" in the project-specific tabs.
9. Practical responses to the question "Fish stranded or killed as result of non-compliances?" were considered to be "Yes (quantify)", "No" and "Uncertain". Where numbers of fish stranded or killed were included in the summary tab, it must be

emphasized that this is a minimum value; often, there were other incidents where no search and salvage took place, and so additional fish impacts were not known.

10. At some facilities, there were too many supplemental non-compliances (duty to mitigate and notify) to be accurately quantified. These were reported in the summary tab to have "multiple dates" of supplemental non-compliances; but, for graphical purposes, in the "Summary Table of Number of Non-Compliances by Facility", they have been enumerated by summing the number of IFR and ramping non-compliances and assuming a worst-case scenario (e.g. E. Toba, Montrose).

Operational Non-Compliance of CEPs in the South Coast Region



Charlene Menezes
M.Eng., P. Geo.

April 4, 2012

* Associated Report: Menezes 2012
Operational Non-Compliance Report

Context

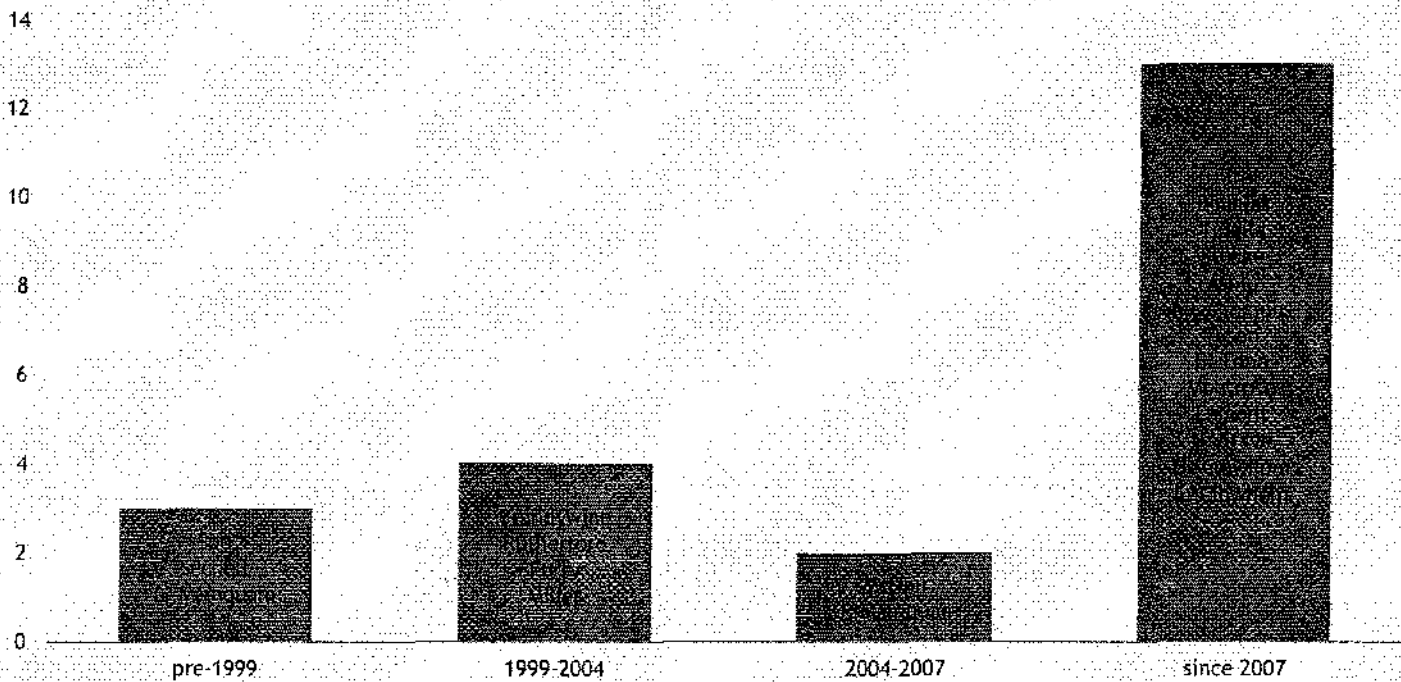


- 22 operational CEPs on South Coast, 3 imminent
- Mounting pressures and concerns about the potential extent of non-compliance
- Limited ability to respond to non-compliances
- Led to review of operational commitments & compliance assessment
- Objectives of this review:
 - Address potential environmental impacts
 - Improve overall management of CEP industry

History of CEPs



Number of Facilities on the South Coast
by Power Initiation Period



OPPRs: A Primer

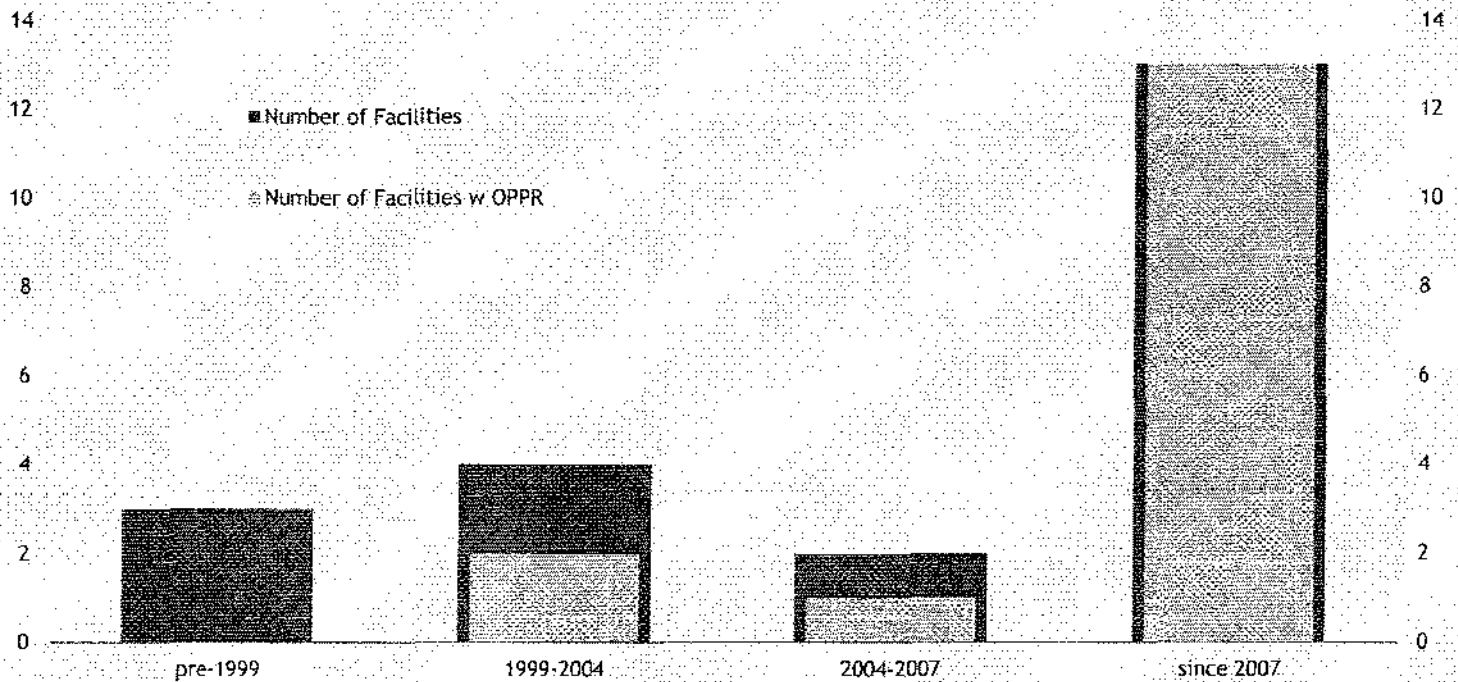


- **Operating Parameters and Procedures Report**
 - submission is a condition of the water license
- **Describes what?**
 - key operating parameters/requirements
 - procedures for how facility will be monitored
 - requirement to undertake mitigative actions
 - reporting commitments
- **Importance**
 - enshrines commitments related to water use
 - applies over lifespan of facility

Regulatory Setting

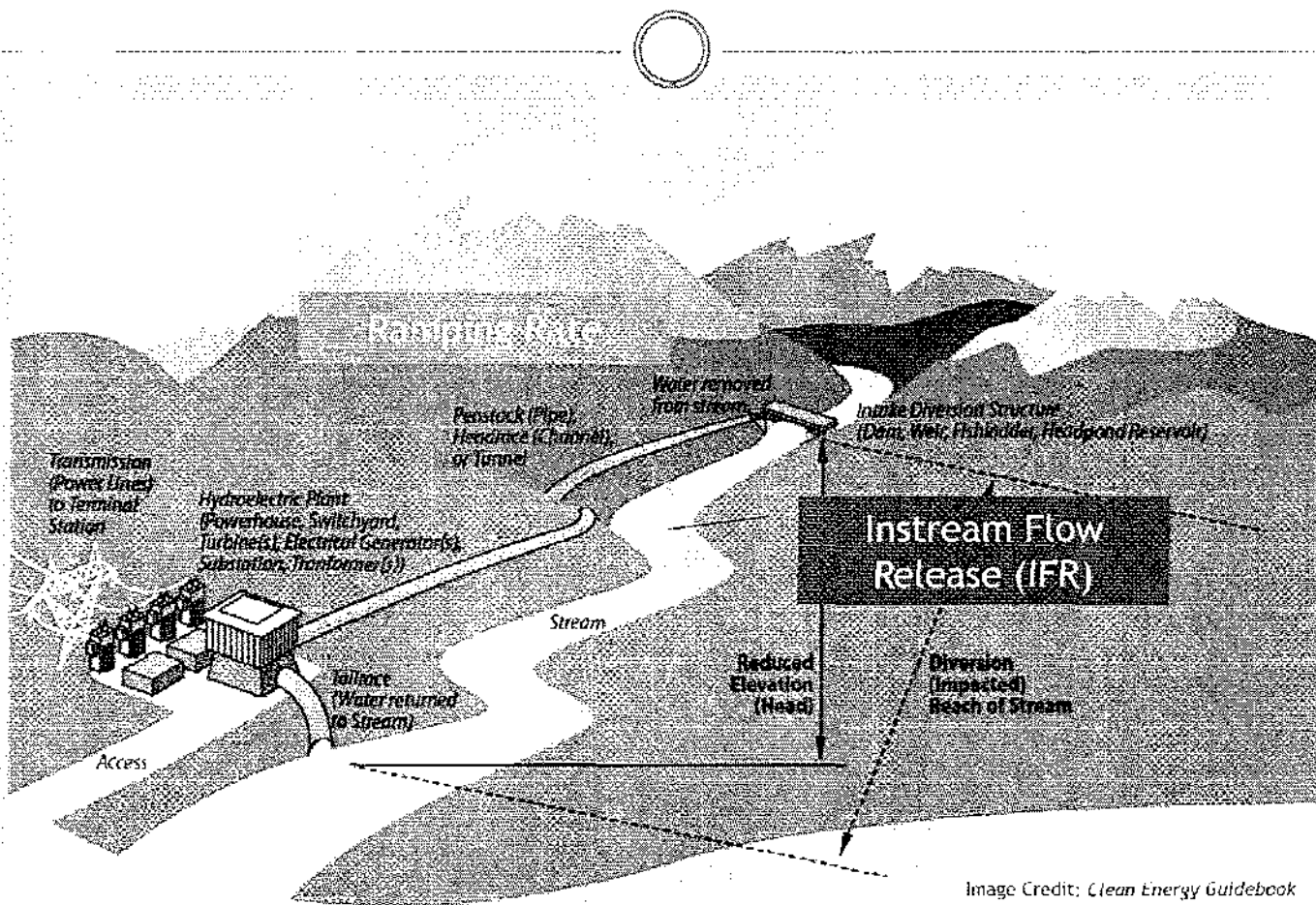


Proportion of Facilities on the South Coast with Commitments at time of Licensing



Note: Within OPPR, facilities may selectively commit to monitoring, mitigating, and reporting.

