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**JPAC Public Forum—North America's Energy Future: Powering a Low-carbon Economy for 2030 and Beyond**

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**Summary Record**[1]

The Joint Public Advisory Committee (JPAC) of the Commission for Environmental Cooperation (CEC) of North America held a Public forum on 16 April 2012. The main objective of the public conference was to identify and assess the major trends that will have an impact on North America's shared environment in the coming decades.

This summary record reports on each agenda item, records all decisions made by the Committee and identifies action items and responsibilities. (Please refer to Annex A for the agenda and Annex B for the list of participants.)

Previous summary records, advice from JPAC to Council, and other JPAC-related documents may be obtained from the JPAC Liaison Officer or through the CEC's website at <http://www.cec.org>.

**Welcome and opening remarks, by Martín Gutiérrez Lacayo, JPAC Chair**

The JPAC Chair welcomed the participants, with a special mention of the people from Toronto hosting the forum, and gave a brief overview of the structure and function of the Joint Public Advisory Committee (JPAC). He also mentioned that the entire conference would be broadcast live via webcast in English, French, and Spanish, making the session accessible to anyone with an Internet connection. He then invited all the JPAC members to introduce themselves to the assembly.

**Overview of Equinox Blueprint: Energy 2030, presented by Dr. Jatin Nathwani, Executive Director, Waterloo Institute for Sustainable Energy, and a lead author of the report**

[1] Disclaimer: Although this summary was prepared with care, readers should be advised that while JPAC members have approved it, it has not been reviewed nor approved by the interveners and therefore may not reflect their statements verbatim.

Dr. Nathwani presented an overview of the results of the Equinox Summit (5–9 June 2011, Waterloo, Ontario), held to shape the agenda of the transition of the global energy economy. [This plan launched by the Waterloo Global Science Initiative is called the Equinox Blueprint: Energy 2030 and was published as a report of the same name.] He identified energy systems as the vector to reach this goal. He also pointed out that the lack of energy, the importance of climate change, and the emerging economies' growing demand for energy are the main challenges. He asked the audience: what can science and technology do to deliver meaningful change? Energy availability is critical to human development; it is linked to the productivity, national income, health, education and social development. With the population rising to 9 billion or more by 2050 and the increase occurring mainly in poor countries, the level of development in these countries will determine the energy needed to sustain the world population: low development will require a doubling of available energy, and high development a tripling.

The magnitude of change required for $CO_2$ stabilization is a reduction of 6–7 gigatons in carbon emissions. Global energy efficiency has to improve by a factor of 3 by the end of the century. Dr. Nathwani explained that the Equinox Summit's goal was to help reboot the global dialogue on energy issues. The emphasis is on global thinking, long-term engagement and creating pathways to invite communities around the world to join the conversation.

Dr. Nathwani identified three key areas in the mapping of the global electricity landscape:

Generation :

- Solar energy
- Geothermal energy
- Nuclear energy

Distribution :

- Superconductors
- Smart grids

Storage :

- Industrial
- Consumer

To deploy the concept of a low-carbon electricity system, the members of Equinox focus on the following pillars :

- Development of large-scale storage for renewable energy
- Development of enhanced geothermal power
- Accelerated development of nuclear power
- Off-grid electricity access
- Smart urbanization

<u>Development of large-scale storage for renewable energy</u>

The principal feature of battery technologies is the ability to store produced energy for release when needed. Two issues that present difficult challenges to these technologies in large-scale energy production are the variable output of energy and the requirement of considerable physical space. Dr. Nathwani pointed out that to develop energy farming on a large scale will raise important social and economic issues that will need to be addressed. The critical challenge of large-scale battery storage is to reduce manufacturing cost. The business will have to evolve and couple renewable energy (RE) with battery storage.

Development of enhanced geothermal power

It is critical to mine for geothermal energy instead of carbon. Geothermal energy is independent of weather, ubiquitous, and a potential renewable energy source on a global scale. At present, development for large-scale usage is limited to government-subsidized research, but the cost projection is attractive to investors.

Accelerated development of nuclear power

The four major issues challenging the production of nuclear energy are waste, safety, proliferation and acceptance.

New design can reduce the amount of nuclear waste produced and enhance safety, gaining public acceptance. Nuclear energy has the potential to eliminate coal from the system. If the world is to move away from fossil fuel energy, this is one of the new energy solutions. Dr. Nathwani suggested the possibility of turning the waste from liability to asset and pointed out the importance of communicating the advantages of this solution in order to acquire social acceptance.

Off-grid electricity access.

One of the major goals and issues facing the growing demographic is to bring the benefits of electrical power to remote regions. This can be achieved by the creation of inexpensive portable and durable sources of energy. Affordable energy can improve basic quality of life and lays the foundation for increased education. But the goal has proved to be expensive. Dr. Nathwani suggested that it is possible to overcome the issues of energy access for the poor, using transparent microfinancing The amount of energy required for major improvements in quality of life is not large. A shift in thinking is needed, because the energy-poor of today comprise a market for tomorrow.

Smart urbanization

Development of population densities that minimizes energy use while maximizing social benefits—smart urbanization—involves solutions for two primary issues. The first is transportation. It can be addressed by thoughtful urban planning and design, with the possibility of using the emerging technology of super-conductor materials. Passenger vehicles account for 40% of all gas emissions and this gets worse as cities grow. The seamless access to mobility will lower the need for personal vehicle ownership. Dr. Nathwani suggests the use of flow batteries adapted to the transport sector: instead of full tanks of gas, batteries would be used for long distance. The second issue is buildings. New construction will need to incorporate renewable,

smart-energy networks integrated with other types and allowing more current load in the electrical wires.

