

POWER WEDGES

Thought Leaders' Forum

Wind & Cogeneration Opportunities for Alberta



Forum Proceedings and Summary Report



March 30, 2010



POWERWEDGES Wind & Cogeneration
Opportunities for Alberta
Thought Leaders' Forum - March 30, 2010

Power Wedges Thought Leaders' Forum

Wind and Cogeneration Opportunities for Alberta

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Editor, Layout, Cover: Adrienne Beattie

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The Pembina Institute
Box 7558
Drayton Valley, Alberta
Canada T7A 1S7
Phone: 780-542-6272
Email: info@pembina.org

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About the Pembina Institute

The Pembina Institute is a national non-profit think tank that advances sustainable energy solutions through research, education, consulting and advocacy. It promotes environmental, social and economic sustainability in the public interest by developing practical solutions for communities, individuals, governments and businesses. The Pembina Institute provides policy research leadership and education on climate change, energy issues, green economics, energy efficiency and conservation, renewable energy, and environmental governance. More information about the Pembina Institute is available at www.pembina.org or by contacting info@pembina.org.



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Power Wedges Thought Leaders' Forum

Wind and Cogeneration Opportunities for Alberta

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Context and Background

This report summarizes the outcomes of the discussions occurring at the Thought Leaders Forum on March 30th, 2010 – “Power Wedges: Wind and Cogeneration Opportunities in Alberta.” It is critical to note that this summary represents the author’s best interpretation of what was heard during the forum and in no way should be interpreted as representing the entire group’s views or any individual participant’s views.

The Pembina Institute and the Institute for Sustainable Energy, Environment and Economy (ISEEE) hosted this forum for the purpose of starting a multi-stakeholder discussion on policy options to advance both cogeneration and wind power opportunities in the province of Alberta. Our approach included looking at both provincial and municipal government level policy options through an “Alberta Lens.” To do this, we brought together approximately 65 individuals from diverse backgrounds including large companies, small companies, consultants, academics, non-governmental organizations, landowners, provincial public servants, municipal public servants, politicians and First Nations. During the full day meeting (see Appendix for the agenda), we worked in both plenary and in small groups with the objective of identifying which policy directions we could generally find some agreement, if not consensus.

This summary outlines the outcomes of the day and proposes recommendations moving forward.

Setting the Stage

To help set the stage for the day’s discussions, Deputy Minister Peter Watson from the Department of Energy Alberta, provided opening comments. Mr. Watson spoke to the importance of looking for practical steps to advance technologies such as cogeneration and wind power in the province, and to build on the success the province has had. He reminded the group of the importance of examining policy options through an “Alberta Lens” given that we are a unique jurisdiction and our policy choices need to be an appropriate fit for Alberta. The Deputy Minister expressed an interest in hearing the outcome of the day’s discussions given the diversity of people in the room.

Following the Deputy Minister’s opening remarks, Tim Weis, Director of Renewable Energy and Energy Efficiency at the Pembina Institute, provided an overview of his work entitled, “Greening the Grid – Powering Alberta’s Future with Renewable Energy.” Tim’s slides are included in Appendix B, and the full report can be downloaded from the Pembina Institute’s website at: www.re.pembina.org. In short, the focus of Tim’s presentation was explaining how cogeneration and wind power are two significant wedges of opportunity for meeting Alberta’s projected growth in electricity. The third major wedge identified in Greening the Grid was energy efficiency, but in order to make the forum manageable in scope it was decided to focus on wind power and cogeneration. It will be important to explore energy

efficiency and other sources of generation such as solar, hydro and geothermal, in future discussions.

Overview of Policy Options

To assist in bringing the diverse group up to speed on the range of policy options, a pre-forum paper was written and distributed to all participants (see: <http://re.pembina.org/powerwedges>). The paper provided an overview of policies and the experiences from other jurisdictions.

To help organize the wide range of policy options, eight policy categories were identified and presented to the group (see PowerPoint slides in Appendix B for more information on each category):

1. Performance Based Standards
2. Taxpayer Funded Production Incentives
3. Ratepayer Funded Production Incentives
4. Tax Rebates / Incentives
5. Financing Support
6. Infrastructure Investments
7. Enhanced Carbon Pricing
8. Other

Although for a number of the specific policies within these categories there is more experience with wind power (and other renewables), it was felt these categories were distinct enough, covered the range of options, and could be applied to both cogeneration and wind power.

To get a sense of the starting place of the group with respect to the directional preference of policy categories, we used an electronic voting system. Participants were asked to identify their top three policy priorities from the eight categories above. It is important to note that this exercise was strictly to get a feel for the group's starting point and was conducted before small group and plenary deliberation on the options.

The results of the live electronic voting are show below.

Policy Category	Percentage of Participants Indicating this Policy Category in their “Top 3”
1. Performance Based Standards	66%
2. Taxpayer Funded Production Incentives	19%
3. Ratepayer Funded Production Incentives	56%
4. Tax Rebates / Incentives	25%
5. Financing Support	14%
6. Infrastructure Investments	45%
7. Enhanced Carbon Pricing	62%
8. Other	22%

The results show a general preference of the group as a whole for 1. Performance Based Standards, 2. Enhanced Carbon Pricing, and 3. Ratepayer Funded Production Incentives. All three of these were found to be in at least 50% of the group’s top three priorities. Again, it is critical to emphasize that this was used to provide a starting point for the small group discussions and should not be considered adequately representative given the diversity of viewpoints in the room.

Defining the “Alberta Lens” When Looking at Policy Options

Given the uniqueness of Alberta, it is important to look at the policy options through an “Alberta Lens.” A starting list of concepts making up the “Alberta Lens” was presented (see slide deck in Appendix B) which was then supplemented throughout the day by participants.

The final list of characteristics making up the “Alberta Lens” when considering policy options related to electricity included:

- Abundance of multiple resources.
 - Especially in this context, an abundant supply of natural gas
- Projection is for low natural gas prices.