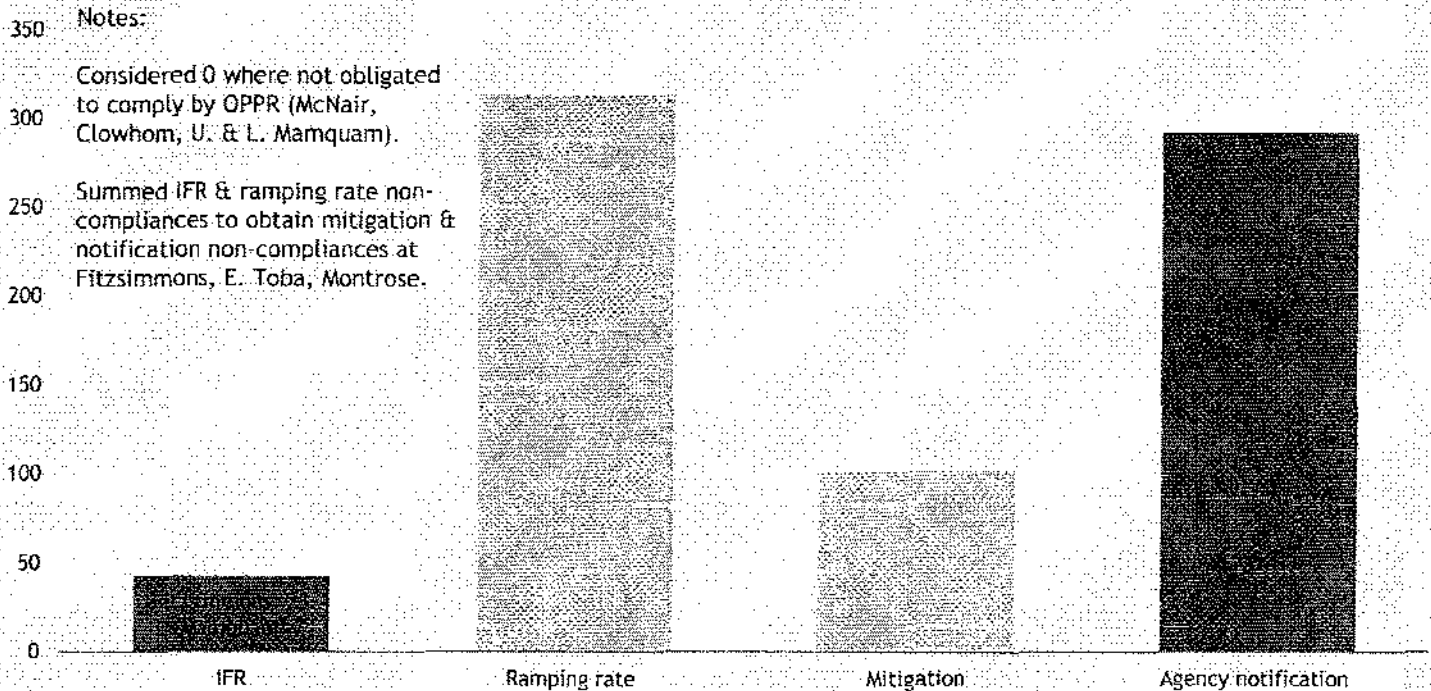
Water Use Monitoring



2010 Compliance Assessment*



Number of non-compliances at 16 facilities
on the South Coast in 2010

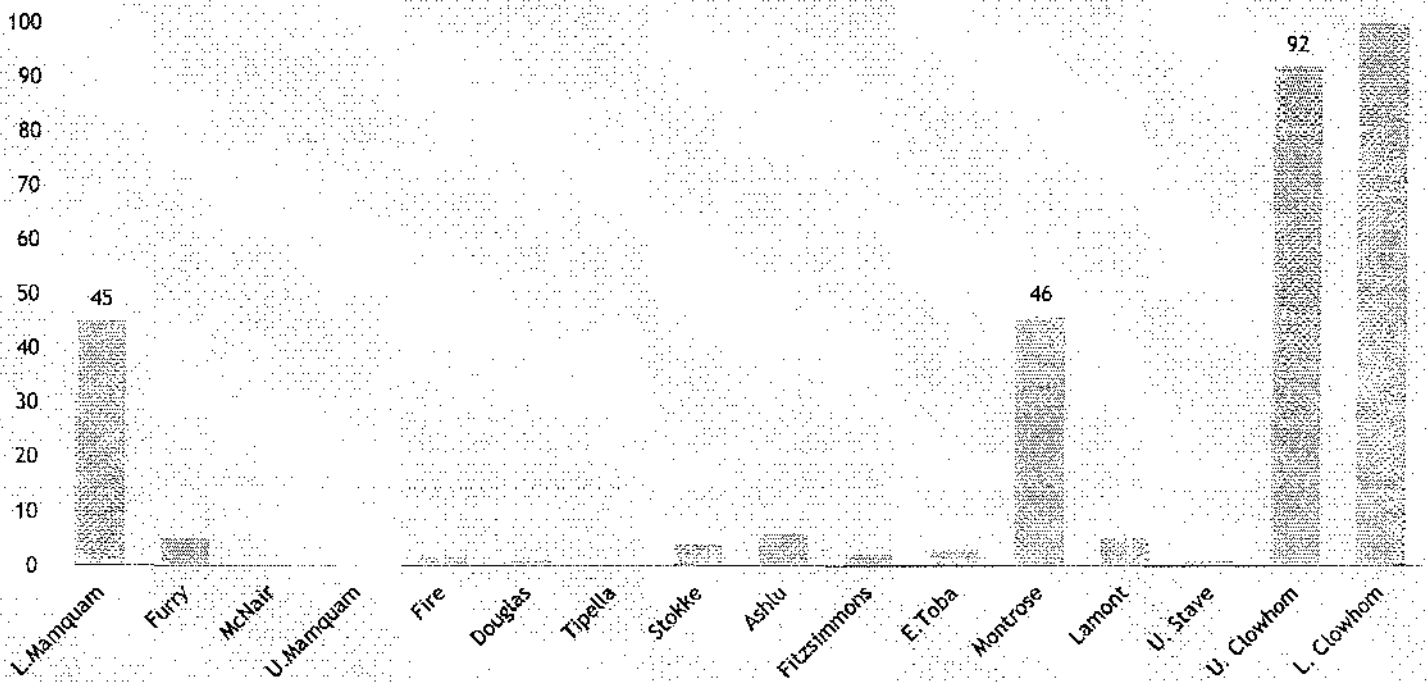


* Supporting data for non-compliance statistics identified on the next four slides are included in: *Menezes 2012 Operational Non-Compliance Report and associated Excel summary.*

2010 Compliance Assessment



Number of ramping non-compliances
on the South Coast in 2010

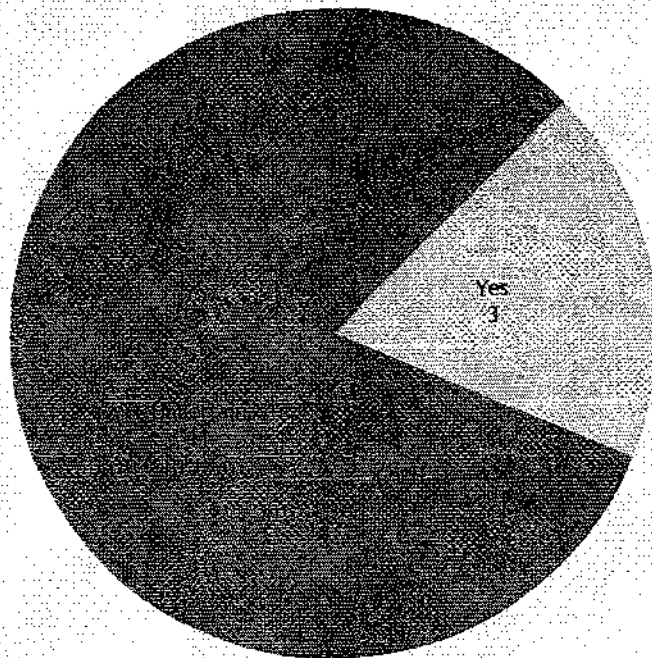


Note: U. Mamquam shown as 0 because not obligated by OPPR to monitor ramping rate.

2010 Compliance Assessment



Number of facilities on the South Coast in 2010
where fish were stranded or killed



2010 Compliance Assessment



Incidents on the South Coast in 2010 where fish were stranded or killed*

Facility	Period of monitoring	# of non-compliance incidents	# of incidents impacting fish	# of fish stranded	# of fish killed
L. Mamquam	Sep - Dec	13	3	1	1
Ashlu	Jan - Dec	4	3	166	87
U. Stave	Jan - Dec	2	1	52	6

Notes:

- Lower Mamquam had number of stranding incidents; not known how many fish were impacted.
- Ashlu was in commissioning in 2010, so not obligated to report incidents.

General Issues

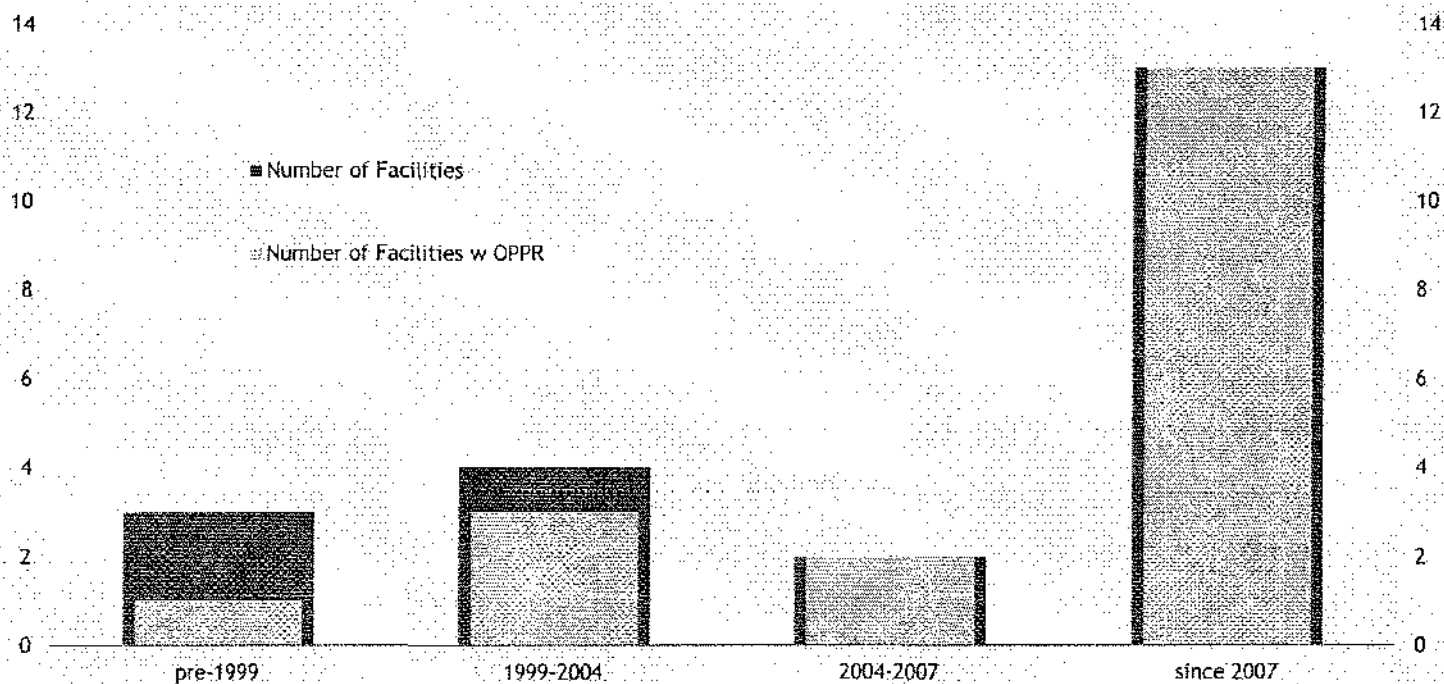


- **Operational obligations**
 - LCO granted before OPPR finalized
 - OPPR revision tracking
 - Consistency among operating documents
- **Compliance reports**
 - Missing stream gauge data
 - Unreported incidents
 - Standardization of ramping assessments
 - Non-fulfillment of mitigation requirements
 - Unapproved protocol implementation
- **Incident follow-up**
 - Limited tracking ability
 - Lack of agency response

Regulatory Setting Update



Proportion of Facilities on the South Coast with Commitments
as of March 2012



Note: Within OPPR, facilities may selectively commit to monitoring, mitigating, and reporting.

Status of OPPRs



Current status of OPPRs at 22 CEP facilities on the South Coast

Satisfied	Agency review provided & no proponent response	Agency review and Order required	Absent
Ashlu	Fire	L. Mamquam	Soo
Fitzsimmons	Stokke	Rutherford	Sechelt
Furry	Tipella	Tyson	Brandywine
U. Mamquam	Douglas	Miller	
	U. Stave	McNair	
	Lamont		
	E. Toba		
	Montrose		
	U. Clowhom		
	L. Clowhom		

Recommendations



- Compel owners to update OPPRs
- Clarify agency expectations with OPPR template
- Release flow ramping guidelines
- Improve coordination with Water Allocation
- Underscore commissioning phase expectations
- Finalize CEP database for incident tracking
- Establish OPP compliance monitoring program

Thank you



Acknowledgements

Ecosystems Section (S. Babakaiff, E. Stoddard)

Water Allocation Section (K. Johnson, A. Ullah, J. Davies)

Administrative Support Services (J. Becker, D. Ha)

Questions? Comments?

West, Michele L MEM:EX

From: Paul Kariya [Paul.Kariya@cleanenergybc.org]
Sent: Friday, February 1, 2013 3:14 PM
To: Wieringa, Paul EMNG:EX; Bonnyman, Sue EMNG:EX
Cc: Loch McJannett
Subject: Paul and Sue - we are preparing internal fact sheets at CEBC - Paul
Attachments: Fact Sheet - Demand and Supply (2).doc; Fact Sheet - Cost of Private Power (4).doc

Paul and Sue

Could you review and provide comments – errors or omissions – on our fact sheets. We will internally produce a number of these as part of our election preparedness. From these then we'll prepare actual tools we'll use – letters, website update etc.

Much appreciated - txs

Paul

Paul Kariya
Executive Director



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paul.kariya@cleanenergybc.org

www.cleanenergybc.org

FACT SHEET: DEMAND AND SUPPLY
Draft 1.15.2013

The forecast total demand from BC Hydro's residential, light industrial/commercial and large industrial customers in fiscal 2012 is 56,803 gigawatt hours (GWh) while Hydro's total energy supply is 57,938 GWh. After accounting for 918 GWh from energy saving programs such as Power Smart, Hydro forecast a surplus of 2,023 GWh.

Power was supplied from three sources: BC Hydro's 31 hydro-electric and three gas-fired generating stations; purchases from 76 independent power projects ranging from small run-of-river plants to Alcan and publicly-owned Columbia Power; and purchases from the U.S. and Alberta on the "spot" market.

BC Hydro's draft Integrated Resource Plan (IRP) forecast BC's peak electricity demand to increase by 50% over the next 20 years – driven by economic expansion, population growth and increased industrial demand from the natural gas, mining and transportation sectors. The IRP forecast a 601 GWh deficit by 2022 and a 7,197 GWh deficit by 2031 based on existing and planned resources, excluding the proposed Site C project and potential savings from conservation programs such as Power Smart.

However, the IRP identified the potential for the electrification of liquid natural gas (LNG) facilities on the BC coast as having a major additional impact on demand. Assuming the operation of just two liquefied natural gas plants (Apache, Douglas) would require 5,281 GWh/year, the IRP estimated a 'mid-load' demand of 71,258 GWh and a deficit of 761 GWh by 2017. By 2031, demand was forecast at 87,356 GWh with a deficit of 12,478 GWh.

However, the IRP also constructed scenarios to account for additional demand from a third LNG plant (Shell), new mines and the oil and gas sector. A third LNG project would require an additional 10,000 GWh per year by 2026 and mining, oil and gas could add more than 2,000 GWh by 2018 – increasing the total new demand by 74% from the current load, to some 99,356 GWh annually.

(BC Hydro's LNG forecast was based on the requirement for refrigeration and gas compression at the plants located at tidewater. But the Clean Energy Association of BC (CEBC) estimates an additional 14,442 GWh would be required for *upstream* gas production which is not accounted for in the draft IRP.)

BC Hydro proposes to meet the increased demand from a number of sources. By 2017, it will have 64,297 GWh from existing and committed supply, planned resources such as the John Hart replacement project and an allowance for non-firm market power. Also in consideration is 5,100 GWh from the proposed \$7.9 billion Site C dam. Other options include saving an additional 1,000 GWh through expanded conservation and efficiency programs, expanding Hydro's spot market purchases, extending the backup use of its Burrard Thermal Generating Station, and taking power from the Canadian Entitlement under the Columbia River Treaty.

It would be fair to say that the controversy over the environmental and social impacts of Site C could result in considerable impacts on both project timing and costs, issues which also apply to expanded use of Burrard Thermal. As for conservation and efficiency savings, these must be accomplished from the existing supply where most savings opportunities have already been realized – and the cost of new programs must be weighed against the alternative of simply acquiring new supplies.

As for the Canadian Entitlement under the Columbia River Treaty, debate centres on the potential for using the annual average entitlement of 4,300 GWh per year of firm energy from U.S. producers for domestic use, rather than marketing it for export as is presently the case. However, this power does not meet BC's legislated requirement of self-sufficiency in energy, a point recognized by the BC Utilities Commission which ruled that "... *the Canadian Entitlement is not a suitable source of dependable capacity in the long-term.*" In any event, the Treaty provides that either the U.S. or Canada can give written notice in 2014 should they want to terminate any of the Treaty provisions in 2024. CEBC understands the BC government currently is reviewing its options in this regard.

Alternative scenarios would include self-generation of electricity by LNG producers to power their facilities; increased purchases from the sometimes volatile spot market; building major new BC Hydro dams on waterways in the northwest; and further expansion of the independent power generation sector utilizing the province's wind and bioenergy resources in addition to run-of-river hydro.

Using natural gas "inside the fence" to power the LNG plants raises two major concerns. First, while a relatively clean fossil fuel, it would be a substantial producer of greenhouse gas emissions. Second, it would mean there would be none of the economic benefits to northern communities or First Nations which would result from the construction and operation of clean energy facilities and transmission lines.

The downside of spot market purchases has been amply illustrated in the past when market prices have surged due to supply shortages, while BC Hydro also has noted there is a risk in terms of transmission capability to obtain the power – not to mention the U.S. and Alberta imports are mainly generated with coal. As for damming some of the major rivers in the northwest, the current controversy over the proposed Site C dam would suggest this would be problematic.