The convergence of communication between science technologies and the energy sector is crucial. According to Dr. Nathwani, the global challenge is to take a comprehensive view. He invited the audience to visit the Waterloo Global Science Initiative's website <http://wgsi.org/content/equinox-blueprint-energy-2030>, to download the *Equinox Blueprint: Energy 2030* report, and to get engaged in the discussion.

**Question and answer period**

*How do we propose to speak about nuclear power affordability when the Fukoshima nuclear reactor is costing tax payers 40 billion dollars to bail out the Tokyo Electric Power company?*

It is always a question of whose number you look at. An accident always has high repercussions, and the course of actions to be taken depends on the Japanese Government proceeding or not. But to say that there is no future in nuclear energy is not acceptable.

*Why do you speak of policies when numerous countries have decided, post-Fukushima, to phase out the issue of nuclear power, and decided not to go further with nuclear power?*

Prior to Fukushima, 62 reactors were under construction and 156 were planned or ordered. After Fukushima, 60 reactors were still in construction and 163 planned or ordered. The United States Nuclear Regulatory Commission just approved 2 new plants to be constructed. Certain countries have made a decision, but what we need to be able to see is that a transition to this energy can close the fuel cycle. The nuclear has a role to play.

*Who is listening? Necessity is the mother of innovation. Paths have been taken. Emerging markets like India and China are looking at certain technologies you were talking about. They will be ahead of us. How do we get the other developed countries like the USA and Canada to look and assert the necessity of this change?*

By helping to shape the tone of conversation, and providing an optimistic view of low-carbon energy economy. We have extremely promising options waiting to be tested. Work is on the way. Right now, large-scale storage is the holy grail of research, with a high level of reception and recognition worldwide. Geothermal has enormous potential, but will take more time. We need to engage and find ways to see what makes sense. It is possible that certain countries won't take the path. Others will. It's a multi-layered approach.

*When you look at all of the energy use, which is dominated by mobility and heat, what percent do you think is dedicated to end-use? In what percentage is it possible to grow on a 50-year time scale?*

Higher-quality forms of energy are an issue in every country. You can use it for a range of things with electricity that you are not able to do with other forms of energy. The curve for the demand

has been nothing but up—now at 25% in the USA. The discussion, and literature in the community will revolve around lower energy input. Electricity is substituting for other sources of energy. It is expected to go up.

*What do you think of the link between drilling for geothermal energy and earthquakes?*

It is an issue that has to be tackled. It is well known, and a concern. There isn't one proposal that does not come with problems. But its attraction is its ubiquity. No nation has the monopoly over that power.

*What is the most simple and inexpensive solution, as future recommendations to promote new regulations from this group to government representatives, to improve?*

Fossil gas has an enormous impact on consumption on a short term. The current supply of gas is a thing to watch closely. The gas bubble is expected to come and go. Time will tell if it sticks for the long term. Newer technologies are on a different footing. We have to realize that gas is carbon-based. Even if you take action to turn off coal, and replace it with gas, it is still a carbon energy, which is going to be a problem with climate change.

*My question is in regard to the concept of energy poverty. How can we measure it and how to look for ways to eliminate it without demand for more energy; increase the quality of life and decrease dependency on high energy consumption. We would have to approach it very clearly. I would like to listen to your considerations.*

When you have nothing, no access to energy, the whole issue is worthless. For people with no energy access, getting the first is critical. There is no concept of efficiency for those who have no access. Why, in the last 70 years, did the UN initiative come to nothing and 2–3 billion people still don't have access? Where has it failed? If you come to think about it, the physics of the systems are determining the requirements of capital infrastructure to be able to access the more distant locations, because of the capital-intensive nature of the system. Flip this on its head with the sorts of approaches that were discussed here, such as organic PV [photovoltaic], smaller amounts of energy; and in regard to the financing, assess that the people who have no access now can become future customers, buying their own development in a positive way.

**Presentation, by CEC Executive Director Evan Lloyd, on the progress in renewable energy in North America since the 2007 CEC report[2]**

Mr. Lloyd discussed some of the recent work and findings on the part of the CEC that are pertinent to the development of renewable energies in North America. He began his intervention by identifying one of the three CEC Council priorities for the next five years:

[2] Commission for Environmental Cooperation (CEC). 2007. *Fostering Renewable Electricity Markets in North America*. Montreal: CEC. Online at: <www.cec.org/Storage/60/5230_Fostering-RE-MarketsinNA_en.pdf>.

*Cooperative initiatives in support of climate change mitigation and the transition to a low-carbon economy in North America*

The CEC has recently completed various studies and analysis that examine North America's energy infrastructure and future options. Of course, in terms of both public-health and climate-forcing consequences, our current electricity generation is dominant. For the US and Mexico, the electricity generation sector is the most prominent source of reported toxic air emissions. The top sector in Canada in terms of toxic air emissions is oil and gas extraction (including support activities), followed by electricity generation.

Mr. Lloyd stressed the importance of three key points:

**First**, it must be noted that RE (renewable energy) is *one* important component in the portfolio of GHG (greenhouse gas) mitigation action that *must* be taken in order to halt and eventually reverse high atmospheric concentrations of $CO_2$.

