MARCH 26, 27 AND 28, 2014

CCRE

Annual Energy Leaders Roundtable

Hockley Valley Resort
Orangeville, Ontario

Council for Clean & Reliable Electricity
transforming the way we think about power

2014 CCRE Annual Energy Leaders Roundtable

Summary of Proceedings

March 26-28, 2014

in partnership with

Ivey Business School – Energy Policy and Management Centre
WISE – Waterloo Institute for Sustainable Energy
gowlings
Suncor Energy – Suncor Energy Foundation
Power Workers' Union

CCRE Energy Leaders Invitational Roundtable

March 26-28, 2014, Hockley Valley, Ontario

"Salon": a gathering of people under the roof of an inspiring host held partly to amuse one another and partly to refine the taste and increase the knowledge of the participants through conversation.

"Forums like this are absolutely critical."

[2014 ROUNDTABLE PARTICIPANT]

In a series of interactive and discursive sessions the delegates to CCRE's 2nd Annual Energy Leaders Invitational Roundtable (2014) canvassed a broad array of topics regarding the electricity and broader energy sectors. The writer had the privilege of acting as "rapporteur"; "a person who is appointed by an organization to report on the proceedings of its meetings". Following is a write-up of the summary provided at the end of the sessions. While the summary provided attempted to capture the impressions and assertions of the discussion leaders and the participating delegates, the emphases and characterizations are those of the writer.

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Recurring Themes. As the roundtable proceeded through its agenda of purposefully chosen topics and facilitated discussions, two themes repeatedly emerged:

1. "Economies that are able to adapt to high energy prices will survive."[1]

2. Technology will impact the future of the electricity business, and technological advancement raises questions about the appropriate role for the utility of the future.

The Canadian Energy Sector: An Assessment for the Future. Canada is no longer a low electricity cost jurisdiction, and our electricity prices will continue to rise. It may be, however, that the political difficulty of energy and electricity pricing is as much about the rate of change as it is about the absolute level of electricity prices. Noted were three distinct aspects of the electricity sector governance; i) policy; ii) regulation; and iii) ownership. The first two – policy and regulation – are within a government or political rubric. The third – ownership – is fundamentally an economic or commercial matter. Polls support government ownership of electricity. Why are we happy to have private gas companies run the gas system, but won't leave the same to happen in electricity? To address the third, bring private investors into existing Crown corporations, alongside government shareholders. This may be an easier discussion than "privatization".

[1] A quote from a recent Wall Street Journal article referred to several times throughout the proceedings.

Population, Demographics and Opinions Shaping Our Policies. Who are we in Canada? We are changing. Canada receives more immigrants per year per capita than anywhere else in the world. Fully 1% of our population essentially turns over with immigration every year and these folks are skilled and they are strivers. In Ontario, 50% of the people you see are foreign born. In Halifax, only 5% are foreign born. With immigration Canada's population is developing a "pacific orientation", with more and more of our population coming from the Phillipines, China and Indo-Pakistan.

At the top of Canadians' list of concerns remain jobs, health care and government accountability. Generally in respect of our social issues, recent polling underscores, as was reported to last year's roundtable, that "government is seen as part of the problem, not part of the solution". The economy as a category is not quite as high a concern as it was a year ago. More generally, voters are looking for respect for the value of taxpayers' money, prudence and accountability, rather than tax cuts.

Energy and electricity are half way down the list of identified concerns, a little bit higher than environment. Green energy is no longer a top concern; 25% of people on the "left" of the political spectrum remain engaged in that discussion. The rest are more concerned with innovation, diversity, and economic and reliable supply. In respect of energy in Ontario, people are completely confused about what the problem is and what the government is doing.

Electricity Prices – Economics, Public Policy, Technologies and Affordability. In Ontario we use 160 TW hours of electricity per year, the cost of which is $12 billion and comprises 62% of the electricity bill. In this context, the parameters that our system will be dealing with in the coming years are a steady decline in the nuclear contribution, and flat to declining demand. The price for energy in Ontario is set by contracts, regulation and "markets". Two thirds of the costs of energy are charged through the global adjustment, leaving one-third for recovery through "market revenues".

