



HOUSE OF COMMONS  
CHAMBRE DES COMMUNES  
CANADA

# **CURRENT AND FUTURE STATE OF OIL AND GAS PIPELINES AND REFINING CAPACITY IN CANADA**

## **Report of the Standing Committee on Natural Resources**

**Leon Benoit, M.P.  
Chair**

**MAY 2012**

**41st PARLIAMENT, 1st SESSION**

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# **THE STANDING COMMITTEE ON NATURAL RESOURCES**

has the honour to present its

## **THIRD REPORT**

Pursuant to its mandate under Standing Order 108(2), the Committee has studied the current and future state of oil and gas pipelines and refining capacity in Canada and has agreed to report the following:





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# THE CURRENT AND FUTURE STATE OF OIL AND GAS PIPELINES AND REFINING CAPACITY IN CANADA

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## INTRODUCTION

Global and domestic energy markets are undergoing changes that give rise to opportunities and challenges for Canada's oil and gas and refining sectors. The overall gasoline and diesel demand in North America and other OECD countries is expected to decline over the next two to three decades.<sup>1</sup> On the other hand, the global demand for crude oil, especially in emerging economies, is projected to continue to increase "for the next 25 years and beyond", which presents attractive export opportunities, considering Canada's sizeable<sup>2</sup> oil reserves.<sup>3</sup> Furthermore, the discovery of large unconventional natural gas resources and the growing demand for alternatives to liquid fuels in Canada and the United States are expected to increase the role of natural gas in future North American markets.<sup>4</sup> Changes in the supply and demand of oil and gas affect Canada's refining sector, which faces a number of challenges, including regional challenges, meriting special consideration.

The emerging national and international trends in oil and gas markets bring about a number of concerns and opportunities regarding trade, infrastructure, employment, energy security, government regulation, and the environment, among others. In order to gain a better understanding of the various opportunities and challenges facing Canada's oil and gas sectors, the House of Commons Standing Committee on Natural Resources conducted a study on the current and future state of oil and gas pipelines and refining capacity across Canada. Over the course of four meetings, the Committee heard from a number of witnesses from government, Aboriginal groups, academia, unions and the private sector. This report concludes the Committee's study, and brings forward recommendations for consideration by the Government of Canada.

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- 1 John Quinn, General Manager, Integration and Planning, Refining and Marketing, Suncor Energy Inc., *Evidence*, February 2, 2012.
  - 2 According to Natural Resources Canada (*Evidence*, January 31, 2012), Canada's crude oil reserves are estimated to amount to about 174 billion barrels (including 170 billion barrels in the oil sands), and could grow to 300 billion barrels, as extraction technology advances and becomes economically viable.
  - 3 Peter Boag, President, Canadian Petroleum Products Institute, *Evidence*, January 31, 2012.
  - 4 Professor Michal Moore, School of Public Policy and ISEE Core Faculty, University of Calgary, As an Individual, *Evidence*, February 7, 2012.

## OVERVIEW

### A. Pipelines

North America's oil and gas pipeline networks are closely integrated, particularly between Western Canada and the U.S. Midwest. In Eastern Canada, connections are mostly south-north, linking New England states to Quebec and Ontario through Portland, Maine (Figures 1 and 2). There are over 100,000 kilometres of pipelines in Canada, over 70%<sup>5</sup> of which are regulated by the National Energy Board (NEB). In the past five years, the value of energy transported over NEB-regulated pipelines to Canadian and export markets exceeded \$100 billion annually, peaking at \$127 billion in 2008, while the cost of transport through the same pipelines averaged less than \$5 billion<sup>6</sup> annually. Energy exports by pipeline contribute to approximately one fifth of Canada's total annual merchandise export revenues.<sup>7</sup>

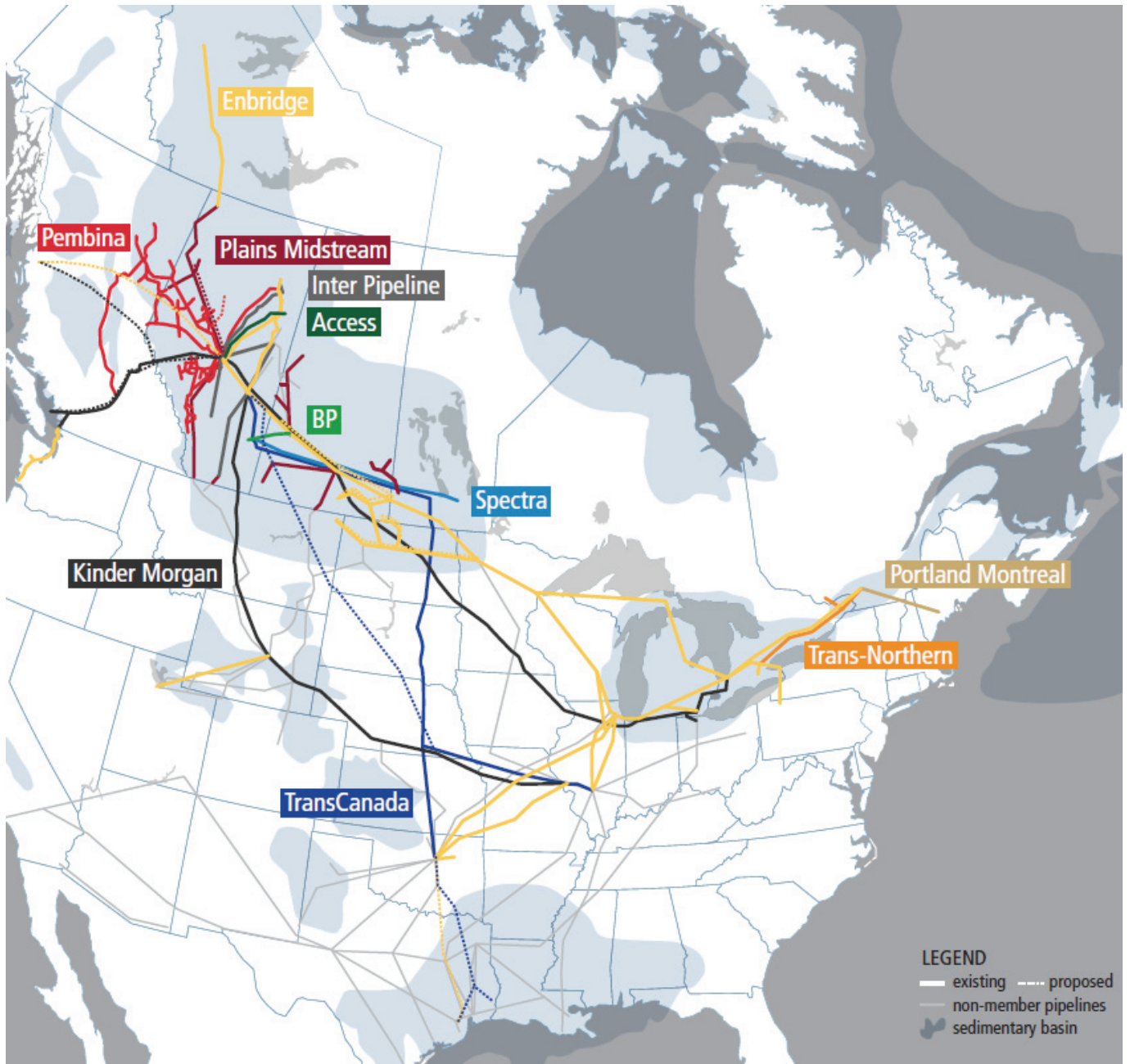
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5 The remaining 30% fall within provincial jurisdiction.

6 According to Brenda Kenny (follow-up correspondence with the Committee, March 5, 2012), pipelines are capital-intensive projects that require large initial outlays (often billions of dollars). The return on investment of a pipeline could take up to 30 years. The \$5 billion transport cost includes: depreciation costs, return on equity investment, annual cost of debt payments, and annual operating and maintenance costs (e.g., fuel, safety maintenance, inspections, taxes, etc.). All transport costs and associated tolls and tariffs are "normally approved by the appropriate regulators (NEB or provincial regulator), although the specific method of regulation can vary from jurisdiction to jurisdiction."

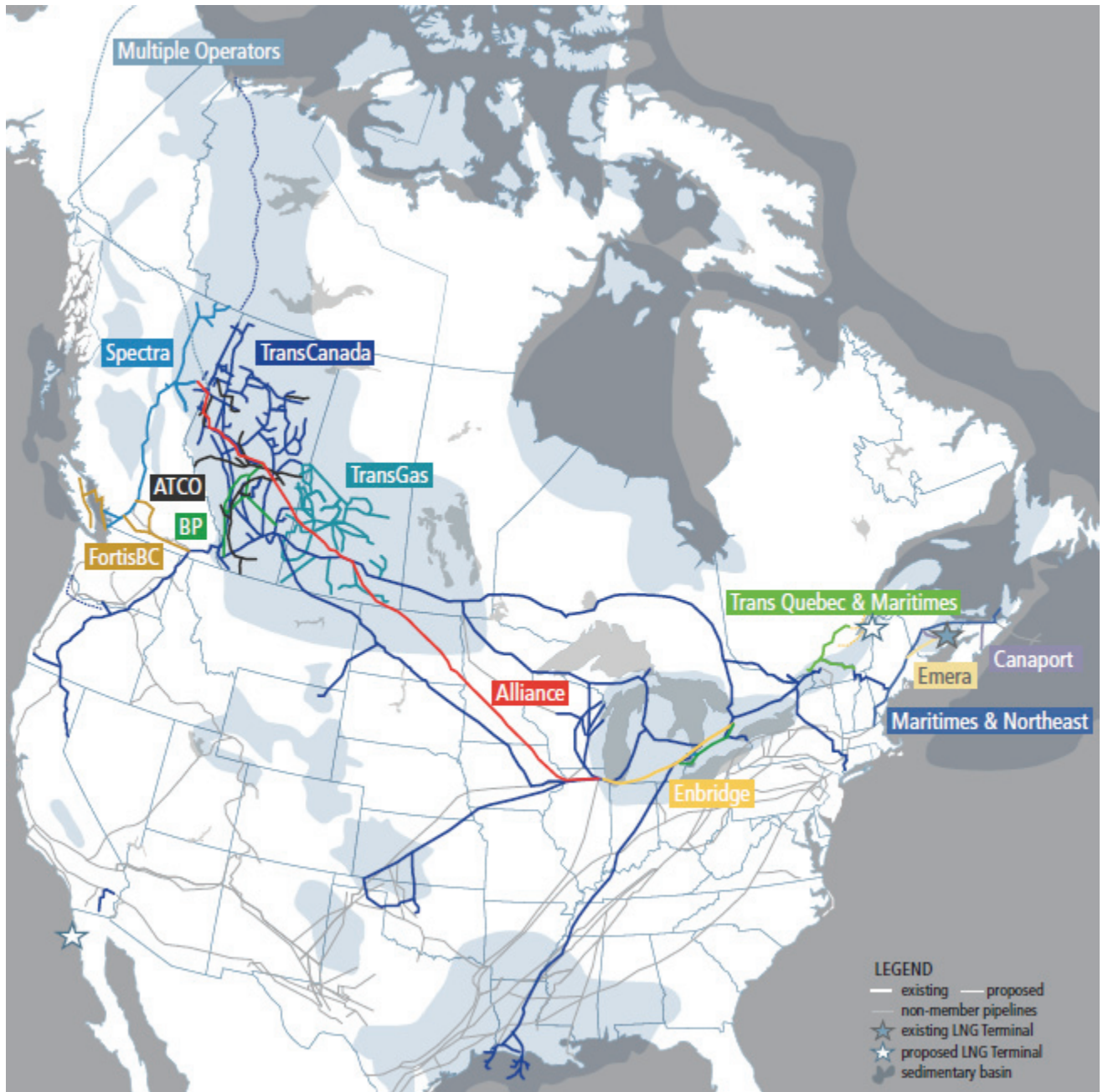
7 Canadian Energy Pipeline Association, document presented to the Committee, February 7, 2012.

Figure 1: Liquid Pipelines in Canada and the United States



Source: Canadian Energy Pipeline Association, <http://www.cepa.com/map/>.

Figure 2: Natural Gas Pipelines in Canada and the United States



Source: Canadian Energy Pipeline Association, <http://www.cepa.com/map/>.