**Second**, it should be noted that we must move forward with ALL these options—and in an urgent manner if we are going to meet the goal of choking GHG emissions by the 30 gigatons required to prevent an increase in $CO_2$ above 450 ppm (parts per million) and a rise in mean average temperature in excess of 2˚C in order to prevent runaway climate change.

**Third**, and most important, we need to have in place the regulatory and policy mix necessary to establish an appropriate price on carbon.

The IPCC (Intergovernmental Panel on Climate Change) Special Report on RE finds that close to 80 percent of the world's energy supply could be met by renewables by 2050; that it is not the availability of the resource but public policies that will either expand or constrain renewable energy development over the coming decades.

Though in some cases renewable energy technologies are already economically competitive, the production costs are currently often higher than market energy prices. However, if environmental impacts such as emissions of pollutants and greenhouse gases were monetized and included in energy prices, more renewable energy technologies might become economically attractive.

In terms of updating our analysis, there has not been any significant change in the profile noted in our 2007 study: overall, fossil fuels and total thermal [energy] remain dominant but there has been significant uptake of certain renewable energy technologies.

The report made recommendations about the need for greater interoperability of information and analysis—such things as common mapping of RE resources, solar and wind, in cross-border areas that could spur coordinated development and should also include a comprehensive national vision and strategy for the development of our abundant renewable energy resources.

Mentioning the large increase in grid capacity, Mr. Lloyd stated that constructing new transmission lines and corridors is a local political challenge in much of Canada and the US.

He also noted that no energy development is without environmental impact—whether from a life-cycle, system, operating or end-use perspective.

The Canada/US electrical grid is organized essentially into three *interconnects*:

The *Eastern Interconnect*, the *Western Interconnect*, and the *Ercot* system, which in terms of the great state of Texas stands alone as its own interconnect. These are *non-synchronous systems***,** which means coordination is difficult and there is limited trading of energy between these systems. To the extent that renewable energies become our focus, we need to take into consideration where these resources are prevalent—which regions are rich in renewable energy capacity—and focus on moving the electricity accordingly.

**Presentation from Canada, by Dr. Jan Carr, Strategic Advisor, International Initiatives, Gowlings International**

Dr. Carr started his intervention by providing a quick overview of jurisdictional division of responsibility over energy in Canada, pointing out the limited involvement of the federal government. He then proceeded with a break-down of the energy portfolio by province, showing how it really varies.

He explained the four different business structures used by electricity producers in Canada: 1) full, open-access customer choice; 2) competitive, with directed generation investment; 3) vertically integrated, with open-access transmission; and 4) vertically integrated monopoly.

The renewable energy beginnings in Canada started with the all-party committee of the Ontario Legislature, established in June 2001, when electricity monopoly structure was dismantled. The committee's purpose was "to investigate, report and recommend ways of supporting the development and application of environmentally sustainable alternatives to our existing fossil [carbon-based] fuel sources."

The final recommendations covered transportation fuels and electricity generation under headings which included: financial assistance for alternative fuels; renewable portfolio standard; roles of agencies and utilities; net metering; grid connections; emissions trading and renewables "set aside;" phase-out of coal- and oil-fired generation; and energy conservation and efficiency; as well as consumer awareness and education. Dr. Carr mentioned that, since the report came out, politics have got in the way, but a lot of regulations are still discussed. The report did not focus on electricity, but on what to do, with an emphasis on technology, giving the choice to consumers.

Dr. Carr then proceeded to a comparison between some provinces' programs. He started with Ontario's Feed-in Tarif Program (FIT). This program got complicated for the end user, the pricing being reviewed annually and set by the government. The 2011 revision to the program reduced the energy price only for solar and wind energy, but mostly solar. The program has been successful in attracting investments.

The second provincial program reviewed was Nova Scotia's. This province having a smaller system, its program was on a smaller scale; an independent regulatory board sets its energy rates. Nova Scotia has the highest tides in the world, so it experimented with tidal energy and found it to be really effective. This technology is expensive, but the province seized a really unique opportunity it is about to exploit.

Alberta's was the third provincial program reviewed. Alberta does not centrally plan generation or have supply-mix targets; projects are self-initiated and receive only market-priced payments for electricity. The legislatively guaranteed transparent market, with customer choice and generator choice, is proving that you don't need tight central control to achieve outcomes.

Dr. Carr went on to comment on the future of Ontario's FIT. Public support for the program is at a breaking point. During the election campaign and in the legislature, there were calls by the opposition party to scrap the program, and the Auditor General's 2011 report lists overspending on renewables caused by lack of governmental due diligence in setting prices and following procurement procedures. Dr. Carr believes that the program is worth preserving, and has given recommendations.

**Presentation from US, by Peter Miller, Senior Scientist, Natural Resources Defense Council (NRDC)**

Mr. Miller started his intervention by stating that while renewable energy is an important focus, so is energy efficiency, and that holding down the cost of both those factors should be kept in mind. Increasing the efficiency when consuming energy can save money. Worldwide, enthusiasm and resources allocated for new technologies are taking us forward, closer to reaching our goal. We need to maintain a sustainable approach, in order to use energy efficiently and minimize conflict. We should follow the example of the Smart from the Start program [a US initiative to speed development of Atlantic offshore wind energy]: invest time and energy up front to develop a framework that allows working in the most effective way. It is critical to create designated low-environment-values zones that will be used for renewable energy. He gave the example of the Mojave Desert project, which had impact on wildlife and will have to be shut down. A carefully devised framework will result in benefits to the environment and to the project developer, and greater certitude that the project will get built. Identifying suitable regions up front will lower total cost and create a more sustainable development path.