A practical economic perspective is that consumers respond to price; information alone does not get much attention. With time of use rates, people respond a little bit. Add critical peak pricing with some fore-knowledge (accessible energy use displays and automatic alerts) and people respond quite a bit more. With the addition of utility load control, consumer response is even higher; is this because the utility is controlling things or because the control is automatic? There was discussion of the value in incenting behaviour of the methodology adopted for recovery of costs – i.e. the revenue/rate structures used - as distinct from merely an emphasis on the overall price.

The roundtable considered how best to deal with energy poverty. Incentive rates can, in fact, incent over-consumption, a completely uneconomic, counter intended result which begs good questions about how to deliver enegy assistance. Utilities are not economically incented to encourage reduced consumption, and utility delivery of energy cost relief programs could result in energy efficiency underinvestment and energy overconsupmtion. A response? Target poverty, not energy poverty. The electric power sector may be an inefficient delivery mechanism for social policy. If there is a move towards independence from the grid the effectiveness of delivering energy poverty relief through the energy system is further undermined. An appropriate utility role in providing energy poverty relief might include such customer service initiatives as payment plans and more frequent billing. Rather than price-breaks or subsidies, utilities could focus on responding to the lifestyle needs of people who need a different approach to procuring their utility services.

National Energy Supply Options. Canada has the third largest oil reserves in the world, and new technology could move Canada up to first place in this respect. Canada also has lots of gas. Discussion examined Canadian energy exports as well as policies for national and continental energy self-sufficiency. To date Canada's only energy customer has been the U.S., which is reducing its import demand.

The limiting factor in capitalizing on Canada's energy supply options is not the resource, it is moving it. In response, the Canadian government is working to increase confidence in energy transportation systems and to address the environmental footprint of the Canadian oil sands.

Other Canadian energy opportunities include smart grid, clean tech and our data management prowess.

Having weathered the worst winter in 35 years, an important historical perspective on gas prices was provided. While gas was expensive this winter, it was actually considerably more expensive in the winter of 2006.

The various and broad implications of technological changes in the energy sector include; i) the role of local distribution companies as energy service providers; and ii) prospects for connection of remote communities (as the "business case" has never been better for assisting remote communities, in particular aboriginal communities, with meeting their energy requirements). Considerations include the potential for using LNG, the recent development and understanding of micro-grids, the availability of renewable generation and storage – including together, the current over-supply situation in Ontario and the notion of moving it north. As Ontario remote communities are facing a need to replace aging diesel generation sets, and at the same time exploring opportunities for northern resource development and for aboriginal community engagement in advancing northern infrastructure, these technological advancements may present new opporutnities to add momentum to remote community electrification or energization.

Economic and Environmental Sustainability – Climate Change, Policies and Projections. Canadian green house gas emissions are lower now than in 2005 and the projections for 2020 are that emissions will still be below 2005 levels, though above Canada's 2020 target. Burning coal to generate electricity remains an issue for Canada, not in Ontario but in Alberta and Saskatchewan. We have a hodge podge of provincial initiatives on climate change and greenhouse gas regulation by sector.

The roundtable discussed the proposition that carbon pricing is the least burdensome way of progressing on climate change. When we are so ready to tax things that we want to encourage - like entrepreneurship and business success – why the reticence to tax things that we want to discourage?

Attempts to introduce consumer focussed carbon offset options - like Air Canada's carbon free travel option - have not worked very well. Legislated carbon factors to guide government's decision-making calculus's do contribute. Businesses, interestingly, are also starting to consider similar carbon pricing factors in their own investment decision-making calculus.

Questions about the demonstrable efficacy of carbon capture and storage initiatives remain, and roundtable particpants offered perspectives on both sides of the issue.

Renewable power procurement programs have "wreaked havoc" with power markets in the U.S., rendering previously economic plants in need of government contractual support. In contrast to Ontario "off-coal" generation program success, U.S. coal plants contribute about 30% of the U.S.'s 19% overall contribution to

global GHG, and coal burning remains very much an environmental issue. Coal burning also continues in developing countries, though on a per capita basis at a surprisingly low level compared to current rates in developed countries.

