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Trade secret and privileged information has been excised from this section of the Certificate of Need Application in order to make it available to the public. Redaction of trade secret information is designated by brackets, bold text in a different color, as follows: [Redacted].

**7853.0520 FORECAST DATA**

**For the geographic area to be served by the proposed facility, the applicant shall provide the following:**

**A. a list of the categories of petroleum products the applicant expects to transport or distribute in that geographical area during the first six forecast years, the 11th forecast year (the tenth year after the year of the application), and the 16th forecast year;**

The Project will expand existing facilities built during the Alberta Clipper Project, which was operationally integrated with the Enbridge Mainline System. The forecast data provided in this section is reflective of the petroleum products transported on the Enbridge Mainline System, which includes the Lakehead System that is owned and operated by EELP.

The Project is expected to transport the following liquid petroleum commodity in all forecast years:

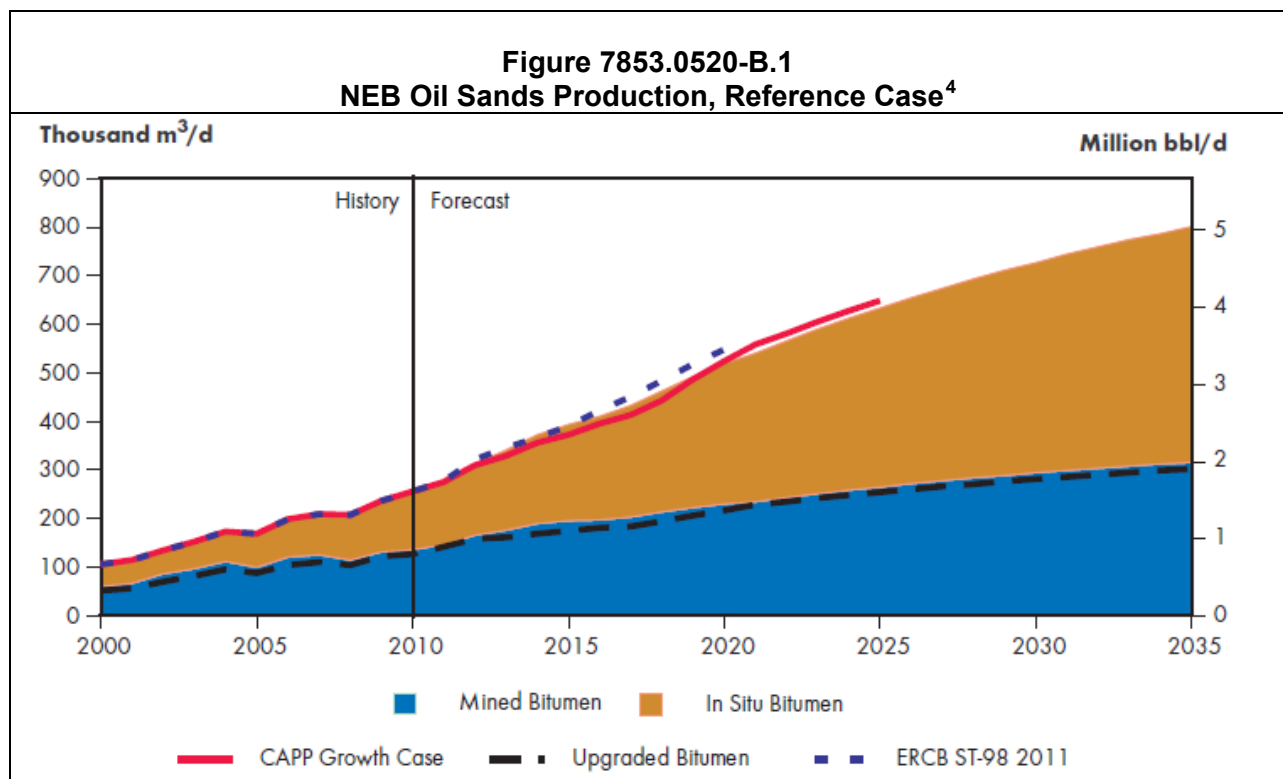
Light Crude Petroleum (LGT)  
Heavy Crude Petroleum (HVY)

**B. for each category listed in response to item A and for each of the first six forecast years, the 11th forecast year, and the 16th forecast year, a list of the annual and peak day quantities expected, using the appropriate units of measure;**

The CAPP prepares a forecast of supply available to Enbridge in its evaluation of necessary pipeline capacity. This is calculated by taking all supply available to the market then subtracting non-Enbridge demand. The calculation includes western Canadian refineries and volumes that would flow to U.S. markets via other pipelines that export oil from western Canada. Table 7853.0520-B.1 shows the volumes that would be available to Enbridge. These supply forecasts pertain to the geographic area to be served by Line 67. The Canadian National Energy

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Board (NEB) forecast<sup>1</sup> from 2011 indicates that “oil sands activity is rebounding from the effects of the 2009 global recession, and benefiting from increased levels of both domestic and foreign investment.”<sup>2</sup> Additionally, conventional crude oil is “ramping up based on the successful application of horizontal drilling and multi-stage hydraulic fracturing methods to tight oil reservoirs.”<sup>3</sup>



However, the NEB forecast addresses overall WCSB production and as such is not directly comparable to the Enbridge forecast (Table 7853.0520-B.1) which addresses only the portion of the supply accruing to Enbridge. The EIA does not produce a comprehensive Canadian oil sands production forecast.