Wind energy is critical to meeting the states' goal of a renewable energy capacity of 2600 megawatts. This presents a special challenge in the Pacific Northwest, where in the spring, lots of rain meant that the hydro dam reservoirs were full and the turbines operating to capacity. There are limits on the amount of water that can be allowed to spill over the hydro dams. Meanwhile, high wind resulted in 4000 megawatts in wind power being generated in the last month, twice as much energy as from coal, gas and nuclear energy, overloading the capacity of the grid. The Northwest states have been dealing with this recurring issue for a couple of years.

<u>Long-terms solutions</u>
Share electrical power with other regions, in an efficient grid.

Develop better forecasting.
Invest in development of long-term storage of energy.

California RPS program

In California, thirty-three percent of the energy portfolio is from renewables. The state has a policy framework promoting renewable energy and increasing investments. There is also broad support in California from the population and across the political spectrum for renewables. In 2002, California adopted a renewable portfolio standard (RPS), one of whose goals was to require 20% of generated energy to come from renewables by 2013. This goal was reached four years earlier than expected. (Renewable energy [RE] includes energy from solar, wind and geothermal, as well as small hydro.) Further objectives are to reach 25% by 2016 and 33% by 2020. Utilities are fully contracted to reach the 2016 requirement. The market shifted from a seller market in 2009 to a buyer market through promising low-cost resources. In order to reach the goals, varied procurement strategies have been employed. Most of the large-scale projects are procured through an RFP [request for proposal] process. We have to bid for new projects and pick the best one.

Other programs focus on smaller projects. Competitive bidding is used here as well with programs coming on line. These programs involve projects of smaller resources—on the scale of 3–5 megawatts. They use a value-based pricing system instead of a cost-based one, an energy-metering program. It allows residential and commercial establishments to roll back the meter, on the customer's side.

**Presentation from Mexico, by Leonardo Beltran Rodríguez, President, *Asociación Mexicana de Energía Eólica* (AMDEE—Mexican Association of Wind Energy)**

Mr. Beltran divided his presentation into three parts:

The North American energy picture
The legal framework of the Mexican energy sector
Proposals for integrated renewable energy market

The North American energy picture

All three countries in North America have tremendous energy consumption and needs. North American consumption of renewables, without including hydro energy, is equivalent to that of South and Central America, Africa, Asia Pacific and the Middle East all together. North America represents one-fourth of world total power generation, and as a region has close to one fourth of the renewable installed capacity globally.

The legal framework of the Mexican energy sector

In 2008, Mexico approved an energy reform, which included a set of modifications to the legal framework. The most relevant change is the National Energy Strategy, which basically increases the planning horizon from a 10-year to a 15-year period. It sets targets throughout the value chain, from upstream to downstream—power generation to consumption. The vision is developed with

the participation of the Consultative Forum of the National Energy Council (federal and state legislative representatives, local authorities, academic institutions, and social and private representatives) and is approved by Congress.

*Prospects for North America*
The prospects for the region are to increase energy capacity by close to 300 GW [gigawatts], or a quarter of total installed capacity, over the next 25 years. Thirty-six percent of that growth would come from renewables, representing investments in clean technologies for the region of more than 200 billion US dollars.

The multiple benefits of an integrated renewable energy market would be: greater energy security through increased local availability of the resources and less dependence on imports; increased competition, resulting in less variability in costs in electricity bills to the productive sector; diversified generation portfolio; development of regional industries; creation of research and development regional networks; and large capital investments.

Proposals for an integrated renewable energy market
The potential in the area of La Rumorosa, Baja California, is between 1800 and 2400 MW. This wind power could feed part of the national electricity system and exports. Unfortunately, lack of transmission lines on both sides of the border and a congested system in California limit the flow that could be traded. Mr. Beltran suggested developing a joint study of the electrical system operators, to assess the impacts of incorporating large amounts of intermittent power to the system, the dispatch requirements, and the stability of the grid.

Mr. Beltran also explained that it will be necessary to evaluate the feasibility of developing a regional standard for biofuels, from the early stages of cultivation up to their full approval, to facilitate the development of fields, bio-refineries, and transportation infrastructure. Tapping into this potential is necessary for developing economic evaluation studies, and environmental and social impact assessments, with harmonized analysis and simulation methods, in order to evaluate the potential of the region, concluded Mr. Beltran.

Question: *With the 24-hour news cycle and the propensity for politicians to be constantly in damage control managing on a daily basis, do you think we can get the correct kind of focus needed to reach our goal? Do you think it is possible to get the leadership in our three countries to get past the issues of management and politics?*

Dr. Jatin Nathwani: We are quick to blame politicians. We live in a society where things basically work. Think of the Canadian pension plan: it's a really long-term dealing with intergenerational equity. There is the possibility to create a legal and appropriate framework for how we tackle the problem. When you put the right people around, understanding the long-term view, it can be done.

Dr. Jan Carr: We have to give politicians their due. All they do is track public opinion, and with the short attention span of the general public, it dictates the actions of politics on really short term. We need to stop underestimating the challenge to bring the public and the politics along.