- Preference for market-based instruments.
- Relatively low corporate tax rate in place.
- Power pool system with a deregulated market.
- Have a relatively poorly interconnected electricity system.
- Significant carbon emissions from electricity.
 - Largely dependent on coal industry.
- Electricity prices in Alberta relatively low.
- Budgets are increasingly tight.
- Policy stability important.
 - Need to consider how new policies would affect current policies in place (i.e., be aware of “unintended consequences”).
- Need to consider targeted policies separating sectors / industries.
- Economic diversification is of interest.
- Typically Alberta is risk averse on policy.
- Keeping in mind the need and interest for a “level playing field.”
- Competition – other provinces and jurisdictions are moving quickly in this area.
- Currently have an “Alberta-only” GHG offset program.
- The land-use framework is currently in development.
- Governments in Alberta tend to prefer a hands-off approach.
- Energy production is an Alberta strength – we are a global player and there is global attention on Alberta’s record.
- Significant differences between rural and urban populations.
- Sensitivities exist on electricity exports.
- Albertans are proud to be energy independent.
- Alberta is growing in population and increased suburbanization.
- Generally low energy literacy in the province.
- A number of generation facilities in Alberta coming to economic end of life in the next 15 to 20 years.

These characteristics of the “Alberta lens” when looking at policies to advance cogeneration and wind power will be helpful moving forward when evaluating the various options.

Policy Priorities Identified

In order to encourage meaningful discussion and obtain input from all participants, policy options were debated in small groups. Tables of six to eight participants plus a facilitator examined the eight policy categories first for increasing cogeneration capacity, and later in the day, for advancing wind development. The following policy priorities were identified (main category area in bold, sub-bullets indicate variations on the theme):

	Recommended Provincial Policy Priorities	Recommended Municipal Policy Priorities
To advance: <i>Natural Gas Cogeneration</i>	<ol style="list-style-type: none"> 1. Performance based standard <ol style="list-style-type: none"> a. supply mix b. emissions standard c. building efficiency 2. Increased and/or expanded carbon pricing. <ol style="list-style-type: none"> a. Pricing other pollutants b. Offset/trading protocol 3. The following range of options: <ol style="list-style-type: none"> a. Public infrastructure – connecting to the grid especially small scale b. Financing – smaller scale focus c. Ratepayer paid incentives – feed-in tariff (FiT) d. Direct public subsidy for capital costs of marginal projects <p>Enabling tool:</p> <ul style="list-style-type: none"> - streamlining approvals 	<ol style="list-style-type: none"> 1. Zoning requirements: <ol style="list-style-type: none"> a. for district heating b. densification 2. Performance based standards for the city / municipality <ol style="list-style-type: none"> a. “net zero” 3. Financial incentives for cogeneration / district heating <ol style="list-style-type: none"> a. Property tax b. Rebates <p>Enabling tools:</p> <ul style="list-style-type: none"> - city heat maps - integrated energy planning - capacity building on heat utilization
	<ol style="list-style-type: none"> 1. Leveling the playing field: <ol style="list-style-type: none"> a. Carbon pricing expansion and 	<ol style="list-style-type: none"> 1. Wind friendly zones, land-use bylaws, siting and permitting, coordinated municipal policies.

<p>To advance: <i>Wind Power</i></p>	<p>increase, and offsets</p> <p>b. Pricing other environmental attributes (such as SOx and NOx emissions)</p> <p>2. Pricing mechanism / incentive</p> <p>a. Feed-in-tariff</p> <p>b. Price floor and/or ceiling</p> <p>3. Performance based standard</p> <p>4. Loan guarantees (provincial backstop)</p> <p>5. Enabling zones – infrastructure investments including storage capacity</p> <p>Enabling tools:</p> <ul style="list-style-type: none"> - streamlining approvals process - land-use planning – dealing with crown lands 	<p>2. Procurement policy</p> <p>3. Pricing mechanism/ incentive</p> <p>a. Tax rebates</p> <p>b. Grants</p> <p>Enabling tools:</p> <ul style="list-style-type: none"> - land-use planning - streamlining approvals - capacity building
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At the end of the day we used this table to test the level of consensus on each of the four quadrants. Participants were asked to indicate one of the following using the electronic voting system:

- A. Thumb Up - *"I fully support this set of priorities."*
- B. Thumb Horizontal - *"I have some concerns, but not strong enough to block consensus."*
- C. Thumb Down - *"I have concerns to the extent that I choose to block consensus."*

Again this exercise was used to spark conversation and better understand what was working for people and what areas needed focused work for improvement. The results were:

		RECOMMENDED PROVINCIAL POLICY PRIORITIES	RECOMMENDED MUNICIPAL POLICY PRIORITIES
To advance cogeneration	Thumb Up	37	34
	Thumb Horizontal	12	15
	Thumb Down	1	0
To advance wind power	Thumb Up	33	32
	Thumb Horizontal	12	14
	Thumb Down	3	1

Note: Figures above represent number of people, not percentages.

In the discussion around each quadrant we focused on hearing from people expressing a “thumb horizontal” or “thumb down” to explore what could be improved. Some of the key messages emerging from this discussion included:

- The need to dig deeper into each preferred category area, as the “devil is in the details” for many of these policy choices.
- If going the ratepayer based production incentive route (e.g., feed-in-tariff), need to figure out how to actually implement the pricing mechanism and ensure a sustainable industry is not dependent on government incentives.
- Need to understand which policy options are complimentary to each other and which are mutually exclusive. For example, is carbon pricing compatible with a performance standard?
- Important to challenge the whole notion that more wind turbines are necessarily a good thing. Appropriate land-use planning is critical.
- When talking about streamlining of approvals, it’s important to get into the details quickly – such as dealing with cumulative effects more quickly.

As groups discussed the various policy options, they unearthed issues that would affect the implementation of policies. Some of these included:

- Cogeneration related:
 - Large industrial cogeneration is behind the fence and needs to be included in the policy deliberations; in situ oil sands being a key part of this.

- Cogeneration policy should not exclude biomass/biogas opportunities.
 - Cogeneration is not flexible to curtailment, most often heat driven with electricity a by-product. Best considered as base-load.
 - Critical to assess how any policy will affect the very different scales and applications of cogeneration: industrial, commercial and residential.
- Wind power related:
- Important to consider large wind farm developments versus smaller scale municipal/residential.
 - Stakeholder engagement and involvement important as not in my back yard (NIMBY) concerns are growing.
 - Important to consider how the existing voluntary market for renewable energy certificates fits into new policy directions.
- General:
- Coal power is the elephant in the room, which needs to be discussed – what role should coal play in Alberta’s electricity future?
 - Important to have an overarching provincial vision to support clean energy. Optimally this vision includes measurable targets.
 - An important enabler of changing policy is broader public awareness.
 - Looking at policy options that the province can undertake and municipalities can undertake is important, but critical for both levels of government to work together to find optimal approach.
- Financing related:
- Green bonds could be one approach to raise the capital for providing financing support.
- Carbon price related:
- When looking at enhanced carbon price, important to consider the North American context.
 - One of the drivers for enhanced carbon price is to help level the playing field with other sources of electricity. This can also be done by removing any existing subsidies.
 - Need identified for an offset protocol for cogeneration.