That leaves the clean energy sector. BC Hydro currently has contracts with 76 projects generating 10,827 GWh for Hydro's grid – 20% of BC's domestic demand. A 2012 report prepared for the Canadian Wind Energy Association (CanWEA) found there are 18,000 GWh per year of electricity available in British Columbia with a lifetime cost of energy which would be competitive with the current cost projected for BC Hydro's proposed Site C dam.

7:00pm 1.15.2013

FACT SHEET: COSTS AND ADVANTAGES OF PRIVATE POWER

DRAFT 1.10.2013

Summary

While electricity prices on the spot market currently are much lower than the cost of power generated by either private projects or new BC Hydro projects, there are no guarantees against price volatility or failures in transmission capability, as has been shown historically. Also, BC Hydro estimates the cost of its proposed Site C project at \$87 to \$95 per megawatt hour (MWh) – the same price range estimated for private power projects for a similar amount of energy. However, BC ratepayers also benefit from guaranteed long term prices, security of supply, lower development risks to BC Hydro, and substantial economic benefits to BC communities and First Nations across the province from the construction and operation of private power projects.

The cost at which BC Hydro acquires energy from private power producers is frequently misunderstood and misinterpreted on two counts. First, that there will be a continuing advantage to the alternative of buying power on the spot market; second, that BC Hydro itself can build new generation projects at lower cost.

The crux of the debate is that while BC Hydro records the “long run” weighted average cost of firm/non-firm private power purchased under the 2009 Clean Power Call at \$100.7 per megawatt hour (MWh), spot market energy currently is available for \$40/MWh. The Clean Energy Association of BC (CEBC) notes that if liquidated damages and other price adjustments are taken into account, the weighted average cost of private power reduces to \$96/MWh – comparable to BC Hydro’s estimate of \$87-\$95/MWh for its proposed Site C project.

(The CEBC notes that in terms of *current* costs, BC Hydro’s 2012 Annual Report records purchases from independent power producers of 10,827 gigawatt hours of power in 2012 at \$67.97 per MWh. CEBC also notes that private power producers pay back some \$40/MWh in the form of income and property taxes, licence and permit fees and First Nations benefits.)

However, CEBC emphasizes that the basic power cost is not the only factor BC Hydro must consider and not the only criteria that should be applied to determine what is in the BC consumer’s best interest. Most importantly, as BC Hydro itself states: *“Ratepayers are not exposed to market risk with the long-term price certainty, while project development responsibilities and costs are shifted to the IPPs.”*

Long term private power contracts (20-30 years) are not subject to swings in market prices as has occurred in times of short-term surpluses in the U.S., spikes in natural gas prices and low water levels in BC. A good example was seen in the 2001 energy crisis in California when the price of electricity escalated to \$800/MWh; and again in 2008 when BC Hydro experienced an energy shortfall due to weather and other factors while spot market prices were well above those paid to private producers. In fact, BC Hydro’s own forecast for the spot market has the price increasing by 50% by 2020 and 100% by 2028.

Price volatility is not the only risk when dealing with the spot market. There also are risks in terms of transmission constraints and the ability to actually obtain the energy when it is needed. There also is a potential for substantial additional charges (\$27-\$55/MWh) being levied against U.S. producers for greenhouse gas emissions from their coal- and gas-fired generators.

As to CEBC’s estimate of private power costs, for planning purposes it is prudent that BC Hydro rely on firm energy. However, about 20% of the energy from private producers is non firm and delivered for the non-firm price of \$48 /MWh. Also, a number of adjustments apply to the firm price that may or may not represent real costs to BC Hydro. They include a charge for *assumed* transmission losses; charges and securities against actual and *potential* interconnection costs; a charge for a share in the *possible* cost of future increases in transmission capacity.

In addition, there may be under-deliveries from private producers during some periods – such as the spring freshet when water levels are at their highest – and BC Hydro can replace this shortfall at the market price – and at a time of its choosing due to its storage capabilities. BC Hydro also can charge the producer \$5/MWh as liquidated damages. This would bring the weighted average cost down to \$96/MWh.

The CEBC figure corresponds with a 2012 report prepared for the Canadian Wind Energy Association (CanWEA) which found there are 4,700 gigawatt hours per year (GWh/yr) of electricity available in British Columbia with a lifetime cost of energy under \$87/megawatt hour and 18,000 GWh/yr under \$95/megawatt hour, excluding only utility contract terms and the cost of substation connections to the BC Hydro grid.

By comparison, BC Hydro's draft Integrated Resource Plan (IRP) states that its proposed Site C project would generate 5,100 GWh/yr *"at a cost range between \$87 and \$95 per megawatt hour."* This, in turn, compares with the \$134/MWh cost of BC Hydro's Aberfeldie run-of-river project completed in 2009.

BC Hydro also is able to sell Renewable Energy Credits for any wind energy it procures, and likely will be able in future to earn RECs for small-hydro energy. These payments could reduce the effective cost for renewable energy from private producers by another \$30-\$40/MWh. Of course, BC Hydro itself has limited experience with building small hydro projects and no experience with wind, biomass or other clean energy technologies that distribute economic benefits around the province.

Finally, the cost of private power is frequently cited as a major contributor to the rates BC Hydro charges consumers. The BC Hydro 2011 Revenue Requirements Application - withdrawn after strong opposition from ratepayers – painted a very different picture. In fact, the Application showed that most of the requested rate increase was allocated to the cost of renewing and expanding Hydro's publicly-owned assets while only 2.6% of the requested 32.1% increase was related to purchases from B.C.'s private power producers.

* Firm energy, or 'non-interruptible' energy, is electricity guaranteed to be available at a given time. Non-firm, or 'interruptible' electricity, is not required to be delivered or to be taken under the terms of a power purchase agreement.

4:00pm 1.10.2013

West, Michele L MEM:EX

From: Paul Kariya [Paul.Kariya@cleanenergybc.org]
Sent: Monday, February 4, 2013 8:02 AM
To: Nelson, Aaron EMNG:EX; Wieringa, Paul EMNG:EX; Bonnyman, Sue EMNG:EX
Subject: RE: Sue or Paul - I wonder if you could help me with a question - Txs Paul

Txs Aaron and Paul

Paul

Paul Kariya
Executive Director



354-409 Granville Street | Vancouver, BC V6C 1T2, Canada
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paul.kariya@cleanenergybc.org

www.cleanenergybc.org

From: Nelson, Aaron EMNG:EX [<mailto:Aaron.Nelson@gov.bc.ca>]
Sent: February 1, 2013 5:00 PM
To: Wieringa, Paul EMNG:EX; Paul Kariya; Bonnyman, Sue EMNG:EX
Subject: RE: Sue or Paul - I wonder if you could help me with a question - Txs Paul

I agree that in this example royalties would be paid upstream of the LNG facility and that any gas used downstream at an LNG facility will be considered royalty paid. At the LNG facility there will be small amounts of natural gas liquids extracted however these volumes will not attract royalty as royalty has already been assessed on the marketable gas volume that entered the upstream pipeline. We are not expecting raw gas to be transported to the coast.

Hope that helps,

Aaron Nelson
A/Executive Director
Royalty Policy Branch
Oil and Gas Division
Ministry of Energy, Mines and Natural Gas

1810 Blanshard Street
Victoria, BC

Phone (250) 953-3740

From: Wieringa, Paul EMNG:EX
Sent: Friday, February 1, 2013 4:18 PM
To: 'Paul Kariya'; Bonnyman, Sue EMNG:EX

Cc: Nelson, Aaron EMNG:EX

Subject: RE: Sue or Paul - I wonder if you could help me with a question - Txs Paul

The royalty (or the Crown's volumetric share) is determined by multiplying the applicable royalty rate by the total volume of the product. The Crown share is valued at the appropriate price (the Reference Price or Posted Minimum Price) and this is typically determined at the inlet to a processing plant, not after it has been processed. Assuming that the natural gas used for LNG compression and natural gas-fired generation has gone through a processing plant say at Taylor, BC, and then put in a pipeline and transported to the generator, it will have already paid a royalty.

Should raw gas be transported to the LNG plant and be processed there, I do not know what the process is. As well, at an LNG processing plant, the liquids would be taken out and there is a separate royalty calculation for liquids. Aaron: would you be able to provide any information?

Paul Wieringa

From: Paul Kariya [<mailto:Paul.Kariya@cleanenergybc.org>]

Sent: Friday, February 1, 2013 3:00 PM

To: Bonnyman, Sue EMNG:EX; Wieringa, Paul EMNG:EX

Subject: Sue or Paul - I wonder if you could help me with a question - Txs Paul

Perhaps this is a simple question that one of you can answer or if not could you point me to someone in Finance or elsewhere who knows.

Is a royalty paid on natural gas that might be used for mechanical d –drive or generation for e-drives at tide water?

My understanding is that upstream natural gas is taken out of the ground, then "processed", and at that point a royalty is paid. So if this is correct any gas used for LNG compression/electricity generation will have already paid a royalty.

Txs Paul

Paul Kariya
Executive Director



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paul.kariya@cleanenergybc.org

www.cleanenergybc.org

West, Michele L MEM:EX

From: Woolley, Paul GCPE:EX
Sent: Wednesday, February 6, 2013 10:10 AM
To: Wieringa, Paul EMNG:EX
Cc: Joyce, Tonja GCPE:EX; Ash, Christine GCPE:EX
Subject: FW: Clean Energy BC calling...

Do you happen to have answers to Loch's questions?

From: Loch McJannett [<mailto:Loch.McJannett@cleanenergybc.org>]
Sent: Wednesday, February 6, 2013 9:22 AM
To: Woolley, Paul GCPE:EX
Cc: Paul Kariya
Subject: Clean Energy BC calling...

Paul:

Thanks for the short chat yesterday just before Minister Coleman spoke on CKNW. Thanks also for your offer to help with any numbers we might wish to consider using.

1. Do you have at your finger tips the amounts of electricity BC has had to import over the last ten years or so? Thinking along the lines of BC has been a net importer of electricity the past x of y years.
2. Looking for the similar numbers for BC Hydro, suspect they are in their Annual and Quarterly Reports, if you had the latest tabulation that would be terrific.

Cheers,
Loch

Loch McJannett
Vice President



354 - 409 Granville Street | Vancouver, BC V6C 1T2, Canada
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s.22

loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org

West, Michele L MEM:EX

From: Buchanan, Jack EMNG:EX
Sent: Wednesday, February 6, 2013 10:28 AM
To: Wieringa, Paul EMNG:EX
Subject: RE: Clean Energy BC calling...
Attachments: Trade data for Paul.xlsx

Attached.

A few points of context.

Statistics Canada's data is taken from the Energy Statistics Handbook and Report on Energy Supply and Demand. It is problematic, because it used to significantly overstate net exports until 2006. I've spoken to the NEB (the data source) about this, and I recall that they indicated that it was a problem of counting the Columbia River Entitlement going out but not coming in. Another problem is that the RESD data has not been updated since the 2009 preliminary results and Energy Statistics Handbook suppressed several months and the 2011 annual data for BC imports. 2012 annual data is not yet available, so I don't know if future releases will fix this.

The BC Hydro fiscal year data is pulled from annual reports and is a mix of BC Hydro's net imports and their domestic market purchases without contracts. It's out of phase with other data because of the calendar/fiscal thing, and doesn't exactly reflect true net exports because it counts some domestic purchases from Hydro while ignoring imports to meet FortisBC's demand.

The BC tie line data is a reliable representation of actual flows net of electricity into the province as measured by BC Hydro (and previously BCTC). Unfortunately, it only captures net flows so it's only usable for net exports and says little or nothing about imports and exports individually.

With the breaking of the STC series, I do not have a reliable calendar-year series on raw imports and raw exports for the province as a whole.

Jack

From: Wieringa, Paul EMNG:EX
Sent: Wednesday, February 6, 2013 10:13 AM
To: Buchanan, Jack EMNG:EX
Subject: FW: Clean Energy BC calling...

I think you were looking at these numbers. Do you have them for me to send to Paul?

Paul Wieringa

From: Woolley, Paul GCPE:EX
Sent: Wednesday, February 6, 2013 10:10 AM
To: Wieringa, Paul EMNG:EX
Cc: Joyce, Tonja GCPE:EX; Ash, Christine GCPE:EX
Subject: FW: Clean Energy BC calling...

Do you happen to have answers to Loch's questions?

From: Loch McJannett [<mailto:Loch.McJannett@cleanenergybc.org>]
Sent: Wednesday, February 6, 2013 9:22 AM

To: Woolley, Paul GCPE:EX
Cc: Paul Kariya
Subject: Clean Energy BC calling...

Paul:

Thanks for the short chat yesterday just before Minister Coleman spoke on CKNW. Thanks also for your offer to help with any numbers we might wish to consider using.

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Cheers,
Loch

Loch McJannett
Vice President



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s.22

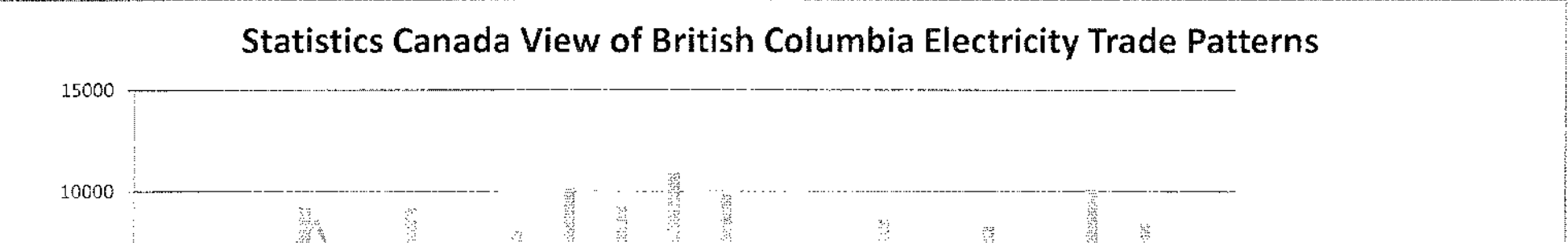
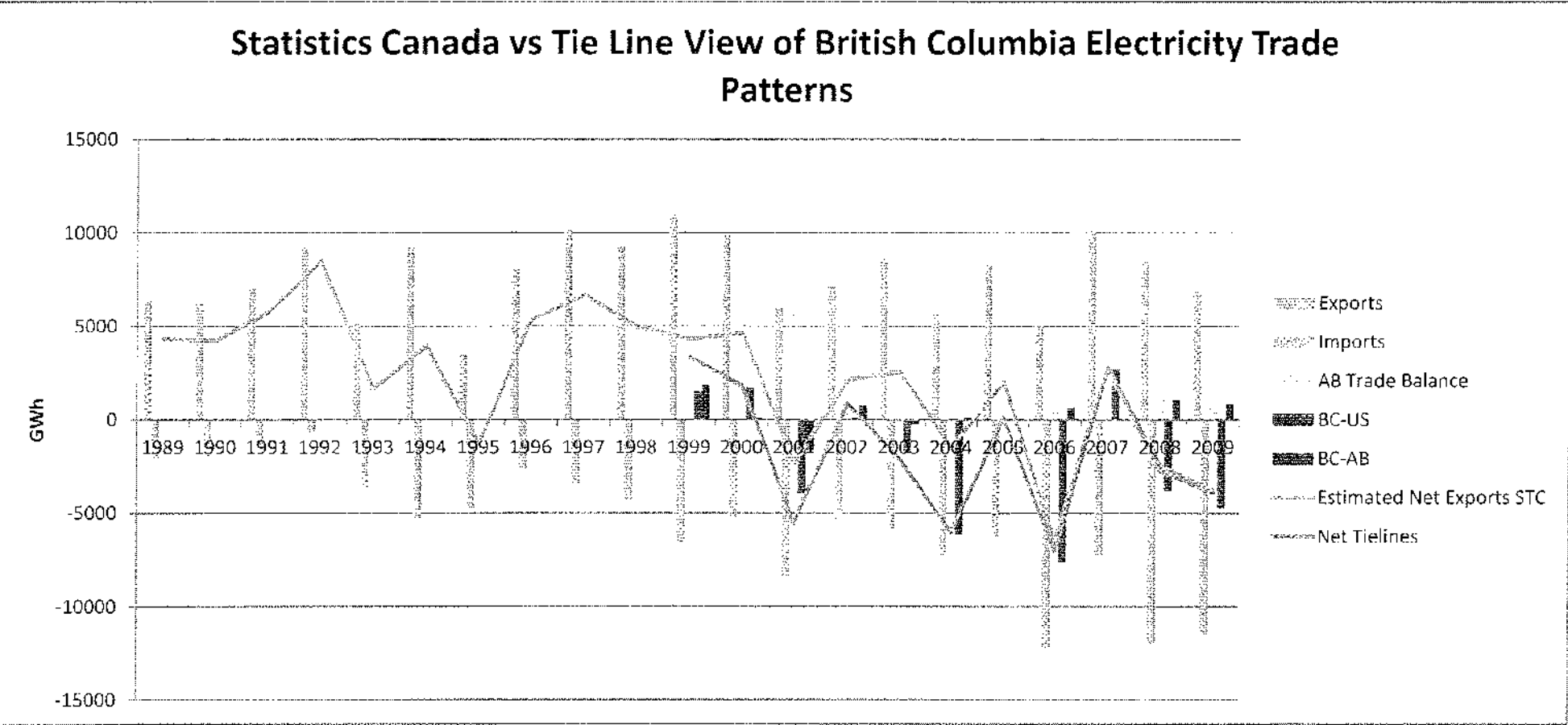
loch.mcjannett@cleanenergybc.org