As Figure 3 demonstrates, pipelines serve a number of different purposes in the distribution of oil and gas. There are two general types of energy pipelines, the majority of which are buried underground:

- 1) Oil pipelines, which consist of crude oil, diluted bitumen and refined product lines:
  - a) Crude oil pipelines include small pipelines (approximately 5 to 20 centimetres in diameter) that gather oil from onshore or offshore oil wells, and connect to larger “trunk” lines (approximately 20 to 61 centimetres in diameter) for distribution. Few larger cross-country crude oil transmission pipelines (approximately 1.2 metres in diameter) are used to bring oil from extraction sites to refineries.<sup>8</sup>
  - b) Refined product lines are used to transport a variety of refined products (e.g., gasoline, jet fuel, home heating oil and diesel fuel) to large fuel terminals with storage tanks to be loaded onto tanker trucks, which subsequently deliver fuels to gas stations and homes. (Major industries, airports and electrical power generation plants are supplied directly by pipeline.<sup>9</sup>) Refined petroleum products are often distributed as “batches” in multiproduct pipelines. Sophisticated sensors and monitoring technology are used to avoid the intermingling of different batches through the pipeline.<sup>10</sup>
- 2) Natural gas pipelines, used to transport natural gas from gas wells to processing plants to distribution systems throughout Canada. After being processed, natural gas is delivered directly to homes and businesses through an extensive network of small-diameter distribution pipelines.<sup>11</sup>

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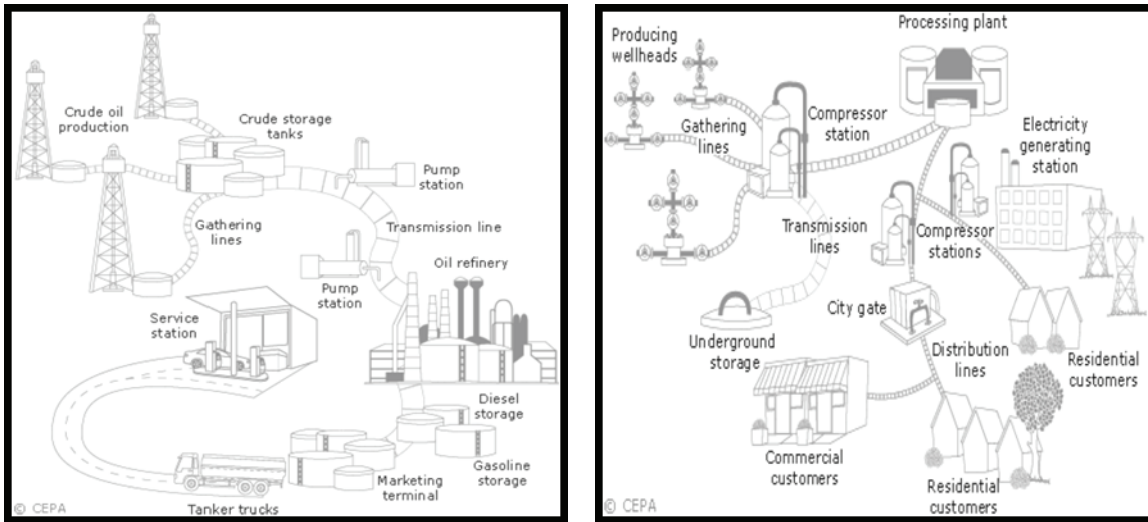
8 Professor Hossam Gabbar, University of Ontario Institute of Technology, As an individual, document presented to Committee, January 31, 2012.

9 Ibid.

10 Brenda Kenny, President and Chief Executive Officer, Canadian Energy Pipeline Association, follow-up correspondence with the Committee, March 5, 2012,

11 Professor Hossam Gabbar, University of Ontario Institute of Technology, As an individual, document presented to Committee, January 31, 2012.

**Figure 3: Crude Oil (left) and Natural Gas (right) Delivery Networks**



Source: Professor Hossam Gabbar, document presented to Committee, January 31, 2012.

The NEB oversees pipeline regulation throughout the life cycle of a given pipeline. During the application phase, the NEB assesses whether the pipeline is in the public interest, and “whether the project can be built and operated safely and in a manner that protects people and the environment.” During the planning phase, companies must meet the NEB’s regulatory requirements and demonstrate “meaningful public involvement and consultation.” If a project gets approved, the NEB may also attach any conditions deemed to be in the public interest. The NEB continues to monitor and verify compliance with regulatory requirements throughout the construction and operation phases of a given project. Finally, if a pipeline is to be abandoned, the NEB is responsible for ensuring that the company’s abandonment plan can be conducted “safely while protecting the environment at the time of abandonment and beyond.”<sup>12</sup>

Pipelines extending over 40 kilometres require a public hearing under section 52 of the *National Energy Board Act*. According to Gaétan Caron, Chair and CEO of the NEB, the overall length of the review process is “based on an independent decision of the panel hearing the case.”<sup>13</sup>

According to Professor Hossam Gabbar, “pipelines are the safest<sup>14</sup> and most efficient means of transporting large quantities of crude oil and natural gas over land.”<sup>15</sup>

12 Gaétan Caron, Chair and CEO, National Energy Board, *Evidence*, February 9, 2012.

13 Ibid.

14 Professor Gabbar defined safety as “freedom from unacceptable risk.”

15 Professor Hossam Gabbar, University of Ontario Institute of Technology, As an individual, document presented to Committee, January 31, 2012.



Similarly, Mark Corey, Assistant Deputy Minister, Energy Sector, Natural Resources Canada (NRCan), stated that pipelines are the “safest and cheapest way to transport large quantities of oil over long distances [...]”.<sup>16</sup> Furthermore, Mr. Caron told the Committee that “studies continue to confirm that pipelines operate more safely than any other mode of transportation of hydrocarbons.”<sup>17</sup> Possible pipeline risks include leaks, ageing, human error and corrosion, which varies according to the impact of different chemical properties on a given pipeline.<sup>18</sup>

The NEB recently reported that pipeline worker serious injury rates are low and are continuing to drop, and that the environmental impacts of leaks have been “localized and fully remediated in compliance with [NEB] requirements, guided by international best practices.”<sup>19</sup> Between 2000 and 2011, petroleum spills amounted to approximately 3,715 barrels<sup>20</sup> per year. There were two incidents in 2009, eight incidents in 2010, and, by September, four incidents had occurred in 2011.<sup>21</sup>

Pipeline companies are held accountable for the safety of their facilities and the protection of the environment in which they operate, throughout the life cycle of a given pipeline. They are required to anticipate, prevent, mitigate and manage incidents of any size or duration. In the case of a serious incident, the NEB oversees the regulated company's “immediate and ongoing response and cleanup,” and requires that “all reasonable actions be taken to protect employees, the public, and the environment.” According to Gaétan Caron, in areas where the NEB finds that safety can be improved, it takes the necessary actions to rectify the situation. The NEB has the authority to “shut down the pipeline company's operation. Failures or serious injuries must be reported to the board by law. The board requires companies to conduct their own investigations and submit their results. In serious cases [the NEB] will conduct [its] own investigation.”<sup>22</sup>

Pipeline construction generates a wide range of direct and indirect employment opportunities within the energy sector, including construction jobs to build the infrastructure necessary to support the consequential growth within the oil and gas sector (e.g., office towers). According to Christopher Smillie, Senior Advisor, Government Relations, Building and Construction Trades Department, at the Canadian Office of the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO), even though direct pipeline

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16 Mark Corey, Assistant Deputy Minister, Energy Sector, Department of Natural Resources, *Evidence*, January 31, 2012.

17 Gaétan Caron, Chair and CEO, National Energy Board, *Evidence*, February 9, 2012.

18 Professor Hossam Gabbar, University of Ontario Institute of Technology, As an individual, document presented to Committee, January 31, 2012.

19 Gaétan Caron, Chair and CEO, National Energy Board, *Evidence*, February 9, 2012.

20 One barrel of oil is equal to 158.987 litres.

21 Mark Corey, Assistant Deputy Minister, Energy Sector, Department of Natural Resources, *Evidence*, January 31, 2011.

22 Gaétan Caron, Chair and CEO, National Energy Board, *Evidence*, February 9, 2012.

construction jobs last, on average, three seasons, “the vast bulk of jobs created last for 50 years or more.” For instance, the AFL-CIO represents about 80,000 to 90,000 skilled trade workers in Alberta who “in one way or another [...] work in the energy sector.” Mr. Smillie told the Committee that pipelines are “more than a connection for products. The pipeline links together jobs from one end of the production chain to the other end of that chain.”<sup>23</sup>

According to John Quinn, General Manager, Integration and Planning, Refining and Marketing, Suncor Energy Inc., there is a shortage of skilled jobs in the oil and gas industry. The biggest challenge facing Suncor’s business expansion plans is “the need for thousands of skilled jobs, in Alberta in particular, but they resonate across the country for suppliers of goods and services to that construction effort and to that ongoing production effort as we go forward. There is no shortage in the requirement for skilled jobs in this country going forward.”<sup>24</sup>

## **B. Refining**

Refineries are used to produce a wide range of products, including gasoline, diesel oil, lubricating oil, and naphtha (used for the production of certain chemicals). Figure 4 presents a simplified illustration of a refining plant. By heating crude oil and injecting it into a distillation tower, different products are produced at different temperatures.<sup>25</sup> According to Peter Boag, President of the Canadian Petroleum Products Institute (CPPI), petroleum product refineries are not the same as bitumen upgraders. Refineries are more complex facilities, built and configured to process crude oil — “from heavy to light, from sour to sweet and now synthetic, into products such as gasoline, diesel, aviation fuel and home heating oil.” On the other hand, bitumen upgraders are built and configured to process bitumen feed — which is unsuited for processing in most product refineries — into synthetic crude suitable as a product refinery feedstock. An upgrader and a refinery can be integrated into a single facility.<sup>26</sup>

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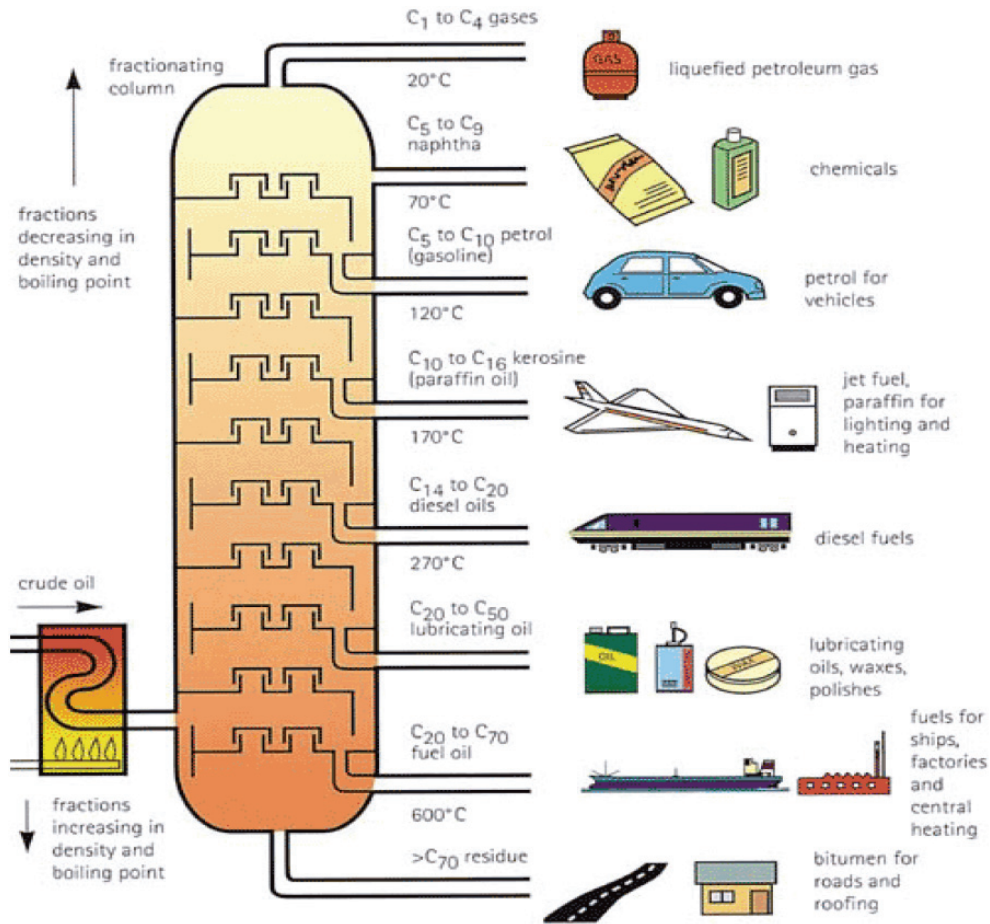
23 Christopher Smillie, Senior Advisor, Government Relations, Building and Construction Trades Department, Canadian office of the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO), *Evidence*, February 7, 2012.

