



Commission for Environmental Cooperation (CEC) of North America

**JPAC Public Workshop - “Renewable Energy Alternatives: Biofuels, Solar Energy
and Wind Power”**

and

Joint Public Advisory Committee (JPAC) Session 06-02

27-28 June 2006

**Hotel Hyatt Dulles
Herndon, Virginia, USA**

**Andrew W. Mellon Auditorium
Washington DC**

Summary Record¹

The Joint Public Advisory Committee (JPAC) of the Commission for Environmental Cooperation (CEC) of North America held a regular session on 27–28 June 2006, in conjunction with the Thirteenth Regular Session of the CEC Council. This session followed a JPAC public workshop on “Renewable Energy Alternatives: Biofuels, solar Energy and Wind Power,” held on 27 June 2006.

This Summary Record summarizes the presentations given at the public workshop and the public discussion that followed them, and reports on each agenda item of the regular session. (See Annex A for the agenda, Annex B for the list of participants and Annex C for copies of the panel presentations.)

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 web site at <<http://www.cec.org>>.

Introduction by the JPAC Chair

The JPAC chair welcomed participants to this year’s second JPAC workshop on “Renewable Energy Alternatives: Biofuels, solar Energy and Wind Power,” held in Herndon, Virginia, USA.

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 accurately reflect their statements.

He then proceeded to introduce the recently nominated US JPAC member, Mr. Ralph Marquez, and invited him to say a few words about himself. Mr. Marquez informed the audience that he had been one of the three Commissioners of the Texas Natural Commission on Environmental Quality, and that his work was mainly on air and border issues. He recently retired after 11 years of service but remains very active, focusing on environmental consulting work.

The chair then asked the JPAC members that belong to the Renewable Energy Working Group to introduce themselves as well as the invited speakers from Canada, Mexico and the United States, including Carmen Becerril, from Spain. The JPAC Renewable Energy Working Group members are Irene Henriques and Gordon Lambert from Canada, Eduardo Rincón from Mexico, and Patricia Clarey from the United States.

Eduardo Rincón introduced the first invited speaker, from Mexico, Ing. Odon de Buen, president of *Energía, Tecnología y Educación S.C.*

Mr. de Buen began his presentation by mentioning that he would be referring to Mexico's situation as it relates to the three main topics; biofuels, solar energy and wind power. Mexico's production of fossil fuel is estimated at about 3.8 millions barrels, and this wealth of petroleum is one of the main reasons why Mexican society has not been preoccupied with finding alternatives for energy production. In Mexico, 80% of the total energy produced comes from petroleum, natural gas or coal. In the case of electrical energy, 75% is generated from fossil fuels—which contain a high amount of sulfur and should not be burned for ecological reasons.

He noted that Mexico's environment ministry is mandated to look after the natural resources in the country and that this was not clearly extended to the energy ministry. Mexico has enormous potential for the production of solar energy, wind power, small hydro, and biomass; however, very little has been done to promote projects in these areas, in contrast to those related to petroleum.

Key points from his presentation:

- The potential for wind power in Mexico is enormous—particularly in the region known as “La Ventosa” in the state of Oaxaca. According to figures from the US National Renewable Energy Lab, energy production from wind power could average up to 33 000 MW, equivalent to 70% of the present energy capacity of Mexico.
- Approximately 8% of total energy produced in Mexico comes from bio-energy. Rural communities are the major producers and consumers of this energy; however, the present patterns of use are not sustainable and are causing negative environmental impacts. Notwithstanding, using bio-energy has many potential benefits, such as local job creation, control of soil erosion, water flow regulation, and conserved habitat for wildlife, among others. In addition, it does not necessarily compete with food production nor does it represent a technological problem. Furthermore, the increased use of bio-energy would allow Mexico to diversify its energy portfolio, reducing energy supply risks. Bio-energy could potentially supply about 50% of the total

energy requirements—for fuel, heat and electricity—in Mexico. Barriers to the use of bio-energy in Mexico are mostly cultural and institutional. For instance, policy makers associate it with poverty and not with progress, national energy policy trumps environmental and rural development policies, the monopoly on fuel supply and distribution does not favor local sources like bio-energy, there is a lack of information related to bio-energy, and others.

- There are some promising policy initiatives, particularly regarding ethanol use. A proposed law would require that gasoline contain a level of 10% ethanol, which has been well received by Pemex and the agribusiness sector. However, according to the speaker, certain provisions of the law and a certain lack of clarity are the reasons that it is being re-assessed and has been sent back to the lower house.
- Turning to power production, the majority of end users of electricity are being subsidized in Mexico. The total value of these subsidies is around US\$7.5 billion and they are mainly (60%) for residential use. Nonetheless, rising hourly rates, due to an increase in the cost of natural gas, have created opportunities for self-supplied projects. The private sector has shown a strong interest in this and special permits for renewable energy power generation plants are available. Presently, there are nine such plants in operation and 15 are under construction. Wind will supply 85% of the energy for these new developments. However, the developers are waiting for the CFE to define the construction of transmission lines, particularly from La Ventosa region in Oaxaca.
- Mexico has 700,000 square meters of installed capacity in solar energy panels as well. Water heated with solar energy is very efficient compared to using LP or natural gas. Unfortunately though, solar energy initiatives and projects are not fully supported by government authorities. Notwithstanding, there are important policy initiatives, such as the mandatory requirement that 30% of the total heating of all new buildings come from solar energy.
- The presentation concluded by highlighting Mexico's enormous renewable energy potential. Government subsidies should be used to promote renewable energy projects (here the speaker reiterated that US\$7.5 billion is destined to subsidize electricity alone). Mexican society has the erroneous perception that the country's fossil resources are endless—a tremendously important barrier to overcome. This is one of the main reasons why policy initiatives don't get the attention or support they deserve.

A copy of the presentation can be found at the following link:

http://www.ccc.org/files/pdf/JPAC/Buen-JPAC-06-2006_en.pdf

Irene Henriques introduced the next speaker, Mrs. Carmen Becerril, general manager for corporate development of the Spanish firm *ACCIONA*, who began her presentation by providing the audience a brief overview of her company. She explained how their mission is to work towards a sustainable energy model through continuous technological innovations in the field of renewables. They have an important presence in 30 countries; and their work is predominantly in the field of energy, but also in urban services, infrastructure development and real estate and transport services. Regarding wind power, their projects produce six percent of the total world energy production. They also operate

biomass and solar energy photovoltaic plants, solar thermo electric, small hydro and biofuel projects.