Mr. Peter Miller: We have to give some support to politicians. In California, we've benefited from a decade-long support to deal with climate change. Looking at an impressive set of accomplishments through the decade, we are making progress but it is not an overnight accomplishment, it took three years of hard work to get the legislation passed. One of the key issues was the domestic content, how much it will affect state production. We need to invest resources in ways that benefit residents. There is a lot of support and concern of an economical basis at the same time. The challenge was to balance the two concerns while doing what we can to grow the economy and exportation.

Mr. Evan Lloyd: We have to look at the roles of public policies, and the politician's singular role. We learned that environmental goods do not flow automatically from an increased economic growth. The public policy framework is fundamental, especially with issues like public health. We have to avoid the temptation to isolate politics, environment and economics. Some RE tech are already economically competitive. We need to integrate the real cost of carbon, based on environment and health issues, into the economic price.

Question from the audience : *What would you recommend now in terms of policies for the leaders of countries who would like to work towards meeting energy goals? Where to start?*

Dr. Nathwani: The enhancement of electricity trade is the perfect vehicle to enable a large amount of RE generation. If we could remove barriers, and use the actual system for the benefit that it provides, it is a regional energy network; we have to overcome states and provinces.

Mr. Miller: There is a need for research, development and investment in new technologies. Not just technologies, but also planning tools, resources. Energy has a low level of investments, despite the levels of opportunity. We have opportunities in cooperative research and development of integrated planning tools that cross the borders. It is an inexpensive solution to put on top of the list.

Dr. Nathwani: The energy sector is not included in the NAFTA agreement; it is a key issue.

Dr Carr: The price of carbon is an issue. We can very quickly create more barriers with the pricing system.

Question from JPAC: *A general question for the panelists, related to the incorporation of environmental externalities. That's something that has not been discussed and is implicit in the current prices of electricity as long as there are regulations. For example, carbon energy is inexpensive, nuclear energy is inexpensive. One of the proposals is that the electricity rates would incorporate environmental externalities, but we haven't found any adequate formula to do it. There is resistance from the sectors who produce inexpensive electricity, so that others who produce clean electricity can't compete with electricity that in money is more expensive but with regard to life cycle and regards to environmental externalities can be more inexpensive. Can you comment?*

Dr. Carr: Be cautious about sending out electricity. It is an energy vector and not a source of energy. In fact, it is the only type of energy entirely man-made. It's his biggest problem and biggest advantage. Playing with electricity rates gives great leverage. But the danger is getting the economics unbalanced between different sources of energies. That explains my view on the carbon tax. The objective is to reduce carbon emission; to put the right price on carbon, not selectively putting prices on forms of renewable energies.

Question from JPAC: *With regard to the hydroelectric companies, you question whether they were renewable or not. That is the conclusion we have reached with JPAC: [Hydro electric energy] is renewable, but for the sustainability, it depends on which ones [companies]. Where do we have this change of going from looking for sustainability to renewability?*

Mr Lloyd: In general terms, hydro electricity is considered to be renewable. What is acceptable in a RE portfolio varies by portfolio standards. It is a complex matter, whether or not hydro is eligible for certain discounts. There is a difference between small and large hydro. There are environmental issues attached to any form of energy development. It's important to measure the cumulative effects of smaller hydro projects as well. They can have a particular effect. It's not a fundamental barrier, but a partial barrier in terms of developers and the prices they could benefit from with a potential renewable energy form. They can still sell this electricity into the grid and benefit from their development.

Question from JPAC: *How important is a parallel path of the three countries as compared to focusing on an integrated path? What level of push should we give for that?*

Dr. Carr: If we look at any type of multilateral initiative, it is incredibly difficult to achieve a common goal. Regional things work better. Commercial differences are not easy to conceal. Dealing with the parallel path approach is more practical.

[Lunch break]

**Presentation, by Dave Pelunis-Messier, Energy Department Manager, Yukon River Inter-tribal Watershed Council, on energy challenges in remote communities**

Mr. Pelunis-Messier started by talking about the energy challenges faced in Alaska. Alaska has a territory 1.3 times the size of Texas but most of it does not have access to the grid and has to rely on generators. Everything has to travel by plane, and by water during summer, making all the transportation costs really expensive. The low economic growth and low education level are issues as well.

One of the most important energy needs is for heating, accounting for 50% of the energy used. Most of the energy is obtained from carbon energy. The problem is that the energy is available, but can't be transported. The Alaska population is paying for oil that is cheaper with PCE [power cost equalization] credits. Heating fuel is all subsidized, and free, making it hard to convince

Alaskans to reduce their energy consumption. Clean water needs clean energy. We are facing the necessity to find a solution to some environmental issues that is applicable to a larger scale.

The Efficiency First program was launched and well received. It involves using small-scale renewable energy projects to help with the transportation issues. One of the issues was that it takes longer for the technologies to reach Alaska, and to be accepted by the community.

One of the key points was to use available resources, not have [energy] delivered. For example: using more-efficient lighting, using timers, and educating the population. There is a need to insulate and seal buildings so as not to waste heat and to thus reduce energy consumption, and evaluations are currently being done.

As the energy is really expensive, the economy is weak, and the cost of transportation high, we can't test new technologies in the area. We have to use technology that has already been tested and proven efficient. With this in mind, lighting was upgraded. Incandescent lamps produce lots of heat while they produce light, and thus waste great amounts of energy. The replacement of light bulbs with LED lamps paid back in 1.6 years.