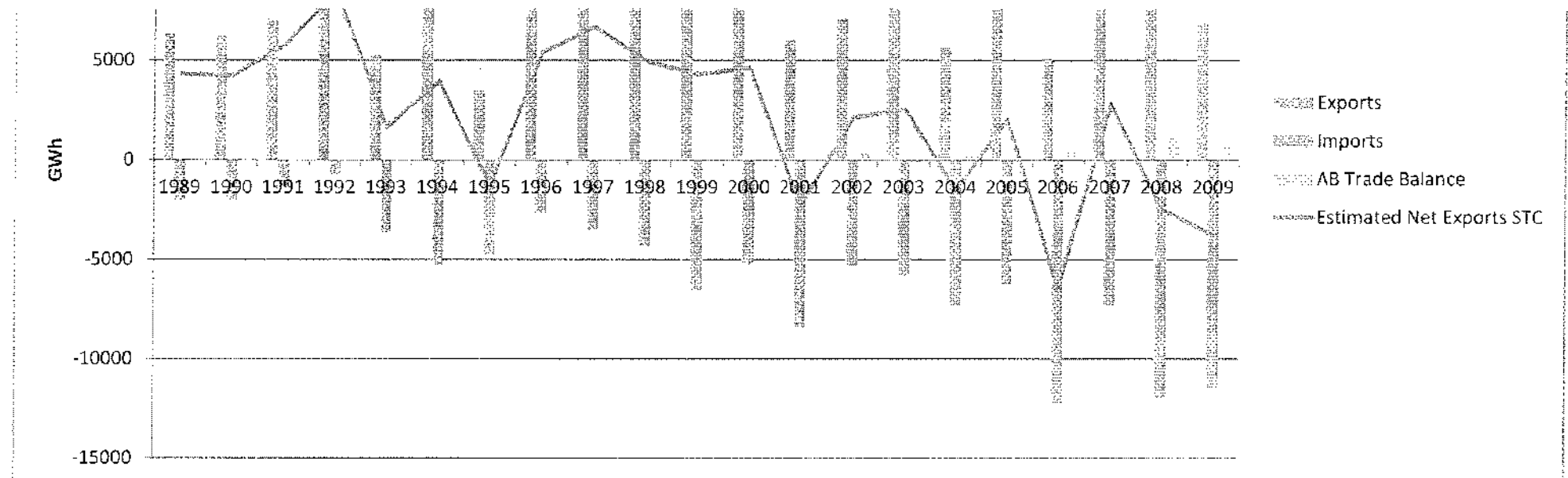
www.cleanenergybc.org

Positive numbers indicate net imports/purchases	2001	2002	2003	2004
Statistics Canada, Calendar Year	2360	-2121	-2560	1487
Line data, Calendar Year	5532	-876	2070	6013
BC Hydro Net Purchases, Fiscal Year	1993	5238	1754	5118

2005	2006	2007	2008	2009	2010	2011	2012
-2042	6554	-2808	2474	3765	12602	Not yet available	Not Yet Available
-78	7006	-2752	2757	3912	3365	-2472	-5671
7381	4352	6141	-1171	4602	3404	4463	-3888

	GWh	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
ESH	Exports to US	6340.965	6227.865	7070.497	9205.499	5256.375	9233.477	3484.442	8034	10174.98	9260.787	10922.89	9868.814	6036.962	7506.15	8638.586	5645.631	8258.689	5104.041
ESH	Imports from US	2023.669	1990.814	1323.725	692.439	3629.34	5274.02	4738.385	2645.619	3502.689	4311.647	6611.691	5244.934	8397.154	5392.945	5944.74	7310.108	6273.511	12301.18
RES	Exports														7118.1	8587.6	5622.3	8258.7	5081.5
RES	Imports														5323.3	5879.5	7303	6253.1	12265.7
RES	Inter-regional transfers														-326.4	148.6	-194.1	-36	-630.4
Hybrid	Exports	6340.965	6227.865	7070.497	9205.499	5256.375	9233.477	3484.442	8034	10174.98	9260.787	10922.89	9868.814	6036.962	7118.1	8587.6	5622.3	8258.7	5081.5
Hybrid	Imports	-2023.67	-1990.81	-1323.73	-692.439	-3629.34	-5274.02	-4738.39	-2645.62	-3502.69	-4311.65	-6611.69	-5244.93	-8397.15	-5323.3	-5879.5	-7303	-6253.1	-12265.7
Hybrid	AB Trade Balance	0	0	0	0	0	0	0	0	0	0	0	0	0	326.4	-148.6	194.1	36	630.4
Hybrid	Estimated Net Exports STC	4317.296	4237.051	5746.772	8513.06	1627.035	3959.457	-1253.94	5388.381	6672.289	4949.14	4311.203	4623.88	-2360.19	2121.2	2559.5	-1486.6	2041.6	-6553.8
BCTC	BC-US											1500.378	1733.944	-3911.18	92.949	-1827.99	-6121.12	-5.04	-7647.84
BCTC	BC-AB											1825.359	93.928	-1621.01	782.625	-241.584	107.933	83.464	641.885
Hybrid	Net Tielines											3325.737	1827.872	-5532.18	875.574	-2069.57	-6013.19	78.424	-7005.96





2007	2008	2009	2010	2011	2012
10136.68	8431.616	6852.333	5670.655	9954.637	0
7289.28	12000.48	11472.63	18272.35	#VALUE!	0
10079	8431.6	6852.3	0	0	0
7288.7	11991.5	11472.6	0	0	0
-17.8	-1085.5	-855.6	0	0	0
10079	8431.6	6852.3	5670.655	9954.637	0
-7288.7	-11991.5	-11472.6	-18272.3	#VALUE!	0
17.8	1085.5	855.6	0	0	0
2808.1	-2474.4	-3764.7	-12601.7	#VALUE!	0
2706.318	-3816.82	-4767.06	-4779.24	-515.497	2666.533
46.103	1060.199	855.024	1414.205	2987.984	3004.258
2752.421	-2756.62	-3912.03	-3365.03	2472.487	5670.791

From: Clean Energy BC [kristen.mcintyre@cleanenergybc.org@mail318.us2.mcsv.net] on behalf of Clean Energy BC [kristen.mcintyre@cleanenergybc.org]
Sent: Tuesday, February 26, 2013 12:47 PM
To: Wieringa, Paul EMNG:EX
Subject: News Release: Minister of Environment presents Diamond Jubilee Medals

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Announcements

Paul Kariya, Executive Director of Clean Energy BC was recognized yesterday by Honourable Terry Lake, Minister of Environment for his efforts to champion the cause of clean energy in BC. Please read news release below for more information.

NEWS RELEASE

Minister of Environment presents Diamond Jubilee Medals

VICTORIA – Minister of Environment Terry Lake presented the Queen's Diamond Jubilee Medals to Hon Quilter, Paul Kariya and Andrew Weaver today in recognition of their significant achievements and distinguished service to their fellow citizens.

Quilter is being acknowledged for his dedication to British Columbia's provincial parks system. As a public servant, Quilter works hard to cultivate a better understanding of BC Parks for everyone to enjoy.

In partnership with a diverse group of volunteers and stakeholders, Quilter was instrumental in re-creating the 1910 expedition that led to the designation of B.C.'s first provincial park. The successful Strathcona Centennial Expedition was the first major event celebrating BC Parks centennial and followed Price Ellison's footsteps from Campbell River through Strathcona Park to Port Alberni.

Kariya is being acknowledged for his commitment to the environment. As the executive director of the Clean Energy Association of British Columbia, Kariya engages with stakeholders and the general public on clean energy.

Championing for social and economic justice, Kariya has been working for over three decades to find solutions to public policy issues. Kariya serves on a number of boards and commissions that deal with Pacific salmon populations, reducing greenhouse gases and combating global warming.

Weaver is being acknowledged for his expertise on climate and ocean dynamics. He has been the lead author for reports on climate change and published two books on the subject.

As a professor in the school of earth and ocean sciences at the University of Victoria, Weaver teaches classes on earth system science and understanding the world's oceans. He is also a part of the climate modelling group involved in modelling and analysis of past, present and future climate.

Medal recipients have made a significant contribution to a province, territory, region or community within Canada, or an achievement abroad that brings credit to Canada. Like Her Majesty, those recognized have dedicated themselves to service their fellow citizens, communities and country.

Quote:

Terry Lake, Minister of Environment –

"I am very proud of the outstanding work done by Ron Quilter, Paul Kariya and Andrew Weaver. By sharing their passion for the environment and the knowledge they possess individually, they are helping to create a better future for all British Columbians."

Quick Facts:

- This commemorative medal was created to mark the 2012 celebrations of the 60th anniversary of Her Majesty's accession to the throne.
- The Queen's Diamond Jubilee Medal is a tangible way to honour Her Majesty for her service to this country.
- During the year of celebrations, 60,000 deserving Canadians from across the country will be recognized.
- The government of B.C. is presenting approximately 760 medals.
- All MLAs and ministers have been involved in awarding the medals, ensuring the medals reach as many deserving people in the province as possible.

Learn More:

To learn more about the Queen's Diamond Jubilee, visit:
<http://www.qg.ca/document.aspx?id=14019&lan=eng>

Contact: Media Relations
Ministry of Environment
250 953-3834

Connect with the Province of B.C. at: www.gov.bc.ca/connect



354-409 Granville Street | Vancouver, BC V6C 1T2, Canada | Office: 604.568.4778 | Fax: 604.568.4724
www.cleaneenergybc.org

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Clean Energy BC · 354-409 Granville Street · Vancouver, British Columbia V6C 1T2

West, Michele L MEM:EX

From: Clean Energy BC [kristen.mcintyre@cleanenergybc.org@mail48.wdc03.rsgsv.net] on behalf of Clean Energy BC [kristen.mcintyre@cleanenergybc.org]
Sent: Friday, April 5, 2013 12:09 PM
To: Wieringa, Paul EMNG:EX
Subject: Clean Energy BC's 4th Annual Golf Tournament - Register Now!

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Clean Energy BC · 354-409 Granville Street · Vancouver, British Columbia V6C 1T2

West, Michele L MEM:EX

From: Clean Energy BC [kristen.mcintyre@cleanenergybc.org@mail54.wdc03.rsgsv.net] on behalf of Clean Energy BC [kristen.mcintyre@cleanenergybc.org]
Sent: Monday, April 8, 2013 1:15 PM
To: Wieringa, Paul EMNG:EX
Subject: B.C.'s Liquefied Natural Gas Ambitions: An Energy Forum Public Dialogue - April 15th, 2013

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Upcoming Events



INVITATION: B.C.'s Liquefied Natural Gas Ambitions: An Industry-NGO Public Dialogue

DATE: Monday, April 15 2013 at 7:00 PM (PDT), Vancouver, British Columbia

TO REGISTER VISIT <http://energyforumbc.eventbrite.ca>

The Government of British Columbia would like to have at least three liquefied natural gas (LNG) export terminals up and running on the B.C. coast by 2020. The province anticipates that these proposals will create more than \$20 billion in new investment, as many as 9,000 new construction jobs, and about 800 long-term jobs. The plants would also generate an estimated \$1 billion a year in public revenue, the government says.

But at what cost? Many fear that the associated increase in carbon pollution will effectively erase the province's climate change targets. Others cite the significant ecosystem risks associated with an expected increase in natural-gas hydraulic fracturing ("fracking") in northeastern British Columbia.

What is the path forward? Come and listen to a panel of business, energy, and climate experts, and then share your views. Each panelist will be offered 10 minutes to speak, then we'll open up the floor to

dialogue.

The event will be webcast, and we will welcome questions via the Twitter hashtag #energyforum. Note: This is the first public event from The Energy Forum: An Industry NGO Collaboration.

FEATURING:

Linda Nowlan, Director, Pacific Conservation, World Wildlife Fund Canada

Merran Smith, Director, Clean Energy Canada at Tides Canada

Paul Kariya, Executive Director, The Clean Energy Association of British Columbia

IN CONVERSATION WITH:

Karena Shaw

Associate professor, Environmental Studies and Political Science, the University of Victoria

"Looking upstream: Ecosystem impacts of hydraulic fracturing in northeast B.C."

Art Sterritt

Executive director, Coastal First Nations

"A First Nations perspective on coastal LNG plant proposals."

Kathryn Harrison

Professor of Political Science, University of British Columbia

"LNG: A climate change perspective."

Steve Davis

President, Steve Davis & Associates Ltd

"The case for powering LNG plants with renewable electricity."

Tom Syer

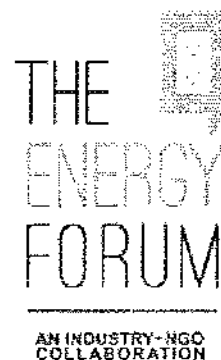
Vice President of Policy and Communications, Business Council of British Columbia

"LNG Economics: Perspectives on the Potential Implications of LNG Development for B.C.'s Economy"

ABOUT THE ORGANIZERS:

The Energy Forum: An Industry-NGO Collaboration is a shared voice to promote better climate, energy and environmental policy and practices in British Columbia.

TO REGISTER VISIT <http://energyforumlnc.eventbrite.ca>





Clean Energy BC

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www.cleanenergybc.org

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Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Thursday, February 28, 2013 6:39 AM
To: Barillaro, Scott W EMNG:EX
Cc: Paul Kariya
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Scott:

Many thanks for the invitation, will be in the office later this morning to review the schedule and revert back to you.