Key points from her presentation:

- According to the OECD; the worldwide demand of energy will increase 60 percent from 2002 to 2030. The dependence of its member countries—among them Canada, Mexico and the United States—on oil imports will rise to 85 percent by 2030. There are approximately 2000 million people worldwide, that do not have access to energy and according to the International Energy Agency, by 2030 1.2 billion people worldwide will still find themselves in this situation.
- She explained that renewable energy supplies have strong and weak points. Among the strong points: there is an abundance of natural resources for the production of energy, these types of energy are emissions-free and they promote local and rural community developments. Some of the weak points are: they need political support, and they have different frameworks and high initial costs (but progressive, reduction-scale economies and R & D).
- Most of their renewable energy projects in North America are in the field of wind power. The United States presently has two wind parks in operation, a thermal electric solar power plant in Nevada under construction, and several wind power and thermal electric power facilities under development throughout the territory. In Canada, their presence has mostly been in Alberta and they also have several projects in development and under construction in other provinces. Their ventures in Mexico are quite recent and they are currently developing two projects, one for wind power production—in the zone of “La Ventosa”—and the other for thermal electric solar, both aimed at supplying electricity to industrial consumers.
- During her concluding remarks, she reiterated an earlier comment concerning the lack of sustainability of the present energy regime, and elaborated on the likely outcome for future generations if we continue down the same path. She emphasized the role of government and the importance of public support. Finally, she explained some of the pioneering business initiatives that have sustainability at their core and are already being implemented, demonstrating the economic viability of a new energy model.

A copy of the presentation can be found at the following link:

http://www.cec.org/files/pdf/JPAC/Becerril-JPAC-06-2006_en.pdf

The next speaker Mr. Jim Presswood, energy advocate for the Natural Resources Defense Council, was introduced by Gordon Lambert, who provided some background on his important role as a lobbyist on federal energy policy issues.

Mr. Presswood provided an overview of the work that NRDC is doing in the United States, particularly on the policy side with Congress. He explained that the organization was the largest one of its kind in the United States, with over a million members. Its main objective is preserving the environment by promoting measures to help decrease air pollution, reduce global warming, and encourage the sustainable use of natural resources. He added that he would also be addressing national security concerns with respect to oil

and also economic opportunities for a bio–energy-based economy. Their organization is also very active in promoting the implementation of the Kyoto Accord.

Key points from his presentation:

- In an effort to reduce the United States’ dependence on oil, the organization is working closely in partnership with national security groups, trying to push for legislation to reduce the reliance on oil and to break down political barriers. As an example, in 2005, an energy bill made its way to Congress and gave way to renewable fuel standards, research and development, grants to public and private sector which are essential to get bio-energy projects up and running, production incentives, among others.
- Oil-saving bills have also been introduced and have started to break down the political division that has paralyzed Congress on energy policies, with members on one side of the question interested in increasing the efficiency of vehicles and those on the other more inclined to promote new areas for oil drilling. The intention behind these bills is also to break the gridlock that has existed and work towards accomplishing something. Among the key provisions of this Senate bill is a requirement that vehicles must run on blends with higher ethanol content: 10% by 2012 and 50% by 2016. Some House members are demanding an even more aggressive requirement of 90% by 2012.
- The speaker then explained that NRDC was paying close attention to what is occurring abroad and to what NGOs were doing in Europe, particularly on concerns such as feedstock issues associated with biofuels; and elsewhere like in Brazil, where the deforestation of the Amazon for the production of soybeans has also raised a lot of concerns among the international community. This is mainly because the United States will not be able to produce all the energy it needs and will have to import raw materials, and because of the importance of knowing what is happening abroad and ascertaining that the energy economy is not putting pressure on critical habitats like the Amazon and Indonesia, where there are questions about the way palm oil is produced. The objective is to work with nongovernmental organizations in other parts of the world to make sure that we move toward this new economy by a sustainable path.

A copy of the presentation can be found at the following link:

http://www.cec.org/files/pdf/JPAC/Presswood-JPAC-06-2006_en.pdf

US JPAC member Patricia Clarey introduced Matt Clouse, director of the US Environmental Protection Agency’s Green Power Partnership. His presentation centered on the US renewable energy markets and EPA’s role in them.

Key points from his presentation:

- Electricity generation in the United States is produced mainly from coal (49.9%), followed by nuclear (19.9%) and natural gas (17.9%). Hydroelectric generation accounts for 6.5% and other renewables, which include wind, biomass, solar and

others, represent 2.9 % of total generation. Wind power has been growing dramatically in the United States and will rise to 3000 MW by the end of this year, according to projections from the Wind Industry Trade Association.

- In the United States, there are two primary markets that support the development of renewable energy; the *compliance market* that was created by renewable portfolio standards (RPS) and that require electric service providers in 22 states to offer their customers a percentage of renewables in their energy mix. The second is the *voluntary market*, which originates from the sale of retail renewable electricity products such as green power.
- Across the United States, an increasing number of states are requiring mandates for portfolio standards. Several states are in the second generation of these mandates— notably Texas and New York, who have increased considerably their portfolio standards. The voluntary market, also known as the green market, is over 10 years old. What began as an alternative to conventional electricity by deregulated utilities has now expanded to over 600 utilities across the country. The sale to residential and non-residential customers is about equal at this point, but non-residential sales are increasingly driving the growth, due in large part to the availability of renewable energy certificates in the market.
- The onset of renewable energy certificates has allowed the sale of bulk-rate products to residential and non-residential customers. However, we have seen the premiums for green power decline because of competition between the renewable energy certificate marketers and the utilities. In addition, some utilities are trying to compete with the REC (renewable energy certificate) marketers by offering more value for their product, trying to offer an edge against volatile natural gas prices. The most notable example is in Houston, Texas, where the cost of providing power from natural gas has risen significantly and where customers paying for green choice have saved significant amounts of money compared to those using conventional electricity services.
- The EPA supports renewable energy for several reasons: fuel diversity/energy security, local economic benefits, and environmental benefits. The reduction of greenhouse gas emissions is one of the top priorities, through the development of programs aimed at reducing key renewable energy market barriers. Among these are the lack of knowledge about choice/environmental impact of electricity use; lack of a level playing field for renewable energy technologies in power market rules and the usual premiums that are offered for renewable energy use. Another program is the Green Power Partnership, which is aimed at getting large businesses to take leadership positions in supporting renewable energy. Furthermore, EPA is helping the CEC and the renewable experts committee with other tools, particularly those that calculate the environmental benefits of renewable energy and energy efficiency.