At the same time, they upgraded the heating system of Nenana Youth Rec Center. Just by giving the Center control over the heating, using electronic thermostats, it could save about 1000 gallons of diesel in a year. The installation of 20 solar panels has a payback time of about 14–15 years.

It is really important to change the mindset of the communities, to show them the advantage of low-energy consumption. We need to educate them and show them that saving energy can also mean saving money. One of the big issues is that if the wind dies, the diesel generator does not have enough time to respond. There is a need to store the energy during times of producing a lot and disperse it out when needed.

Installing the system is not hard; it is done with the community, under the guidance of one installer. They all have hands-on skills: due to the cost of replacing equipment, they prefer to fix it.

Mr. Pelunis-Messier suggested multiple solutions, such as education and stopping counting on fuel and heating credits. With multiple projects, we can turn a lot of money received from government into results.

Question: *You would expect that if prices are high, people would look for solutions. But as you said, in Alaska, prices are very high, and they don't seem to care. Do they know how low it is everywhere else? Can you explain?*

Response: This is an interesting social question. They have a handout mentality. They're used to having someone deal with it for them. They have a mentality of "If something breaks, somebody will fix it."

Question: *With the high cost of transportation, how do you select the equipment being tested in remote villages?*

Response: For example, the wind turbine that was chosen was performing as we thought it would. It actually is a lot of trial and error. You have to ask a lot of questions. That's one of the reasons I use a lot of solar energy, because you can install it and forget it. You can also monitor the performance with tools on the Internet. One of the priorities for me is to choose technology that I can monitor without being on-site.

Question: *Talking about the Mexican context, where the native communities that are isolated like those you mentioned. When there is energy, it is 100% subsidized by the government. Of course, they don't have an incentive to look for a renewable energy [source]. They do focus on other aspects such as the topic of gas for heating or food. They use alternatives such as carbon, or wood. From your experience, what percentage of the family income do these communities use for energy? For a comparison with low-income communities in Mexico.*

Response: I don't have the numbers, but I know there was a study published showing that the energy was not an incentive for moving from a remote community to a bigger city. It would be about 20–50%—I don't have the exact number—but there is a bigger picture that we would have to discuss more for the comparison.

[Afternoon break ]

**Presentation, by the SEM Task Force representatives, of the draft revised SEM guidelines**

Jocelyn Adkins: The SEM [Citizen Submissions on Enforcement Matters] process is an information-sharing process, providing members of the public a voice to raise issues of concern. It allows the issues to get the attention that is needed and promote the effective enforcement of domestic environmental law by facilitating the sharing of information. It is important to note that the SEM process is not intended to be an avenue of first resort. It should not be the first option for action.

There is an obvious issue that the Council wants to see addressed: there is a disconnection between what SEM is, what it can do and what it's expected to do. There is a real interest in clarifying the process, so there are no false expectations. The intention is to make the process accessible to the North American public.

The Task Force on SEM Modernization was established in May 2011, to conduct a review of the process, focusing on revising the SEM guidelines. The process attempts and is designed to inform and to be understandable by anyone, regardless of language spoken.

We need to be in tune with technological development, so that it can be applied to help in initiation of the SEM process and in achieving the other objectives of the modernization review, of reducing the length of time required to conclude the process, clarifying its functions, and

increasing its accessibility. The Council will need to explain its reasoning. The proposal is to reduce the target deadlines in the SEM steps by 50 percent.

It was proposed that the Council take Factual Record votes, normally, within 90 calendar days of receiving a Secretariat determination that a Factual Record is warranted. It was also proposed to establish target deadlines of less than one year if a Factual Record is not called for, and 2.5 years if a Factual Record is prepared.

The SEM process has been in play for 18 years. In that time some concerns have been expressed by the public, political parties, etc., regarding the way the process is implemented. It needs to be reviewed and modernized.

There were concerns about the length of time the submissions have taken to go through the process. This is an obvious issue.

There shouldn't be false expectations of the process—specifically, like cleaning up a site, or such other—since the process is not designed to do that.

Additionally, accessibility to the process is an issue. We are increasingly hearing that the process is for lawyers and other professionals who need it for specific tasks, but it is really designed for anyone. It needs to be clarified and implemented in a way that makes it accessible to the whole North American public.

The key goals for the SEM Task Force are now :
- Modernization of the process to reflect technological development and the current-day implementation of the process
- Clarification regarding interpretation and implementation of the process
- Timeliness, to increase the speed, efficiency and relevance of the process
- Transparency and accessibility, to improve the understandability of the process

Geoffrey Garver: If you go on the website, members of the public can issue comments on the guidelines for the next 30 days. JPAC will go into consultation with the Task Force to improve the guidelines, and invite the public to send comments that will be examined in the consultation, at the end of the 30 days.

Question: *Several of the proposed changes to the guidelines (5.6, 9.5, 9.6, 12.2) substantially change the process established in parts 14 and 15. Was the task force mandated to propose changes that require the Parties [Canada, United States and Mexico] amend the NAAEC [North American Agreement on Environmental Cooperation]? If the NAAEC will be opened up, "why not" (as suggested this morning) give the process teeth and make it relevant to the current environment-trade challenges, i.e., truly "modernize" it?*

Jocelyn Adkins: The revisions that have been proposed do not modify the terms of the Agreement. That's not something the SEM Task Force is charged to do. We're clarifying its intended purpose

and function. Its purpose is to inform the parties on how the process is to be implemented. We are not amending the argument to give it more teeth. The intention is to inform.