- Opportunity exists to build on the existing regulatory framework.
- Performance standard related:
 - Many identified this as likely most politically feasible option in Alberta.
 - Need to consider relative merits of various options in defining the performance standard:
 - By emissions
 - By technology type – MW or MWh
- Infrastructure investment related:
 - Investment in transmission most commonly referenced.

Summary of Feedback on the Forum:

Overall participants provided very positive feedback on the session with an interest in seeing the conversation continue towards helping our province succeed on implementing appropriate policy to advance cogeneration and wind power. Many expressed an interest in future discussions on other energy resources as well.

For a complete summary as well as the raw comments see Appendix C.

At the conclusion of the voting on policy recommendations, a number of participants suggested the need for a process to follow through with enabling the ideas that resulted from the forum to gain traction with policy makers in the province.

Summary of Recommendations for Next Steps:

- A conversation on the pros and cons of electricity export.
- Ensure that we match good policy with good politics.
- Bring this conversation on cogeneration and wind power into a larger discussion on electricity in Alberta.
- Invest in the modelling and analytical work necessary to compare policy options.
- Reconvene the group in the future (e.g., six months) to see what has changed.

- Establish a working group to clarify the key message, flesh out ideas.
- Map the recommended policy options on a 2x2 matrix of level of impact and level of achievability. Focus on some quick wins.
- Connect with some additional smaller players in the sector.

Appendix A: Agenda

7:45 a.m. – 8:30 a.m.	Registration and light breakfast
8:30 a.m. – 9:00 a.m.	Opening remarks by Peter Watson, Deputy Minister, Energy Alberta Overview of agenda
9:00 a.m. – 9:30 a.m.	Size of the prize: Highlights from “Greening the Grid”
9:30 a.m. – 10:15 a.m.	Policy options from other jurisdictions and the “Alberta Lens” As a group: What is our starting point?
10:15 a.m. – 10:45 a.m.	Break
10:45 a.m. – 12:15 p.m.	Cogeneration: Policy options and priorities (small groups)
12:15 p.m. – 1:15 p.m.	Lunch Municipal remarks by Calgary Alderman Bob Hawkesworth
1:15 p.m. – 2:30 p.m.	Wind power: Policy options and priorities (small groups)
2:30 p.m. – 2:45 p.m.	Break
2:45 p.m. – 4:00 p.m.	Policy overlap: Cogeneration and wind power priorities As a group: Where have we landed?
4:00 p.m. – 4:30 p.m.	Next steps and closing

Appendix B: Slide Deck



Thank you



Flow of the Day: Morning

- Greening the Grid – Highlights
- Policy Options – Learning from Others
- The “Alberta Lens”
- What is our starting point on policy priorities?
- Break
- Small Group: Cogeneration
- Lunch



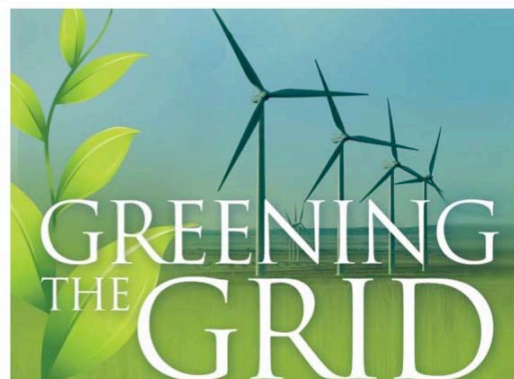
Flow of the Day: Afternoon

- Small Group: Wind Power
- Short Break
- Policy Overlaps – Cogeneration & Wind
- As a Group – Where have we landed?
- Next steps and closing

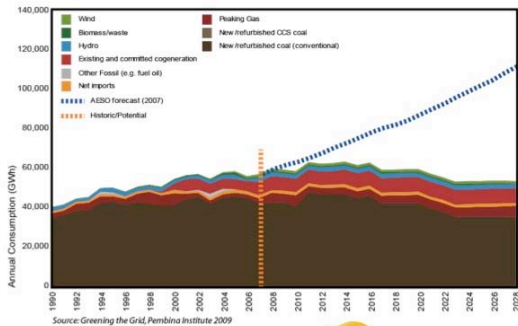


Three Rules

1. Open minds
2. Respectful to hear from other views
3. Non-attribution outside of today



20-year forecast



Source: Greening the Grid, Pembina Institute 2009

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Clean energy technologies considered

1. Energy efficiency
2. Wind
3. Hydro
4. Solar
5. Micropower
6. Cogeneration
7. Biomass
8. Geothermal
9. Virtual Power Plants (Curtailable load)



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Cogeneration



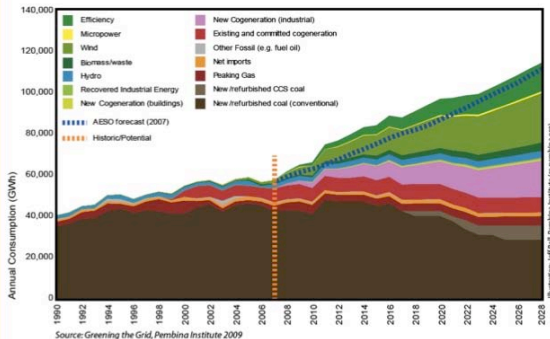
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Precedents

- Wind (2009)
 - Texas – 2,292 MW
 - Indiana – 905 MW
 - Iowa – 879 MW
- Solar PV (Germany)
 - 1% of national supply in 2009
 - Tripled in 3 years
 - Gov't target – 3,000 MW new / annum

