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Global Energy Transition and the Opportunities and Realities Emerging from it for Western Canada's Energy Industry

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Ladies and Gentlemen:

Good Morning. It's a pleasure to be with you here in Calgary this morning.

We meet at what is clearly a difficult time in the oil and gas industry as a whole and with Western Canada being particularly hard hit by a combination of low oil prices, stubbornly high global stock levels and a consequent decline in investment. New projects are being put on hold and the entire supply chain is being squeezed with consequences for corporations, their investors, their staff, not to forget the Albertan and the Canadian economy.

The situation in the gas market is little better. Gas prices have fallen just as new global LNG projects are coming on stream and the United States readies for its first exports.

In both oil and gas, we see a battle to the death for market share in what is clearly a fight-back by historical incumbents against the newcomers – here in Western Canada and elsewhere who, over the past decade, have successfully used a combination of technology and operational efficiency to open up vast new energy resources.

In my capacity of Chair of the World Energy Council, I travel the world and, as I speak to the CEOs and government ministers of legacy oil and gas producers, especially in the Middle East, I am struck by their determination to retain their market leadership even if this comes at a cost to their national budgets. Many of them, such as Saudi Arabia and the United Arab Emirates, argue that low-cost producers should not be in the business of subsidising high-cost producers.

Likewise, in the LNG market, we see traditional suppliers determined to retain customers. They are fast adapting their contractual models to ensure that they do not lose customers while at the same time sending spare cargoes to spot markets in Europe and elsewhere. New LNG exporters such as those in the United States and Australia are finding that the anticipated rapid expansion in global markets has not materialised but, as I will point out later, I believe that gas has an important role to play in the long term and that its share of the global energy mix will increase.

For many in the energy sector, the present is bleak and looking ahead we can envisage increasing uncertainty and even greater challenges.

I am not talking about the future price of energy. Over a thirty-year career in this industry, I have seen periods of great volatility with energy prices rising precipitously before falling just as fast. If there is one thing that I have

learnt, it is that it is virtually impossible to predict the price of energy and that pundits inevitably get it wrong.

What I am talking about is the inescapable fact that the drive towards the decarbonisation of energy will inevitably lead to profound changes in the energy landscape.

Do not get me wrong. I am not proclaiming the death of the oil and gas industry. The point I am making is that there will be deep structural changes in how we produce energy and, primarily, how we consume energy, which will have a knock-on effect on those involved in the primary production of energy, especially hydrocarbons.

December's COP21 agreement in Paris set the world on a pathway towards decarbonisation. National climate plans known as INDCs will inevitably impact on the choices governments, companies, banks and consumers make when deciding on energy options. The future energy mix is already changing and it will change further.

I do not want to dwell on how oil and gas producers will be impacted. Instead, allow me to give you some insights on how some of your customers will be impacted and I'll leave it to you to work out how that might affect your business.

Let me start with transportation, one of the main drivers of oil demand. Car manufacturers worldwide are being increasingly successful in developing new engines that are not necessarily fuelled by gasoline or diesel. Electricity, of course, is the obvious example but increasingly in the developing world we see the use of LPGs (liquefied petroleum gas) and compressed natural gas. And, there is continued investment in R&D aimed at achieving a commercially viable hydrogen-fuelled engine. Step-by-step, this sector is changing.

We are a long way from all of us driving Teslas but in my view, the Tesla phenomenon is less about using electricity to drive an engine than it is about storing energy. Advances in energy storage will lead to a rationalisation in the use of energy and will contribute to greater efficiency and, ultimately a reduction in energy use.

Home energy storage systems will impact on the business models of the power sector. But that is just one of many factors that are forcing utilities to rethink the way that they do business.

In the last decade, significant advances in renewable technologies, the decline in the cost of renewables, combined with an impressive innovation in the digitalization of the electric grid, are challenging the centralized utility model.

In many countries, the combination of soaring levels of renewable energy and the mothballing and closure of a significant number of thermal power plants and nuclear assets is eroding the bottom line. While the various changes facing the electric utility industry may have different implications, they all create adverse impacts on revenues as well as on investors' returns. The challenges are numerous: decentralized generation, decreasing costs of renewable technologies, changing market designs, disruptive competitors, and digitalization.