John Burnett: We had this discussion on the extent to which the guidelines are not to amend, but to address ambiguity within the process. We're open to views, we had some discussion on that topic, but that's not our intent.

Alejandro Posadas: Just to emphasize that the main objective is to make the process more efficient so that it can meet the objectives for which it was created. The group made a careful analysis of the process, in the sense that we will have averages of [submissions] that will close in five years. We made a review of the guidelines under which the process upgrades, gets more efficient and complies with the objectives and in the public in general, in a timely manner.

Question : *I would like for you to clarify why has it eliminated the need for the Parties to base the reasons to conclude the procedures on when there is illegal procedures in your country?*

Rodrigo Garcia: We are not eliminating the reasons of the Parties. The part that we are eliminating, according to Article 45-3 of the agreement, is the Secretariat is not giving the reasons why they consider that the process is not concluded. If there are procedures pending or in process, undertaken by the submitter, the SEM process concludes because the Agreement considers that the efforts are being duplicated, and this forum is not the appropriate one.

We are in the process of considering expanding this reform so that the Parties can explain when they notify the Secretariat that there is a pending procedure and explain the way in which they consider that the issues discussed in an international forum like this one are duplicate efforts.

Question: *When the new guidelines go into force in July of this year, can they be applied to the procedures in process?*

John Burnett: This is an issue that was discussed, but no conclusions have been made. It is an issue we will have to look at very closely.

Question: *What is the possibility of the process generating solutions between the complainant and the authority as a mechanism to get closer to the citizen?*

Question: *Is there a case in which the government has accepted their compliance and it has become public?*

Question: *Is there a possibility to change the original document in order to make a more effective mechanism?*

Question: *When you have two or more petitions in one procedure, the involved party can conclude a file because there is a pending procedure. Would it be necessary to divide them?*

Rodrigo Garcia: This process is based on transparency, is focused on information. Like we all know, information is power, and has the power to change the authority, and this is important in democracy. Even though the process doesn't have the purpose of generating conclusions, these conclusions are part of the democratic process and in that sense, there have been many cases where factual files have created social awareness, political awareness, and have made important changes in the way law is enforced. The CEC SEM process is not an international court. It presents facts and information that can be consulted by the public at large.

Kimble Costain: The changes we're considering to the guidelines engender some very important improvements in the process, and make it a much more effective mechanism for bringing citizens' issues of concern to the Council, and our hope is to make the SEM process, as it currently exists, much more effective in that regard.

Jocelyn Adkins: About the question of severability, the expectation would be that the one for which there is a pending process would be carved out, and the submission could proceed with the one that has no pending procedures.

Question from JPAC: *Shouldn't there be a pre-submission process, to determine if the SEM process is the appropriate procedure for citizens, to accompany them in the process and tell them if it is the right choice or not? Communities do have public health concerns that are very important and timely. We should consult the public with focus groups, to have their comments on the process. Did you consult Canadian and Mexican institutes that provided the same services as ELI [Environmental Law Institute]? How did you select it?*

Question from Geoffrey Garver: I would have framed one of your goals as to give the public and potential users of the process confidence that the parties are open to independent investigation of their environmental enforcement performance, given the serious erosion in that confidence in the last 15 years. I wonder if you could affirm that as one of your implicit goals in what you're doing.

Jocelyn Adkins: It's an issue where it can be difficult for citizens to determine or understand if the process is something worth pursuing. One thing we are considering is to provide via the Secretariat Party-specific contact information. We recognize it would be really useful and could result in a submission not being filed because the issue was addressed or information provided. The parties are open to a pre-submission dialogue, if we can make sure the right authorities are contacted. We have given this issue a bit of thought, but we have tried to focus on the actual terms of the agreement in the submission process.

John Burnett: We are trying to break down silos that exist within governments. By providing a mechanism for the public to raise issues of concern, it forces individuals who would not speak to each other to get into a dialogue, to set the gears of bureaucracy in motion.

Jocelyn Adkins: ELI was chosen because we had initially brought ELI on to assist us in the first phase of our SEM review and we chose to bring on consultants very shortly before the June Council session of last year. We wanted those consultants to be on board by the Council session, so we had this very limited window. Our approach was consistent with CEC protocols and

requirements for not engaging in a competitive process under the circumstances and the amount of money that was involved.

Rodrigo Garcia: ELI's role in this process has been one of support to the Parties. ELI's role hasn't been a substantive one in the matter of providing content to this process. It was mainly support, compiling information, administrative support. All content comes from the parties and the relevant actors.

**Report from the US National Advisory Committee (NAC), by Karen Chapman**

The Task Force review is a very important process for the NAC as well. We will be discussing the SEM review at our meeting in Washington, DC.

I will now present our advice, coming from our last meeting in Austin, Texas, in October 2011. We're very supportive of CEC developing a communication strategy. We feel like this is a very important initiative. We however thought that the strategy could be more focused, could have more measurable outcomes.

For the SEM Task Force review, we're very interested in the process. We requested information on the process and received regular updates by Jocelyn Adkins. We want to make sure that the SEM is a credible process for citizens to engage in.