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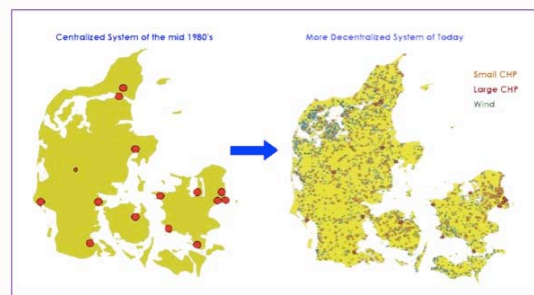
"Pale Green" Scenario



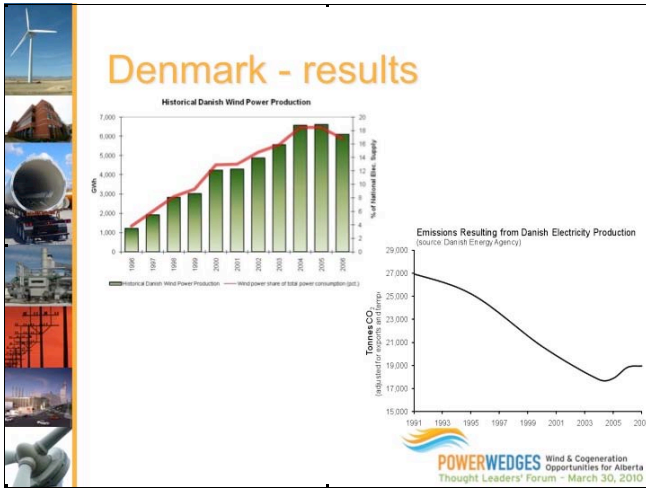
Source: Greening the Grid, Pembina Institute 2009

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Denmark – Wind & Cogen



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"We said that the electricity system could not function if wind power increased above 500 MW. Now [2003] we are handling almost five times as much. And I would like to tell the government that we are ready to handle even more."

- Western Danish system operator ELTRA

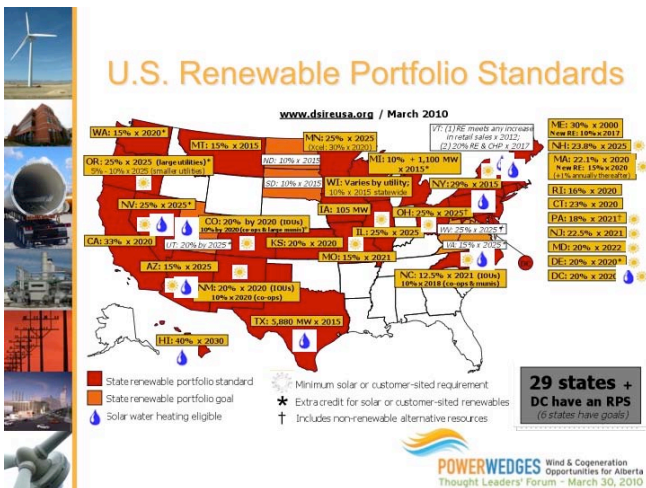
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Category #1: Performance Based Standard

- "Renewable Portfolio Standard"
 - Mandates a specified minimum percentage of power produced, in this case with renewable power.
- Usually coupled with tradable certificates to create a market mechanism for compliance.
- Does not need to be limited to renewables. Could be based on an emissions standard.
- Many examples: Texas best known.

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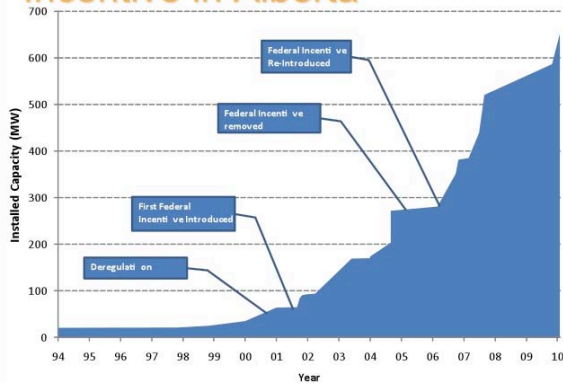
Category #2: Taxpayer Production Incentive

- Incentive is paid from taxpayer revenue as a direct subsidy to support production.
- Primary example in Canada is the Federal "ecoEnergy Incentive for Renewable Electricity."
 - 1 cent per kWh

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Impact of ecoENERGY Incentive in Alberta



Category #3: Ratepayer Production Incentive

- Feed-in-Tariff
 - Guaranteed price per unit of energy produced based on technology type.
 - Costs are covered by all ratepayers (not taxpayers).
 - Long-term contracts.
- Examples:
 - Germany
 - Spain
 - Denmark
 - Ontario
 - Sacramento



Germany's Results (2008)

- Renewables 15.3% of Supply
- Renewables 9.6% of Primary Energy
- 90,000 Employed in Wind Industry
- 50,000 Employed in PV Industry
- 8,000 Employed in Biogas Industry
- 280,000 Employed in Renewables
- €32 (~\$50) Billion Turnover



Category #4: Tax Rebates / Incentives

- Tax reductions for investments in specified technologies.
 - Capital cost allowance
 - Tax credits based on production
- Examples:
 - Canada federally - ACCA
 - U.S. production tax incentive of 2 cents/kWh



Category #5: Financing Support

- Government guaranteed loans
- Reduced interest rates
- Long-term financing
- Example:
 - Denmark



Category #6: Infrastructure Investments

- Public investments in:
 - Transmission
 - District heating infrastructure
 - Smart meters
 - Storage systems
- Examples:
 - Alberta grid infrastructure
 - CCS pipeline





Category #7: Enhanced Carbon Pricing

- Using the carbon price to level the playing field between emitting and non-emitting sources of electricity.
- Examples:
 - Norway
 - Denmark



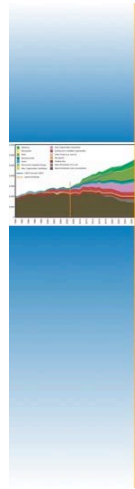
Category #8: Other

- Research and development
 - Commercializing technology
 - e.g., AB Subsidy to CCS
- Government procurement
- Public education and awareness
- Phase out regulations
 - e.g., Ontario on coal
- Setting targets – numerous examples



The “Alberta Lens”

- Abundance of multiple resources.
- Preference for market-based instruments.
- Relatively low corporate tax rate in place.
- Power pool system.
- Significant carbon emissions from electricity.
- Budgets are increasingly tight.
- Policy stability important.



What is our Starting Point?