It is worth taking a look at what is happening in Europe for a taste of things to come in the power sector. E.On, once Europe's largest power company, has split its fossil fuel assets from its marketing arm that will focus on selling a range of services alongside pure electricity sales.

E.On's move is a direct response to the transformation of the energy market in Europe over the last few years. The financial consequences of profound structural changes have been particularly severe: contracting operational margins are forcing utilities to dispose assets and reduce CAPEX so as to manage their financial balance and ratios.

Utilities are expanding their activities in marketing, technological innovation, digitalization and energy solutions. With a view to be more attuned to the needs of local communities, they are moving their operations closer to their markets and customers.

Digitalization is bringing an additional brick into the energy value chain, reversing it from downstream to upstream by empowering customers.

New players are reaching out directly to the customers, offering innovative products and services; they are inserting their businesses between the customers and the traditional utilities.

Competitors from various fields have entered in B2B and B2C services.

In the B2B segment, we see players such as Cisco, Accenture, Siemens, Toshiba, Schneider Electric, to name a few, offer services in energy efficiency – Smart Building, Sustainable City, Smart Grid, Data Management.

In the B2C segment, we have witnessed Ikea, Walmart, Google, invest in renewable generation to compensate their carbon emissions, paving the way toward decentralized generation sites. They are competing directly against the large utilities but ultimately they will impact on producers of primary energy.

These new players are offering services and selling devices in sustainable mobility, energy efficiency, smart connected systems such as smart homes, smart meters, smart thermostats, Internet of Things.

All over the world, we see important moves on Smart Grid and Smart Cities in a search for stable business models.

In return, customers, taking advantage of the availability and affordability of distributed generation and of attractive energy management devices, are becoming proactive in their relationship with utilities, generating their own electricity.

The newly empowered customer is increasingly becoming an active user of the grid. With the changing nature of the distribution grid, from a one-way to a bi-directional model, utilities are being pushed to adapt to this new reality.

This transformation is having a serious impact on the entire energy sector as we know it.

The combination of soaring levels of renewable energy, the closure of base-load assets and decreased load factors has added a new dimension to the challenges: the lack of capacity.

As customers substitute locally generated electrons for those from centralized power plants, they nevertheless remain connected to the grid for back-up supply.

All this brings us full circle back to base-load power and the future of hydrocarbons. Clearly, there is the need for stable power supplies of the kind offered by oil, gas, coal and nuclear. As countries design and implement new energy policies based on their INDCs, we can expect an increasing focus on carbon accounting that will inevitably work against fuels such as coal and in favor of cleaner energy sources such as natural gas. Despite the current glut, the future for natural gas remains good and we cannot discount a new future for nuclear energy.

As the world increasingly assigns a negative value to carbon molecules, we see a range of carbon-pricing schemes emerging at national and regional levels where the appropriate institutional frameworks are in place, as well as a form a "shadow carbon price" being implemented by businesses for their operations, corporate planning or when analyzing investment options. An effective and efficient price on carbon, either as a direct carbon tax, a cap on GHG emissions or costly regulations, recognizes the true cost of energy production and levels the playing field among different technologies.

The energy industry is entering uncharted territory where the rules of the game are changing and technology is disrupting traditional business models. There is one certainty and that is the demand for energy is set to increase.

Ladies and Gentlemen:

In Ottawa last week, Fatih Birol, IEA'S executive director, called for the oil sands industry to increase productivity and reduce its carbon footprint by having access to cleaner technologies for production processes.

And I will add that clearly, oil coming from politically stable nations such as Canada is crucial to assuring energy security globally.

Western Canada's oil industry is rising to the challenge. But, as you all very well know, markets will adapt to supply and time is of the essence.

Today, you will be addressing the issues that are at the core of this challenge, namely: innovation and productivity, environmental sustainability and market access.

Your conference is both relevant and timely. I wish you interesting discussions.

I thank you for your attention.