24 John Quinn, General Manager, Integration and Planning, Refining and Marketing, Suncor Energy Inc., *Evidence*, February 2, 2012.

25 Professor Hossam Gabbar, University of Ontario Institute of Technology, As an individual, document presented to Committee, January 31, 2012.

26 Peter Boag, President, Canadian Petroleum Products Institute, *Evidence*, January 31, 2012.

**Figure 4: Simplified Oil Production Chain from Refining**



Source: Professor Hossam Gabbar, document submitted to the Committee on January 31, 2012

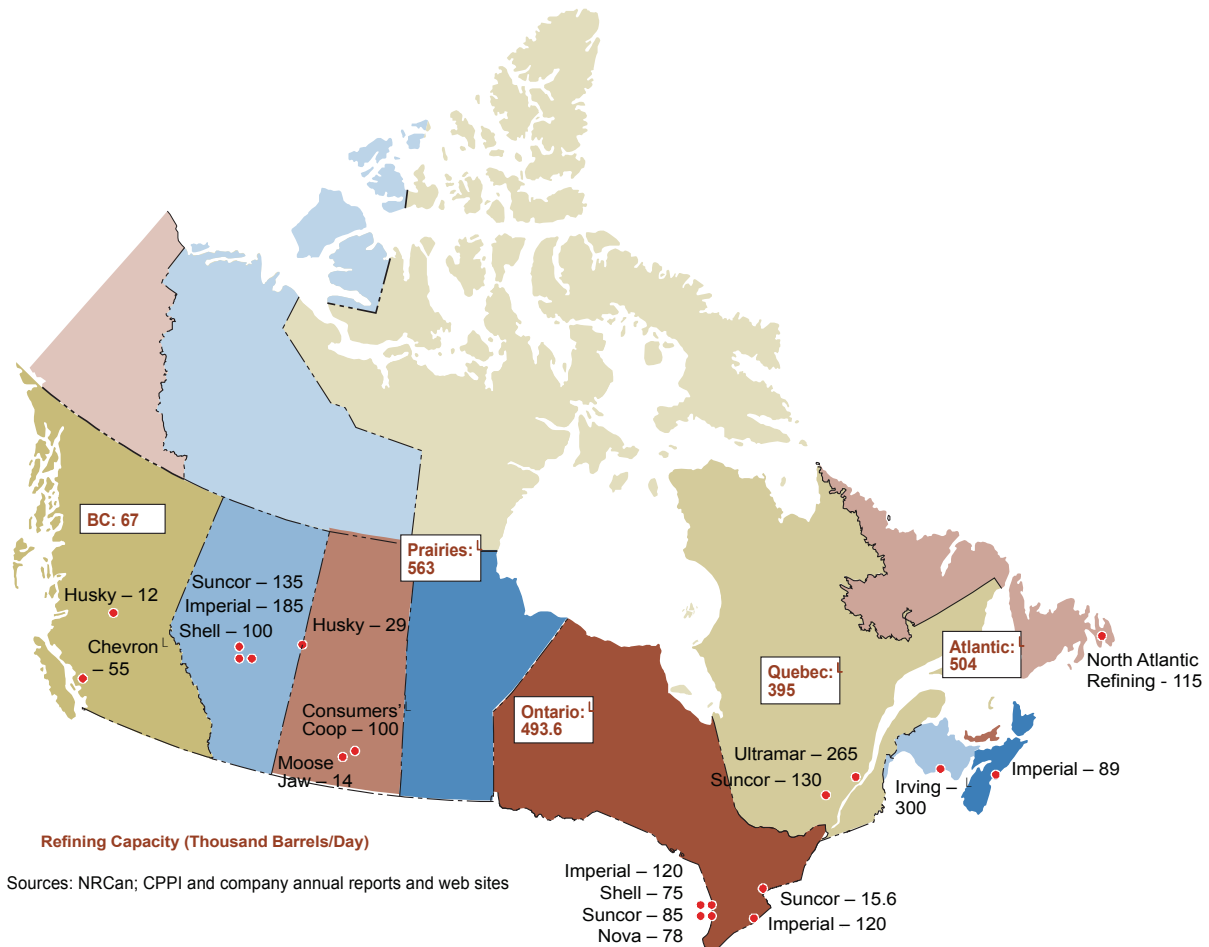
There are 19 refineries across Canada, with an aggregate production capacity of approximately two million barrels per day.<sup>27</sup> Of the 19 refineries, 15 produce the full range of petroleum products. Refineries in Western Canada use domestic crude oil delivered via pipeline, while in Eastern and Atlantic Canadian refineries, 15% of the oil comes from domestic offshore production and 85% is imported via tanker into Halifax, Saint John or Come By Chance.<sup>28</sup> In Quebec, crude oil is imported via small tankers into Lévis, or via larger tankers into Portland, Maine, and then delivered to Montréal by pipeline. Finally, in Ontario, refineries mainly use domestic crude oil, in addition to small volumes of imported crude, generally delivered through the Portland-Montréal Pipeline and the Enbridge Line 9

27 Canadian Petroleum Products Institute, document presented to Committee, January 31, 2012.

28 Natural Resources Canada, document presented to Committee, January 31, 2012.

Pipeline.<sup>29</sup> As Figure 5 demonstrates, every Canadian province, except for Manitoba and Prince Edward Island, has at least one refinery.

**Figure 5: Canadian Refineries and Refining Capacity<sup>30</sup>**



Source: Canadian Petroleum Products Institute, document presented to Committee, January 31, 2012.

29 Ibid.

30 The refineries depicted in the map are located in the following cities (east to west): Come By Chance, NL (North Atlantic Refining); Dartmouth, NS (Imperial Oil); Saint John, NB (Irving Oil); Lévis, QC (Ultramar); Montréal, QC (Suncor); Mississauga, ON (Suncor); Nanticoke, ON (Imperial Oil); Sarnia, ON (Imperial Oil, Shell, Suncor and Nova); Regina, SK (Consumers' Co-op); Moose Jaw, SK (Moose Jaw Refining); Lloydminster, AB (Husky); Scotford, AB (Shell); Edmonton, AB (Suncor and Imperial Oil); Prince George, BC (Husky); Burnaby, BC (Chevron).

In addition to the 19 refineries in Canada, there are seven upgraders in Alberta that process 100% bitumen feed — unlike petroleum product refineries, which are built and configured to process crude oil. According to Peter Boag, “some upgraders produce limited amounts of finished products, generally diesel.”<sup>31</sup> Mark Corey told the Committee that Alberta’s objective is to upgrade two thirds of its crude oil production by 2020, which would require four additional upgraders at the cost of approximately \$3 billion each.<sup>32</sup> In 2010, Canada produced 1.5 million barrels of bitumen per day, of which 0.8 million bb/d, or 53%, was upgraded.<sup>33</sup>

About 90% to 95% of Canadian refinery output is fuel products, while 5% to 10% is petrochemical feedstock.<sup>34</sup> As a net exporter of refined petroleum products, Canada exports approximately 20% (or 400,000 bpd) of its refining output, mainly from Quebec and Atlantic Canada to the Northeastern United States.<sup>35</sup> According to Peter Boag, “the bottom line is that at the end of the day, [Canada is] a net exporter of refined products to about 20% of our capacity in a very competitive North American market. We think that’s a pretty positive story for Canada.”<sup>36</sup> In 2009, Canada’s refining sector contributed \$2.5 billion to the Canadian economy, and employed about 17,500 “highly educated and well-paid” refinery workers.<sup>37</sup> A report by the Conference Board of Canada indicates that refinery workers earn approximately 50% more than workers in Canada’s overall manufacturing sector.<sup>38</sup> According to Christopher Smillie, at refineries “there are jobs sustaining construction, operations, and maintenance. Those jobs are there for 50 years. Pipelines link those jobs together. If there’s no pipeline to markets, those other high-paying, high-skilled, and challenging jobs don’t exist.”<sup>39</sup>

The number of refining plants in North America dropped from over 360 in the 1970s and 1980s to less than 140 today. According to Michael Ervin, Vice-President and Director of Consulting Services at MJ Ervin and Associates, the closure of about 200 refineries since 1970 was a result of excess refining capacity and poor returns on

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31 Peter Boag, President, Canadian Petroleum Products Institute, *Evidence*, January 31, 2012.

32 Mark Corey, Assistant Deputy Minister, Energy Sector, Department of Natural Resources, *Evidence*, January 31, 2011.

33 Natural Resources Canada, document submitted to the Committee, February 24, 2012.

34 Mark Corey, Assistant Deputy Minister, Energy Sector, Department of Natural Resources, *Evidence*, January 31, 2012.

35 Canadian Petroleum Products Institute, document presented to Committee, January 31, 2012.

36 Peter Boag, President, Canadian Petroleum Products Institute, *Evidence*, January 31, 2012.

37 Mark Corey, Assistant Deputy Minister, Energy Sector, Department of Natural Resources, *Evidence*, January 31, 2012.

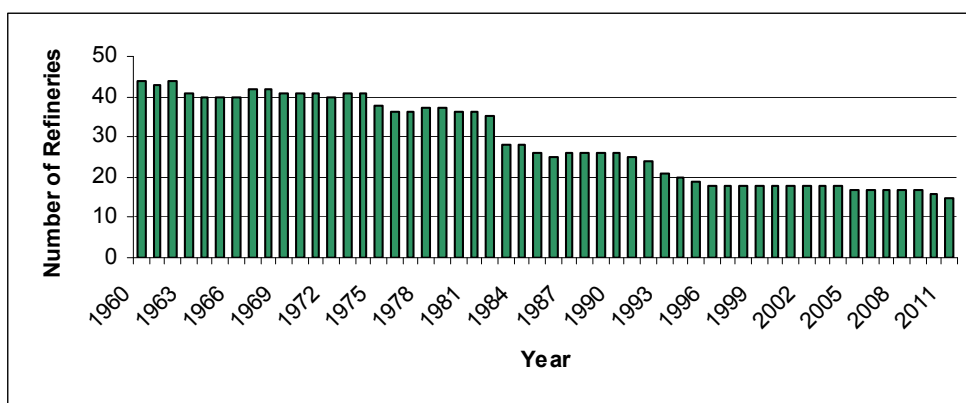
38 John Quinn, General Manager, Integration and Planning, Refining and Marketing, Suncor Energy Inc., *Evidence*, February 2, 2012.

39 Christopher Smillie, Senior Advisor, Government Relations, Building and Construction Trades Department, Canadian office of the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO), *Evidence*, February 7, 2012.

capital within North America’s refining sector. Furthermore, the progression of fuel quality mandates (e.g., reductions in lead, benzene, sulphur, etc.) presented challenges to the industry, particularly smaller and less efficient refineries that could not justify the large investments needed to comply with the new mandates.<sup>40</sup> By the mid-1990s, the steady increase in petroleum demand in North America caused the utilization rates of refining plants to exceed 90%, which is optimal in terms of profitability. As a consequence, many refineries attracted high capital investment, and underwent expansion in order to meet the growing demand for petroleum products.<sup>41</sup>

Canadian refining capacity has consistently responded to the market conditions of supply and demand. The expansion of Canadian refineries has, on average, increased Canada’s refining capacity, despite the decline in the number of refineries over the past five decades (Figures 6 and 7). In 1960, there were 44 refineries producing about 945,000 b/d across the country, compared to 19 refineries today and a production rate of approximately 1,886,000 b/d in 2011.<sup>42</sup> (Of the 19 Canadian refineries, 15 produce the full range of petroleum products.) Given the fact that Canada’s refining industry is not operating at full capacity, and that petroleum fuel demand has likely peaked in North America and other OECD countries<sup>43</sup> (and will likely continue to decline in upcoming years<sup>44</sup>), there is currently no economic basis for building new refineries in Canada.

**Figure 6: Number of Canadian Refineries, 1960-2011**



Source: Natural Resources Canada, document presented to Committee, January 31, 2012.

40 Michael Ervin, Vice-President, Director of Consulting Services, MJ Ervin and Associates, The Kent Group, *Evidence*, February 2, 2012.