Practice Round: What are your TWO top preferences:

- | | |
|-------------------------|----------|
| 1. Chocolate ice cream | Yes = x% |
| 2. Vanilla ice cream | Yes = x% |
| 3. Strawberry ice cream | Yes = x% |
| 4. Neapolitan ice cream | Yes = x% |

A = YES

B = NO



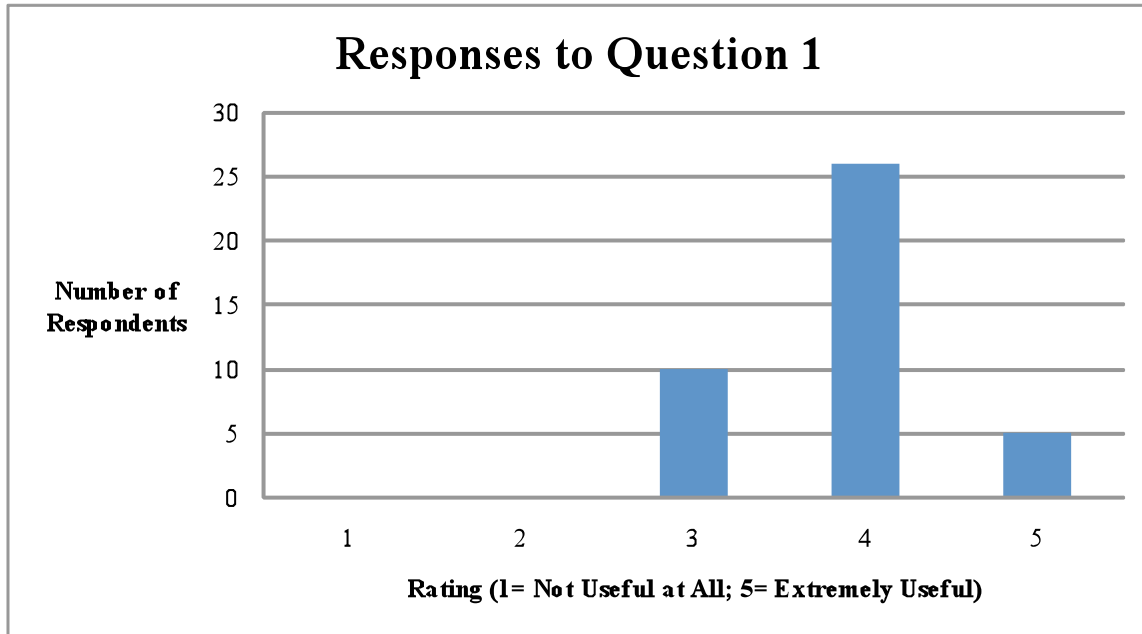
Thank you



Appendix C: Feedback Received

Question 1: *Overall, how useful was this conference for advancing wind and cogeneration policy development?*

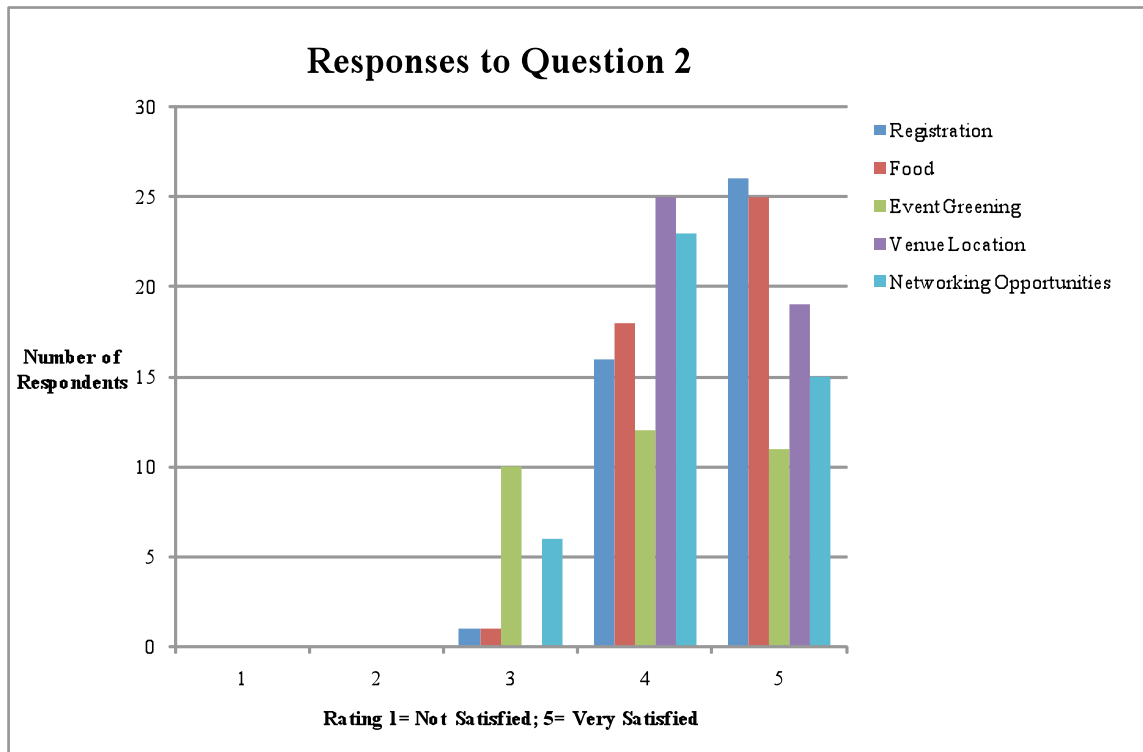
Most respondents to the evaluation rated the conference at 4 out of 5 (5 = extremely useful) for being useful for advancing wind and cogeneration policy development (26 out of 41 respondents).



Comments to this question varied widely, but one theme emerged. Some attendees felt that the usefulness of the session will depend on whether tangible results are observed through policy changes.

Question 2: *Please rate your overall satisfaction with Registration; Food; Event Greening; Venue Location; Networking Opportunities.*

Regarding registration, food and venue location, most respondents rated these aspects of the conference as a 4 or 5. Several people chose not to answer the event greening question and a few commented that they were unaware of efforts to green the event. Among those who responded, the ratings were split nearly evenly between 3, 4 and 5. Although most people felt that the networking opportunities provided were satisfactory (23/44 rated them 4, 15/44 rated them 5), a few felt that more opportunities were needed.