Cheers,
Loch

Loch McJannett
Vice President



354 - 409 Granville Street | Vancouver, BC V6C 1T2, Canada
Office: 604.568.4778 | Toll Free: 1.855.568.4778 | Cell: 604.315.1530 | Fax: 604.568.4724

s.22

loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org

-----Original Message-----

From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]
Sent: February 27, 2013 3:51 PM
To: Loch McJannett
Subject: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Hello Loch. I am also the project manager for the Industrial Electricity Policy Review. I understand you have been in touch with Peter Ostergaard regarding and opportunity to sit down with the task force.

Government appointed a task force consisting of Chris Trumpy Sr., Tim Newton and Peter to review the current industrial electricity policy and legislative framework. The goal of the Review is to provide the next Minister recommendations that can inform future industrial electricity policy decisions. You can find the terms of reference, timeline and issue papers on our website
[athttp://www.empr.gov.bc.ca/EPD/Pages/IndustrialElectricityPolicyReview.aspx](http://www.empr.gov.bc.ca/EPD/Pages/IndustrialElectricityPolicyReview.aspx)

Part of the task force's role is to meet with key stakeholders. Although independent power producers are not "in scope" for the Review, strictly speaking, the task force believes some of its recommendations may impact your members going forward. Accordingly, it would like to meet with CEBC staff and/or members and listen to their issues.

The task force will be in Vancouver on the afternoon of March 6-8. Here are the dates and times available.

March 6: 10:30 am, 1:30 pm
March 7: 8:30 am

It would be very helpful if CEBC could make one of the remaining times. If not, we may be able to find something later in March. I just need to check on the availability of the task force.

Please feel free to contact me if you have any questions.

Thanks for your time.

WSB

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Friday, March 1, 2013 2:13 PM
To: Barillaro, Scott W EMNG:EX
Subject: Re: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Scott: apologies for yesterday's lapse, how about the 7th at 08:30?

Cheers,

Loch

Loch McJannett

604.315.1530-----

Sent using BlackBerry

----- Original Message -----

From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]

Sent: Wednesday, February 27, 2013 03:51 PM

To: Loch McJannett

Subject: Invitation to Meet with the Industrial Electricity Policy Review Task Force

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Sent: Friday, March 1, 2013 2:34 PM
To: Barillaro, Scott W EMNG:EX
Subject: Re: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Thanks Scott
Loch McJannett
604.315.1530-----
Sent using BlackBerry

----- Original Message -----

From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]
Sent: Friday, March 01, 2013 02:29 PM
To: Loch McJannett
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Thanks. I will slot you in.

W. Scott Barillaro, B.A, B.Mus, MPA
Director, Transmission and Industrial Electricity Policy Electricity Policy Ministry of
Energy, Mines and Natural Gas 4th Floor, 1810 Blanshard Street Victoria, BC V8T 4J1
(o) 250-952-0267

s.17

-----Original Message-----

From: Loch McJannett [<mailto:Loch.McJannett@cleanenergybc.org>]
Sent: Friday, March 1, 2013 2:13 PM
To: Barillaro, Scott W EMNG:EX
Subject: Re: Invitation to Meet with the Industrial Electricity Policy Review Task Force

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Loch

Loch McJannett

604.315.1530-----

Sent using BlackBerry

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Thanks for your time.

WSB

Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Tuesday, March 5, 2013 6:35 AM
To: Barillaro, Scott W EMNG:EX
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Scott:
Can you please advise the meeting place, is it at our place?
Cheers,
Loch

Loch McJannett
Vice President



354 - 409 Granville Street | Vancouver, BC V6C 1T2, Canada
Office: 604.568.4778 | Toll Free: 1.855.568.4778 | Cell: 604.315.1530 | Fax: 604.568.4724

s.22

loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org

-----Original Message-----

From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]
Sent: March 1, 2013 2:30 PM
To: Loch McJannett
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Thanks. I will slot you in.

W. Scott Barillaro, B.A, B.Mus, MPA
Director, Transmission and Industrial Electricity Policy Electricity Policy Ministry of
Energy, Mines and Natural Gas 4th Floor, 1810 Blanshard Street Victoria, BC V8T 4J1
(o) 250-952-0267

s.17

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From: Loch McJannett [<mailto:Loch.McJannett@cleanenergybc.org>]
Sent: Friday, March 1, 2013 2:13 PM
To: Barillaro, Scott W EMNG:EX
Subject: Re: Invitation to Meet with the Industrial Electricity Policy Review Task Force

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Loch

Loch McJannett

604.315.1530-----

Sent using BlackBerry

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Thanks for your time.

WSB

Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Tuesday, March 5, 2013 6:45 AM
To: Barillaro, Scott W EMNG:EX
Cc: Paul Kariya
Subject: Re: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Thanks Scott, await your update.

Loch McJannett
604.315.1530-----
Sent using BlackBerry

----- Original Message -----

From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]
Sent: Tuesday, March 05, 2013 06:36 AM
To: Loch McJannett
Subject: Re: Invitation to Meet with the Industrial Electricity Policy Review Task Force

It will be at a government meeting room downtown. I will send out all of the details today.

WSB

On 2013-03-05, at 6:35 AM, "Loch McJannett"
<Loch.McJannett@cleanenergybc.org<<mailto:Loch.McJannett@cleanenergybc.org>>> wrote:

Scott:

Can you please advise the meeting place, is it at our place?

Cheers,

Loch

Loch McJannett
Vice President

<image001.jpg>

354 - 409 Granville Street | Vancouver, BC V6C 1T2, Canada
Office: 604.568.4778 | Toll Free: 1.855.568.4778 | Cell: 604.315.1530 | Fax:
604.568.4774

s.22

loch.mcjannett@cleanenergybc.org<<mailto:kristen.mcintyre@cleanenergybc.org>>

www.cleanenergybc.org<<http://www.cleanenergybc.org>>

-----Original Message-----

From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]
Sent: March 1, 2013 2:30 PM
To: Loch McJannett
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

EGM-2013-00141
Page 100

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W. Scott Barillaro, B.A, B.Mus, MPA

Director, Transmission and Industrial Electricity Policy Electricity Policy Ministry of
Energy, Mines and Natural Gas 4th Floor, 1810 Blanshard Street Victoria, BC V8T 4J1

(o) 250-952-0267

s.17

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WSB

Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Tuesday, March 5, 2013 12:07 PM
To: Barillaro, Scott W EMNG:EX
Subject: RE: Meeting with IEPR Task Force

Scott: you must have just seen my email out to our group seeking confirmation of same!
Cheers.

Loch McJannett
Vice President



354 - 409 Granville Street | Vancouver, BC V6C 1T2, Canada
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s.22

loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org

-----Original Message-----

From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]
Sent: March 5, 2013 12:05 PM
To: Loch McJannett
Subject: Re: Meeting with IEPR Task Force

Hi Loch. One more thing. Please send a note to tell me who will attend. Thanks.

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Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Tuesday, March 5, 2013 12:13 PM
To: Barillaro, Scott W EMNG:EX
Subject: RE: Meeting with IEPR Task Force

Scott: apologies I didn't actually copy you but transmissions were at the same time, seemed you had a window into my virtual thinking as it were.
Cheers.

Loch McJannett
Vice President



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<image001.jpg>

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Page 104

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Sent: Tuesday, March 5, 2013 12:37 PM
To: Barillaro, Scott W EMNG:EX
Subject: RE: Meeting with IEPR Task Force

Here, here!

Loch McJannett
Vice President

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Sent: March 5, 2013 12:16 PM
To: Loch McJannett
Subject: Re: Meeting with IEPR Task Force

s.22

See you Thursday.

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From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Thursday, March 7, 2013 8:18 AM
To: Barillaro, Scott W EMNG:EX
Subject: RE: Meeting with IEPR Task Force

Scott:

Apologies for the very short notice week has been a zoo.

Paul Kariya

Steve Davis

David Austin

Murray Margolis

Loch McJannett

Loch McJannett

Vice President



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Page 110

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WSB

Barillaro, Scott W EMNG:EX

From: Paul Kariya [Paul.Kariya@cleanenergybc.org]
Sent: Thursday, March 7, 2013 2:04 PM
To: Barillaro, Scott W EMNG:EX; Loch McJannett
Subject: Re: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Dear Scott

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I am confident in this panel that there is no better skill/talent to take on this task. Let us know if we can be of assistance.

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Sent using BlackBerry

From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]
Sent: Thursday, February 28, 2013 09:00 AM
To: Loch McJannett
Cc: Paul Kariya
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

No problem. I am in meetings this morning, but will be around in the afternoon. Talk to you soon.

WSB

W. Scott Barillaro, B.A, B.Mus, MPA
Director, Transmission and Industrial Electricity Policy
Electricity Policy
Ministry of Energy, Mines and Natural Gas
4th Floor, 1810 Blanshard Street
Victoria, BC
V8T 4J1
(n) 250-952-0267
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From: Loch McJannett [<mailto:Loch.McJannett@cleanenergybc.org>]
Sent: Thursday, February 28, 2013 6:39 AM
To: Barillaro, Scott W EMNG:EX
Cc: Paul Kariya
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

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-----Original Message-----

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Sent: February 27, 2013 3:51 PM

To: Loch McJannett

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To: Barillaro, Scott W EMNG:EX
Cc: Loch McJannett
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Txs Paul

Paul Kariya
Executive Director

354-409 Granville Street | Vancouver, BC V6C 1T2, Canada
Office: 604.568.4778 | Toll Free: 1855.568.4778 | Cell: 604.818.1827 | Fax:
604.568.4724 paul.kariya@cleanenergybc.org

www.cleanenergybc.org

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Sent: March 7, 2013 2:08 PM
To: Paul Kariya
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Subject: Re: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Thanks to you both. Lively discussion for sure!

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<image001.jpg>

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Cc: Paul Kariya
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Scott:

Following up on my voicemail of this am to schedule another session with the Industrial Rates Review panel, welcome your suggestion.

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Loch

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Sent: March 7, 2013 2:08 PM
To: Paul Kariya
Cc: Loch McJannett
Subject: Re: Invitation to Meet with the Industrial Electricity Policy Review Task Force

EGM-2013-00141
Page 120

120 of 173

Thanks to you both. Lively discussion for sure!

For your information, I think the consensus was to plan a follow up meeting where CEBC could have a chance to discuss the issue papers verbally. This would then lead to a formal written submission to the task force. I am looking at dates and will make them available to Loch so we can plan accordingly.

Have a good weekend all

WSB

On 2013-03-07, at 2:04 PM, "Paul Kariya"
<Paul.Kariya@cleanenergybc.orgmailto:Paul.Kariya@cleanenergybc.org> wrote:

Dear Scott

Nice to see you again - twice today.

Please pass along our thanks to the 3 wise men of electricity for meeting with us this morn.

I am confident in this panel that there is no better skill/talent to take on this task. Let us know if we can be of assistance.

Paul

Sent using BlackBerry

From: Barillaro, Scott W EMNG:EX [mailto:Scott.Barillaro@gov.bc.ca]
Sent: Thursday, February 28, 2013 09:00 AM
To: Loch McJannett
Cc: Paul Kariya
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

No problem. I am in meetings this morning, but will be around in the afternoon. Talk to you soon.

WSB

W. Scott Barillaro, B.A, B.Mus, MPA
Director, Transmission and Industrial Electricity Policy Electricity Policy Ministry of Energy, Mines and Natural Gas 4th Floor, 1810 Blanshard Street Victoria, BC V8T 4J1
(o) 250-952-0267

s.17

From: Loch McJannett [mailto:Loch.McJannett@cleanenergybc.org]
Sent: Thursday, February 28, 2013 6:39 AM
To: Barillaro, Scott W EMNG:EX
Cc: Paul Kariya
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Scott:

Many thanks for the invitation, will be in the office later this morning to review the schedule and revert back to you.

Cheers,

Loch

Loch McJannett
Vice President

<image001.jpg>

354 - 409 Granville Street | Vancouver, BC V6C 1T2, Canada
Office: 604.568.4778 | Toll Free: 1.855.568.4778 | Cell: 604.315.1530 | Fax:
604.568.4724

loch.mcjannett@cleanenergybc.org<mailto:kristen.mcintyre@cleanenergybc.org>

www.cleanenergybc.org<http://www.cleanenergybc.org>

-----Original Message-----

From: Barillaro, Scott W EMNG:EX [mailto:Scott.Barillaro@gov.bc.ca]
Sent: February 27, 2013 3:51 PM
To: Loch McJannett
Subject: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Hello Loch. I am also the project manager for the Industrial Electricity Policy Review. I understand you have been in touch with Peter Ostergaard regarding and opportunity to sit down with the task force.

Government appointed a task force consisting of Chris Trumpy Sr., Tim Newton and Peter to review the current industrial electricity policy and legislative framework. The goal of the Review is to provide the next Minister recommendations that can inform future industrial electricity policy decisions. You can find the terms of reference, timeline and issue papers on our website
at <http://www.empr.gov.bc.ca/EPD/Pages/IndustrialElectricityPolicyReview.aspx>

Part of the task force's role is to meet with key stakeholders. Although independent power producers are not "in scope" for the Review, strictly speaking, the task force believes some of its recommendations may impact your members going forward. Accordingly, it would like to meet with CEBC staff and/or members and listen to their issues.

The task force will be in Vancouver on the afternoon of March 6-8. Here are the dates and times available.

March 6: 10:30 am, 1:30 pm

March 7: 8:30 am

It would be very helpful if CEBC could make one of the remaining times. If not, we may be able to find something later in March. I just need to check on the availability of the task force.

Please feel free to contact me if you have any questions.

Thanks for your time.

WSB

Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Friday, March 15, 2013 9:27 AM
To: Barillaro, Scott W EMNG:EX
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Scott, thanks let me check for the 22nd, any idea of time slot(s) open?

s.22

Loch McJannett
Vice President



354 - 409 Granville Street | Vancouver, BC V6C 1T2, Canada
Office: 604.568.4778 | Toll Free: 1.855.568.4778 | Cell: 604.315.1530 | Fax: 604.568.4724

s.22

loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org

-----Original Message-----

From: Barillaro, Scott W EMNG:EX [mailto:Scott.Barillaro@gov.bc.ca]
Sent: March 15, 2013 9:23 AM
To: Loch McJannett
Cc: Paul Kariya
Subject: Re: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Hi Loch. !

s.22

s.22 In office today and will take care of scheduling. Next meeting in Vancouver will be March 22nd if that works for you.

WSB

On 2013-03-15, at 9:11 AM, "Loch McJannett"
<Loch.McJannett@cleanenergybc.org<mailto:Loch.McJannett@cleanenergybc.org>> wrote:

Scott:

Following up on my voicemail of this am to schedule another session with the Industrial Rates Review panel, welcome your suggestion.

Cheers,

Loch

Loch McJannett
Vice President

<image001.jpg>

354 - 409 Granville Street | Vancouver, BC V6C 1T2, Canada
Office: 604.568.4778 | Toll Free: 1.855.568.4778 | Cell: 604.315.1530 | Fax:
604.568.4724

s.22

loch.mcjannett@cleanenergybc.org<mailto:kristen.mcintyre@cleanenergybc.org>

www.cleanenergybc.org<<http://www.cleanenergybc.org>>

From: Loch McJannett

EGM-2013-00141
Page 124

Sent: March 11, 2013 12:37 PM
To: 'Barillaro, Scott W EMNG:EX'
Cc: Paul Kariya
Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

Scott:

We've had a brief chat at CEBC about a follow up meeting with yourselves, can I please schedule a call you to review a schedule? Called your office number and it cut off without taking a voicemail message (let you know just in case it isn't working).