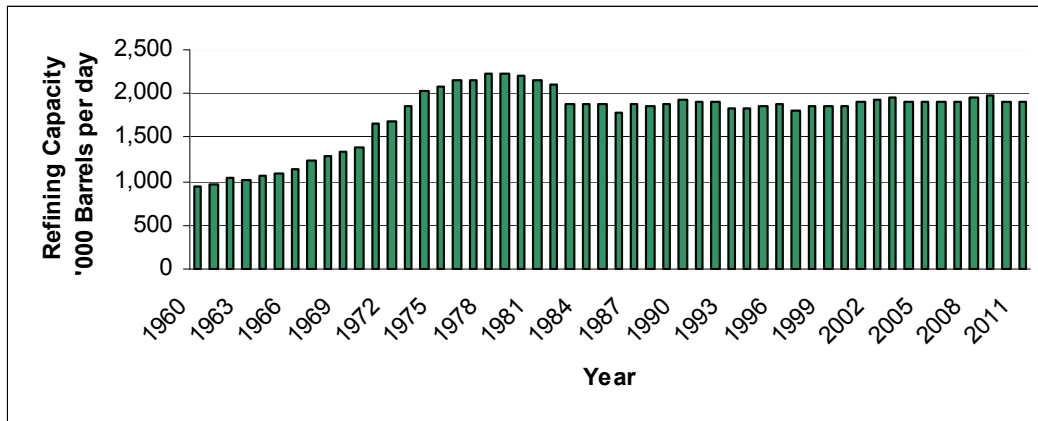
41 Ibid.

42 Natural Resources Canada, document presented to Committee, January 31, 2012.

43 Mark Corey, Assistant Deputy Minister, Energy Sector, Department of Natural Resources, *Evidence*, January 31, 2012.

44 Michael Ervin, Vice-President, Director of Consulting Services, MJ Ervin and Associates, The Kent Group, *Evidence*, February 2, 2012.

**Figure 7: Canadian Refining Capacity, 1960-2011**



Source: Natural Resources Canada, document presented to Committee, January 31, 2012.

## **EMERGING MARKET TRENDS: OPPORTUNITIES AND CHALLENGES**

### **A. Crude Oil**

The growing global demand for crude oil, particularly in emerging economies, is expected to increase the export opportunities for Canada's upstream oil sector.<sup>45</sup> According to Professor Jack Mintz, considering that Canadian exports are largely dependent on the United States, diversifying crude export markets would improve Canada's leverage as an exporter, particularly with respect to negotiations with the United States — a large energy market with strong negotiating powers.<sup>46</sup> Upgrades to pipeline infrastructure could achieve two main goals: 1) facilitate the export potentials of Canadian crude oil to emerging markets overseas, and 2) improve the efficiency of export markets within North America.

The two most commonly used pricing standards for crude oil are the West Texas Intermediate (WTI), based on prices in Cushing, Oklahoma, and the Brent (considered the world price), based on prices in the North Sea. In recent years, the Brent pricing has been generally higher than the WTI pricing, by as much as \$25 per barrel at one point (on January 31, 2012, the differential was \$13 per barrel; and recently, it dropped to \$9 per barrel). According to Mark Corey, once the oil is delivered to tidewater, "the two

45 Peter Boag, President, Canadian Petroleum Products Institute, *Evidence*, January 31, 2012.

46 Professor Jack Mintz, Palmer Chair in Public Policy, School of Public Policy, University of Calgary, As an Individual, *Evidence*, February 7, 2012.

price levels come more into line.”<sup>47</sup> In other words, in current North American crude oil markets, waterborne crude has a higher value than landlocked crude.

Professor Michal Moore told the Committee that a number of pipeline networks in North America rely on additional support from rail, barge or truck in order to deliver crude oil to refining facilities or tidewater ports, which adds to the overall cost of oil distribution. For example, he stated that “in the Houston market, in moving down to [the] gulf coast market, we give away about \$10 a barrel in potential headroom to producers.” Similarly, “in the California market, where the reserves of heavy crude are declining in the California basins, we give away even more, up to about \$13 a barrel, depending on conditions.”<sup>48</sup> Brenda Kenny, President and Chief Executive Officer of the Canadian Energy Pipeline Association (CEPA), stated the following: “[...] currently there are some market distortions in North America. In total, depending on the numbers, that can cost Canada anywhere from \$14 billion to \$18 billion a year. That is in addition to lost tax revenues, fewer dollars for reinvestment in Canada, and lower returns to all shareholders, many of whom are pensioners.”<sup>49</sup>

According to Professor Jack Mintz, it is important for Canada “not to be too reliant on only one market, and there is some value to diversification as a result.”<sup>50</sup> Similarly, Mark Corey told the Committee that “strategically it would be wise of [Canada...] to diversify beyond the U.S. market to make sure we're getting the best price possible for our crude.”<sup>51</sup> Professor Michal Moore stated that the price differential that can be captured by improving the pricing of Canadian crude oil exports “represents several hundred billion dollars over a 20- to 30-year period that's available to government.” He stated the following:

“[The main point] is being able to reach what amounts to a tidewater access pricing point. It's important to differentiate between where our products actually go versus where they're priced. Right now, some of the knock on the Keystone pipeline, which is coming from various sectors in the U.S., suggests that all we're trying to do is export to foreign markets [...]. Where we have an advantage is in getting into the U.S. gulf coast, where our products can be processed and then transformed into gasoline and other distillates, and reaching out to a U.S. market. When we can do that, we get a higher world price,

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47 Mark Corey, Assistant Deputy Minister, Energy Sector, Department of Natural Resources, *Evidence*, January 31, 2012.

48 Professor Michal Moore, School of Public Policy and ISEE Core Faculty, University of Calgary, As an Individual, *Evidence*, February 7, 2012.

49 Brenda Kenny, President and Chief Executive Officer, Canadian Energy Pipeline Association, *Evidence*, February 7, 2012.

50 Professor Jack Mintz, Palmer Chair in Public Policy, School of Public Policy, University of Calgary, As an Individual, *Evidence*, February 7, 2012.

51 Mark Corey, Assistant Deputy Minister, Energy Sector, Department of Natural Resources, *Evidence*, January 31, 2012.



and that translates directly back into tax revenues and royalties that are significant, literally, for every province in Canada.”<sup>52</sup>

Furthermore, Professor Mintz stated that there are both economic and political gains to shipping either to California or to Asia:

“It does potentially increase the GDP in Canada, as I recall, by about a percentage point over the next number of years, if we do export to either Asia or California, partly because we can achieve some better pricing for our product. That’s assuming that we also deal with the Cushing inventory problem, where oil has to be sent at a high cost down to the gulf coast. It’s more pipelines set up, and we do see an elimination of differential between the international price and the West Texas Intermediate price, which will be a big gain for Canada as well.”<sup>53</sup>

The choice of how and where to export crude oil, according to Professor Mintz, “comes down to [...] the economic advantages of different alternatives,” adding that “there are very significant advantages of still selling to the United States, particularly to the gulf area.” He emphasized the role of transportation costs in the economics of crude oil exports.<sup>54</sup> Even though some oil pipelines have increased their capacity in recent years, the overall Canadian export pipeline capacity is tight, with “little flexibility in the system,” according to the NEB.<sup>55</sup>

The following pipeline proposals could improve the access of crude oil from Western Canada’s sedimentary basin to international markets:

- The Keystone XL Pipeline proposal, which would connect Canada’s oil sands to the U.S. gulf coast. The Keystone Pipeline can currently deliver Canadian crude oil to Cushing, Oklahoma. By adding pipeline connections from Hardisty, Alberta to Steele City, Nebraska, and from Cushing to Houston, Texas, the project would improve the access of Canadian crude oil to the U.S. gulf coast, and eliminate some of the current transportation costs associated with shipping products from Cushing to southern Texas (e.g., by truck). These reduced costs could also increase the pricing on Canadian crude oil sales in the U.S. gulf coast.<sup>56</sup> According to Christopher Smillie, the Keystone XL project would generate approximately 3,000 to

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52 Professor Michal Moore, School of Public Policy and ISEE Core Faculty, University of Calgary, As an Individual, *Evidence*, February 7, 2012.

53 Professor Jack Mintz, Palmer Chair in Public Policy, School of Public Policy, University of Calgary, As an Individual, *Evidence*, February 7, 2012.

54 Ibid.

55 National Energy Board, *The current and future state of oil and gas pipelines and refining capacity in Canada*, Follow-up document submitted to the Committee on February 16, 2012.

56 Professor Jack Mintz, Palmer Chair in Public Policy, School of Public Policy, University of Calgary, As an Individual, *Evidence*, February 7, 2012; Peter Boag, President, Canadian Petroleum Products Institute, *Evidence*, January 31, 2012.

3,500 construction jobs in Canada (i.e., in the section from Hardisty to the U.S. border) for three seasons, in addition to 20,000 construction jobs in the United States. Mr. Smillie added that the project would also generate “hundreds of thousands” of jobs and “billions of dollars” in GDP due to subsequent developments within the oil sands.<sup>57</sup>

- The Northern Gateway Pipeline proposal, which would connect Canada’s oil sands to Asian markets through Kitimat, British Columbia. According to Christopher Smillie, the project would diversify Canada’s crude oil export markets and provide a wide range of job opportunities, including (based on some initial estimates) an estimated 2,700 construction jobs for three construction seasons.<sup>58</sup> Furthermore, Professor Jack Mintz told the Committee that shipping crude oil to Asia could increase Canada’s GDP by about a percentage point over the next few years.<sup>59</sup> The project is currently under review by a joint panel made up of the NEB and the Canadian Environmental Assessment Agency (CEAA).
- Kinder Morgan’s Trans Mountain Expansion (TMX), which is intended to increase Canada’s crude oil transmission capacity to the West Coast. On October 20, 2011, Kinder Morgan’s Trans Mountain Pipeline Limited Partnership announced the start of an “Open Season” for the next stage of the proposed TMX expansion. According to Kinder Morgan’s public website,<sup>60</sup> “depending on the results of the Open Season, [the proposed expansion] is expected to be comprised of pipeline facilities that may complete the looping of the pipeline in Alberta and British Columbia, pumping stations, tanks in Edmonton and Burnaby and expansion of the Westridge Marine Terminal, with a planned in service date in early 2017.” The 1,150 km pipeline has a current capacity of 300,000 barrels per day.<sup>61</sup>

Some of the opposition to the pipeline proposals involves environmental groups in Canada and the United States. Vivian Krause suggests that some of these groups have received millions of dollars from U.S.-based foundations, “specifically for campaigns

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57 Christopher Smillie, Senior Advisor, Government Relations, Building and Construction Trades Department, Canadian office of the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO), *Evidence*, February 7, 2012.

58 Ibid.

59 Professor Jack Mintz, Palmer Chair in Public Policy, School of Public Policy, University of Calgary, As an Individual, *Evidence*, February 7, 2012.

60 [http://www.kindermorgan.com/business/canada/tmx\\_openseason.cfm](http://www.kindermorgan.com/business/canada/tmx_openseason.cfm)

61 Kinder Morgan, Trans Mountain Pipeline Open Season, [http://www.kindermorgan.com/business/canada/tmx\\_openseason.cfm](http://www.kindermorgan.com/business/canada/tmx_openseason.cfm)

targeting the oil and gas industry in Canada.”<sup>62</sup> There has been some support and opposition to oil and gas pipeline proposals from different Aboriginal groups.

According to Michael Ervin, while the Keystone XL and Northern Gateway proposals are important to ensure continued growth in Canada’s upstream industry, particularly the oil sands, they would reduce the competitiveness of Canadian refineries that currently process crude oil from Western Canada.<sup>63</sup> Furthermore, Joseph Gargiso, Administrative Vice-President of Communications at the Energy and Paperworkers Union of Canada, told the Committee (with reference to estimates by economist Michael McCracken) that “for every 400,000 barrels of raw bitumen exported out of the country for upgrading and refining, 18,000 [well-paid] jobs in Canada will be lost [...],” not including jobs related to downstream activities, such as manufacturing.<sup>64</sup>

Joseph Gargiso is of the view that Canada’s energy security could be compromised by the exportation of large quantities of raw Canadian crude oil for processing abroad. Furthermore, Professor Larry Hughes expressed concern regarding the possible impacts of foreign supply disruptions on the availability and affordability of oil products, particularly in the Atlantic Provinces.<sup>65</sup> Atlantic Canada and Quebec import about 83% and 86.5% respectively of their oil from foreign countries, some of which have either peaked (e.g., the United Kingdom, Norway, Russia and Venezuela) or are located in politically volatile regions (e.g., Saudi Arabia, Iraq, Nigeria and Angola).<sup>66</sup> According to Mr. Gargiso, Canada could be vulnerable to oil supply disruptions from the Middle East “through its dependence on refined products sourced from [European] countries themselves dependent on the Middle East.” If the current excess of European gasoline production withers, Europe’s gasoline exports to Canada could be reduced.<sup>67</sup> On the other hand, Mr. Ervin told the Committee that North America has sufficient safeguards in the case of an energy shortage, such as the U.S. strategic oil reserve, which could supply the United States for several months. “In a North American context and given the NAFTA provisions, we have a degree

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62 Vivian Krause, As an Individual, *Evidence*, February 9, 2012.