Some people who commented on question 2 expressed an appreciation for the facilitation of the small group discussions and the role that electronic voting played in facilitating discussion.

A number of people commented on networking opportunities. While some felt that there was excellent networking, others felt that there was not enough time to network. One respondent mentioned the rare occasion that this was to have a great broad collection of people that are not easy to get in one room. Another person felt that the trade-off of fewer networking opportunities was balanced by the more intimate introductions and discussions gained with a select few people. A suggestion emerged for enabling greater networking – an event afterwards would provide a chance to debrief and discuss thoughts.

Question 3: *What were the best features of the conference? What could have worked better? (Please consider topic selection, research, participants, facilitators, venue, food and anything else you wish to comment on).*

A common response to the best features of the conference was “the diversity of the participants.” Respondents felt that the interesting mix of stakeholders led to constructive discussions and that viewpoints were expressed that they wouldn’t normally be exposed to.

Several people mentioned that they like the focus on small group work. A number of people commented on the electronic voting saying that it was “fun and effective,” “useful to frame discussion” and “a good ice breaker.”

A few people made comments in reference to cogeneration for what needs to be improved upon. Suggestions included dividing the cogeneration discussion into sectors, bringing in more expertise on cogeneration, shortening the discussion on cogeneration, lengthening the discussion to one full day and combining the cogeneration discussion with conservation rather than wind.

A few respondents felt that what needed improvement was a greater focus on what happens next. They would have liked to see a tangible action plan created, a clear process on how the government will be engaged and more focused “asks” of the government.

“More expert speakers” was the comment from three people on what could have worked better. Suggestions on expertise included cogeneration, Greening the Grid data, policy from other locations, the AESO and the Alberta electricity market.

Question 4: *Would you participate in a similar Pembina Institute / ISEEE event in the future?*

Respondents were unanimous in their support for attending another similar Pembina Institute / ISEEE event in the future. One commenter praised the organizers on a great idea and a great run for the first round.

Question 5: *In your opinion, were your goals of this Wind and Cogeneration Forum achieved?*

Four people chose not to answer this question. Of those who responded, 37 out of 39 felt that their goals of this forum were achieved. Commenters praised the content, method and operation of the conference, as well as the general direction set by the multi-stakeholder group for high level policy and top policy priorities. However, respondents also desired a more detailed and in particular, more tangible result.

Several people stated that they learned a lot from the session or gained a much better overall perspective of different issues and points of view.

Question 6: *What is the most significant new insight you gained from conference discussions?*

The responses to this question varied widely reflecting the level of diversity among those who attended and the breadth of discussion that occurred. A few people noted the

complexity of the challenge in changing the status quo through policy creation. Others were surprised by the degree of consensus among various stakeholders on policy direction, particularly in regard to the level of support for carbon pricing. Many people expressed that they had gained knowledge or understanding of issues related to wind, cogeneration, electricity delivery or policy making.

Question 7: *Was the pre-read Discussion Paper useful to you in preparing for this forum?*

Out of 43 people who responded, 39 felt the paper was useful for preparing for the forum. A few people commented that they did not have a chance to read the Discussion Paper since it was provided too close to the event.

Question 8: *What parts of this Forum do you feel need to continue?*

A couple of respondents felt that all parts of the forum need to continue. The narrower responses focused on following up on policy recommendations and lobbying the government to make the policy changes identified through the forum. Another key theme was delving into the details of policy recommendations including modelling the resulting interactions of policy options. The most commonly cited method for continuing these aspects of the forum was the formation of small working groups.

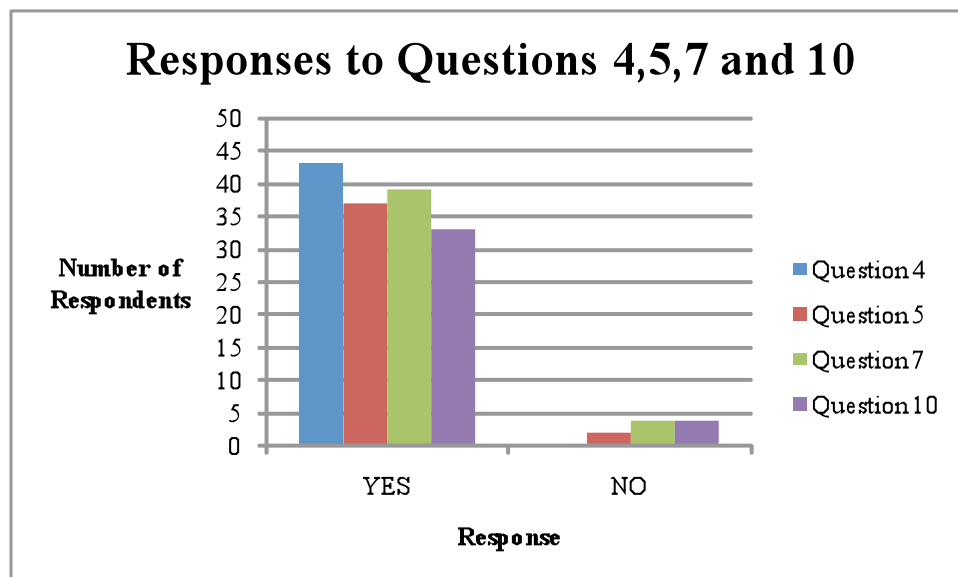
Question 9: *What new conversations would you like to see in future sessions?*

The range of new conversations for the future was heavily weighted toward renewable energy options and energy efficiency. Other topics suggested included understanding the interaction between policies, the incentives that drive industry, and the strategies for achieving government support. Issues around land and a land-use framework were mentioned, as well as urban energy planning, self-sufficiency, and sustainability of water and food.

Question 10: *Would you or your organization be interested in supporting the next steps for advancing Wind and Cogeneration Policy in Alberta?*

Six people chose not to answer this question. Of the remainder, 33 out of 37 people felt that they would be interested in supporting the next steps for advancing wind and cogeneration policy in Alberta. One respondent commented, "I do not know how I can do this," while another suggested that a call for interest be sent to forum participants.

The chart below shows a summary of the responses for the above questions.



Raw Feedback from Evaluation Forms:

Question 1. Overall, how useful was this conference for advancing wind and cogeneration policy development?