A general consensus emerged on this topic of economic and environmental sustainability in energy that financial mechanisms to value carbon avoidance and government environmental incentives are good instruments, but governments should avoid picking technologies.

Electric Transportation – Technology, Economics and Reality. 31% of Ontario's GHG emissions come from transportation. Moving from a mini-van to a Nissan Leaf brings personal vehicle fuel costs down from $2,500 a year to $500 a year. While a minivan and a Nissan Leaf are not equivalent in supporting families and their paraphenalia, there are electric vehicle options in between with equally impressive fuel savings performance. This is before accounting for the value of GHG and other environmental cost reductions.

The topic of public EV charging infrastructure was canvassed by the roundtable. It was suggested that visible infrastructure is more for the comfort of typical EV drivers than being a necessity. "Range anxiety" results from a lack of awareness. Signage for charging infrastructure is really important. There was debate about the role of the utility in providing such infrastructure.

The informed view is that impact on the grid of electric vehicles would be disruptive, but not apocalyptic. Some local systems may require some attention, but generally infrastructure reinforcement would be incremental rather than transformative. Indeed, electric vehicles can contribute to smoothing energy demand and to demand response, assisting in grid resiliency, and EVs are even being thought of as mobile power stations to feed electricity to the grid and to homes. These technologies could create new revenue streams, further threatening the traditional role of the utility.

The roundtable heard that an electric powertrain in electric vehicles has a geometric affect on efficiency. That means that electricity prices can go up and EVs are still a good deal. The EV industry foresees nothing but upside on demand for electric vehicles.

First Nations and Energy: Infrastructure and Policy. Premier Bob Rae delivered a dinner speech recounting his experiences and observations in connection with his role as the Chief Negotiator for the Matawa First Nations on development of the Ring of Fire in Northern Ontario. Some of the themes that arose from Premier Rae's remarks and the ensuing discussion included:

- The aborigional time frame is one encompassing hundreds of years of "recent" history. The aboriginal context is one of an oral tradition, which moves at a pace very different from now ubuquitous internet based communications.

- Aboriginal peoples are not opposed to development, they are simply determined to be a beneficiary of, and a part of, that development.

- Key from an aboriginal prespective is the desire to be understood first, and then to negotiate. When you understand us, then we will talk. When we have got it right, then we will proceed.

- There is a very young aboriginal population, and they want to connect with roads, with the internet and with energy infrastructure. The apparent dichotomy between a paced oral tradition and the desire of aboriginal youth to "connect" to the wired world was noted as an area to be reconciled.

- The Environmental Assessment process cannot be a paper driven process. It has to include oral, in person considerations of historical information and it is going to take a little longer than the current standard pace of commercial development would assume.

- Social change and support is required to get these communities, and their young people in particular, ready to work on future infrastructure, and that must start now.

Forces Affecting the Energy Sector in the Next Decade – Geopolitics, Technology, Security and Economics. The advance of technology is faster than the pace of constructing utility infrastructure. How, then, does one plan infrastructure for the future? There is now a necessity of having a sufficiently opened-minded planning process to take advantage of technology changes that aren't even here yet. We must incorporate tomorrow's technology into today's planning and foresee the unforeseen; quite a challenge.

Technological diversity is a good thing. That may be an appropriate focus for government policy. The choice of technologies should be left to those that do it the best, on a private sector risk and due diligence basis.

Progress is needed to address what one speaker termed "staggering infrastructure deficits". The roundtable considered the human resources that will be required, for which there will be fierce competition. The need for, and future value of, these resources must be communicated to schools, students, parents, and immigrant and Aboriginal communities. Allowing students, parents and schools to keep up with policy is probably even more difficult than the rest of us trying to keep up with policy; another time gap that must be bridged.

The forum's review of technology considered district power; the industrial internet (machines, like electric vehicles, using the internet to communicate with each other); advanced manufacturing; exotic materials; and complex manufacturing like 3D printing.

The forum also considered the money that's going to be needed for infrastructure investment.

It was recognized that when making major decisions about future projects, or making plans to deliver future energy services through high technology solutions, we cannot let go of the traditional human interface as we search for the solutions of the future.

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