63 Michael Ervin, Vice-President, Director of Consulting Services, MJ Ervin and Associates, The Kent Group, *Evidence*, February 2, 2012.

64 Joseph Gargiso, Administrative Vice-President, Quebec, Communications, Energy and Paperworkers Union of Canada, *Evidence*, February 2, 2012.

65 Professor Larry Hughes, Electrical and Computer Engineering, Dalhousie University, As an Individual, *Evidence*, February 7, 2012.

66 Joseph Gargiso, Administrative Vice-President, Quebec, Communications, Energy and Paperworkers Union of Canada, *Evidence*, February 2, 2012; Professor Larry Hughes, Electrical and Computer Engineering, Dalhousie University, As an Individual, *Evidence*, February 7, 2012.

67 Ibid.

of security by that means alone.”<sup>68</sup> Furthermore, John Quinn affirmed that Canada has a secure supply of energy.<sup>69</sup>

To address the potential energy security concerns of increasing Canada’s reliance on foreign oil, some witnesses supported the idea of reversing Enbridge’s Line 9<sup>70</sup> pipeline between Sarnia and Montréal. The reversal would make crude oil from Canada’s western sedimentary basin available to Eastern Canada (and possibly Atlantic Canada), and could potentially allow western crude oil to serve New England, through Portland, Maine.<sup>71</sup> Professor Larry Hughes told the Committee that crude oil could be delivered from Montréal to Atlantic Canada through the Montréal-Portland pipeline (which would also have to be reversed) and, subsequently, by tanker from Portland to Atlantic Canada’s three refineries. Alternatively, it could be delivered more expensively by tanker from Montréal to Atlantic Canada directly.<sup>72</sup> According to Joseph Gargiso, the reversal of Enbridge’s Line 9 could reduce Eastern Canada’s reliance on foreign oil by 20% to 25%.<sup>73</sup> Furthermore, John Quinn, General Manager, Integration and Planning, Refining and Marketing, Suncor Energy Inc., stated that the reversal could “foster possible investments at [Suncor’s] Montréal refinery to allow it to more fully adapt to [western] crudes [...] and would help secure Montréal refinery’s long-term flexibility, [...] performance and [...] viability.”<sup>74</sup> Mr. Quinn added that Suncor’s refinery is already capable of processing some western crude oil, although there is “no pipeline connection to allow that to happen at a cost-effective level.”<sup>75</sup>

## **Recommendation 1**

**In order to maximize the competitiveness of Canada’s crude oil production, the Committee recommends that the Government of**

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68 Michael Ervin, Vice-President, Director of Consulting Services, MJ Ervin and Associates, The Kent Group, *Evidence*, February 2, 2012.

69 John Quinn, General Manager, Integration and Planning, Refining and Marketing, Suncor Energy Inc., *Evidence*, February 2, 2012.

70 In 2011, Enbridge proposed the reversal of its line 9 between Sarnia and Montréal to bring western crude oil to Eastern Canada. According to Brenda Kenny (*Evidence*, February 7, 2012), Line 9 was originally built in the 1970s in order to address and mitigate concerns about energy security in Eastern Canada, including the potential threat of an OPEC embargo. By the 1990s, the political threat from the Middle East had receded, thereby improving the reliability and affordability of oil imports through the eastern port. Consequently, “the market signalled the need to reverse [the pipeline flow], and oil has been flowing from Montréal into Sarnia [ever since].”

71 Mark Corey, Assistant Deputy Minister, Energy Sector, Department of Natural Resources, *Evidence*, January 31, 2011.

72 Professor Larry Hughes, Electrical and Computer Engineering, Dalhousie University, As an Individual, *Evidence*, February 7, 2012.

73 Joseph Gargiso, Administrative Vice-President, Quebec, Communications, Energy and Paperworkers Union of Canada, *Evidence*, February 2, 2012.

74 John Quinn, General Manager, Integration and Planning, Refining and Marketing, Suncor Energy Inc., *Evidence*, February 2, 2012.

75 *Ibid.*

**Canada implement a streamlined regulatory process, including set timelines that ensure a fair, independent and science-based regulatory process, while at the same time considering the viewpoints of local communities and industry, and respecting the duty to consult Aboriginal groups. The streamlined regulatory process should be harmonized between the provincial, territorial and federal governments, should not reduce the current public access to the review process, and should provide exemplary environmental stewardship.**

### **Recommendation 2**

**Given the testimony regarding Enbridge's Line 9, the Committee recommends that the National Energy Board's function be re-examined and that the NEB conduct an internal review of its approval processes to ensure that pipeline decisions respecting existing infrastructure be done in a timely manner. These reviews are to be transparent and public, and are to include a wide range of stakeholders.**

### **Recommendation 3**

**The Committee recommends that the Government of Canada recognize the importance of Canada's pipeline system, as evidence shows it is the safest and most efficient way to transport oil, gas and other hydrocarbons.**

## **B. Refined Petroleum Products**

The prospects of Canada's refining sector appear uncertain, according to some Committee witnesses, particularly considering the recent and projected declines in North America's demand for gasoline, which constitutes about 40% of the continental production of petroleum products.<sup>76</sup> Since the 2008 economic recession, Canadian refineries have had a relatively high surplus capacity, with utilization rates averaging 80% in Ontario and Western Canada and 84% in Atlantic Canada and Quebec.<sup>77</sup> (To ensure profitability, refineries need to operate with a utilization rate of 90% or over.<sup>78</sup>) Figure 8 outlines Canada's average refinery capacity, production and utilization rates between 2001 and 2011.

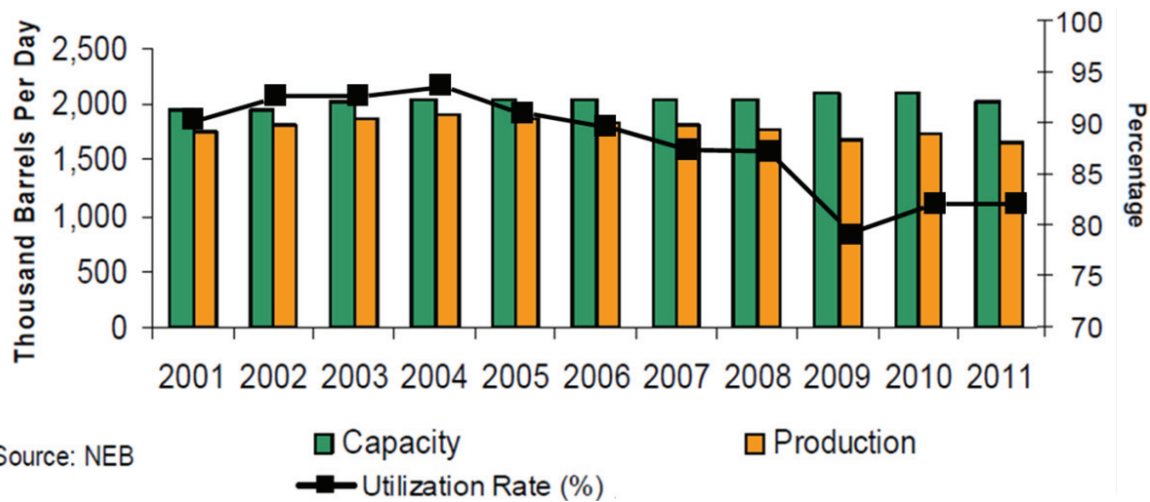
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76 Michael Ervin, Vice-President, Director of Consulting Services, MJ Ervin and Associates, The Kent Group, *Evidence*, February 2, 2012.

77 Natural Resources Canada, document presented to Committee, January 31, 2012.

78 Canadian Petroleum Products Institute, document presented to Committee, January 31, 2012.

**Figure 8: Canada's Refinery Capacity, Production and Utilization Rates, 2001-2011**



Source: NEB

Source: Canadian Petroleum Products Institute, document presented to Committee, January 31, 2012.

Canada's refining sector faces the following economic challenges, according to some Committee witnesses:

- Refining is a capital-intensive business. According to the Canadian Petroleum Products Institute (CPPI), "while no new refinery has been built in Canada for some 25 years, more than \$40 billion have been invested in Canadian refineries since 1980 — including capacity expansion and continuous improvement initiatives to increase operational efficiency, enable the refining of heavier crudes, and improve environmental performance."<sup>79</sup> Building a new refinery could cost \$5 to \$10 billion.<sup>80</sup> Furthermore, according to Carol Montreuil, Vice-President of the CPPI, the return-on-investment from refineries is a 40-year endeavour in the range of 8% to 10%.<sup>81</sup>
- Refining economics generally favour local markets.<sup>82</sup> According to Natural Resources Canada (NRCan), the distribution of refined products over long distances and over multi-product pipelines can lead to increased sulphur levels, which requires costly remediation at the final destination. In addition, petroleum products must be tailored to the climate and the

79 Ibid.

80 Natural Resources Canada, document presented to Committee, January 31, 2012.

81 Carol Montreuil, Vice-President, Canadian Petroleum Products Institute, *Evidence*, January 31, 2012.

82 Peter Boag, President, Canadian Petroleum Products Institute, *Evidence*, January 31, 2012.

regulatory requirements of the jurisdiction within which they are consumed.<sup>83</sup> Peter Boag told the Committee that shipping refined products long distances often requires additional refining to ensure that the product is fit for its purpose.<sup>84</sup>

- Canadian refineries, which are small by international standards, are facing growing competition from larger (existing and upcoming) refineries in emerging economies that are increasingly targeting North America's refined product market.<sup>85</sup> According to Peter Boag, the economies of scale of larger offshore refineries and access to ocean shipping mitigate the economic impediments of transporting finished products over long distances, which does not appear to be the case in Canada. For example, one refinery in India has the capacity to produce 60% of all Canadian refinery output.<sup>86</sup> Michael Ervin told the Committee that the expansion of refinery capacity in emerging economies, combined with a surplus of refining capacity in North America and Europe, will likely depress the profitability of Canadian refineries for the foreseeable future.<sup>87</sup> Smaller refineries, such as the Chevron facility in Burnaby, B.C., could also be at stake if they face feedstock shortages. According to Joseph Gargiso, "this March, the refinery will be curtailing production by 20,000 barrels. [...] Because the National Energy Board gave permission to [...] the pipeline operator to actually auction off the oil. So they got out-bid by a better offer."<sup>88</sup>
- Other economic challenges facing the refining sector include the costs associated with oil distribution infrastructure, and the price differential between Western Canadian crude oil and other supplies of crude oil that are typically sold at Brent-based prices.

The production and domestic sales of refined petroleum products vary in different regions of Canada (Figure 9), leading to different challenges with regards to changes within the refining sector. According to Keith Newman, Director of Research, Energy and Paperworkers Union of Canada, recent refinery closures have led Eastern Canada (i.e., Ontario and Quebec) to a situation of dependency on foreign suppliers of petroleum products, particularly gasoline, thereby increasing the region's vulnerability in the case of

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83 Natural Resources Canada, document presented to Committee, January 31, 2012.

84 Peter Boag, President, Canadian Petroleum Products Institute, *Evidence*, January 31, 2012.

85 *Ibid.*

86 *Ibid.*

87 Michael Ervin, Vice-President, Director of Consulting Services, MJ Ervin and Associates, The Kent Group, *Evidence*, February 2, 2012.