- Helpful to get everyone literally on the same page.
- Useful for promoting discussion, not sure how effective it will be for actual policy development – follow through is key.
- Not sure... good discussions but need to see if it results in advancement/change.
- Good to give input to regulators but suggestions are rather generic and may not be of much use to them.
- My only comment is more conversation needs to occur around more green technologies outside of wind such as storage, solar, etc. Alberta seems to be five years behind other markets in this relation.
- Think it was too much information for one session. Not enough time to flesh out details and a plan of action.
- Challenge in getting information to decision makers who will make policy.
- Depends on the outcome. Usefulness is arguably measured by impact. I did find it interesting to see the different perspectives though.
- Really need next step – the devil is in the details.

- The fit between wind and cogeneration policy is not necessarily aligned. Felt odd to be discussing the two as one.
- Need to focus on a few asks.
- Good ideas but must result in *tangible* results to change policy to be deemed a success.
- Good comments from developers about challenges to wind development.
- Great facility.
- Very informative; great opportunity to voice views and hear different opinions; excellent to have influential people in the room who may have a part in crafting policy.
- A good product emerged.
- Very useful conversation but final judgment will be based on tangible next steps.
- Good discussion, good group for development; depends on actual ability to influence policy.
- Usefulness dependant on follow-up and execution of ideas. Would like a chance to be a part of a subgroup for further detailed policy ideas.
- It was a huge help for me to understand the current barriers to wind generation capacity and the most effective policy tools to address these barriers.
- I have only been in Alberta for two months so this was mainly a great learning opportunity.
- Good collection of people – good ice breakers, great facility, facilitators.
- Learned a lot. Liked the voting system.
- Very informative, excellent networking event.
- I think this is an excellent start to a dialogue with the province and municipalities.
- Group work was good. Could have mixed morning and afternoon groups.
- Not enough time to dig into enough depth on some issues; were lacking some concrete details and costs.

Question 2. Please rate your overall satisfaction with Registration; Food; Event Greening; Venue Location; Networking Opportunities.

- Not enough time to network.
- Not sure what “event greening” means.
- Small groups limited networking opportunity but facilitated more intimate introductions and discussions with a select few (good if you were sitting with the right people).
- Excellent!
- An after event could be interesting. A chance to debrief, discuss thoughts, etc.

- Difficult to view the screen from the back of the room.
- The forum was well set up.
- Registration was fairly efficient.
- Food (lunch in particular) was outstanding.
- Not sure if the event was greened.
- An attendee list was published – distributed please.
- Logistics and flow very good.
- Nice venue.
- Excellent networking.
- Good facilitation.
- Good use of electronic clickers to establish group position quickly.
- Don't know about event greening.
- Excellent food.
- Good layout of tables, etc.
- Great invitation list.
- Nice focus – kept out tangential discussion.
- Good preparatory discussion paper.
- Met some very smart people.
- Very, very good technology facilitated discussion and made things interesting, illuminating.
- I would have like more time/opportunities to network. It was a great broad collection of people that are not easy to get in one room.

Question 3. *What were the best features of the conference? What could have worked better? (Please consider topic selection, research, participants, facilitators, venue, food and anything else you wish to comment on).*

BEST

- Small group discussions.
- Final voting and discussions (thumbs).
- Diversity of participants.
- Good forum to hear the viewpoints of people I would not normally be exposed to.
- Round table group discussions. There was a good mix of experts from different backgrounds.
- Breakout groups and trying to recognize what is needed and how this group can lead the way in those changes.
- Facilitation was excellent.

- Best features were the people in the room, including and especially Pembina folks.
- Electronic voting was useful to frame discussion.
- Voting is efficient and provided a platform for discussions.
- A well-chosen group – interesting people and useful info.
- Learned many new things that I would not have had the opportunity to learn elsewhere.
- Interesting mix of stakeholders. Constructive discussions.
- Good attendees.
- Participants were excellent – wind developer had great real world examples of challenges.
- Diversity of group.
- Background information.
- Great discussion and thought put in by many industry participants.
- Government attendance.
- On time. Good facilitators. Excellent voting system.
- Working groups were organized.
- Organization and coverage were very good.
- The facilitated discussions produced useful outcomes.
- Open discussion – not associate opinions outside of workshop.
- Good ice breaker voting system.
- Good mix of people – not the same old crowd.
- Variety of participants.
- Focus on small group work.
- Working groups.
- Summaries.
- Voting.
- Great facilitation and networking possibilities.
- Facilitators were crucial.
- The small discussion groups worked great.
- Voting (clicker) was fun and effective.
- Electronic voting was good.

NEEDS WORK

- Could have divided up cogeneration into 1. residential, 2. community and 3. industrial. Without focus, cogeneration discussions were too high level.
- Think it should have been wind and solar for one conference. Cogeneration and conservation for another.

- Best thing to do would be to create longer breaks to facilitate networking. People's conversations around the room were as important as at the tables.
- Not sure how this translates to government action – what is the process to engage the government further to ensure action?
- Disappointed that I didn't have the opportunity to interact with other tables for the most part.
- More focus on what next. Leave with tangible action plan.
- Not sure if this group has any influence with government to affect change in policy.
- There were some sections that dragged a little.
- Need more focused asks.
- More expertise on cogeneration. Screening people – e.g., This is about more new wind not a “wind opposition” platform. More expertise on Greening the Grid data and policy from other locations.
- More expert speakers.
- Cogeneration discussion too long.
- Should focus on barriers first before discussing solutions.
- Would have been nice to switch up the groups in the afternoon.
- Long breakout sessions – they could have been interspersed with brief brainstorming sessions visioning something a little more outside the box just to get juices flowing (and people talking)!
- Too much for one day. Should do only cogeneration as one day.
- Efficiency is next big topic.
- Wind is kind of pointless focus being fairly well developed, market-based and financeable.
- Adding some more expertise from AESO or a quick market primer may have been useful.

Question 4. Would you participate in a similar Pembina Institute / ISEEE event in the future?

- Absolutely, great idea and great run for the first round.
- Encourage both to have a follow-up piece.
- Able to get different views to take back.

Question 5. In your opinion, were your goals of this Wind and Cogeneration Forum achieved?

