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## Executive Summary

### **Portrait of current and projected economic activity in the Quebec hydrocarbons sector by the Fédération des chambres de commerce du Québec (FCCQ)**

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This executive summary outlines the main findings of the above-cited project. It includes a description of the mandate, the methodology employed and a summary of the results.

#### ***Mandate***

Even though the effective size of hydrocarbon reserves in Quebec has yet to be precisely established, significant economic advantages could be generated by exploiting them fully, not only for this industrial sector and the large numbers of workers that would be hired, but also for all manufacturers and service providers contributing to the industry's value chain, the Quebec government and the population as a whole.

However, this planned exploitation raises significant concerns, including those relative to environmental risks, uncontrolled or poorly regulated development, etc. While most people acknowledge the economic opportunities associated with this resource, many remain sceptical that this potential can be achieved while maintaining public health and safety, protecting the environment and limiting greenhouse gas emissions.

Recently, leading firms operating in the transport, refining and distribution of petroleum products joined forces in a coalition headed by the Fédération des chambres de commerce du Québec's ("FCCQ") to foster the development of their activities. In this context, the FCCQ mandated AppEco to provide a portrait of current and projected economic activities in the Quebec hydrocarbons sector, which comprises three parts:

- A review of the existing statistical data on the hydrocarbons sector, pertaining to the supply and demand for these products, in Quebec and abroad;
- A literature review focusing on the potential issues associated with the exploration and extraction of petroleum;
- A structured consultation of the coalition members through a survey.

## *Methodology*

For the **official statistics review**, Statistics Canada data was used to characterize the nature and the evolution of key economic indicators (production per type of product, investments, international trade, employment and remuneration) in the hydrocarbons industry, as identified by the 2012 NAICS. Furthermore, other official sources were consulted to develop a parallel portrait for these indicators at international level, particularly the United States Energy Information Administration. This macroeconomic and sector data covered several years to highlight historic trends.

The **literature review** summarizes the economic highlights of the studies executed as part of the recent strategic environmental consultations relative to sustainable development and transportation of hydrocarbons (HC), as well as from other meaningful sources. A summary table presenting an abbreviated description of the consulted studies was created, including the following items: author, title, other reference information and summary.

The **survey of enterprises** was conducted with the four major petroleum companies in Quebec: Enbridge, Suncor, TransCanada and Valero. It gathered information on a) their installations and internal activities in Quebec: facilities, revenues, employment and remuneration; b) their purchases from external vendors with facilities in Quebec; c) the community actions and the related financial amounts; d) a portrait of the actual and planned major investments in Quebec; and e) taxes paid in 2015 in Quebec. The answers were compiled and are presented in this report in aggregate form.

## *Results*

### *Official statistics review – Quebec and Canada*

- Petroleum industries' share in Quebec's economy was at 1.4 % of employment and 1.5 % of GDP in 2014, which is slightly lower than in 2007;
- In 2014, petroleum industries represented more than 24,000 manufacturing jobs, 22,000 service jobs and 3,000 in the primary sector. Employment in the manufacturing (25 %) and services (23 %) industries in Quebec is comparable to Quebec's weight in the Canadian economy, but this is not the case for the resources extraction sectors (2 %);
- The average manufacturing value added ("MVA") per job in the industry of petroleum and coal products was \$480,000 between 2004 and 2012, which is four times more than the manufacturing sector average during the same period (\$117,000). However, this MVA per job varies much more for petroleum products, namely between \$290,000 and \$836,000 during these 9 years;

- The average weekly pay in the mining and oil and gas extraction support industries (+76 %), as well as in petroleum and coal products (+78 %) were considerably higher than the economy-wide average;
- Petroleum, coal and plastic products manufacturing companies in Quebec invested on average more than 600 million dollars per year for capital and repairs between 2005 and 2014;
- Contrary to the rest of Canada, Quebec is a net importer (from other provinces and abroad) of energy products, including crude oil and petroleum products. This being said, domestic petroleum received by Quebec refineries doubled since the reversal of Enbridge's Line 9B between North Westover, Ontario and Montreal, whereas petroleum international imports have been halved. On the manufacturing side (chemicals, plastic and rubber products), the trade balance (=exports minus imports) remains negative in Quebec, however less so than for energy products;
- Relative to the overall inflation as measured by the Consumer Price Index ("CPI"), petroleum product prices were subject to strong fluctuations since the beginning of the 2000's but are now back to the same level as the overall prices;
- Prices for industrial products in Canada increased more rapidly and fluctuated more in all industries using petroleum products (petroleum refineries, paving, roofing and others; other petroleum and coal products; basic chemical products; and petrochemicals) than in manufacturing industries as a whole.

#### *International analysis*

- Canada was producing about 4.4 million barrels per day ("M bpd") in June 2015, a volume comparable to China and Europe as a whole. Nonetheless, this remains significantly less than Middle East (29 M bpd) and the United States (15 M bpd). Despite this, the United States remain net importers of petroleum, unlike Canada;
- South America and Central America are the only two regions of the world where imports of refined petroleum products have decreased since 2012. The strongest absolute growth has been observed in Europe, in the United States and in the rest of the world (except for the Middle East, Russia and China);
- Since 2000, the consumption of petroleum products is stagnant in Canada, but tends to slightly decrease in the United States and in Europe;
- Proven oil reserves in the world have strongly risen since 2000, going from 1,000 billion barrels to nearly 1,700 billion barrels in 2014 – Canada holds 10 % of the recorded total. This

worldwide volume represents the equivalent of about 48 years of yearly production of crude oil;

- CO<sub>2</sub> emissions resulting from the use of oil and gas products have markedly decreased in the United States (-8 %) and in Europe (-10 %) between 2000 and 2013. However, it increased in Canada (+15 %) and even more in the Middle East (+73 %) and in China (+108 %).