88 Joseph Gargiso, Administrative Vice-President, Quebec, Communications, Energy and Paperworkers Union of Canada, *Evidence*, February 2, 2012.

an unexpected foreign or domestic supply disruption. The shutdown of Petro-Canada's Oakville refinery in 2005 has resulted in an approximated 20% shortfall of refined products in Ontario (the equivalent to five million cubic metres annually), leading that province to rely on "surplus production in Quebec and foreign countries."<sup>89</sup> In 2007, southern Ontario was subjected to gasoline shortages for "several weeks" as a result of a fire at Imperial Oil's Nanticoke refinery near Hamilton. During the shortage, 135 gas stations were closed<sup>90</sup> and gasoline prices rose by 10¢ to 15¢ a litre. "It was widely understood [that] the tight supply in the province was the main cause of the shortage," according to Mr. Newman.<sup>91</sup> Subsequently, the closure of Shell Canada's Montréal refinery in 2010 made Quebec "barely self-sufficient," leading both Quebec and Ontario to a situation of dependency on foreign suppliers.<sup>92</sup> In the summer of 2011, the Greater Toronto Area, Sarnia, and London experienced shortages due to routine maintenance at a Shell refinery in Sarnia that took longer than expected.<sup>93</sup>

However, Michael Ervin said it is speculation that building more Canadian refineries would lower the price of wholesale and retail fuels for Canadian consumers. He said it is important to understand that "Canadian refineries are really just part of a North American capacity pool, and lower wholesale prices in Canada brought about by more capacity would quickly attract U.S wholesale buyers, thus negating any hopes of sustained lower prices in Canada."<sup>94</sup>

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89 Keith Newman, Director of Research, Communications, Energy and Paperworkers Union of Canada, *Evidence*, February 2, 2012.

90 According to Keith Newman, Imperial Oil had to close 100 gas stations (or one quarter of its total), Petro-Canada closed 30 stations and imposed rationing at another 80 stations, and Shell Canada had to close 5 stations.

91 Keith Newman, Director of Research, Communications, Energy and Paperworkers Union of Canada, *Evidence*, February 2, 2012.

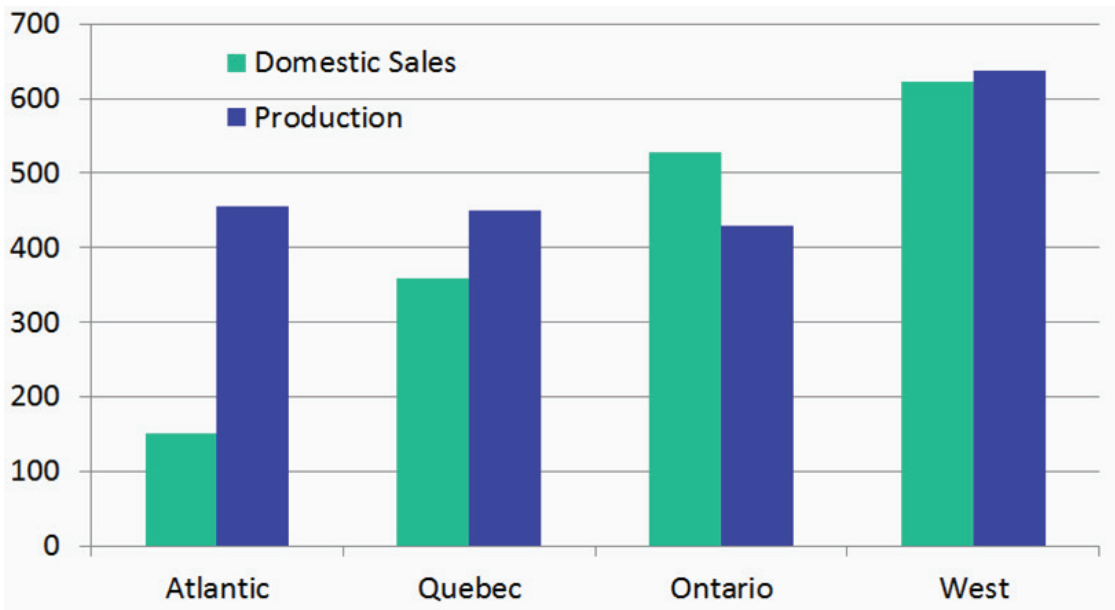
92 *Ibid.*

93 Joseph Gargiso, Administrative Vice-President, Quebec, Communications, Energy and Paperworkers Union of Canada, *Evidence*, February 2, 2012.

94 Michael Ervin, Vice-President, Director of Consulting Services, MJ Ervin and Associates, The Kent Group, *Evidence*, February 2, 2012.



**Figure 9: Refining Production and Domestic Sales (thousand b/d)**



Source: Canadian Petroleum Products Institute, document presented to Committee, January 31, 2012.

Recent refinery closures have triggered job losses, particularly in Ontario and Quebec. In 2005, the shutdown of Petro-Canada's Oakville refinery resulted in the loss of 350 direct jobs, and "thousands of additional jobs [...] by contractors and suppliers [...]"<sup>95</sup> Furthermore, Keith Newman told the Committee that the 2010 shutdown of Shell Canada's Montréal refinery resulted in a minimum loss of 2,000 jobs, according to estimates from the Institut de la statistique du Québec.<sup>96</sup> Based on estimates by the Conference Board of Canada,<sup>97</sup> the Communications, Energy and Paperworkers Union of Canada calculated that, over a five-year period, the shutdown of the Oakville and Montréal refineries resulted in a loss of approximately 25,000 person years of direct, indirect and induced jobs, in addition to estimated losses of \$2.6 billion in GDP and \$330 million in federal and provincial taxes.<sup>98</sup>

Considering the various economic and social challenges outlined above, the prospects of Canada's refining industry remain uncertain. Some industry representatives

95 Keith Newman, Director of Research, Communications, Energy and Paperworkers Union of Canada, *Evidence*, February 2, 2012.

96 Ibid.

97 According to Keith Newman (*Evidence*, February 2, 2012), a 2011 Conference Board of Canada (CBC) report estimates that the closure of 10% of refining capacity in Canada would result in the loss of "38,300 person years of work, \$4 billion of cumulative GDP, and \$508 million of provincial and federal income taxes [...]"

98 Keith Newman, Director of Research, Communications, Energy and Paperworkers Union of Canada, *Evidence*, February 2, 2012.

appear sceptical of the feasibility of further expansions of Canadian refineries. For example, John Quinn stated that even though Suncor Energy will remain committed to its refinery plants “as long as they are competitive and profitable,” North America’s current surplus of refining capacity and declining demand for petroleum products “does not easily support the expansion of domestic refining capacity.”<sup>99</sup> According to Peter Boag, “the size of Canada’s petroleum products refining [...] footprint will be market driven, and the sum of many individual business decisions will be influenced by a myriad of factors including commercial strategies, crude availability and cost, logistics and labour issues, product demand and market access, and the Canadian policy/regulatory environment.” Mr. Boag emphasized the importance of “[letting] competition work,” adding that “Canadians enjoy some of the lowest prices of gasoline in the world and [...] operate on a competitive basis. We think the competitive system works well.” On the other hand, Mr. Boag expressed the need, under the right economic conditions, for continued investment in existing refining infrastructure (e.g., to improve efficiency or environmental performance) in order to maintain the competitiveness of Canada’s refining sector.<sup>100</sup>

### C. Natural Gas

Fuel demand in North America is expected to shift towards alternatives to liquid fuels, including natural gas.<sup>101</sup> Furthermore, the sizeable unconventional natural gas resources in North America are likely to play a critical role in future energy markets.<sup>102</sup> According to the NEB, there have been a number of changes to the throughputs on natural gas pipelines in recent years (Figure 10):<sup>103</sup>

- Throughputs on natural gas pipelines serving the Northeast U.S. continue to decline, as Canadian natural gas is being displaced by domestic U.S. production, particularly from the Marcellus shale gas play, as well as via deliveries of Rockies gas on the Rockies Express Pipeline.
- “LNG deliveries to Canaport remain moderate and offshore production from Nova Scotia is declining, explaining the low throughputs on the Brunswick and Maritimes Northeast pipelines respectively.”

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99 John Quinn, General Manager, Integration and Planning, Refining and Marketing, Suncor Energy Inc., *Evidence*, February 2, 2012.

100 Peter Boag, President, Canadian Petroleum Products Institute, *Evidence*, January 31, 2012.

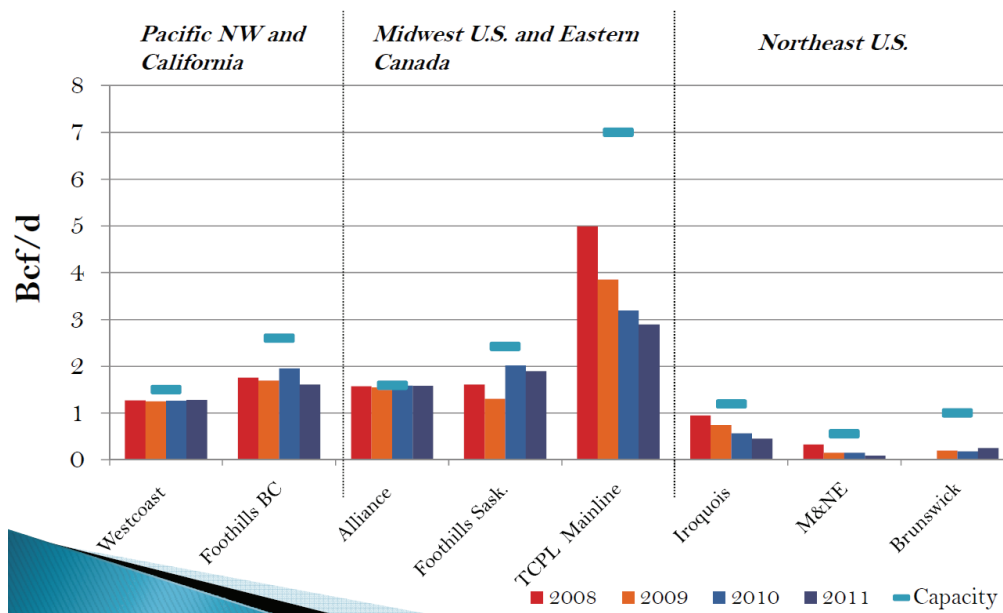
101 Professor Michal Moore, School of Public Policy and ISEE Core Faculty, University of Calgary, As an Individual, *Evidence*, February 7, 2012.

102 Ibid.

103 National Energy Board, *The current and future state of oil and gas pipelines and refining capacity in Canada*, Follow-up document submitted to the Committee on February 16, 2012.

- “Canadian natural gas is increasingly finding itself in U.S. Midwest markets, via deliveries on the Foothills Saskatchewan pipeline. Northwest markets for Canadian gas remained stable via exports on the Westcoast system.”
- “Throughputs on the Foothills BC system saw a moderate decline, due to newly commissioned pipelines in the U.S., competing for the California market.”

**Figure 10: Average Throughputs of Major Natural Gas Pipelines**



Source: National Energy Board, *The current and future state of oil and gas pipelines and refining capacity in Canada*, Follow-up document submitted to the Committee on February 16, 2012.

Atlantic Canada faces challenges regarding the availability and affordability of natural gas, according to Professor Larry Hughes. Approximately 90% of Atlantic Canada’s natural gas, most of which is from Nova Scotia, is exported to New England, leading industrial, residential, commercial and institutional sectors to rely on oil products, electricity, and biomass for process heat and space heating.<sup>104</sup> As previously mentioned, 83% of Atlantic Canadian oil is sourced from foreign countries that have either peaked or are located in politically volatile regions, which arguably compromises the region’s energy security.<sup>105</sup> Furthermore, according to Mr. Hughes, the region’s average percentage of household income spent on energy is close to energy poverty (i.e., 8% to 10%), with

104 Professor Larry Hughes, Electrical and Computer Engineering, Dalhousie University, As an Individual, *Evidence*, February 7, 2012.

105 Joseph Gargiso, Administrative Vice-President, Quebec, Communications, Energy and Paperworkers Union of Canada, *Evidence*, February 2, 2012; Professor Larry Hughes, Electrical and Computer Engineering, Dalhousie University, As an Individual, *Evidence*, February 7, 2012.