Cheers,

Loch

Loch McJannett
Vice President

<image001.jpg>

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s.22

loch.mcjannett@cleanenergybc.org<<mailto:kristen.mcintyre@cleanenergybc.org>>

www.cleanenergybc.org<<http://www.cleanenergybc.org>>

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Cc: Loch McJannett
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Paul

Sent using BlackBerry

From: Barillaro, Scott W EMNG:EX [mailto:Scott.Barillaro@gov.bc.ca]

Sent: Thursday, February 28, 2013 09:00 AM

To: Loch McJannett

Cc: Paul Kariya

Subject: RE: Invitation to Meet with the Industrial Electricity Policy Review Task Force

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WSB

W. Scott Barillaro, B.A, B.Mus, MPA

Director, Transmission and Industrial Electricity Policy Electricity Policy Ministry of Energy, Mines and Natural Gas 4th Floor, 1810 Blanshard Street Victoria, BC V8T 4J1

(o) 250-952-0267

EGM-2013-00141
Page 126

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Cc: Paul Kariya

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Scott:

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Cheers,

Loch

Loch McJannett

Vice President

<image001.jpg>

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loch.mcjannett@cleanenergybc.org<mailto:kristen.mcintyre@cleanenergybc.orgmailto:loch.mcjannett@cleanenergybc.org%3cmmailto:kristen.mcintyre@cleanenergybc.org>>

www.cleanenergybc.org<<http://www.cleanenergybc.org><[http://www.w.cleanenergybc.org](http://www.cleanenergybc.org%3chttp://www.w.cleanenergybc.org)>>

-----Original Message-----

From: Barillaro, Scott W EMNG:EX [mailto:Scott.Barillaro@gov.bc.ca]

Sent: February 27, 2013 3:51 PM

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Thanks for your time.

WSB

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From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Monday, March 18, 2013 9:18 AM
To: Barillaro, Scott W EMNG:EX
Subject: RE: Meeting on the 22nd?

Scott:

Let me check and I'll revert back shortly, only concern is the spring break just started here this week for two weeks.

Cheers,

Loch

Loch McJannett
Vice President



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loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org

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Victoria, BC
V8T 4J1
(o) 250-952-0267

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Cheers,

Loch

Loch McJannett
Vice President



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(o) 250-952-0267

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Barillaro, Scott W EMNG:EX

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Sent: Monday, March 18, 2013 11:30 AM
To: Barillaro, Scott W EMNG:EX
Subject: Re: Meeting on the 22nd?

Cheers

Loch McJannett

604.315.1530-----

Sent using BlackBerry

----- Original Message -----

From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]
Sent: Monday, March 18, 2013 11:17 AM
To: Loch McJannett
Subject: Re: Meeting on the 22nd?

I will check available dates, but I suspect not this week. Possibly next week, but I don't think Monday will work. I will get back to you shortly.

WSB

On 2013-03-18, at 11:08 AM, "Loch McJannett"

<Loch.McJannett@cleanenergybc.org<<mailto:Loch.McJannett@cleanenergybc.org>>> wrote:

Scott:

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Loch McJannett
Vice President

<image001.jpg>

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www.cleanenergybc.org<<http://www.cleanenergybc.org>>

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Vice President

<image001.jpg>

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(o) 250-952-0267

s.17

Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Wednesday, March 27, 2013 3:25 PM
To: Barillaro, Scott W EMNG:EX
Subject: RE: Logistics for Submitting Materials to the Industrial Electricity Policy Review Task Force

Scott:

We are working on a draft submission which I had hoped to send today but it likely will be tomorrow.

Cheers,

Loch

Loch McJannett
Vice President



354 - 409 Granville Street | Vancouver, BC V6C 1T2, Canada
Office: 604.568.4778 | Toll Free: 1.855.568.4778 | Cell: 604.315.1530 | Fax: 604.568.4724

s.22

loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org

From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]

Sent: March 26, 2013 3:08 PM

To: 'Alec Morrison'; 'Alison Thorsen'; 'Bill Andrews'; 'Brian Wallace'; 'Bryan Donnelly'; 'Carlo Dal Monte'; 'Dave Pertila'; 'David Craig'; 'David Ewing'; 'Denise Dalmer'; 'Geoff Morrison'; 'Leigha Worth'; 'Linda Dong'; Loch McJannett; 'Matt MacInnis'; 'Maureen Black'; 'Peter Rippon'; 'Richard Stout'; 'Steve Davis'; 'Thomas Hackney'; 'Veikko Paivinen'

Subject: Logistics for Submitting Materials to the Industrial Electricity Policy Review Task Force

Hello all. I just wanted to send a quick email to those of you that plan to submit comments to the task force.

Please save your documents in PDF format and send to me at this email when you are ready. We will collect and organize the stakeholder submissions to prepare them for uploading to the website. We may change file names to establish a common naming convention on the site, but that will be all.

The task force will determine whether there is a sufficient critical mass of submissions to post at the end of the week. It will then decide whether to post what it has received or wait until additional submissions arrive. I will send a notification to all stakeholders updating them on the status of submissions.

That is all for now. Thank you in advance for your participation in this process. The meetings to date have been very fruitful for the task force and the panel members look forward to seeing written comments from stakeholders.

Feel free to contact me if you have any questions.

Thanks.

WSB

W. Scott Barillaro, B.A, B.Mus, MPA

Director, Transmission and Industrial Electricity Policy
Electricity Policy
Ministry of Energy, Mines and Natural Gas
4th Floor, 1810 Blanshard Street

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V8T 4J1
(o) 250-952-0267

s.17

Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Tuesday, April 2, 2013 4:26 PM
To: Barillaro, Scott W EMNG:EX
Subject: Tomorrow at 09:00...

Scott:

Our group has had another rate review session this afternoon. Can you please advise the location for 09:00 tomorrow, is it at CEBC offices?

Cheers,

Loch

Loch McJannett
Vice President



354 - 409 Granville Street | Vancouver, BC V6C 1T2, Canada
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s.22

loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org

Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Tuesday, April 2, 2013 4:44 PM
To: Barillaro, Scott W EMNG:EX
Subject: RE: Tomorrow at 09:00...

Scott:

Thanks yes 409 Granville 3rd floor right and right again after exiting the elevators, end of hall on the right hand side.

Cheers,

Loch

Loch McJannett
Vice President



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s.22
loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org

From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]
Sent: April 2, 2013 4:41 PM
To: Loch McJannett
Subject: RE: Tomorrow at 09:00...

Yes. Your offices. 409 Granville?

From: Loch McJannett [<mailto:Loch.McJannett@cleanenergybc.org>]
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loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org

Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Wednesday, April 3, 2013 3:54 PM
To: Barillaro, Scott W EMNG:EX
Subject: CEBC calling...

Scott: I'll be able to log on my office pc this evening and send our submission.

Cheers,

Loch

Loch McJannett

604.315.1530-----

Sent using BlackBerry

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Wednesday, April 3, 2013 7:16 PM
To: Barillaro, Scott W EMNG:EX
Cc: Paul Kariya
Subject: CEBC Submission on the Industrial Rates Review
Attachments: CEBC IRR Issues Review Letter 130403 PK LM FINAL.pdf

Scott:

Please find attached our pdf file letter for the Industrial Rates Review Task Force. CEBC thanks you and the Panel for the opportunity to have met on two occasions.

We look forward to additional submissions as part of the Task Force's review process.

Thank you.

Loch

Loch McJannett
Vice President



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s.22

loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org

Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Thursday, April 4, 2013 7:30 AM
To: Barillaro, Scott W EMNG:EX
Subject: Electric Drill Rigs

Scott:

Am sending you some of the electronic backgrounder information that was referenced in our meeting yesterday but is not part of our submission.

Cheers,

Loch

Loch McJannett
Vice President



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From Forbes
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Page 142 to/à Page 143

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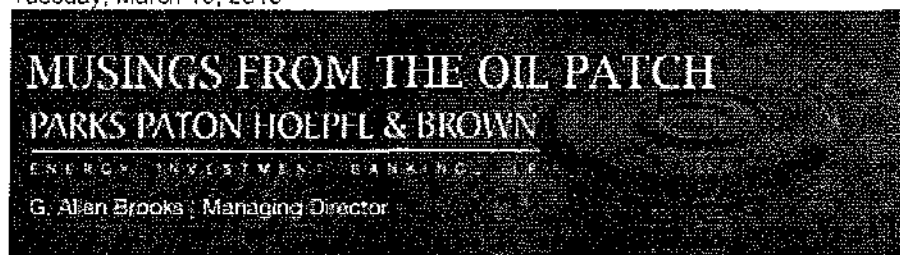
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Musings: Natural Gas Output Falls In December; Start Of A Trend?

by G. Allen Brooks

|
PPHB LP

|
Tuesday, March 19, 2013



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Page 145 to/à Page 148

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Copyright

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Thursday, April 4, 2013 7:31 AM
To: Barillaro, Scott W EMNG:EX
Subject: BCH Capex vs Rate Increases 1961 - 2014.

Scott:
Backgrounder from yesterday's meeting.
Cheers.

Loch McJannett
Vice President



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Office: 604.568.4778 | Toll Free: 1.855.568.4778 | Cell: 604.315.1530 | Fax: 604.568.4724

s.22

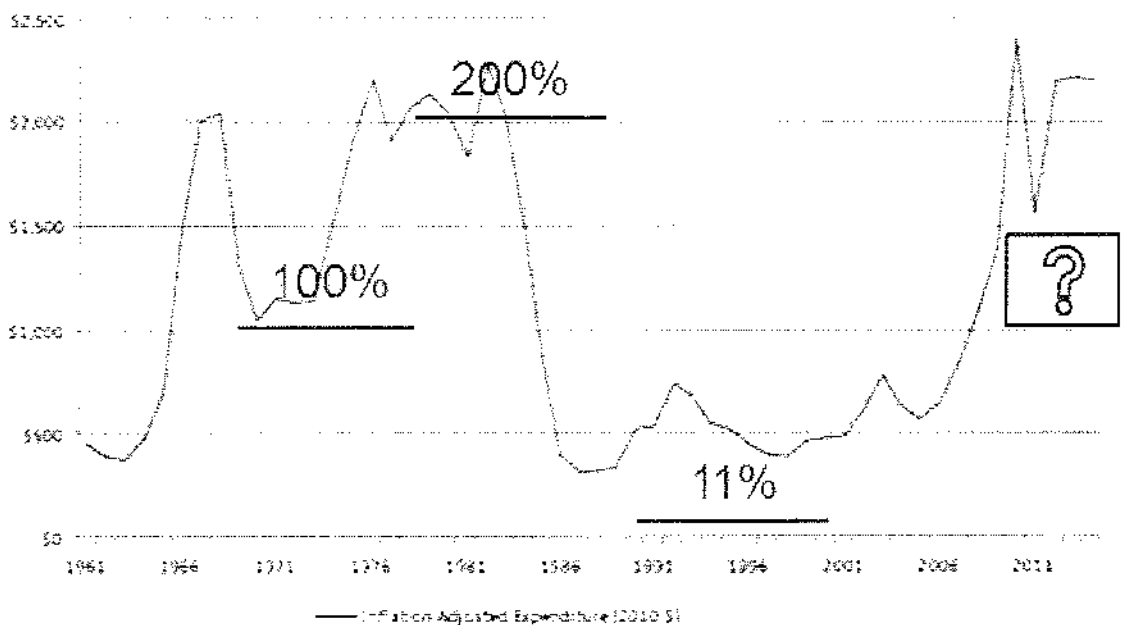
loch.mcjannett@cleanenergybc.org

www.cleanenergybc.org



Chapter 1 - Application Overview

Figure 1-1 BC Hydro Capital Expenditures, 1961-2014



Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Thursday, April 4, 2013 7:32 AM
To: Barillaro, Scott W EMNG:EX
Subject: CITI Study re Cost of Renewables
Attachments: CITI Study on Cost of Renewables vs Natural Gas Generation.PDF

Scott:

The volumous block CITI study you are carrying around, the light e version.

Cheers.

Loch McJannett
Vice President



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s.22

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Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Thursday, April 4, 2013 7:39 AM
To: Barillaro, Scott W EMNG:EX
Subject: Running Drill Rigs on Grid Electricity
Attachments: Electric Drilling_Chesapeake.pdf

Scott:
Electric drilling rigs backgrounder referred to yesterday.
Cheers.
Loch

Loch McJannett
Vice President



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Office: 604.568.4778 | Toll Free: 1.855.568.4778 | Cell: 604.315.1530 | Fax: 604.568.4724

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Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Thursday, April 11, 2013 9:27 AM
To: Barillaro, Scott W EMNG:EX
Subject: Re: Additional IEPR Materials

Thank you for the update,

Cheers

Loch McJannett

604.315.1530-----

Sent using BlackBerry

From: Barillaro, Scott W EMNG:EX [mailto:Scott.Barillaro@gov.bc.ca]

Sent: Thursday, April 11, 2013 09:20 AM

To: 'Alec Morrison' <amorrison@mining.bc.ca>; Thorson, Alison BCUC:EX <Alison.Thorson@bcuc.com>; 'Bill Andrews' <wjandrews@shaw.ca>; 'Brian Wallace' <rbw@bht.com>; 'Bryan Donnelly' <bryan.donnelly@capp.ca>; 'Carlo Dal Monte' <carlo.dalmonete@catalystpaper.com>; 'Dave Perttla' <dave.perttula@fortisbc.com>; 'David Craig' <dwcraig@allstream.net>; 'David Ewing' <dewing@mining.bc.ca>; 'Denise Dalmer' <denise.dalmer@bcbc.com>; 'Geoff Morrison' <geoff.morrison@capp.ca>; Grant, Bill J BCUC:EX <Bill.Grant@bcuc.com>; 'Leigha Worth' <lworth@bcpiac.com>; 'Linda Dong' <linda@dongassociates.com>; Loch McJannett; 'Matt MacInnis' <mmacinnis@national.ca>; 'Maureen Black' <maureen.black@bchydro.com>; 'Peter Rippon' <peter.rippon@westfraser.com>; 'Richard Stout' <roninconsult@live.com>; 'Steve Davis' <svdavis@shaw.ca>; 'Thomas Hackney' <thackney@shaw.ca>; 'Veikko Paivinen' <veikko.paivinen@westfraser.com>

Subject: Additional IEPR Materials

Hello all. The task force received additional submissions after the last round of meetings in Vancouver. My apologies for the website being out of date. I am currently working with my contact to get it updated. I expect to resolve it this week now that I am back in the office for a few days.

I understand most of you are likely worried about the timelines. Needless to say they have been fluid given everything that is going on around here. I am meeting with the task force today to get direction, but I think it is safe to say that we'll have until at least next Wednesday to provide comments. I will confirm a new timeline for responses and when the Task Force Consultation Summary will be out by the weekend.

As always, thanks for your patience.

WSB

Barillaro, Scott W EMNG:EX

From: Loch McJannett [Loch.McJannett@cleanenergybc.org]
Sent: Tuesday, April 16, 2013 3:19 PM
To: Barillaro, Scott W EMNG:EX
Subject: RE: Update on IEPR Comment Timeline

Thanks Scott.

Loch McJannett
Vice President



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From: Barillaro, Scott W EMNG:EX [<mailto:Scott.Barillaro@gov.bc.ca>]
Sent: April 16, 2013 2:29 PM
Subject: Update on IEPR Comment Timeline

Hello all. I was in touch with some of you separately last week when I was in meetings with the task force. I wanted to send a note out to everyone with the latest information so everyone is on the same page.

First, the task force extended the comment period on stakeholder submissions until the end of this week (Friday, April 19).

