



Advice to Council No: 15-03

Re: Advice and recommendations from the JPAC Workshop (April 2015) in Monterrey, Nuevo León, Mexico, on “Green Growth and Sustainable Competitiveness in North America”

The Joint Public Advisory Committee (JPAC) of the Commission for Environmental Cooperation (CEC) of North America:

IN ACCORDANCE with Article 16(4) of the North American Agreement on Environmental Cooperation (NAAEC), which states that JPAC “may provide advice to Council on any matter within the scope of this agreement (...) and on the implementation and further elaboration of this agreement and may perform such functions as the Council may direct;”

HAVING conducted a public workshop in Monterrey, Nuevo León, Mexico, on 23–24 April 2015, entitled “Green Growth and Sustainable Competitiveness in North America,” that offered expert presentations and engaged over 100 participants;

HAVING reviewed the comments and recommendations of workshop participants and invited experts that are provided in Appendix A to this Advice;

SEEKING to advise the Council on priorities for regional action and potential areas of work under the CEC’s 2015–2016 Operational Plan and 2015–2020 Strategic Plan;

SUBMITS the following advice, observations, and recommendations for Council’s consideration.

We recommend that the CEC:

1. Consider how we value managing and sharing water resources, because our hydrology is changing. It is critical to manage water more effectively and understand how it relates to climate and the corresponding social, economic and political impacts on communities across North America. Water management institutions in our three nations should be fully involved in this effort. Climate disruption is already causing development regression in some regions and highlighting new financial implications related to re-developing these areas. Rapidly changing hydro-climatic conditions will continue to have cascading effects through every sector of our economies and all political systems in the coming decades.
2. Encourage the sustainable use of water and its management as a high priority. Water provides an important and actionable gateway to deal with environmental variations. By generating a positive discussion about the proper use and management of water, by setting clear goals, and by communicating respective achievements in this area, environmental cooperation among the relevant players will be strongly stimulated.
3. Incentivize and leverage use of best practices on land use, restoration and management that can improve the quality and wise use of water. Lessons can be learned from collective experiences regarding the sustainability of ecosystems, best management practices, and correlations between ecosystem functions and water quality with changes in land-use practices.

4. Encourage the development and implementation of a clean energy policy to achieve sustainability in North America. This would include working in the following areas:
 - 4.1 The bioeconomy encompasses the use of renewable biological resources and their conversion into food, feed, bio-based products and bioenergy via innovative and efficient technologies (according to the International Institute of Sustainable Development). Ecosystems provide critical environmental benefits, including flood control, agricultural production, drought resilience, nutrient capture, wildlife habitat, and biomass production. Integrated Water Resource Management (IWRM) combines land use and water management at a watershed level to optimize economic, social and environmental outcomes simultaneously.
 - 4.2 Using watershed bioeconomies can provide self-sustaining benefits, including climate resilience, economic development, and conservation. Emphasis should be put on developing green infrastructure, shared basins and watersheds.
 - 4.3 Policies on energy efficiency will determine how social and political dynamics shape the struggle for resources by two emerging energy-based technologies with possible potential to reduce greenhouse gas emissions from electrical power generation: carbon capture and storage (CCS) and enhanced geothermal systems (EGS). Similarly, IWRM and EGS can provide a framework for basin-scale water management to help understand, value and manage benefits from watersheds.
 - 4.4 Water cooperation and partnerships are key to addressing water security, water supply of potable water, and sanitation in communities that most need them. Also, flooding and water and nutrient management issues can provide economic opportunity through innovative solutions. Such management solutions include surface water management, phosphorus capture and recycling, wetland restoration and biomass (bioenergy, biofuels and bioproducts) and surface water retention. For example, nutrient management and novel biomass production, combined with surface water management, are being applied to engineered wetlands, storm water basins, and ditches for greater economic gains and alternative revenue for landowners.
 - 4.5 Assessing the effectiveness of applying new technologies for sourcing water from deep underground streams may be relevant as a possible solution for solving problems of scarcity in certain regions of North America.
 - 4.6 Developing and implementing the necessary mechanisms to measure the mass of living biological organisms in a given ecosystem at a given time (ecological biomass) can help assess the ecological status of a site. Therefore, it can further determine alternative actions to transform waste/pollution streams into inputs for sustainable biomass production. In this manner, ecological biomass measurement will provide incentives for conservation and restoration of wetlands on unproductive land.
5. We suggest that the CEC take the lead in promoting water cooperation and strategic alliances among key decision makers, experts, and other constituents to gain focus on renewable resources. This represents an opportunity to share knowledge in clean energy and water management technologies, systems and processes with the goal to create a platform/environment to increase use of emerging technologies and innovative solutions. This need can be addressed by:
 - 5.1 Developing and promoting water cooperation partnerships that can trigger sustainability and green growth across the region. These various forms of association can focus in renewable resources and represent a potential to attract investments in clean energy; for example, those