Prince Edward Island at 6% and the rest of Atlantic Provinces exceeding 5%.<sup>106</sup> Professor Jack Mintz is of the view that natural gas could be an important alternative fuel for Atlantic Canada's future, particularly in the utility, heating and some parts of the transportation sectors. He told the Committee that the shale gas developments in New Brunswick could have a significant impact on the development of energy markets in the Atlantic region.<sup>107</sup>

The Committee heard from witnesses regarding the prospects of the Mackenzie Valley Natural Gas Pipeline project — an example of a project that could improve Canada's preparedness for the anticipated growth in North America's natural gas markets.<sup>108</sup> The proposal is to transfer natural gas from the Mackenzie Delta (Northwest Territories) to natural gas markets in the south with an initial capacity of 1.2 billion cubic feet a day — which could be expanded to 1.8 billion cubic feet a day by adding compressor stations along the route. According to Robert Reid, President of the Mackenzie Valley Aboriginal Pipeline LP, the Mackenzie Valley project would provide “a positive GDP impact of over \$100 billion, with royalty and tax revenue of over \$10 billion to federal, provincial, and territorial governments [...]” In terms of employment, the project's construction phase is projected to create over 7,000 jobs in the Northwest Territories (or approximately 30,000 person-years) and over 140,000 across Canada (or approximately 200,000 person-years). Furthermore, as part of the access and benefits agreements, Aboriginal contractors are guaranteed \$1 billion in set-aside work along the pipeline. According to a memorandum of understanding concluded in June 2011 between Aboriginal groups and Imperial Oil, ConocoPhillips, Shell and Exxon Mobil, Aboriginal groups have a “one-third ownership position in the Mackenzie Valley pipeline”, which represents “a good model for harmonious Aboriginal participation in our major projects”. Mr. Reid also told the Committee that the Mackenzie gas project could lead to a 600-megatonne reduction in Canada's greenhouse gas emissions, if used to displace coal and oil in the power generation market, which is forecast to grow by 40% by 2020.<sup>109</sup>

According to Mr. Reid, the Mackenzie Valley Pipeline project is not feasible based on current gas prices. On the other hand, North America's growing demand for natural gas is expected to improve the project's economic viability by 2020. The Mackenzie Valley Aboriginal Pipeline LP is currently negotiating a fiscal arrangement with the Government of Canada to reduce the capital cost of the project.<sup>110</sup>

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106 Professor Larry Hughes, Electrical and Computer Engineering, Dalhousie University, As an Individual, *Evidence*, February 7, 2012.

107 Professor Jack Mintz, Palmer Chair in Public Policy, School of Public Policy, University of Calgary, As an Individual, *Evidence*, February 7, 2012.

108 Robert Reid, President, Mackenzie Valley Aboriginal Pipeline LP, *Evidence*, February 9, 2012.

109 *Ibid.*

110 *Ibid.*

Professor Michal Moore told the Committee that a better understanding of the scope and structure of emerging natural gas markets in North America and better knowledge of the necessary infrastructure to support these markets would improve the prospects of Canada's energy future.<sup>111</sup> Professor Moore also stated that a growing natural gas market would likely support an electric market that requires specific hardware and infrastructure.<sup>112</sup>

## MOVING FORWARD

A number of witnesses suggested that the government consider an energy strategy to address any economic, social, infrastructural, regulatory, environmental or other issues facing Canada's energy sector. For example:

- Peter Boag stated that "some greater degree of clarity and common vision of what is in the national interest of Canada for energy [...] would be very useful to ultimately guide policy [...] and] investment decisions so that we have some certainty and some common view of the role that energy will play in our economy and how we can maximize the value of that for all Canadians on a national interest basis."<sup>113</sup>
- Brenda Kenny called for the establishment of a "strategic policy framework that recognizes the interdependency between energy security, prosperity and jobs, environmental conservation, and social well-being, [including] an effective, efficient regulatory system that focuses on predictable timelines, balanced fact-based decisions, and trade opportunities." Furthermore, Ms. Kenny suggested that pre-assessing infrastructure corridors could result in "quicker project decisions".<sup>114</sup>
- Christopher Smillie stated that the AFL-CIO supports "changes to the system to facilitate large projects, though not at the expense of safety or environmental review [...] We want something that's fair, streamlined, and rigorous." He added that "no strategy can be in place without also considering a workforce strategy."<sup>115</sup>

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111 Professor Michal Moore, School of Public Policy and ISEE Core Faculty, University of Calgary, As an Individual, *Evidence*, February 7, 2012

112 Ibid.

113 Peter Boag, President, Canadian Petroleum Products Institute, *Evidence*, January 31, 2011.

114 Brenda Kenny, President and Chief Executive Officer, Canadian Energy Pipeline Association, *Evidence*, February 7, 2012.

115 Christopher Smillie, Senior Advisor, Government Relations, Building and Construction Trades Department, Canadian office of the American Federation of Labor and Congress of Industrial Organizations (AFL-CIO), *Evidence*, February 7, 2012.

- John Quinn told the Committee that Suncor Energy is “very supportive of a national energy strategy,” and believes that such strategy needs to go beyond energy production. “We need to look at how we move ourselves around in this country. We need to look at how we build our cities and how we build our homes [...]”<sup>116</sup>
- Professor Larry Hughes stated that Canada is both, at present, an energy exporter and an energy importer. “We should be addressing the need for energy security from both the exporter perspective and the importer perspective.”<sup>117</sup>
- Finally, Professor Michal Moore stated that Canada is part of a North American continent, “when we talk about a national energy strategy we’re really talking about a North American energy strategy.”<sup>118</sup>

The federal, provincial and territorial energy ministers are collaborating on a number of issues. For example, in July 2011, Ministers of Energy from across Canada agreed on the following priorities with regards to the energy sector: regulatory reform; energy efficiency; energy information and awareness; energy markets and international trade; smart grid technology; and electricity reliability.<sup>119</sup>

Based on the evidence outlined in this report, the Committee makes the following recommendations:

#### **Recommendation 4**

**The Committee recommends that the Government of Canada commit to developing and diversifying markets for Canadian energy products.**

#### **Recommendation 5**

**Given the consequences of the National Energy Program, the Committee recommends that the Government of Canada continue its**

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116 John Quinn, General Manager, Integration and Planning, Refining and Marketing, Suncor Energy Inc., *Evidence*, February 2, 2012.

117 Professor Larry Hughes, Electrical and Computer Engineering, Dalhousie University, As an Individual, *Evidence*, February 7, 2012.

118 Professor Michal Moore, School of Public Policy and ISEE Core Faculty, University of Calgary, As an Individual, *Evidence*, February 7, 2012

119 Mark Corey, Assistant Deputy Minister, Energy Sector, Department of Natural Resources, *Evidence*, January 31, 2011.

**markets-driven approach to the refining sector, while recognizing the refining sector operates as a North American market.**

#### **Recommendation 6**

**In order to maximize the competitiveness of Canada's energy industries, the Committee recommends that the Government of Canada work with the provinces and territories to ensure an optimal investment climate, through measures such as tax reduction and regulatory reform.**

#### **Recommendation 7**

**The Committee recommends, with regards to an energy strategy, that the Government of Canada coordinate with the provinces and territories, keeping in mind provincial and territorial jurisdictional responsibilities.**

#### **Recommendation 8**

**Given the large amount of money transferred to the provinces for post-secondary education and training, and the skills and human resources gap facing the energy sector, the Committee recommends that the Government of Canada consider the skilled labour shortage facing the energy industry, and the need for labour to move effectively both across the country and throughout the North American market.**

#### **Recommendation 9**

**Given the significant labour shortages forecasted in many regions of Canada and particularly in the energy sector, the Committee recommends that the Government of Canada review its immigration programs and change the point system to better align the skills of those who are able to immigrate to Canada with the labour market needs of the country, and that the Government of Canada consider providing a larger role for employers in the immigration system.**





# APPENDIX A LIST OF WITNESSES

Organizations and Individuals	Date	Meeting
<p><b>Canadian Petroleum Products Institute</b></p> <p>Peter Boag, President Carol Montreuil, Vice-President</p> <p><b>Department of Natural Resources</b></p> <p>Mark Corey, Assistant Deputy Minister Energy Sector</p> <p>Douglas Heath, Director Oil Sand and Energy Security Division, Energy Sector</p> <p>Michael Rau, Senior Policy Advisor to the Assistant Deputy Minister, Energy Sector</p> <p><b>As an individual</b></p> <p>Hossam A. Gabbar, Professor University of Ontario Institute of Technology</p>	2012/01/31	22
<p><b>Communications, Energy and Paperworkers Union of Canada</b></p> <p>Joseph Gargiso, Administrative Vice-President Quebec</p> <p>Keith Newman, Director of Research</p> <p><b>Suncor Energy Inc.</b></p> <p>John Quinn, General Manager Integration and Planning, Refining and Marketing</p> <p><b>The Kent Group</b></p> <p>Michael J. Ervin, Vice-President, Director of Consulting Services MJ Ervin and Associates</p>	2012/02/02	23
<p><b>Building and Construction Trades Department, AFL- CIO, Canadian Office</b></p> <p>Christopher Smillie, Senior Advisor Government Relations</p> <p><b>Canadian Energy Pipeline Association</b></p> <p>Brenda Kenny, President and Chief Executive Officer</p> <p><b>As individuals</b></p> <p>Larry Hughes, Professor Electrical and Computer Engineering, Dalhousie University</p> <p>Jack Mintz, Professor, Palmer Chair in Public Policy School of Public Policy, University of Calgary</p> <p>Michal Moore, Professor School of Public Policy and ISEE Core Faculty, University of Calgary</p>	2012/02/07	24

# APPENDIX A LIST OF WITNESSES

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<b>Organizations and Individuals</b>	<b>Date</b>	<b>Meeting</b>
<b>Mackenzie Valley Aboriginal Pipeline LP</b> Robert Reid, President	2012/02/09	25
<b>National Energy Board</b> Gaétan Caron, Chair and CEO Iain Colquhoun, Chief Engineer Patrick Smyth, Business Unit Leader Operations		
<b>As an individual</b> Vivian Krause		

# APPENDIX B LIST OF BRIEFS

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## Organizations and individuals

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Canadian Association of Petroleum Producers

Canadian Energy Pipeline Association

Canadian Petroleum Products Institute

Communications, Energy and Paperworkers Union of Canada

Gabbar, Hossam A.

Hughes, Larry



# MINUTES OF PROCEEDINGS

A copy of the relevant Minutes of Proceedings ([Meetings Nos. 22, 23, 24, 25, 28, 29, 30, 31, 33 and 34](#)) is tabled.

Respectfully submitted,

Leon Benoit, M.P.  
Chair



## **Official Opposition – New Democratic Party of Canada**

### **Dissenting Report to the Study on Current and Future State of Oil and Gas Pipelines and Refining Capacity in Canada**

New Democratic committee members are encouraged this study, sparked by our concern about Canada's declining refining sector, draws attention to the need to better identify and understand a wide variety of energy challenges facing Canadians. However, we are disappointed Majority Report recommendations simply and uncritically repeat the government's unbalanced approach to natural resources management in Canada—an approach that is destabilizing the balanced economy we've built up since the Second World War.

While the main report identifies a number of significant issues pertaining to refineries and pipelines in Canada, there are four main issues it does not adequately address: (1) the need for a made-for-Canada energy strategy that prioritizes the interests of Canadians; (2) the protection of quality, value-added jobs in the refining sector; (3) the need to ensure sustainable energy security in all parts of the country; and (4) the importance of responsible, sustainable resource development and a robust environmental assessment process.

#### **Background on the Study**

In November 2011, New Democratic committee members proposed the Standing Committee on Natural Resources study the *Current and Future State of Oil and Gas Pipelines and Refinery Capacity in Canada*. It was hoped such a report would contribute to our understanding of our rapidly developing oil and gas sector as well as provide an overall picture of energy provision in Canada. Four days of expert testimony reinforced our view of the pressing need for a comprehensive energy strategy and provided valuable insights into possible policy solutions.

Unfortunately, this testimony is largely ignored in the main body of the Majority Report. In addition to ignoring the need for a comprehensive energy strategy, the Majority Report recommendations outline an alarming vision for accelerated energy-related resource development without due regard for economic impacts, the enforcement of environmental regulations or the internalization of environmental costs.

This dissenting report reflects upon the Majority Report recommendations and presents an alternative vision of natural resource development that prioritizes the interests of the Canadian public.

The final recommendations generated in the Majority Report are engineered to justify the Conservative Government's present approach to energy sector resource development. The Majority Report recommendations illustrate a one-dimensional approach to natural resource development that prioritizes oil industry profits. We feel Canadians instead expect both energy security and the sustainable development of our country's natural resources.

This Conservative approach comes at the exclusion of almost all other values. For example, the Conservative approach favours raw resource export over domestic value-added job creation and foreign

sales over domestic resource security. It exposes Canada to the risks of unchecked foreign ownership of Canadian natural resources. It ignores potentially perilous international trade obligations—such as the proportionality clause of NAFTA— requiring Canada to export set amounts of natural resources once such exports have been initiated.