A copy of the presentation can be found at the following link:

http://www.cec.org/files/pdf/JPAC/Clouse-JPAC-06-2006_en.pdf

Eduardo Rincón, JPAC member for Mexico, introduced Dr. Martin Pasqualetti, professor at Arizona State University and former chairman of the Solar Energy Advisory Council for Arizona. He informed the public that his presentation would be focusing on wind power, its status, problems and solutions.

Key points from his presentation:

- The use of wind power for energy production has enormous environmental benefits. For instance, it does not produce SO_x or NO_x, no water is required or waste produced, and most importantly, it is reversible, since it can be installed, operated and removed without any long-term environmental effects.
- The world wind capacity in 2005 was estimated at 58,000 MW, of which 70% was in Europe and only 17% in North America. Wind power is big business, generating US\$22 billion in 2005 (53% project development, 42% electricity sales and 5% O & M). As for installed wind capacity, Germany ranks first, with production of almost 20,000 MW, followed by Spain, with approximately 10,000 MW, and then the US, with slightly over 9,000 MW. He pointed to Denmark, whose capacity is significant at less than 5,000 MW, if we take into consideration the size of the country as well as their immediate plans to generate up to 50% of their electricity from wind power. Regarding the wind market potential in the United States, he explained that there would be at least 20,000 MW total installed wind generation by 2010 and 6% (100,000MW) of the electricity supply by 2020, representing a US\$100 billion market.
- The installed wind capacity in the United States in 2005 was 9,149 MW. There is good potential for wind production throughout US territory, but more so in the central part of the country, from the Great Plains extending up to the prairie provinces of Canada, even though other spots such as California attracted earlier developments.
- Canada has considerable wind resources, much of it in Quebec and the Rocky Mountains in southwestern Alberta. Developments in the area, though, have encountered opposition because of their esthetic impact. Notwithstanding, and if the present trend continues in Canada, it is estimated that in 10 years the production capacity, particularly in Ontario and Quebec, will reach 8,500 MW. In Mexico, the state of Oaxaca, particularly in the Isthmus of Tehuantepec, is the most promising region. If one considers the average potential as 5 MW per square meter (total land area equals 91,500 sq. km.), there is 44,000 MW potential just in that region.
- As for problems, the most important one is visual impact; numerous things can be done to reduce the objectionable aspects of wind turbines but you cannot make them invisible. Three examples of contentious wind development in the United States are Highland County, Virginia, considered a quiet rural area perfect for astronomical observation; Cape Cod (southeast of Boston, Massachusetts), with an initial project to install 130 wind turbines that would rise about 400 feet above the water and extend 30 feet into the bed of Nantucket Sound; and in the San Gorgonio Pass outside Palm Springs, California, 120 miles east of Los Angeles. This area has very consistent, high velocity winds at times reaching over 90 miles an hour. For developers, this area was ideal because it is not heavily populated, due to the continuously blowing sand. However, there was a lot of opposition, particularly from the Palm Springs community, who felt that these developments would destroy the aesthetic appeal of the region.

A copy of the presentation can be found at the following link:

http://www.ccc.org/files/pdf/JPAC/Pasqualetti-JPAC-06-2006_en.pdf

The next presenter, Barbara J. Bramble, was introduced by newly appointed JPAC member Ralph Marquez. She is a senior program adviser for International Affairs for the National Wildlife Federation, and for the last four years has been involved in capacity building on advocacy techniques with NGOs in Mexico playing a leading role internationally in the dialogue on sustainable biofuels. She began her presentation by providing the audience with an overview of the important work being done by the National Wildlife Federation, particularly on global warming and the need to move forward in finding solutions to it.

Key points from her presentation:

- For the last 30 years, ethanol production has grown significantly. World ethanol production reached 42.2 billion liters in 2004; with Brazil taking the lead (36%), followed closely by the US (33%), which will soon surpass Brazil. China (9%), the European Union (6%) and India (5%) are also important producers.
- Not all biofuels are equal—we should be looking at those that can reduce greenhouse gases and are wildlife friendly. She went on to compare production of ethanol from sugarcane and biodiesel production from dende and castor oils and from soy. She added that the champion for biodiesel production was palm oil but that unfortunately it comes with some concerns. For example, palm oil production in Indonesia and Malaysia has caused massive deforestation in Southeast Asia and the extinction of many important creatures. According to the Federation’s research, there is a need to move as fast as possible towards the second generation of biofuels, known as cellulosic technology, which are expected to be available and commercially and economically viable, within the next five years. With the current generation of biofuels, the concern seems to be over the potential for high food prices that might result from diverting crops to fuel production. There is also an environmental issue concerning land use, because the expansion of crops into sensitive areas is overstressing water supplies. This applies particularly in dry areas of the United States, such as the West and Midwest; where many production facilities operate with not very high-yield feedstock and thus contribute to excessive stress on the water supply.
- She emphasized that Brazil’s current success is due to its 30 years of work making bio-ethanol flourish; relying on subsidies worth billions of dollars. Brazil had to stand up for its rights to try to become more energy independent as well as efficient; nowadays it’s the ethanol industry that is trying to move towards being more environmentally sound and economically viable.
- As an example of the sustainable production of ethanol in Brazil, a plant in Sao Paulo is surrounded by thousands of hectares of sugar cane. Ethanol is produced from the sugar cane and the residue is burned to power the factory. So much energy is generated from this process that it is actually put back into the grid. In addition, what comes out at the end as waste, a black liquid, is turned into a fertilizer that is pumped back onto the land. The enormous potential for expansion

is being closely monitored to make sure it uses only degraded land and does not impact the Amazon.