Second, I just received some new guidelines for the use of Government websites during the writ period. I am just sorting through how that will affect logistics on my side. In the interim, I will continue to send new information out via the distribution list to ensure stakeholders remain up to date. I do apologize for the various issues we've had related to the website to date.

Please feel free to contact me if you have any questions.

Thanks.

WSB

W. Scott Barillaro, B.A, B.Mus, MPA
Director, Transmission and Industrial Electricity Policy
Electricity Policy
Ministry of Energy, Mines and Natural Gas
4th Floor, 1810 Blanshard Street
Victoria, BC
V8T 4J1
(o) 250-952-0267

s.17

Ferguson, Susan M EMNG:EX

From: EMNG DMO Correspondence EMNG:EX
Sent: Friday, February 15, 2013 4:12 PM
To: 'Paul.Kariya@cleanenergybc.org'
Cc: Konkin, Doug FLNR:EX; Bonnyman, Sue EMNG:EX
Subject: 75005 - Net Metering and Micro Hydro Projects
Attachments: 75005 Kariya to Konkin & Carr, Jan 3, 2013.pdf

Mr. Paul Kariya
Executive Director
Clean Energy BC

Dear Mr. Kariya:

Thank you for your January 3, 2013 letter regarding net metering and micro hydro projects. I am pleased to respond on behalf of myself and Mr. Doug Konkin, Deputy Minister, Ministry of Forests, Lands and Natural Resource Operations (FLNR).

Permitting Requirements

In your letter, you expressed concern about the water licensing information requirements for micro hydro projects relative to larger-scale, power-general projects. You included an excerpt from the Clean Energy Project Development Plan Information Requirements' Development Plan Template Index, which was developed by the FLNR and can be found at http://www.for.gov.bc.ca/Land_Tenures/documents/publications/DPIR.pdf. The purpose of the Development Plan Information Requirements and the Development Plan Template is to provide clarity and guidance on the information required and ensure consistency in application review throughout the Province.

Regional water managers need to have sufficient understanding of what is being proposed to make the appropriate decision on a water license application. The level of details required is commensurate with the size and complexity of a project. In the case of small projects with no or negligible impacts to the environment and public safety, the information required in most Development Plan sections could be provided in one or two short paragraphs. In contrast, a larger, more complex project might require a detailed (consultant's) report to address a Development Plan section information requirements.

Power-commercial water license applicants are required to provide the same information, with the exception of power-general specific information such as energy markets. The power-general project application requirements include all provincial permit requirements, whereas the requirements for power-commercial are only for water licensing.

Further to discussions with provincial water licensing staff, it may be useful for Clean Energy BC (CEBC) to develop, with input from provincial staff, sample Development Plan Template responses for typical micro hydro project applications.

There is ongoing discussion about the \$5,000 application fee for power-commercial and power-general water licenses for projects of 20 megawatt (MW) capacity or less. Possible approaches to addressing the perceived disparity in this fee could include implementing a sliding fee scaled relative to project size. Such an approach would require an Order-in-Council to implement.

Project Electrical Interconnection

I understand that since September 2012, BC Hydro and CEBC have met and discussed net metering and net metering interconnection requirements. The issue around interconnection costs was raised in BC Hydro's Net Metering filing with the British Columbia Utilities Commission (BCUC). As per the BCUC decision you reference (G-57-12, May 2012), BC Hydro will be submitting a report to the BCUC on the Net Metering Program (Program) for fiscal year 2011/12 by March 31, 2013. BC Hydro is committed to exploring its existing interconnection requirements to determine how it may be possible to streamline the requirements and costs.

The impetus for the Program was to enable residential and small commercial customers to offset their load and potentially sell some of their excess generation (calculated over an annual basis) back to BC Hydro. A 50 kilowatt (kW) project size is consistent with the maximum amperage and voltage at which most residential and many commercial customers take electricity service. This BC Hydro position has been consistently supported by the BCUC. Expanding net metering to 500 kW or higher changes it from a program of load displacement to full self-generation with the costs for interconnection, including system upgrades, being imposed on all ratepayers and the benefits for selling electricity going to the generators. The BCUC has been clear that any changes to the existing Program not incur material cost shifting between Program participants and ratepayers.

BC Hydro is assessing this issue by looking at what other jurisdictions are doing in their programs. This review is considering the requirements of other jurisdictions and how they have established the project threshold sizes. It is also looking at other barriers to developing small scale projects between 50 kW and 2 MW in capacity.

In your letter, you reference the current situation for new customer loads under 500 kW not being expected to pay for system improvement costs such as substation upgrades, as is listed in BC Hydro's tariff. With this, the expectation is that the new customer is bringing a load that will require supply from BC Hydro, rather than a customer who wants to deliver supply without any substantial load.

Next Steps

It would be appropriate to bring this net metering discussion forward to the next CEBC - Ministry of Energy, Mines and Natural Gas (EMNG) strategic policy forum, and engage provincial water management staff (i.e., the Provincial Water Comptroller) in this forum discussion. EMNG staff will contact your office and the Provincial Water Comptroller to confirm a suitable date.

Thank you, again, for writing and raising these points of discussion.

Sincerely,

Steve Carr
Deputy Minister
Ministry of Energy, Mines and Natural Gas



Clean Energy BC

Thursday, January 3rd 2013

Deputy Minister Doug Konkin
Doug.konkin@gov.bc.ca

Deputy Minister Steve Carr
Steve.carr@gov.bc.ca

Dear Sirs:

Re: Net Metering and Micro-hydro Projects

We write you to request the provincial government please consider changes to provincial water regulations and energy procurement policies; specifically regarding micro hydro projects (projects under 500 kilowatts).

Micro hydro projects are built by small businesses, farmers, families and individuals wishing to produce clean energy to power their communities. These projects are typically built by developers using their own labour and the skills of local trades people. Unfortunately, developing micro hydro projects in British Columbia has become extremely difficult due to two barriers.

Micro Project Development Barriers

Permitting Requirements

Micro hydro projects typically have very small environmental impacts and simply put do not enjoy the same economy of scale as larger projects. Although very much smaller than other hydro developments, micro projects must proceed through the same water licensing process as larger "power-general" projects due to the broad definitions in BC's water licensing categories. The power-general regulatory process has been designed for much larger power plants and involves application fees that are extremely disproportionate to the size of micro projects.

Typically the impacts and scale of micro hydro projects are similar to small irrigation or domestic water supply systems. However, project developers are being asked by regulators to provide studies and details not suitable for small scale projects. Often the reason given for these

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requests is that "regulations require all power projects to provide this information", without actual or realistic consideration being given to the scale of the projects. Unfortunately these requirements easily render micro projects uneconomical. Below is a table of information micro hydro project developers would be expected to provide:

1 PROJECT SUMMARY	
1.1 Project Proponent	
1.2 Overview of Proposed Project	
1.3 Summary of Non-Provincial Agency Authorizations/ Approvals	
1.4 Summary of Provincial Authorizations	
2 PROJECT DESCRIPTION	
2.1 Project Planning and Design Approach	
2.1.1 Project Background and Rationale	
2.1.2 Location of Project and Mapping	
2.1.3 Project Facilities	
2.1.4 Labour Pond Requirements	
2.2 Environmental Setting	
2.3 Energy Production and Market for the Product	
2.4 Description of Land Requirements	
2.5 Project Activities	
2.5.1 Construction and Commissioning	
2.5.2 Operations and Maintenance	
2.5.3 Future Project Phases	
2.5.4 Decommissioning Activities	
2.6 Schedule for Development	
3 SCOPE OF THE ASSESSMENT	
3.1 Scope of Issues & Valued Components	
3.1.1 Spatial Boundaries	
3.1.2 Temporal Boundaries	
3.1.3 Baseline Environmental Conditions	
3.2 Environmental Assessment methodology	
3.2.1 Environmental Impact Assessment	
4 ENVIRONMENTAL ASSESSMENT	
4.1 Aquatic Environment	
4.1.1 Aquatic Habitat	
4.1.2 Aquatic Fauna	
4.1.2.1 Fish and Fish Habitat	
4.1.2.2 Other Aquatic Species	
4.1.3 Aquatic Vegetation	
4.1.4 Water Quality	
4.2 Atmospheric Environment	
4.3 Geophysical Environment	
4.3.1 Surface Hydrology and Hydrogeology	
4.3.2 Geotechnical / Slope Stability	
4.3.3 Geomorphology	
4.3.4 Geology and Geochemistry	
4.4 Terrestrial Environment	
4.4.1 Wildlife and Wildlife Habitat	
4.4.2 Rare Plants, Plant Communities and Ecosystems at Risk VCs	
4.4.3 Forest and Range Considerations	
4.4.3.1 Forest Health	
4.4.3.2 Invasive Plants	
4.4.3.3 Forest Resource Features	
4.4.3.4 Range and Storage	
4.5 Summary of Environmental Effects, Mitigation, and Significance	
5 SOCIO-ECONOMIC ASSESSMENT	
5.1 Regional Economy	
5.2 Resource Objectives, Land Use Plans or Other Designations	
5.3 Implications for Adjacent or Overlapping Crown land and Resource Values	
5.3.1 Wildlife Protection	
5.4 Navigation, Transportation, and Access	
5.4.1 Roads Bridges, and Railroads	
5.4.2 Flight Path	
5.4.3 Public Access	
5.5 Water Rights	

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5.6 Human Health and Safety	
5.7 Summary of Socio-economic Effects, Mitigation, and Significance	
6 PROJECT ENGAGEMENT ACTIVITIES	
6.1 Record of Engagement Activities	
7 FIRST NATION INFORMATION REQUIREMENTS	
7.1 Consultation Obligations of the Province	
7.2 Identification of First Nations	cont...

cont...	7.3 Project Setting – Traditional Use and Aboriginal Rights/ Title Issues in the Project Area
	7.4 Project Setting – Archaeological Resources
	7.5 Consultation with First Nations
	7.6 Potential Project Effects on First Nation Interests
	7.7 Commitments to First Nations
8 MONITORING PROGRAMS	
	8.1 Construction Environmental Monitoring
	8.2 Operational Environmental Monitoring
9 FEDERAL REQUIREMENTS	
10 SUMMARY OF COMMITMENTS AND CONCLUSIONS	
	10.1 Summary of Project Commitments
	10.2 Concluding Remarks

Obviously the above requirements are onerous for micro project developers. To contrast the above table, the developers of identically sized irrigation, water supply or "power-commercial" projects would be required to provide the following:

1 Project Description	
2 Design Aspects	
3 Environmental Considerations	
4 Geotechnical Considerations	
5 Seismic Considerations	
6 Project Related Considerations	
7 Land Related Issues	7.1 Affected Land
8 Water Related Issues	8.1 Water Quantity
	8.2 Water Quality
	8.3 Irrigation Requirements
	8.4 Affected Users
9 Construction Activities	
10 Safety Aspects	10.1 Downstream Consequences
11 Future Monitoring	
12 Related Considerations	12.1 Archeological Assessment
	12.2 Environmental Monitoring
	12.3 Remaining Environmental Concerns
13 Summary and Conclusion	

This amount of detail is more appropriate for micro projects given their scale.

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Requiring the same permitting criteria for micro projects also causes delays for larger hydro power developments as regulators may spend their limited resources evaluating micro projects to an equal degree.

Project Electrical Interconnection

When micro projects wish to sell electricity, they must interconnect to the BC Hydro grid. Under the current BC Hydro process, micro projects connect under the Standing Offer Program (SOP). This program offers a standard rate for energy to projects from 50kW to 15MW.

However, the interconnection costs that BC Hydro charges micro project developers to connect to the grid under the SOP are approaching the costs of the micro projects themselves. For example, a recent BC Hydro study¹ determined that the interconnection of a typical 100kW generator would cost \$302,000. To put this size in context, the maximum power a single family home can draw from the grid is usually 50kW. These interconnection costs are prohibitive, and are very likely due to process as opposed to electrical necessity. These costs have contributed to the current situation in BC where no new micro hydro project has been developed since the mid 1990's.

The difficulty in developing micro projects and connecting them to the provincial power grid has also been recognized by the BC Utilities Commission. In a recent decision (G-57-12, May 2012) they have directed BC Hydro to evaluate connection options for micro projects.

Proposed Solutions

Permitting

As mentioned above, power-commercial applications have a simplified permitting process. The commercial water power category is defined in the BC Water Regulations as a water use that:

"is used by the licensee or may be sold by the licensee to immediate family members, employees or tenants of the licensee where the licensee's power development or developments does not exceed an authorized capacity of 499 kW...

¹ Revised Conceptual Screening Assessment Results, Anaerobic Digester Pilot (CH4 Biogas) Project, October 18, 2011, File Reference: DGI-DSC-11.10.02



Clean Energy BC

...is used for the extraction or processing of natural resources or the manufacturing of products, in a primary industrial facility in which the licensee has an interest of more than 50%, or is used in a facility that is adjacent to and integrated with a primary industrial facility"

CEBC proposes to remove the words "to immediate family members, employees or tenants of the licensee". This would allow projects up to 499kW to be licensed under this category. The application fee for a commercial license is also half of the power-general category.

Alternatively, a new "power-micro" category could be created. It is expected that this category would simply be defined as "water used to produce power where the development does not exceed 500kW".

Both of the above solutions would, we believe only require an order in council to implement.

Interconnection

BC Hydro currently has a procurement process for small projects up to 50kW, called the Net Metering Program (NMP). Projects are connected to the grid for a flat fee of \$600.00, and energy prices paid to developers are based on prices offered in the SOP. CEBC proposes to expand the NMP to allow projects up to 500kW to participate. Net metering programs in Alberta, Ontario and Nova Scotia have already been expanded to 500kW or higher.

For multiple technical reasons (including the typical use of low voltage induction generators or inverters), grouping projects up to 500kW into one program is the simplest solution. Micro projects interconnecting through the NMP would be assessed under an appropriate scope and would be charged a flat connection fee. Project developers would be expected to pay for service drops, metering and reconductoring in the same way as any other new BC Hydro customer. However, as is the current situation for new customer loads under 500kW, projects under 500kW would not be expected to pay for system improvement costs such as substation upgrades.

Implementing a change in the NMP would require a BC Hydro application to the BCUC. BC Hydro is already going through the evaluation and reporting process regarding this issue due to the BCUC's recent order in May 2012.



Next Steps

CEBC wishes to meet with FLNRO, MEM and BC Hydro staffs to discuss the suggestions in this letter and determine the best way to allow micro projects to move forward again in BC. May we suggest a meeting during the week of January 22nd 2013?

In the meantime we welcome your review of this material and any comments and questions you may have.

Thank you.

Sincerely yours,

A handwritten signature in black ink, appearing to read "Paul Kariya", with a long, sweeping horizontal line extending from the end of the signature.

Paul Kariya
Executive Director

Ferguson, Susan M EMNG:EX

From: Paul Kariya [Paul.Kariya@cleanenergybc.org]
Sent: Friday, January 25, 2013 1:55 PM
To: OfficeofthePremier, Office PREM:EX
Cc: Minister, EMH EMH:EX; Dyble, John C PREM:EX; Carr, Steve EMNG:EX; Sweeney, Neil PREM:EX; Loch McJannett; Donald McInnes; Kristen McIntyre
Subject: Clean Energy BC letter to Premier Clark
Attachments: Letter to Premier Clark 130125 LM Rev 2 FINAL.pdf

Good Afternoon,

Please see attached letter from Clean Energy BC to Premier Christy Clark.