oriented towards the non-intensive use of carbon (low carbon growth), the reduction of fossil-based and the increase of renewable-based.

- 5.2 Application of technological advancements from the electricity generation sector, such as smart grids and smart meters, can help solve water sourcing problems and have a more active and competitive role in water management than technologies in use, such as desalinization. Energy resources, including electricity infrastructure suppliers, electricity grids, energy providers, and natural gas firms, are already being shared across the region.
- 5.3 Disseminating knowledge among key stakeholders regarding the importance of green growth and emphasizing the need to redefine sustainability in a restorative context is vital. Within these constituencies, customers are key to reducing demand and ensuring energy conservation. Utilities must continue to be invested in innovative technologies to ensure they meet the needs of customers in a safe, reliable and sustainable manner.
6. Encourage the critical role of the federal level of government as first mover for public investment, for setting up energy targets and regulatory policies for the effective implementation of strategic initiatives so use of new sources of energy can be triggered to gain progress. These efforts can generate additional investment alternatives to obtain resources and move forward. Experience tells us that effective investment is one that is aimed at organizations that can work together and generate synergy between government and the public and therefore gain credibility.
7. Integrate environmental and economic considerations into everyday decision making. The incentive structure can be a major roadblock to such integration when prices do not reflect the full costs and benefits of production and consumption and therefore lead to unsustainable practices. Government policy needs to establish incentive structures that are sound both environmentally and economically. So, as a first step, governments should identify and reduce subsidies that have adverse impacts on both the economy and the environment. This can remove economic distortions, thereby improving efficiency and growth; improving the environment by realigning the incentive structure to favor environmentally sound practices, reducing budgetary burdens and generating additional resources; and achieving a more equitable income distribution, as opposed to the current situation where subsidies favor the better-off.
8. The development of natural gas, combined with increased energy efficiency and renewables, may help transition the North American continent to a cleaner energy future, while helping achieve goals for greenhouse gas reductions. Environmental concerns and potential impacts should be carefully considered, while recognizing that responsible use of natural gas resources has the potential to enhance industrial competitiveness, energy security and employment.

JPAC is confident that the recommendations contained herein are highly relevant to the CEC Council's strategic priorities, and is unanimous in supporting this Advice to Council.

**Approved by the JPAC members
14 May 2015**

Appendix A
Recommendations by Experts and Members of the Public
Monterrey, Nuevo León, México
23-24 April 2015

The purpose of this executive summary is to serve as a fundamental knowledge base for JPAC to support the advice, observations and recommendations for Council's consideration. It was prepared based on all nine presentations, comments and recommendations from experts and members of the public throughout the workshop.

I. Recommendations by Experts

Expert presentations and discussions were centered on renewable energy, supply and production of energy, sustainable management of waste and energy efficiency and generation, sustainable energy use and production, sustainable water resources management, the efficient management of water in industry, agriculture, cities and communities, water cooperation and partnerships for sustainable development and/or address water security, the nexus of water and energy for competitiveness and the supply of potable water and sanitation.