- Among her concluding remarks she highlighted the immense potential for biofuels, particularly for cellulosic biofuel produced either from agriculture waste or municipal landfill waste. She also pointed to the waste that result from hurricane destruction, for instance, that piled up outside New Orleans, which could easily be turned into ethanol if facilities utilizing cellulosic technology were up and running. She added that the Federation would gladly assist if a dialogue about this could be made a CEC activity for the North American region.

A copy of the presentation can be found at the following link:

http://www.cec.org/files/pdf/JPAC/Bramble-JPAC-06-2006_en.pdf

Chantal Line Carpentier, head of the CEC Environment, Economy and Trade Program, was introduced by Gordon Lambert, JPAC member for Canada. Ms. Carpentier began by providing the audience with an outline of her presentation, which would focus on CEC 2006 activities, the renewable energy mapping report, and the follow-up to mapping activities.

Key points from her presentation:

- She briefly explained each of the CEC activities. These include continued support for the Renewable Energy Experts Committee (REEC), documenting best practices for financing small-scale projects, developing a web-based tool to calculate environmental benefits of RE, facilitating the integration of RE resources into the grid, among others. With regards to the REEC, she explained that it is composed of experts from trinational governmental energy agencies, NGOs, industry, and First Nations. This expert committee provides information to Council, and tries to make sure that efforts are not duplicated, and that what is being undertaken builds on what is presently being done in North America. Biofuel is one of the areas on which the group will be concentrating its mapping efforts in 2006–2007.
- Ms. Carpentier also spoke about a joint effort to document the best practices for financing small-scale renewable energy projects. A document should be on the Web shortly documented the first case studies, and she added that this would be a in-process document that would be updated with new information as work progresses. She also spoke about an existing database in the United States, DSIRE, that contains complete information related to laws and policies promoting the use of renewable energy by states. She then explained the proposal to expand this database to Canada and Mexico, in order to have all the information overlapping with the capacity/potential for renewable energy production for each of the states and provinces.
- Ms. Carpentier also spoke about a Web-based tool for calculating the environmental benefits of renewable energy, which was devised in partnership with the EPA (Environmental Protection Agency) and WRI (World Resources Institute). She emphasized that this tool would enable anyone in North America to

find out the environmental benefits of a project they are considering: it works like a calculator, requiring simple information such as country of origin and objectives. She also discussed another activity to facilitate integration of renewable energy into the grid—adding that often, renewable energy capacity is not located close to the grid or the grid is difficult to access or that there are other technical, political and administrative hurdles.

- Regarding the importance of renewable energy mapping, she explained that renewable energy resource capacity is geographically dependent and that, as mentioned earlier by Mr. Pasqualetti during his wind energy presentation, this is very much the case for all renewable energy sources. There seems to be a need to narrow down potential sites to conduct feasibility and verification phases of a project; which is expensive and is just not possible to do for all sites. A renewable energy resource map allows project developers to determine expected economic returns and the performance of a particular project site.
- She went on to discuss wind sources as an example. Wind measurement data needs to be collected for a minimum of one year in order for a map to be credible and helpful to developers seeking financing for their projects. The initial intent is to link to the financial needs to the resources, by searching and registering the proper wind condition areas, like corridors with big mountains or coastal shores.
- The Renewal Energy Expert Committee met in Cuernavaca in February 2006 and looked at all the reports. They concluded that the CEC needs to focus on wind power, biomass and solar energies. We created three subgroups or committees, under the umbrella of the renewable energy work. They have been tasked with putting together all of the resources into a “one-stop shop” on the CEC web site. This initiative will also include data by country and contact information for the corresponding institutions. The intent is to provide information on what our colleagues throughout North America are working. These data can then be translated into financial information that would be helpful to developers or even communities, particularly First Nations groups that reside in the Canadian north and southern Mexico. These areas have great potential but not necessarily the capacity to develop a project.

A copy of the presentation can be found at the following link:

http://www.cec.org/files/pdf/JPAC/JPAC-06-2006_en.pdf

The JPAC chair, Carlos Sandoval, introduced the last speaker for the session, fellow JPAC member Gordon Lambert, also vice president of sustainable development at Suncor. He began his presentation by mentioning that he would be providing a private sector perspective on this important topic.

Key points from his presentation:

- Mr. Lambert began by observing that throughout his lifetime there has at all times been an abundance of low-priced energy. This has affected every choice made as a society, particularly in North America, where it has shaped communities and their design. This era of abundant energy has shifted and we now find ourselves in

the midst of a dynamic period of change in our use and production of energy. He added that the present workshop on growth of renewable energy was an attestation of this shift and that five years ago it would have seemed almost like a dream to consider the use of renewable energy as an alternative part of the North America energy future. He stressed that each person in the room plays a critical role in promoting renewable energy production, thus in building support among civil society. He explained that, as a company, Suncor was trying to navigate that change in a way that supported its shareholders in a very responsible manner.

- He then provided an overview of Suncor, explaining how the company had its roots as an oil producer that pioneered the development of oil sands in Canada. The company focuses entirely on North America and also produces gas, which is used to supply energy to its oil sand operations. It also has refining operations based in Ontario under the Sunoco brand, selling ethanol-blended fuel. Suncor has been selling 100% ethanol-blended gasoline since the mid-1990s and has now begun producing it. They recently entered the US market by acquiring a couple of refineries in Denver, Colorado, and have other expansion projects. “Suncor’s vision is to be a unique *and sustainable* energy company, dedicated to vigorous growth by meeting the changing expectations of our current and future stakeholders.” They have been driven to the renewable energy arena, in large part because of their stakeholders, but also because of climate change.
- Climate change has played an important role in Suncor’s production of low-intensity hydrocarbon fuel. He mentioned some key external drivers that are creating biofuel opportunities—high-energy pricing, supply shortages, government initiatives and consumer demand to demonstrate environmentally friendly practices. Suncor’s philosophy is to adapt to change rather than fighting it.

A copy of the presentation can be found at the following link:

http://www.ccc.org/files/pdf/JPAC/Suncor-JPAC-06-2006_en.pdf

The JPAC chair opened the floor to questions and comments from the public and the speakers.