#### *Literature review*

The literature review first presents the main findings of the strategic environmental assessments (SEE) whose mandate was to assess the knowledge of economic, environmental and social aspects of hydrocarbons development for Quebec as a whole, and more precisely for Anticosti Island:

- The oil, gas and petroleum markets accounts for \$2.1 billion of Quebec's GDP (note: strict definition of sector, does not include many derivatives and industries directly related to petroleum);
- At this moment, no commercial production of hydrocarbons takes place in Quebec. Oil and gas products are entirely imported from producing provinces in Canada, the United States, or elsewhere in the world. Today, these supplies represent a little over half (53 %) of Quebec's energy balance;
- Current knowledge on Quebec's geological basins do not allow to precisely establish their potential for commercial exploitation;
- Three main production scenarios exist, including the "Optimized" scenario that seems to be the preferred approach (445 platforms, annual GDP contribution of \$2 billion);
- An economic development potential exists among Quebec suppliers to obtain part of the Canadian hydrocarbons market, with or without extraction in Quebec;
- Possible extraction in Quebec may foster the development of a full industrial structure of suppliers of goods and services. The labour pool appears to be sufficient to meet the demand.

The other summaries cover the various aspects studied during the assessments:

- Hydrocarbons economy in Quebec
- Financial and economic appraisal of exploration/exploitation projects on Anticosti
- Potential markets
- Labour requirements
- Shale gas

- Exploration and exploitation in the St. Lawrence maritime estuary and in the northwestern Gulf of St. Lawrence
- SEE on hydrocarbons development in the Anticosti, Chaleur Bay and Magdalen Islands basins
- Public health
- Aboriginal presence and issues associated with hydrocarbons development in Quebec
- Required expertise and development potential of a Quebec services industry
- Knowledge synthesis on the geology of the major sedimentary basins of the south of Quebec and hydrocarbon potential
- Royalties
- Social acceptability
- Environmental issues associated to hydrocarbons exploration, exploitation and transportation in Quebec
- Social and socio-economic impacts – critical literature review
- Proximity to a pipeline and its influence on the selling prices of properties
- Synthesis – economic aspects

Other documents that were reviewed present Canada's energy profile, a methodological review of risk assessments and the economic impact of low crude oil prices. On this last topic, low prices were historically linked to greater economic growth, due to profits transfers from oil and gas producers (channeled through savings) to their users (for consumption purposes). At the moment, the impact of these transfers is less positive than previously, as beneficiaries of lower prices tend to reimburse their debts, whereas producing countries tend to decrease investments and expenses. Ultimately, low prices imply an increased oil and gas consumption, which contributes to global warming and reinforces the importance to implement carbon taxes. Adverse effects can also occur, for example the increase in obesity or the reduction of research on clean energy.

### *Survey of enterprises*

The survey of enterprises highlighted the following elements:

- Globally, these four firms generated revenues in Quebec exceeding \$10 billion in 2015. Knowing that their economic activities are deployed in a little more than 350 facilities across Quebec, this translates into average per-facility revenues of approximately \$28 million;
- Survey respondents employed close to 1,400 full-time workers to execute their internal activities in 2015. A little over half (53 %) of them were assigned to production, 37 % were managers and 11 % carried out administrative duties. These workers received total salaries of \$146.2 million, which corresponds to an average salary of \$105,500 per employee, approximately 2.3 times the average salary in Quebec;

- In a context where taxation occupies a prominent place in the news, the four surveyed firms paid a total of \$3.5 billion in levies and taxes to federal, provincial and municipal governments in 2015, which corresponds to 35 % of their total revenues in Quebec;
- In total, these four organizations entered in agreements with 3,036 Quebec businesses in 2015, for a total value of \$981.3 million in goods and services. This amounts to \$323,200 for each Quebec business. These economic exchanges supported 7,400 jobs at these suppliers, of which 4,300 were direct jobs. At least three of the four surveyed firms purchased goods and services in Quebec in each of the following regions: Montreal, National Capital, Montréal, Laval, Mauricie, Eastern Townships, Lanaudière, Laurentians and Central Quebec;
- In 2014 and 2015, investments from these four companies in Quebec amounted to over \$1 billion. For years 2016 to 2020, an additional \$1.2 billion are planned for the same purpose. However, the nature of the investments changed: whereas between 2014 and 2015, investments were made to stimulate growth and increase production capacity, the 2016-2020 projects are mostly for repairs and to maintain the production capacity of these companies.
- Corporate social engagement in Quebec by the responding firms (cultural organizations, hospitals, educational establishments, various foundations, etc.) totaled \$2.4 million in 2015. Of this sum, comparable amounts were paid out in sponsorships and grants, charitable donations and to foundations, while close to 300,000 \$ were allocated to various community and environmental programs (ex.: fire departments, impact mitigation).