We also talked about the Transboundary Environmental Assessment (TEA). We continue to be interested in the idea. Where SEM is a post-impact type of process, the TEA could be a "before-impact" type of process.

Question from JPAC: *Will you raise the issue of the Transboundary Environmental Assessment in the New Orleans meeting?*

Answer: We requested to get more information on that process and what has happened. It was mostly an informational point of our agenda when we talked about it in previous meetings. We kept our advice somewhat general on that topic.

**Report from the US Governmental Advisory Committee (GAC), by Jeffrey Wennburg**

There are only slight differences from the conclusions of the NAC. We had four pieces of advice coming from our last meeting, but we won't go over that. The communication strategy should be focused on a limited number of projects. The responsibility for carrying out the elements of the strategy and the implementation plan should be clearly stated by position. We also felt that attention needed to be paid to methods used to communicate with indigenous communities. Overall, we applauded the development of a communication plan, the need to improve the communication strategy is one that the GAC has identified and advised on for a number of years.

We suggested some research be done on the Transboundary Environmental Assessment, to try to determine whether history could clarify whether or not there are specific differences between the "on-the-ground" projects and the results of environmental assessment across borders.

**Wrap-up by JPAC chair**

Martín Gutiérrez offered a summary of the great challenges and opportunities faced by the North American renewable energy sector, in both the government and private sectors, saying that JPAC's Council recommendation would be online with the main issues addressed by panelists: promotion and awareness of the use of renewable energy among users, communities and local groups, in order to foster more active involvement in the marketplace, lower costs and more beneficial arrangements; the development of technology and the region's high investment potential; the importance of harmonizing public policies to drive joint interconnection projects and reduce tax barriers; and the energy needs of remote communities and how they have found innovative mechanisms to adapt to their circumstances, in terms of climate, supply and communication, among other topics.

He said that at the second part of the forum, focusing on the process to modernize the guidelines on submissions with respect to the effective enforcement of environmental laws, representatives of the three governments who worked on the Task Force submitted proposed amendments to the Guidelines for Citizen Submissions on Enforcement Matters under NAAEC Articles 14 and 15, which the CEC Council will consider for adoption during the ministerial meeting to be held in July. He added that public consultation on the Guidelines has begun, inviting the public to submit its comments on the proposed changes on the CEC website.

To wrap up, he said that the next JPAC meeting, to be held in New Orleans, would address the issue of cities' resilience, and particularly how cities can prepare to face extreme situations resulting from climate and social changes.

After inviting the public to keep following JPAC activities, the chairman gave his sincere thanks to all participants for their contributions to such a positive forum, and officially adjourned the JPAC ordinary meeting.

Annex A

**Commission for Environmental Cooperation (CEC) of North America**

**Joint Public Advisory Committee (JPAC)**
**Regular Session 12-01**

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**Draft Provisional Agenda**

Wednesday, 18 April 2012

**8:00–9:00** **Registration of Participants –** *Foyer Churchill Ballroom A*

**9:00–13:00** **JPAC Public Forum – North America's Energy Future: Powering a Low-carbon Economy for 2030 and Beyond –** *Churchill Ballroom A*

9:00–9:15 Welcome and opening remarks by Martín Gutierrez Lacayo, JPAC Chair
- Approval of the provisional agenda

9:15–9:55 Overview of "Equinox Blueprint: Energy 2030," presented by Dr. Jatin Nathwani, Executive Director, Waterloo Institute for Sustainable Energy and a lead author of the report

9:55–10:30 Question and answer period

10:30–10:45 Break

10:45–11:00 Presentation by CEC Executive Director Evan Lloyd on the progress in renewable energy in North America since the 2007 CEC report "Fostering Renewable Electricity Markets in North America"

11:00–13:00 Panel discussion and moderated roundtable discussion

*Panelists:*
- Panelist from Canada: Dr. Jan Carr, Strategic Advisor, International Initiatives, Gowlings International
- Panelist from US: Peter Miller, Senior Scientist, Natural Resources Defense Council (NRDC)

- Panelist from Mexico: Leonardo Beltrán, Consultant and lead author of the report “Hacia un Mercado Norteamericano de Energías Renovables”
  (Dr. Jatin Nathwani and Mr. Lloyd will join the panel)

*Moderator:* Glen Wright, JPAC member

**13:00–14:00 Networking Lunch** (provided) – *Churchill Ballroom B*

**14:00–15:00 JPAC Public Forum (continued) –** *Churchill Ballroom A*

14:00–15:00 Presentation on energy challenges in remote communities by Dave Pelunis-Messier, Energy Department Manager, Yukon River Inter-Tribal Watershed Council

15:00–15:15 Break

**15:15–16:30 SEM Discussion–** *Churchill Ballroom A*

15:15–15:45 Presentation of the draft revised guidelines by the SEM Task Force representatives

15:45–16:30 Question and answer period

**16:30–17:00 Report from the National and Governmental Advisory Committees and Wrap-up –** *Churchill Ballroom A*

16:30–16:45 Report from the National and Governmental Advisory Committee representatives

16:45–17:00 Wrap-up by Martín Gutierrez Lacayo, JPAC Chair

17:00 Adjournment

**Annex B**

# Joint Public Advisory Committee (JPAC) Regular Session 12-01 and Workshop

## "North America's Energy Future: Powering a Low-carbon Economy for 2030 and Beyond"

## Toronto, Ontario, Canada
## 18 April, 2012

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