Highlights of the comments/questions:

- In Mexico, there is a need for economic incentives in order to promote more actively the use of Renewable Energy Alternatives. The media, the private sector, and associations have to continue working towards promoting change. Promoting the use of these alternatives is not only a question of social acceptance; governments need to intervene and there needs to be more active promotional campaigns.
- Regarding biofuel production, the energy bill mentioned previously provides subsidies and financial incentives that are currently being used by refineries. It is quite clear that these types of processing plants are easy to build and that recovery costs are possible within a couple of years. It is really a remarkable industry with

- enormous potential for stimulating business growth, particularly in the United States, where financial incentives and legislation are in place.
- The primary reason for the United States to accelerate the production of ethanol in the near future is simply the high cost of gasoline. There has been a lot of exposure to ethanol recently in the media; television programs and national publications are focusing on chronicling the potential that ethanol presents. Venture capitalists are investing in ethanol production projects, including Bill Gates, who owns a 25% share of an ethanol company in California. Corn is going to max out about 14 trillion gallons; beyond that we are looking at cellulosic ethanol. Also, we are about to see commercial-scale cellulosic ethanol production with the IOGEN plant being developed in Idaho.
 - The Mexican government currently has a few projects for the use and production of bio-diesel. However, and even though there is a fund to promote investment for these projects, it is still not necessarily the most economically viable option.
 - Many Navajo Indians and other First Nations groups in Arizona are turning towards renewable energy for several reasons. For starters, they have been approached by the developers with sensitivity instead of having projects forced upon them. Perhaps the same situation is perhaps occurring in Mexico with the campesinos. As mentioned earlier by one of the speakers; it is important that developers go into these communities with this frame of mind, pointing out that such crops become a resource that their communities can control and make money from.
 - One of the presenters was comparing feedstock from the point of emissions (burning the fuel). A 10% blend is not very good from the standpoint of pollution. Higher amounts of ethanol are needed to be blended in order to have good clean burning; nevertheless, any addition is better than straight fossil fuel use to avoid greenhouse gases. As many of us know, palm oil is a better solution than soy. Unfortunately, palm oil is mostly being produced in areas that are now threatened by deforestation.
 - The negative attention regarding bird deaths from wind power plants does not seem to want to go away. However, and according to the National wind coordinating committee, it's a smaller problem than most people think. Keep in perspective the relative danger with this renewable energy source.
 - How can we move past oil? – Oil sands are causing environmental damage to fields and other projects can destroy the landscape. It is evident that we need to move towards a carbon-constrained world. Coal for power production—you can gasify it, enhance oil production, push back coal to liquids legislation and have greenhouse standards applied. For coal liquids the fuel produced has to have 80% mixed biomass with the coal. Certain plants in China are being used to produce electricity and there needs to more funding for this type of research.
 - A member of the audience shared his concern in promoting renewable energy projects that are not sustainable. He believes that efforts should focus on sustainable energy alternatives and not only on renewables. These projects should also make emphasis on preserving wildlife and habitat.

- There is an immense potential for biofuels, particularly for cellulosic biofuel either from agriculture waste or municipal landfill waste. Even hurricane destruction waste—apparently several years of it is piled up outside New Orleans—could easily be turned into ethanol, if cellulosic techniques were up and running. We hope that this idea of producing principles and criteria for sustainability doesn't get in the way of the industry; we want to make sure we are seen as supporting wise investments, not just anything that comes along. Having a dialogue about this could be a useful CEC activity for the North American region and should be brought forward.
- With regards to the role of the CEC, someone asked: what is the value proposition for industry? I'd say it's the diversity of perspectives of individuals in this room. Just having the dialogue we are having now, in which we are raising issues and trying to obtain a better understanding of the complexities, that in itself is value added.

After lunch the audience reconvened in three break-out sessions on the main topics of the JPAC workshop. The following questions were used to guide their thoughts:

- What are the impediments to the promotion/adoption of biofuels/solar energy/wind power?
- What role does/should the private sector play in reducing these impediments?
- What role does/should civil society play in reducing these impediments?
- What role does/should a government play in reducing these impediments?

Highlights from the commentary received during the breakout sessions and the general discussion:

- Several members of the audience expressed support for producing ethanol from waste instead of crops. They exemplified how animal fat, such as that of chickens, beef and pork, can be used in this process. They also related that in Mexico biodiesel is being produced from used vegetable oil.
- Another member of the public pointed out that industrial producers of heavy machinery trucks have expressed their interest in using a 20/80 blend, notwithstanding the lack of support by Pemex. In Mexico, diesel is subsidized well below the international price and the majority of heavy transportation uses it. Statistics show that these companies are willing to pay a surcharge of up to 10% to have an environmentally friendly corporate image. The Mexican Congress is looking into approving this measure.
- Efforts should be aimed at promoting sustainable renewable energy projects that protect biodiversity. For example, there is carbon in the soil of many different types of habitat. Greenhouse gases are also emitted when you cut down trees and burn them; this is known as the “carbon jolt.”
- In Mexico, there is a need to change and address several issues; but one of the most important is its dependence on petroleum; which unfortunately has become a barrier to promoting the use of renewable energy alternatives. The monopoly that

- Pemex has on the energy front and on current legislation is also not helping the situation.
- In Canada, the production of energy from wind power is steadily increasing. The CEC should be looking closely at the research and projects that are up and running, particularly at transferring technology by working closely with local governments and small communities.
 - Efforts should be made in promoting social and not only economic development, particularly in Mexico. When it comes to recycling, Mexico lags far behind its partners. At present there are campaigns aimed at sensitizing the public and particularly students, who are our future decision makers, in public and private schools. Some of these academic institutions are now setting up storage centers for used oils/fat, glass, paper and plastic, which are later sent off to be recycled. The schools in turn receive computers and other equipment for education.
 - According to some of the participants, there are many impediments to the promotion/adoption of solar energy projects. Among the most prevalent are initial and operating cost, financing availability, geography/climate, limited access to the technology and resources such as solar power panels, and lack of legislation and policy in favor of solar power. Government subsidies can be utilized for dealing with high investment costs. There are also other instruments such as renewable portfolio standards, feed-in tariffs, etc.
 - One of the major obstacles in the promotion of wind power projects is the lack of information available to the public. This is particularly evident in Mexico, despite the enormous potential for these projects, especially in smaller communities.
 - Some wind power projects in Oaxaca have met with resistance from the population, mainly because they are perceived as being beneficial for the government and not for the inhabitants of the region. It is important that the developers work first with communities, making them aware of the numerous benefits they will accrue. Government should assist in passing laws to facilitate and promote the implementation of these projects. Unfortunately, another obstacle is that many of the few existing projects in the region are not profitable—Oaxaca is distant and there is a need for large investments, particularly in the construction of transmission lines for distributing energy.