The JPAC public forum began with a Keynote presentation by Nancy Sutley, chief sustainability and economic development officer at the Los Angeles Department of Water and Power, who presented her perspective on how we can address the challenge of climate change in the context of environmental policy, environmental science, and the economics at a local, regional and state level. She shared her view on how we can accelerate prosperity and grow in a low carbon way based on the learning experiences from both the City of Los Angeles and the State of California. Her presentation was followed by the first expert **panel: 1) Sustainable Energy and Climate Change: The Role of Renewables and Emerging Technologies**. David Morrison, former CEO and President of the Yukon Energy Corporation, Luis Farías, Senior Vice-President for Energy and Sustainability, Cemex, Karen Douglas, Commissioner, California Energy Commission, and Nelson Arizmendi, Vice President Energy Development, *Alfa Corporativo S.A. de C.V.*

The forum continued with a **Keynote presentation** by Bob Sandford, EPCOR Chair for Water and Climate Security at the United Nations University Institute for Water, Environment and Health, who presented his assessment on 1) how climate disruption is already causing development regression in some regions and highlighting new financial implications related to re-developing these areas, and 2) how rapidly changing hydro-climatic conditions will continue to have cascading effects through every sector of our economies and all political systems in the coming decades. He emphasized how we can manage water more effectively and understand how this relates to climate and the corresponding social, economic and political impacts on communities across North America. His presentation was followed by the second expert **panel: 2) Water and Climate Change: Sustainable Management of Natural Resources**. This panel integrated presentations from Eugenio Clariond, Chairman, *Fondo de Agua de Monterrey* (Monterrey Metropolitan Water Fund—FAMM), Dimple Roy, Director, Water, International Institute for Sustainable Development (IISD), and Bernadette Conant, Executive Director, Canadian Water Network. Both panels were followed by a facilitated question and answer period with participants. The complete Agenda, bios, and presentations can be accessed on the CEC website at <http://www.cec.org/Page.asp?PageID=1209&ContentID=25847>

All recommendations are intrinsically related. Nevertheless, to provide clarity and coherence for the reader, these are structured around specific categories:

Public Policy Implementation

1. Increase the practice of environmental management in our three countries, at the government/federal level through the effective implementation of a sustainability office.
2. Develop promotional programs across the three countries to raise awareness of the shared goal of fuel efficiency and emissions reductions.
3. Set ambitious greenhouse gas reduction goals and performance metrics for the North American Region.
4. Reduce fossil fuels and increase the use of renewables in the electric mix and clean energy consumption rates.
5. Redesign and establish incentive structures at the government policy level that are sound both environmentally and economically, with a first effort focused on identifying and reducing subsidies that have adverse impacts on green growth.
6. Adopt a clean-air action plan to reduce toxic air pollution from the ports and major cities.
7. Promote the use of environmental policy and environmental science, and economics to address the challenge of climate change.
8. Showcase examples of successful local, state and regional low-carbon growth initiatives, such as the city of Los Angeles and the State of California.)
9. Promote civil society participation to trigger green growth initiatives, with emphasis in accelerating innovation and customer management of energy.
10. Implement sustainability plans that consider developing local solar energy.

Green infrastructure and renewables

1. Promote green infrastructure and supply chain management to stimulate green growth.
2. Invest now in climate change (because the cost later will be significantly higher) based on a low – carbon usage.
3. Implement financial instruments for carbon reduction. It means that alternatives for pricing carbon should be found soon. The ultimate objective would be defining a uniform, single method for pricing carbon across the three countries. By assessing the cost-benefit relationship of different carbon pricing mechanisms, carbon can be priced more effectively across the NAFTA countries, which would result in freight shippers using less high-carbon fuel or switching to lower-carbon technologies.
4. Invest in clean energy/clean technology incubators, local water resource conservation, and water management in order to achieve green growth objectives.
5. Invest in infrastructure and local water resources, in water conservation, in recycle water, in capturing storm water, and in better managing ground water, to rely less on imported water.
6. Invest in new sources of energy and encourage the use of electricity from renewable energy sources: renewables should be an integral part of the supply mix, particularly on the hydrological side.
7. Invest in green infrastructure to address our water pollution/quality issues and to address water supply issues.