Thank you,

Paul Kariya
Executive Director



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January 25th 2013

The Honourable Christy Clark
Premier of British Columbia
Box 9041
Station PROV GOVT
Victoria, BC V8W 9E1

Dear Premier Clark:

Re: Clean Energy, LNG and British Columbia

At your earliest convenience we request a meeting with you and your Deputy Minister to discuss the critically important decision presently before the government, namely how best to power the province's new LNG industry? At your pleasure we would also welcome Minister Coleman to join us.

In September 2012 speaking before the World Economic Forum you stated, *"We have set a goal to have the cleanest LNG in the world. We want our LNG plants to be principally fuelled by renewables. We have a lot of hydro-electricity in the province. But it won't be enough. It is going to drive, we hope, a huge boom in investment in renewable technology across the province ... We are trying to create a private sector market for clean and renewable energy."*

The clean energy sector wants to help the province achieve this goal which can be found by using a balance of renewable energy, grid based electricity and natural gas. We believe there should be a strong commitment to increase the proportion of renewables over time as the LNG sector itself grows.

We understand that BC's LNG projects are in a competition with projects elsewhere in the world, especially the US and power (fuel) costs, system reliability and timeliness of approvals are key variables. Factors such as ratepayer costs, air quality, GHGs and overall environmental impact are critically important to First Nations, local communities and the province.

During the last decade BC established itself as a global leader with its Climate Action Plan, fuel standards, carbon tax and Clean Energy Act 2010. Our emerging LNG industry must be developed mindful of and consistent with the long term economic and environmental benefits for all British Columbians. The importance of global leadership is not to be under-estimated.

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BC's clean energy sector today consists of approximately 60 companies operating 70 projects that contribute some 15% of the power that is on BC Hydro's grid. Another 12 projects (with possibly 10 more to come) that entered into electricity purchase agreements (EPA) in 2006 and 2008 are currently under construction. The capital expenditure for these 12 projects is \$2.6 billion. Direct jobs created total 2,100 of which 900 are held by Aboriginal people. Another 6,000 positions have been supported by the sector in communities like Port Hardy, Terrace, Dease Lake, Tumbler Ridge and also large urban centre such as Vancouver and Victoria. Over the 25 - 40 year life of these 12 EPAs, \$420 Million in revenue will be paid to First Nation partners. This is an example of the clean energy sector contributing to the Jobs Plan today. This is also a demonstration of proper risk transfer from the public to the private sector especially in these challenging times of funding constraints for both government and crown corporations.

From BC Hydro's 2012 Annual Report, the cost of electricity purchased from Clean Energy BC (CEBC) members was \$68.00 per MWh. The long-term cost of power from CEBC members in the 2008 Clean Power Call over the life of the EPAs is in the range of \$70.00 MWh after non-firm energy and renewable energy credits are included. These contracts all have fixed prices except for an annual ½% CPI escalator provision. These contracts represent extremely prudent long term value for BC, its ratepayers and their energy needs.

Given the estimated size of the LNG load predicted, natural gas generation should most certainly be part of the energy mix. However, gas has liabilities that need to be properly accounted for such as: long term price risk as a fuel, loss of royalties on gas used in the LNG production process and environmental costs due to emissions and GHGs. If the energy mix equation is too gas heavy, social license for LNG from the public may be significantly compromised, First Nations' support dissipated and efforts to enable and maintain a clean tech and clean energy sector lost for a generation or more.

Premier Clark, you have rightly identified that very few jurisdictions worldwide have the opportunity we do in British Columbia to develop a new LNG industry. Our natural and competitive advantage lies with coordination of BC Hydro's storage and transmission system with a mature clean energy sector with natural gas generation to assist with base load and peaking as and when necessary. By developing LNG in this manner, an electricity infrastructure will be built that enables province wide economic opportunities to be realized together with the associated Jobs Plan and Families First benefits.



CEBC's project developers, together with our technical and commercial supply chain membership bring globally respected results and experience to ensure BC meet its goal of securing an efficient LNG industry that itself can rightfully claim to be the cleanest LNG industry in the World.

We look forward to meeting and to expanding upon the discussion in this letter.

Sincerely,

A handwritten signature in black ink, appearing to read "Paul Kariya".

Paul Kariya
Executive Director

A handwritten signature in black ink, appearing to read "Donald McInnes".

Donald McInnes
Chairperson

cc:

Honourable Rich Coleman
Minister of Energy and Mines (Minister Responsible for Housing)

John Dyble
Deputy Minister to the Premier and Cabinet Secretary and Head of the Public Service

Steve Carr
Deputy Minister, Ministry of Energy, Mines and Natural Gas

Neil Sweeney
Deputy Minister, Corporate Priorities and Planning

Ferguson, Susan M EMNG:EX

From: Minister, EMH EMH:EX
Sent: Friday, April 12, 2013 12:37 PM
To: EMNG Correspondence EMNG:EX
Subject: info/file FW: Letter from Paul Kariya, Clean Energy BC
Attachments: Letter from CEBC to Minister Coleman 130315.pdf

From: Coleman.MLA, Rich [<mailto:Rich.Coleman.MLA@leg.bc.ca>]
Sent: Friday, March 15, 2013 3:19 PM
To: Minister, EMH EMH:EX
Subject: FW: Letter from Paul Kariya, Clean Energy BC

From: Kristen McIntyre [<mailto:Kristen.McIntyre@cleanenergybc.org>]
Sent: March-15-13 2:46 PM
To: Coleman.MLA, Rich
Subject: Letter from Paul Kariya, Clean Energy BC

Good Afternoon,

Please see attached letter from Paul Kariya, Clean Energy BC.

Thank you,

Kristen McIntyre
Administrative Coordinator



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kristen.mcintyre@cleanenergybc.org

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Friday, March 15th, 2013

Hon. Rich Coleman
130 – 7888 200th Street
Langley BC V2Y 3J4

Dear Minister Coleman:

On behalf of the 225 members of Clean Energy BC, I write you today to share some key facts regarding clean energy electricity generation in BC. We are the entrepreneurial sector that produces and sells our product to BC Hydro. We are an industry creating jobs and economic benefits throughout the province, north to south, east to west. All British Columbians benefit from our partnerships between our customers, developers, supply chains and particularly First Nations communities.

Consider:

- Today, approximately 15% of the provinces electricity comes from our sector.
- 68 generating plants produce energy from small hydro, wind, biogas, biomass and natural gas located throughout the province,
- Some 125 First Nations have involvement with the clean energy sector. The Taku River Tlingit First Nation in Atlin and the Hupacasath First Nation in Port Alberni are examples of First Nations who are developer/operators with plants running 24/7. The Kanaka Bar Indian Band in the Fraser Canyon and the Namgis First Nation in Alert Bay are examples of First Nations who have formal joint venture equity participation in projects currently under construction. The Douglas, Klahoose, Kwakiutl, MacLeod Lake, shíshálh, Sliammon, Sts'Ailes, Squamish, West Moberly First Nations and many others have Impact Benefit Agreements with clean energy companies.

Over the past decades, clean energy has become recognized as one of British Columbia's biggest economic advantages. The entrepreneurial sector has invested more than \$4.5 Billion by providing cost effective, competitive and reliable energy from clean and renewable energy resources. Very few global jurisdictions compete with BC's abundant pool of clean energy generation resources: biomass, biogas, geothermal, hydro (both run of river and BC Hydro's heritage facilities), solar, thermal and wind. .

Clean Energy | Association of British Columbia

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Today, hundreds of BC based, Canadian and global clean energy companies, investors and related professional services firms do business in our province, making it one of the leading jurisdictions on the global map for clean energy development.

Broad agreement prevails that northern development associated with economic opportunities offered by development of liquefied natural gas exports, shale gas and mining is key to our economic future. Clean Energy BC supports these northern job opportunities and agrees they should not be held back by a lack of electricity.

BC Hydro has estimated that these new developments may require up to 3,500 megawatts of electricity generation capacity (equivalent to three Site C projects) by 2020. This is both a huge challenge and an opportunity for the province. Our industry is confident that clean, made-in-BC electricity can play a primary role in meeting this demand in a timely manner, while at the same time minimizing ratepayer impacts and maximizing jobs and economic benefits.

Electricity produced by our sector is a cost effective, competitive and reliable way to help keep the lights on for a growing British Columbia. Our power is developed and operated according to stringent environmental assessment, monitoring and regulatory standards set by BC and Canada.

A Harris Decima poll published by BC Hydro in August 2012 found that 72% of British Columbians support acquiring more power from wind and run-of-river hydro projects.

I hope you find the enclosed information useful in understanding the facts about clean energy in British Columbia.

We are up to the growth challenge facing all British Columbians.

Yours truly,

A handwritten signature in black ink, appearing to read "Paul Kariya".

Paul Kariya
Executive Director



Backgrounder

Supporting BC's economy with cost effective, reliable and clean electricity

The clean energy sector is an economic and environmental advantage for British Columbia. The sector provides a cost-effective, dependable supply of environmentally friendly electricity while creating jobs and new economic opportunities in rural, urban and First Nations communities throughout the province. The clean energy sector is poised to help BC realize the full potential of LNG and northern economic development for the benefit of all British Columbians.

Jobs and new economic opportunities

- BC's clean energy sector has created 18,000 person-years of employment to date. These jobs are in urban centres like Vancouver, Terrace, Fort St John and Port Alberni; rural communities on Northern Vancouver Island; in the Kitimat-Stikine Regional District, Sunshine Coast and Lillooet-Pemberton.
- At present, approximately 125 First Nations participate in the clean energy sector through direct ownership, equity investments and various partnership arrangements benefiting First Nations communities such as Dease Lake, McLeod Lake, Doig River, Kanaka Bar, Douglas, Sts'ailes, Sechelt, Squamish, Namgis and Hupacasath.
- The clean energy sector has invested more than \$4.5 billion in our province's economy. As of 2011, existing projects had paid more than \$378 million in taxes to all levels of government during the construction phase and more than \$167 million annually over the operations phases - money that pays for our hospitals and schools (PriceWaterhouseCoopers, 2011).
- Another 12 projects currently under construction represent an additional \$2.6 billion in capital expenditures, 2,300 direct jobs and 6,000 indirect jobs. These projects will pay more than \$420 million in revenue benefits to First Nation partners over the life of their electricity purchase agreements (CEBC Survey of Members who are Constructing Right Now, December 2012).

Air Quality, The Environment and Powering an LNG sector

- BC Hydro estimates that demand for electricity from just three of the proposed liquefied natural gas (LNG) plants would total 18,000 gigawatt hours annually (GWh/year) by 2026 – equal to the current demand from all of BC Hydro's industrial customers. And, in fact, there currently are *five* LNG projects considered to be serious proposals.
- LNG plants could be powered by electricity self-generated with natural gas; or by electricity from the BC Hydro grid. The Pembina Institute estimates the gas option would generate more than 43 million tons of greenhouse gas (GHG) emissions. Clean electricity from the grid would limit the increases by 3.32 metric tonnes annually in 2017 and 8.86 tonnes in 2025, compared to using fossil fuel.
- As noted by the BC government, gas-fired generation may have a role to play in the short term in order to meet the start-up dates for an LNG plant or as back-up power. But once connected to the grid, the plant benefits from the reduction of GHG emissions, protection of local air sheds, avoidance of carbon taxes and emissions penalties, and avoidance of any requirement to install carbon capture and storage facilities.
- LNG plants using grid electricity also benefit from the price certainty provided by the fact that much of this clean power could be provided by clean energy producers under long-term, fixed-price contracts with BC Hydro. While the cost of gas-fired generation is low today, gas prices have been extremely volatile historically and will respond in future to carbon taxes and a general move away from fossil fuels.

Supply and Demand

- BC Hydro forecasts an energy surplus until 2022 at which time its 5,100 GWh Site C project would be in service – but only if there is no demand from the LNG sector. However, in the event the LNG sector develops and requires just *auxiliary* power, there would be an energy deficit of 5,600 GWh/year in 2022. BC Hydro also constructs a scenario in which just three LNG plants are developed and require

power for refrigeration and compression. This would bring the total LNG requirement to 18,000 GWh/year by 2026.

As for potential sources of power: Site C's proposed in-service date is 2022 and supplies only 5,100 GWh/year. Spot market power is interruptible, generated from fossil fuels and subject to price volatility, as has been shown historically. Power from BC Hydro's Burrard thermal plant raises the spectre of air shed impacts in the Lower Mainland. Conservation programs may or may not have a significant impact depending on cost efficiency and customer response.

- There potentially are significant implications to the 93% clean electricity requirement of BC's Clean Energy Act and the 33% GHG reduction target by 2020 in each fuel supply option.
- On the other hand, as identified in BC Hydro's draft Integrated Resource Plan, the province has huge supplies of clean, renewable energy. For example, the wind potential is given as 46,165 GWh/year and run-of-river hydro as 41,866 GWh/year. There also is biomass and biogas generation to be counted. While not all of this generation may be developed, the scale of the potential supply is apparent.

Long-term value for BC taxpayers

- BC's clean energy producers provide good, fair and long-term value for money for BC's ratepayers. Our sector's electricity costs less, if not the same, as electricity generated by BC Hydro.
- BC Hydro's 2012 Annual Report records the prices paid under power contracts in 2012 at \$67.97/MWh. It also records the "long run" weighted average cost of firm/non firm power purchased under the 2009 Clean Power Call at \$100.7/MWh. This compares favourably with BC Hydro's price estimate for Site C.
- Purchases on the spot market – currently in the \$40 MWh range - often are cited as a preferred alternative to purchases from BC's independent power producers. However, spot market prices are subject to volatile swings. A good example was seen in the California energy crisis in 2001 when the price of electricity escalated to \$1,000/MWh; and again in 2008 when BC Hydro experienced an energy shortfall due to weather and other factors. Spot market power also is



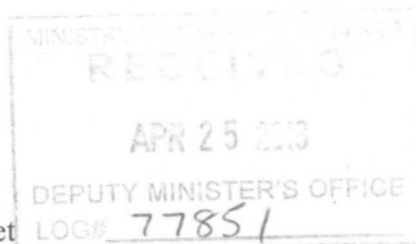
interruptible, subject to transmission constraints, does not meet BC's legislated requirement for energy self-sufficiency and is generated from greenhouse gas-emitting fossil fuels.

- BC's entrepreneurial sector's clean energy producers pay back to all levels of government in the form of income and property taxes, land lease payments, royalties, licences and permit fees. A 2011 analysis by PriceWaterhouseCoopers estimated tax revenues from then existing clean energy projects at \$378 million (\$2009) for the construction phase and \$167.3 million annually over the operations phase. Twelve clean energy projects now under construction today generate \$2.6 billion in construction expenditures and create 2,100 direct and 6,000 indirect jobs. And they will provide \$420 million in revenue benefits to First Nations.



March 26, 2013

Paul Kariya
Executive Director
Clean Energy BC
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MINISTER OF ENERGY AND MINES		
REFERRAL NUMBER _____		
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DRAFT REPLY <input type="checkbox"/>	INFO/FILE <input checked="" type="checkbox"/>	REPLY DIRECT <input type="checkbox"/>
RECEIVED MAR 28 2013		
REMARKS: _____		

Dear Mr. Kariya:

Thank you for your letter and for highlighting some of the progress made by the clean energy sector in British Columbia. I will be sure to pass on a copy of your letter and enclosed information for Minister Coleman's review and consideration as well.

I know that you and your members are looking at innovative ways to deliver clean, renewable power to British Columbians and I appreciate that you have kept me informed of developments in this regard.

Thank you again for staying in touch.

Sincerely,

Christy Clark
Premier

pc: Honourable Rich Coleman, Minister of Energy, Mines and Natural Gas

Office of the
Premier

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