JPAC Regular Session

The JPAC chair began his opening remarks by providing a brief summary of the workshop and by thanking the speakers and the participants for their contributions. He pointed out that this was a topic that was very important for JPAC and that some of the key recommendations would be shared with the ministers during their in-camera session.

He then mentioned how pleased he was that the Mexican government had officially confirmed the Mexican NAC. He explained that this had been recently established via a formal letter to the Secretariat from the minister; and some of the regional representatives were in attendance and would be addressing the audience, along with their American and Canadian counterparts.

Regarding upcoming JPAC meetings, he confirmed that the last session for the year would be taking place in Cancún, Mexico, and that an additional meeting was planned in the month of September in Montreal. He mentioned that the latter's purpose would be to have the Secretariat make a detailed presentation of CEC current projects, including the work planned for 2007. The session would provide JPAC and the public with the necessary knowledge to provide specific recommendations to Council, as appropriate.

Approval of the Provisional Agenda

The agenda for the session was approved.

Report from the National and Governmental Advisory Committees

The JPAC chair introduced United States NAC Chair, Dolores Wesson, who began by congratulating the CEC for the status report that was presented earlier, which highlighted their numerous accomplishments. She then noted that their committee had recently sent an Advice to the US government, which addressed several key components of the CEC work. The first was private sector interaction (“greening” supply chains); given that a subgroup of their committee had been working on this theme and also organized a few meetings last year, which had as objectives a better integration of the private industry and other sectors of society, building on the ongoing work of the CEC, particularly that of the Mexico Liaison Office. She also congratulated the CEC for its quality assurance document, which was developed to elevate the quality of publications and documents produced by the Commission. On the issue of CEC working groups, she expressed concern about the existing number and supported streamlining the process by including other sectors such as academia, the private sector, etc., in order to make them more functional. She also elaborated on their recommendations on the Citizen Submissions process and on the selection of the new CEC executive director. She explained how the committee had recently undergone an internal process to identify the issues that are considered a priority by the members, and finally expressed her satisfaction in Mexico's official appointment of the Mexican NAC.

The JPAC chair introduced the United States GAC chair, Placido Dos Santos, and briefly explained that their mandate was to advise the US Environmental Protection Agency (EPA). The GAC chair began by referring to their advice, sent on 10 May, in which they commended the work done by the Parties and the Secretariat, on the Operational Plan and the Quality Assurance Procedures and Policy document. He went on to comment on their recent meeting in Washington that focused on renewable energy and climate change, mentioning that the CEC should continue its valuable work in that field. He also acknowledged JPAC for organizing its workshop on the same theme the day prior. He then explained that the letter also addressed two specific points, the first was increased support from the US government to the EPA and CEC to promote renewable energy markets in North America, and the second centered on indigenous peoples in North America, and how their communities were being affected by climate change.

The JPAC chair introduced the Canadian NAC chair, Jean Perras. Mr. Perras began his report by mentioning that the Canadian committee had held two meetings following the Council Session in Quebec City, and that two specific recommendations were made. The first centered on the financing situation of the CEC and the second on the five-year Strategic Plan. He encouraged the Parties to work closely with the Secretariat in order to take advantage of the significant knowledge acquired during the past 12 years. He also expressed that the Canadian NAC was satisfied with the ongoing submission process, but was concerned with the lack of follow-up actions on factual records. He also referred to the advice to the Canadian government, regarding the adherence to the Agreement by provinces such as British Columbia and Ontario, to strengthen the CEC. He also spoke about reaching out to municipalities and indigenous peoples in our three countries, and about the importance of the CEC's work on children's health. Children are the main indicators of the state of our environment and we must continue this work. He also welcomed the work of the CEC on green buildings and renewable energy. Finally he acknowledged and commended Bill Kennedy on his outstanding work and numerous accomplishments.

The JPAC chair introduced the Mexican NAC representative, Patricia Muñoz, and asked her to provide an update on the NAC's activities. She began by emphasizing the importance of close interaction with her Canadian and US counterparts in order to create a common agenda to resolve trinational issues. She then explained that even though they had just officially been confirmed by the Mexican government, their work with Mexican officials had been going on for several years. She described how their Council was created in 1995 by official decree to increase public participation on environmental issues. There are five regional councils and each of them has a president, a secretary and six councilors, each of which represent a social sector. The National Council comprises all the regional presidents and secretaries and a representative from each of the 32 Mexican states, making a total of 42 national councilors. She noted that earlier they had met informally with their Canadian and US counterparts to discuss future collaborative efforts.

The JPAC chair opened the floor to comments and questions from the JPAC members and the public:

Highlights of the comments/questions:

- A member of the audience asked the United States NAC chair if the NAC was contemplating closer interaction in the future with both their Canadian and Mexican counterparts to develop trinational projects with all stakeholders. She replied that they had just met for the first time with their Mexican colleagues the day before and had discussed different ways of communicating and working together, to actively engage NGOs and representatives from the private sector and academia in North America.
- A JPAC member asked the US GAC chair to comment on the GAC's recent recommendations to the EPA. The latter elaborated on some of these: in reference to the CEC Operational Plan, we are asking our government for an advance copy

of the draft in order to examine it carefully; we are also recommending that they verify the language in the Operational Plan to ensure there are no ambiguities that could later evolve into disagreements; we propose that the US government establish mechanisms and procedures for internal distribution of CEC information; to increase public engagement and the profile of the CEC, we recommend organizing a visioning session among the US NAC and GAC, the Secretariat, a member of JPAC and representatives of the US government; and we also noted the importance of the Article 14 & 15 process and suggested that there be a more pro-active follow-up by our government.