Innovative management of emerging technologies

1. Utilities must continue to invest in innovative technology management for sustainable energy generation, which should center on integrating wind power, hydropower, biomass, solar PV, ocean energy, clean coal and energy storage. This represents a clear strategic opportunity as costs

of wind and solar technologies continue to decline significantly, approaching the cost of fossil power.

2. Energy storage is a game changer for the electricity industry, for the residential commercial side and for the utility side of the industry; grid automation, once technical challenges are solved, presents significant efficiencies for utilities and for the delivery of constant, secure level of power to the customers.
3. Apply more dynamic grids to ease integration of end-use technologies such as electric vehicles.
4. Increase the use of new technologies for sourcing water from deep underground streams to face scarcity (surface water management and retention, phosphorus capture and recycling, wetland restoration, bioenergy, biofuels, and bio-products).

Water management and collaboration

1. Increase water cooperation and partnerships to increase the use of renewable resources and their conversion into food, feed, bio-based products and bioenergy.
2. Encourage collaboration from the three countries to address problems in water security, water supply of potable water and sanitation in the most needed communities.
3. Recommend that water agencies shift the focus of their initiatives from grey water infrastructure investments, such as concrete aqueducts, to integrated regional water management efforts based on existing watersheds, particularly within cross-border geographical spaces.
4. Involve water institutions in the effort of managing water more effectively and understand how it connects to climate and the corresponding social, economic and political impacts on communities.
5. Increase the use of watershed-bioeconomies to provide self-sustaining benefits such as climate resilience, economic development and conservation.
6. Launch regional size projects, capturing large amounts of water.
7. Reduce urban water usage: outdoor landscaping use at the residential level to drive down consumption and therefore increase resilience to draughts.
8. At a community scale, transform neighborhoods so that storm water management practices enable this sourced water to come into the water supply system. That is, capturing polluted run-off water treated naturally and then potentially re-use it in certain cases.
9. Encourage residents in local communities to capture storm water via rain barrels so they can use run-off to water their lawns instead of using highly treated and highly scarce potable water.

Transportation

1. Implement a strategy to expand collaboration across borders in order to de-carbonize our energy and our transportation sectors. Collaboration based on a clear setting of objectives, policies and project management standards.
2. Integrate transportation and land-use planning to reduce freight-related GHG emissions.
3. Define carbon reduction strategies for logistics and transport companies to reduce carbon intensity of their operations, including the use of lower-carbon fuels and the sustainable management of the goods movement supply chain.
4. Electrify freight transportation.

5. Invest in the renewal of electricity system infrastructure, with emphasis in transit, commercially bringing electric vehicles to major cities.
6. Promote a new transportation culture that shifts from a car-centered culture to one where people have more alternatives to get around (for example, we are not running buses electrically or with bio-gas). Customers are key to reducing demand and ensuring energy conservation.

II. Recommendations by Members of the Public

Expert presentations at this Joint Public Advisory Committee meeting were witnessed by participants from the three countries, both in person and on the Web. This rich, multidisciplinary audience included 37 participants from academia, 16 from NGOs, 24 from government, 35 from private organizations, 10 from JPAC and 10 from CEC. The result was a thorough group discussion on the critical topics under consideration at the forum. Here is a list of recommendations provided to the JPAC as a result of the in-depth discussion on each topic by all participants:

- The relevancy of defining the role that CEC can play to align political pitches and governmental communication from both sides of the US/Mexico border regarding the need to increase resilience to draught.
- The need to find solutions for the unfavorable effect of the social, political and electoral instability in Mexico on the water shortage and drainage problems.
- The importance of increasing efforts by the three countries to treat the draught resilience issues on a bio-regional and eco-regional approach.
- The need to understand how the water field is evolving, from a predominant impulse of water policies dealing with how to bring more water from various sources, to understanding that there is a limit to depending on one sole source.
- The need to learn from the evidence of climate disruption and address the related negligence.
- The importance of defining actions to improve water inter-agency cooperation.
- The need to improve green growth via water usage practices at the local community level.
- The importance of defining a position across North America regarding the economic potential of shale gas and the associated environmental concerns and impacts, as well as regarding the transition to natural gas.
- The need to define effective citizen engagement and active participation to change water-usage practices at the residential level.