This development-at-all-costs approach sets up conflict between Canadians and hides the associated environmental costs to future generations. The Conservative approach encourages the extraction and export of raw natural resources with little domestic benefit, but considerable environmental and social costs that will be borne by Canadians.

### **An Energy Strategy for Canada**

Canada needs a national energy strategy. This strategy must establish a plan for developing our vast natural resources to secure maximum economic benefit for Canadians, address a number of long-standing energy related challenges, but also ensure the environmental and social well-being of current and future generations. The Conservative Government refuses to develop such a strategy despite calls for action from provincial and territorial governments, industry and citizens.

The importance of energy to the lives of Canadians and to our economy, and the complexity of the considerations involved, highlight the need for a national energy strategy for Canada. Such a strategy requires policy development in areas including the domestic supply of renewable and non-renewable energy-related resources and non-renewable resource export. Policy development in these areas must consider how to balance potential benefits as well as economic, social and environmental impacts.

Under the Conservative government's policies, billions of dollars in direct and indirect subsidies to the oil and gas industry have led to an artificial rise in the value of the Canadian dollar. Evidence suggests the inflated Canadian dollar is now responsible for over 50 per cent of all job losses in our manufacturing sector—more than outsourcing or the recent recession. The government's unbalanced resource development policies impose a heavy toll on the Canadian economy.

New Democrats believe the federal government has a role to play in developing a comprehensive strategy for our country's long-term energy security in a lower carbon future, in consultation and cooperation with provincial, territorial and Aboriginal governments, unions, energy providers, environmental organizations, and other stakeholders.

A successful Canadian energy strategy must respect the basic principles of economic, social and environmental sustainability, including enforcing existing environmental regulations internalizing environmental costs. It must reduce Canada's non-renewable resource dependency by maximizing energy conservation and fostering renewable energy development. It must also ensure responsible resource export and maximize the economic benefits of resource development.

In contrast to this approach, the Conservative government has chosen to focus almost entirely on non-renewable energy resource export, with little if any consideration given to domestic supply of energy-related renewable or non-renewable resources. While the Conservative approach is driven by the



corporate interests of major energy companies, it pays little or no attention to social or environmental impacts of government policy.

*Recommendation: That the government should immediately begin working with provinces, territories, municipalities, Aboriginal groups, industry, NGOs and the academic community to develop a comprehensive national energy strategy that puts Canadians first.*

### **The Decline of the Domestic Refinery Industry and Value-Added Job Losses**

The emergence of the Western Canadian oil sands has transformed Canada. Crude oil reserves are estimated to be approximately 170 billion barrels, growing to 300 billion barrels due to extraction technology advances. In 2010, Canada produced 1.5 million barrels of bitumen per day. These reserves not only provide considerable raw-export potential, but also value-added opportunities in the upgrading and refining sector.

Unfortunately, Canada has failed to take advantage of the domestic opportunities to add value to these raw products. While Canadian refineries are comparatively clean and efficient, only 15 full-range refineries remain operational with only a handful equipped to refine bitumen based-crude oil. While Canada remains a net exporter of refined products, this status is under threat. Canada has lost approximately one refinery per year since production peaked in the 1980s. Where in the early 1980s Canadians refineries produced approximately 2.2 million barrels per day of refined products, this amount since has dropped by nearly 400,000 barrels per day. More provinces will lose all ability to refine oil products if Canada continues to lose refineries at the current rate.

The decline of the Canadian refining sector also represents a significant erosion of high-paying, long term jobs. The direct refinery labour force peaked at 27,400 workers in 1989, falling by nearly 10,000 workers to just 17,500 jobs by 2009. Testimony from the Communications, Energy and Paperworkers' Union shows that "for every 400,000 barrels of raw bitumen exported out of the country for upgrading and refining, 18,000 jobs in Canada will be lost." Currently, seven Alberta-based upgraders process just 53 per cent of oil sands bitumen prior to export. This represents a significant lost opportunity for long term, value added jobs.

The proposed construction of high volume export pipelines such as Keystone XL and Enbridge Northern Gateway would greatly increase the export of raw bitumen. New Democrats are concerned the Conservative Government's unreserved support of these pipelines ignores their significant negative impacts on potential long-term employment in Canada and on the value extracted from our natural resource endowment.

Recognizing that oil and gas will continue to play a prominent role in our energy mix in the medium term, a responsible energy strategy would discourage bulk exports of our unprocessed resources and encourage value-added, responsible upgrading, refining and petrochemical manufacturing here in Canada to maximize the economic benefits and jobs for Canadians.

*Recommendation: In order to maximize the long term viability of Canada's upgrading and refining sectors, the Government of Canada should continually monitor domestic refining output and work with the provinces and territories to protect quality, family-sustaining jobs in the upgrading and refining sectors.*

### **Promoting Sustainable Energy Security in Every Region**

A comprehensive approach to energy must also take into account the security of our energy supply both nationally and at a regional level. Committee testimony highlights the fact that while Canada is a net oil exporter, regional energy production and consumption significantly varies.

In particular, witnesses indicated that Eastern Canada's reliance on imported oil and gas to meet many energy needs (including a higher reliance on fossil fuels for home heating) exposes the region to significant price volatility and occasional supply uncertainty. Testimony from Professor Larry Hughes of Dalhousie University highlights the importance of improving energy security in the region by conserving energy, developing renewable alternatives, and exploring ways to increase Eastern access to Western energy resources.

In spite of this evidence, the Conservative Government eliminated federal support for renewable power by ending of the ecoENERGY for Renewable Power Program. It also cancelled the highly popular ecoENERGY Retrofit - Homes Program which helped Canadians reduce energy consumption and improve the efficiency of their homes. The elimination of these and other measures have a negative effect on Canadian energy security.

New Democratic committee members believe the best way to ensure long-term energy security for all Canadians is by reducing dependence on fossil fuels and fostering the development of renewable energy technologies which provide safe, environmentally friendly, and reliable energy to meet energy needs in all regions.

### **Responsible, sustainable resource development**

Sustainability—social, economic and environmental—must be at the centre of our approach to the development of natural resources. New Democrats reject the false dichotomy between protecting our environment and ensuring long-term jobs for Canadians. Sustainability can, and must, become central to the way we do business in order to ensure that future generations can prosper. More specifically, cumulative environmental impact assessments, enforcing environmental regulations, robust consultation with First Nations, and implementing science-based monitoring are all essential to ensure responsible development.

Unfortunately, the Conservative government has failed to uphold these principles. In 2010, the Conservatives used the budget bill to transfer the authority for most environmental evaluation for major resource projects from the Canadian Environmental Assessment Agency to the National Energy Board

and the Canadian Nuclear Safety Commission. New Democratic committee members are concerned the Conservative government will repeat this move in 2012 in order to speed up environmental reviews for major resource projects.

While we agree that Canada's environmental assessment laws could better serve the interests of the public, industry, First Nations and the environment, New Democratic committee members hold that rolling back environmental protections developed over the past two decades to speed projects to approval will not serve Canadians, especially if it is done in a way that inhibits open public debate on the changes and avoids proper scrutiny by a Parliamentary Committee.

*Recommendation: That any changes to the regulatory process should not negatively impact the participation of Canadians in the review process by either reducing participant funding or time available for public comment, and should not curtail the duty to consult with Aboriginal groups. Furthermore, that any changes be proposed in stand-alone legislation so that it may be given full consideration by Parliamentarians.*

## **Conclusion**

Testimony to the Standing Committee on Natural Resources reinforces the need for a national energy strategy, confirms concerns over the loss of value-added refining in Canada, and underscores the need to address energy security while balancing the requirement for appropriate environmental protections. Under the Conservative approach, the decline of the Canadian refining sector and expansion of raw export oil pipeline capacity suggests a future in which Canadians receive less value for our energy resources, while depleting these non-renewable resources at an increasingly rapid pace. Such a future presents a risk not only to our environment and communities, but to quality Canadian jobs and the long-term economic competitiveness of our energy sector in a world transitioning to cleaner energy sources.

New Democrats have a very different vision for Canada's energy and resource future, one in which we maximize the benefits we receive from our resource development while at the same time minimizing negative social and environmental impacts. While we recognize this approach to managing resources will require greater collaboration with the provinces and territories and deeper engagement on a variety of policy proposals than those proposed by the Conservatives, studies such as this begin to show a way forward.



## **Dissenting Report**

Current and Future State of Oil and Gas Pipelines and Refining Capacity in Canada

**David McGuinty, Member of Parliament**

Vice Chair, House of Commons Standing Committee on Natural Resources

This dissenting report begins by thanking all of the witnesses who testified during the Committee meetings and thanks all groups and individuals who submitted written briefs.

The good faith and good will expressed by the witnesses is in stark contrast to the Conservative Members of the Committee who, throughout the entire process, focused on achieving what can only be described as pre-ordained outcomes, aligned with the government's ideological and narrow perspective.

There is no doubt that the evidence adduced at committee was useful in the context of the immediate preoccupation with the construction of pipelines and refining capacity writ large. However, concern was repeatedly raised that dealing with these issues in isolation would invariably give rise to much broader considerations.

The question of energy speaks to every single facet of Canadian life. It speaks to job creation and housing, to royalties and revenues, to competitiveness and efficiency, to transportation and infrastructure, to information and awareness, to markets and international trade, and, finally, it speaks entirely to the reality of climate change and its consequent effects on water, soils, biodiversity, ecosystems, temperature, oceans, agriculture and Canada's natural resource base.

The last six years of Conservative rule have seen the systematic weakening of our collective efforts over 40 years, spanning multiple governments of different political persuasions, to help foster a competitive economy and create jobs while enhancing ecological integrity. International treaties have been rescinded, research foundations and institutions have been shut down, scientists are censored and muzzled and programmatic and fiscal incentives for citizens and businesses have been eliminated.

Globally, the race is on to retool to become the most energy efficient economy. This is a race that Canadians expect Canada to win.

## Recommendations

### **1. The Government of Canada should immediately develop and implement a National Energy and Climate Change Strategy.**

Energy and climate change are inextricably linked. Canadians should know that 86% of Canada's greenhouse gases are emitted through the exploitation, transformation and consumption of fossil fuels. The Conservative promise to reduce greenhouse gas emissions to 17% below 2005 levels by 2020 will never be fulfilled. Canada needs a National Energy and Climate Change Plan that would implement economy-wide regulations on greenhouse gas emissions and invest in renewable energy, clean technology and energy efficiency; exercise sovereign leadership as opposed to hiding behind American inaction; establish a non-partisan expert group approved by Parliament to set a science-based emissions trajectory so that Canada does its part to keep global temperature increases to below 2°C; reverse the decision to cut the ecoENERGY program that allowed Canadians to receive a rebate for greening their homes using energy efficient products and services; restore the Commercial Buildings Retrofit Program that supported commercial enterprises, particularly small and medium sized businesses in their transition to greater energy efficiency; follow through on Canada's commitment at the G20 Summit in Pittsburgh in 2009 to phase out inefficient fossil fuel subsidies and report on implementation; and to honour Prime Minister Harper's pledge, made in his May 2008 "Energy Superpower" speech in London, UK, wherein he stated he would "establish a price on carbon of \$65 a tonne... over the next decade."

Building on the early and tentative work launched by provincial and federal Ministers at Kananaskis, and in full respect of provincial jurisdiction, the strategy must encompass the following key elements: regulatory reform, energy efficiency, energy information and awareness, markets, international trade, smart grid technology, electricity reliability, building codes, building standards, and transportation efficiency. Furthermore, it should conduct a full and transparent analysis of federal and provincial programs and fiscal incentives and disincentives applicable specifically to the energy sector in all of its forms, including fossil fuels, wind, solar, geothermal, biofuels, and nuclear, with a view to facilitating Canada's transition to a low carbon future.

**2. The Government of Canada should immediately create a House of Commons Special Committee to undertake a comprehensive study on regulatory reform in the energy sector.**

First and foremost, the study would be public and televised for Canadians. It would seek to improve Canada's energy and environment regulatory regimes and their integration by addressing the following elements: a complete examination of the interface between existing energy and environmental law and regulations; the mandate, operations and funding levels of the National Energy Board; the mandate, operations and funding levels of the Canadian Environmental Assessment Agency; where applicable, overlap and duplication between federal and provincial energy and environmental regulatory regimes; an examination of the fairness, independence and use of evidence in regulatory processes; public access and participation and participant funding in review processes; aboriginal consultation best practices; comparative international approaches; the imposition of arbitrary timelines; and the implications of NAFTA's proportionality clause with respect to energy security.