- A JPAC member asked the Canadian NAC representative to provide the audience with his view on the Article 14 & 15 submission process, referring to some of the commentary received from the public during a session devoted to follow-up to factual records in the last JPAC meeting of 2005. He noted that the North American Agreement on Environmental Cooperation was unique—not only because it included a public advisory group as one of its components, but also because of the citizen submission process. There is no other international agreement that allows citizens the right to submit publicly a country's failure to abide to its own environmental legislation. It is up to our respective committees (the NACs and GACs) to ensure that there is follow-up in our countries.
- Another member of JPAC asked the Mexican NAC representative if the government of Mexico was funding their committee. The NAC representative explained that, for this year exclusively, Semarnat was granting financial assistance to them through a United Nations project. This support allowed them to meet approximately three times a year with the committee's national president—the Mexican minister for the environment.

Follow-up from the workshop:

The JPAC chair asked one of the workshop coordinators to provide a brief summary of the results of the meeting. The JPAC member began by acknowledging the value of all of the presentations and by noting the important work on renewable energy currently being undertaken by the CEC. He went on to highlight the importance of taking action now, beginning by setting short-, medium-, and long-term goals for adopting renewable energy alternatives in North America. He also noted the importance of government support: such as financial incentives and public awareness campaigns; private sector outreach to local communities for the development of these projects; NGO assistance for educational promotion; among others.

Discussion of a potential JPAC Advice to Council on Renewable Energy

The JPAC chair opened the floor to public comments:

- A member of the audience endorsed the view that NGOs play a major role in the promotion renewable technologies. Pembina has worked with Gordon Lambert's organization and has helped promote and advocate more support for renewable energies in Canada through a coalition. They are also members of the Canadian

Renewable Energy Alliance, which is developing a model for a renewable energy strategy that will be available later this summer. The speaker suggested that one of the outcomes of the workshop could be sharing of ideas, measures and approaches, with the objective of standardizing measures and policies on things like codes and standards for renewable equipment. On policies such as renewable energy portfolio standards and renewable energy trading certificates, grid integration, feeding tariffs, etc., strategies that have been successful elsewhere, we can share ideas about these and promote their use. Another area where we could work together is in the development of sustainable criteria for biofuel.

- After participating in all three of the breakout sessions, in my view, and at least for Mexico, the alternative with the greatest potential is biofuels—particularly bio-diesel. It is easy to produce through the use of a wide variety of sources and because of the increase in pollution Mexican society is now ready to embrace a renewable energy culture. These types of workshops should be more actively promoted throughout Mexico if we want to reduce/eliminate our dependence on fossil fuels.
- Everyone is saying that these nascent industries should be promoted, but once you do get into this you are going to find out that the whole area is more controversial than you recognize. One of the reasons is the potential conflict over land use, biodiversity protection, and the notion of social acceptance. So, for the sake of the industry, a very good role for the JPAC (and perhaps contributing to a larger process for the CEC) might be to advance the credibility of the industry with this notion of sustainable principles and criteria. Outside our three countries there are many controversial issues—like food versus fuel, biodiversity problems in Southeast Asia, and conflict over land. These issues create problems for industry, so a way to help is by looking at what's sustainable, with principles and criteria that are aimed at preserving wildlife and ecosystems for the future.
- The option of renewable energy is part of an evolving process that is based on the fundamental principle of providing a better environment for our future generations. In comparison with Canada and the United States, the promotion of these initiatives in Mexico is at an embryonic state. In order to make the implementation of these projects in Mexico a success, technology must be developed and not only sold. Furthermore, legislative reforms are required in order to facilitate investment, not only from the private sector but also from the government.

Discussion of JPAC priorities

The JPAC chair opened the floor to the other members to discuss future JPAC priorities. A JPAC member pointed out that there were several representatives of Indigenous Peoples groups from the three countries in the audience, most of whom she contacted the day prior to seek their advice on increasing their participation in CEC activities. She reiterated that this was a very important topic for JPAC and proceeded to ask for their feedback, as well as that of those familiar with indigenous groups.

Key points raised by representatives of Indigenous Peoples:

- A member of the public who works for communities in northern Quebec, offered JPAC and the CEC, on behalf of these indigenous communities, advice and assistance on how to carry forward the issue of more effective Indigenous participation, as follows: “We have brief suggestions to make on issues that should be taken forward: the aboriginal, indigenous issues in the three countries are very complex and I think there are significant capacity development issues that need to be addressed within the CEC to support a certain level of analysis, but also exchange across jurisdictions so that there is a broader geographical perspective on the kind of issues that need to be addressed. The CEC itself cannot operate on isolation; there is the government role in this so it’s an opportunity for JPAC to address the Council, on how the Council members themselves see the issue of indigenous peoples’ participation, and what they can do on their side to facilitate bringing forward the development of capacity to engage Indigenous constituencies across the three jurisdictions. I think these are issues that will not be solved in the short term; it’s an incremental process, and I think we should be looking at ways of revisiting these issues periodically, building on that within the CEC program. We can also assist in the development of networks and can also find individuals that are ready to put time and effort into this. However, these individuals will not participate unless they feel that they have an audience; it’s a two-way street and this must be kept in mind as you move forward down this path.”
- A member of the Mistawasis First Nation, situated north of Saskatoon, Canada, thanked JPAC for its ongoing interest in increasing the participation of indigenous representatives in CEC activities. He noted that there is a lot of work to be done in the three countries in order to really have an impact in these communities. He emphasized that efforts should not focus on short-term initiatives; they should have continuity and be designed as long-term projects, pursued in close consultation with community leaders. He noted that in Canada most of the environmental decisions made for remote and isolated communities are being taken by individuals located in the southern part of the country, without community input. This has to change if we want to be successful. Regarding the workshop held the day before, we need to continue moving forward with the promotion of renewable energy alternatives such as wind power, despite the resistance. At the end of the day and when you start looking at the damage caused to the atmosphere by burning fossil fuels; does having to look at a wind turbine seem that bad? After five years, guaranteed, almost everyone will be used to it. People always resist transition and it doesn’t matter if we come up with something underground, out of sight, etc., we will still continue encountering opposition.
- An indigenous representative from Mexico, and a former JPAC member, noted the importance of engaging indigenous communities as we move towards a more sustainable society. The traditional knowledge of our nations and our close relationship with nature and the environment are valuable assets. Capacity building is a key element for achieving sustainability; this will enable our societies to make the right decisions. My suggestion to JPAC, the Council and the

CEC; is to appoint an indigenous representative to work directly at the CEC Secretariat as was recommended in JPAC's Advice 04-01. This individual can work closely with each of the program managers to incorporate traditional environmental knowledge in every project. He also explained that there was a compilation of traditional knowledge that has been undertaken in Mexico for the last 15–20 years by the National Indigenous Institute. This initiative can easily be carried out in Canada and the United States to ultimately produce a regional catalogue.