- Wasn't sure exactly what it would be about or achieve but was very impressed with content, method and operation.
- Multi-stakeholder view on high level policy direction.
- Good process for identifying top priorities.
- Good mix of participants.
- I hoped for more discussion on a public framework to determine where future development takes place (and where not).
- Overall, yes.
- More specific policy recommendations.
- I was more an observer. I'm not sure of the ultimate objectives without seeing impact.
- Bit more of a confirmation than a paradigm shift.
- I attended to learn more about wind and cogeneration.
- For the most part objectives were achieved. Again, it isn't clear how this feeds into government policy.
- Gained a much better overall perspective of different issues and points of view.
- To some extent – fairly superficial review; perhaps a follow-up with a chance to evaluate policy options more deeply and critically in smaller more targeted groups.
- But the key is tangible next steps.
- Next steps more critical.
- Would like more specific and detailed input for my particular discipline.
- Networking groups.
- Learned a lot.
- That will depend on what happens afterwards.
- I understand the breadth and complexity far better.
- Clear priorities will be essential to move ahead.

Question 6. What is the most significant new insight you gained from conference discussions?

- Learned a lot more about wind.
- Financial need and educational needs within province.
- Polarized views/perception of public and policy makers.
- Complexity of the issue.
- Lack of understanding of cogeneration... maybe the industrial/commercial/residential mix confused some of the discussion.
- There are a very large number of policy options to consider.

- The need for fossil fuels to pay the real cost of energy through carbon pricing, performance based standards or some other related mechanism.
- That a public framework to determine where future development takes place (and where not) is not on the agenda.
- The type of support that is best (renewable portfolio standard for wind).
- There is increasing interest in the dialogue.
- Requirement for an overall energy strategy to get into more detail on developing wind and cogeneration.
- A major challenge on the complexity of changing the status quo.
- The needs of the wind sector.
- The fact that there are some very knowledgeable people working on this so, hopefully, the province and municipalities can move forward.
- How much support there is for carbon pricing across diverse groups of people.
- Quite a high degree of consensus from different stakeholders.
- Better knowledge of potential policy prescriptions.
- Insight about differences in Alberta and examples of success in the world (e.g., Texas).
- That people are concerned businesses would fail if a higher carbon price was mandated.
- Consensus around an RPS and synergies between wind and cogeneration.
- Lack of policy.
- Timely process is important.
- Problem if crown land policy – i.e., no policy in place.
- A much better appreciation of the Alberta situation.
- Opportunity scope; problems with generating all at same time (reduces rate price).
- There can be a mix of standards (e.g., emissions, renewables)
- Possibilities for cogeneration that need to be researched/implemented.
- Learned quite a bit on the technical side of the energy delivery economy/development.
- The interaction between policies.
- Interplay between sectors of the economy.
- Understanding behind the fence cogeneration.
- The level of concurrence on issues. However, there is some divergence between large and small companies.
- Greater diversity of interest than expected. More focus on small scale CHP, wind.

Question 7. Was the pre-read Discussion Paper useful to you in preparing for this forum?

- I found it interesting but I didn't use much of it today.
- Didn't read it.
- N/A.
- Came out too late, did not get a chance to read.
- Provided too close to event to properly review.

Question 8. What parts of this Forum do you feel need to continue?

- Need to circle back to see progress.
- Follow through with policy drivers.
- More forums of this nature.
- Focus on diversity of participants.
- Resolution of detail – specific elements.
- More discussion on levelling the playing field to allow market solutions (e.g., versus direct subsidies, government picking winners).
- Taking action and making a change.
- Lobby government.
- All.
- Ongoing annual event.
- Extend to other renewable or options.
- Small breakouts, but should try to make them a little bigger.
- Next steps are to determine which policies can actually work together.
- How can the support of wind and cogeneration be moved forward?
- Adding detail to recommendations.
- Not losing some of the new, unique ideas that weren't necessarily popular.
- Lobbying of government.
- A follow-up with a chance to evaluate policy options more deeply and critically in smaller more targeted groups.
- Meeting with municipalities to educate and aid them in policy development.
- Fit into the bigger picture.
- Working with government.
- Key asks for policy.
- Subgroups.
- Ongoing discussions – working groups.
- Follow-up on policy recommendations.

- Other topics – conversation – other renewable, but template base was quite likely developed through this workshop.
- Modelling of some of the policies.
- Education, knowledge of wind power.
- Delivery of recommendations, prioritizing.
- The rubber needs to hit the road.
- Digging into specifics of each option.
- Driving policy forward.
- Focus on clarifying what issues need to be developed. What are specific asks of government?
- Path forward with small working group was a good approach.
- All, good format.

Question 9. What new conversations would you like to see in future sessions?

- CCS, biomass, solar, smart grid
- Emissions trading opportunities
- Alberta/federal harmonization
- Next discussion on energy efficiency and other alternative renewable
- Solar and storage
- Planning framework to wind development – where is it appropriate and where is it not?
- Solar
- What tangibles have been delivered or what will be done?
- Urban energy planning/self-sufficiency.
- Discussion of interaction between various policies that would affect electricity generation.
- Results or thought from industry and policy makers. Industry thought and wishes (e.g.. What makes them spend/invest?)
- Regulatory approval, timing issues and access by all potential projects.
- Exports of power and the elimination of coal-generated power.
- Broader discussion with all major stakeholders on an electricity strategy for Alberta.
- Yearly forum would be great.
- Presentations from developers – specific project examples.
- Need government policy makers to attend.
- Technology aspects.
- Strategies with government for achieving government support.

- Land.
- Conservation – sustainability (e.g., water, food); lifestyle drivers.
- Efficiency.
- More comprehensive look at the wider economy and the policy/politics link.
- Efficiency.
- Working group to flesh out ideas.
- Some modelling.
- DSM (Demand Supply Management).

Question 10. *Would you or your organization be interested in supporting the next steps for advancing Wind and Cogeneration Policy in Alberta?*

- Also interested in solar advancement.
- CanWEA would be interested in being part of a working group/steering committee.
- It would be interesting to see if public opinion aligns with our consensus items. May be conflict between green desires and understanding of other implications (electricity costs).
- Merchant power market = limiting factor.
- I do not know how I can do this.
- Send a call for interest to the forum participants.
- Greengate Power would like to be actively involved in moving policy forward in Alberta.
- Cogeneration more than wind.
- Time and dollars – Suncor.
- We are interested from the perspective of carbon pricing.