The JPAC chair thanked the public, the members, the CEC staff and the interpreters and adjourned the session.

**Approved by the JPAC members
December 2006**



Commission for Environmental Cooperation (CEC) of North America

**Thirteenth Regular Session of the CEC Council
and meetings of the Joint Public Advisory Committee (JPAC)
27-28 June 2006**

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Herndon, Virginia, USA
Tel.: 703 713 1234 Fax: 703 713 3410
<http://dulles.hyatt.com/hyatt/hotels/index.jsp>

Andrew W. Mellon Auditorium
1301 Constitution Avenue
Washington DC

Preliminary Program of Public Events

Tuesday, 27 June 2006

Hotel Hyatt Dulles

8:00–9:00 **Registration of participants**

9:00–16:45 **JPAC Public Workshop - “Renewable Energy Alternatives: Bio-fuels, Solar Energy and Wind Power”– *Concord Ballroom B, C & D***

9:00–9:15 Welcoming remarks by Carlos Sandoval, JPAC Chair for 2006

9:15–10:15 Presentations by keynote speakers from Canada, Mexico and United States on “Renewable Energy Alternatives: Bio-fuels, Solar Energy and Wind Power”

Panelists:

Ing. Odon de Buen – President of “Energía, Tecnología y Educación, S.C.”

Mrs. Carmen Becerril – Director of Corporate Development of “Acciona Energía”

Mr. Jim Presswood – Energy Advocate, Natural Resources Defense Council

Mr. Matt Clouse – Director, US EPA Green Power Partnership

10:15-10:30 **Break**

10:30–11:30 Presentations by keynote speakers from Canada, Mexico and United States on “Renewable Energy Alternatives: Bio-fuels, Solar Energy and Wind Power” (Cont...)

Dr. Martin J. Pasqualetti – Professor, Arizona State University
Mrs. Barbara Bramble - Senior Advisor, National Wildlife Federation

Dr. Jorge Huacuz – Director, Nonconventional Energy, “Instituto de Investigaciones Eléctricas” (TBC)

Mr. Gordon Lambert - Vice President - Sustainable Development, Suncor Energy Inc.

11:30–12:30 Question and Answer Period

12:30–13:30 Lunch [included]

13:30–15:00 Break out sessions:

- Bio-fuels – moderated by Irene Henriques
- Solar Energy – moderated by Patricia Clarey
- Wind Power – moderated by Eduardo Rincón

15:00–15:15 Break

15:15 – 16:30 General discussion on the Break out Sessions

16:30–17:15 Networking session for the public – *Concord Ballroom B, C & D*

The public is invited to meet and exchange views on North American environmental issues. JPAC members will attend as observers. Participants should appoint the chair of this session who will present the results at the public portion of the Council Session on 28 June.

19:00-21:00 Welcoming Reception – National Museum of the American Indian (*Fourth Street & Independence Ave., S.W*)*

- Welcoming remarks by Stephen L. Johnson, Administrator, US Environmental Protection Agency
- Welcoming remarks by José Luis Luege Tamargo, Mexican Secretary for Environment and Natural Resources
- Welcoming remarks by Rona Ambrose, Canadian Environment Minister
- Welcoming remarks by Claude Béchar, Minister of Sustainable Development, Environment and Parks, Quebec
- Welcoming remarks by Gary Mar, Minister of International and Intergovernmental Relations, Alberta

Andrew W. Mellon Auditorium

9:00-9:35 **Official Opening of the Thirteenth Regular Session of the Council – *Andrew W. Mellon Auditorium****

- Opening remarks by Stephen L. Johnson, Administrator, US Environmental Protection Agency
- Remarks by José Luis Luege Tamargo, Mexican Secretary for Environment and Natural Resources
- Remarks by Rona Ambrose, Canadian Environment Minister
- Remarks by Claude Béchar, Minister of Sustainable Development, Environment and Parks, Quebec
- Remarks by Gary Mar, Minister of International and Intergovernmental Relations, Alberta
- Remarks by Carlos Sandoval, JPAC Chair
- Report by William Kennedy, CEC Executive Director, on accomplishments of the CEC

9:35 – 9:45 **Break**

9:45-12:00 **JPAC Regular Session 06-02 (with the public as observer) – *Andrew W. Mellon Auditorium ****

- 9:30 – 9:40 Overview by Carlos Sandoval, JPAC Chair and approval of the provisional agenda
- 9:40 – 9:55 Report from the National and Governmental Advisory Committee representatives
- 9:55 – 10:15 Follow-up on the Workshop
- 10:15 – 10:45 JPAC discussion on a potential advice to Council
- 10:45 – 11:15 Discussion on JPAC priorities
- 11:15 – 12:00 Observer' comments

12:00-13:30 **CEC Presentation: “Renewable Energy in North America – CEC Initiatives”**

13:30-14:30 **Lunch [included]**

14:30-16:00 **Council Public Meeting**

- Introduction on the conduct of the session by Carlos Sandoval, JPAC Chair
- Reports on the JPAC Public Workshop/Regular Session and on the results of the Networking Session
- Statements by pre-selected presenters
- Comments by Council members

16:00 **End of Session**

Liste des participants – List of Participants - Lista de participantes

**XIIIe Session ordinaire du Conseil, 27-28 juin 2006 – Washington DC
Decimotercera Sesión Ordinaria del Consejo, 27-28 de junio de 2006 – Washington DC
DC Thirteenth Regular Session of the Council, 27-28 June 2006 – Washington DC**

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27 June 2006

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Mexico’s potential for energy from biofuels, solar, and wind by Odon de Buen

http://www.cec.org/files/pdf/JPAC/Buen-JPAC-06-2006_en.pdf

The current worldwide renewable energy picture by Carmen Becerril

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Bio-energy activities of the Natural Resources Defense Council by Jim Presswood

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