<sup>1</sup> <http://www.neb-one.gc.ca/clf-nsi/nrgynfmtn/nrgyrprt/nrgyftr/2011/nrgsppldmndprjctn2035-eng.pdf>

<sup>2</sup> Id., Page 17

<sup>3</sup> Id.

<sup>4</sup> Id., Page 18



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The Project has interconnecting facilities at Clearbrook, so a portion of the volume transported is expected to exit the Enbridge system at that point to be transported by Minnesota Pipe Line, Inc. facilities to serve refineries in Minnesota. The remaining volumes will continue on to Enbridge's terminal at Superior, Wisconsin for transportation to a number of Enbridge pipelines serving refineries throughout the United States. There are no other points of receipt or delivery in the State of Minnesota. Since Enbridge does not control the destination of oil shipped on the Enbridge Mainline System, and nominations can change from month-to-month, the total volumes that will be delivered in-state are unknown at this time. As previously stated, the Project will have a design capacity of 880,000 bpd and an annual average capacity of 800,000 bpd for transportation of liquid petroleum from Hardisty, Alberta to Superior, Wisconsin.<sup>5</sup>

Table 7853.0520-B.1 Total WCSB Supply Available to Enbridge (000) bpd <sup>6</sup>								
	2013	2014	2015	2016	2017	2018	2023	2028
LGT	[Redacted]							
HVY								

Based on the information provided in the table above, Enbridge anticipates that Line 67 will be at the 570,000 bpd annual capacity approved by the Minnesota Public Utilities Commission on August 12, 2013<sup>7</sup> by mid-2014. Volumes of heavy crude that can be transported via Line 67, however, will continue to increase after mid-2014, requiring Enbridge to increase the capacity of Line 67 to 800,000 bpd, as requested in this application, in order to meet market demand.

<sup>5</sup> "Peak Day Throughput" is a pipeline capacity term generally applicable to natural gas pipelines. The comparable capacity capability concept that is applicable to liquids pipelines is "Design Capacity". Design Capacity in liquids pipelines describes the maximum instantaneous throughput that a particular pipeline is capable of achieving under design conditions for a particular liquid commodity or suite of commodities. Crude oil pipelines have a design capacity, but operate based on annual capacity.

<sup>6</sup> EPI Long Range Plan (LRP) data for 2012. All volumes shown are assumed to be WCSB crude volumes accruing solely to Enbridge. Only deliveries of crude oil to destinations downstream of Edmonton and Hardisty are considered. Supply forecast beyond 2023 has been based on extrapolated CAPP growth rates of light & heavy supplies (2023-2028) applied to the 2023 EPI forecast basis.

<sup>7</sup> Order Granting Certificate of Need, August 12, 2013, MPUC Docket No. PL-9/CN-12-590.

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**C. a discussion of the methods, assumptions, and factors employed for purposes of estimation in response to items A and B;**

**C.1. Supply**

As demonstrated in Section 7853.0240, western Canadian crude oil supply available for export has increased by 963,000 bpd over the past ten years and is projected to increase by another 1.2 million bpd by 2020. This historical supply data and a long-term forecast were recently released by the NEB of Canada.<sup>8</sup> The forecast is contained in the report: Canada's Energy Future: Energy Supply and Demand Projections to 2035, dated November 2011.<sup>9</sup> Some of the assumptions that are highlighted in this forecast are as follows:

- Conventional production in western Canada that has been declining slowly since the late 1990s is now showing an increase in the near term forecast.
- Both Steam Assisted Gravity Drainage (pressurized extraction) and oil-sands mining projects contribute to the growth in oil sands production, with a four-fold increase in production for each of these recovery methods.
- Western Canadian crude production is projected to more than double over the next 15 years. This will require construction of new pipelines to ensure new oil supplies can be transported to markets not only in the traditional Midwest, which has made significant investments in refinery upgrades to handle increased supplies of heavy crude oil, but also as far as the United States Gulf Coast, where refineries are already configured to refine heavy crude oil.

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<sup>8</sup> The National Energy Board is an independent federal agency established in 1959 by the Parliament of Canada to regulate international and interprovincial aspects of the oil, gas, and electric utility industries. The purpose of the NEB is to regulate pipelines, energy development, and trade in the Canadian public interest.

<sup>9</sup> <http://www.neb.gc.ca/clf-nsi/rnrgynfmtn/nrgyrprt/nrgyfttr/2011/nrgsppldmndprjctn2035-eng.pdf>

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**C.2. Disposition**

The Project will deliver crude petroleum into the Enbridge terminal facilities at Clearbrook, Minnesota and Superior, Wisconsin (the terminus of the Project). From those terminal facilities, shippers of the crude petroleum can continue on the Enbridge Mainline System for delivery into U.S. PADD 2, PADD 3, or eastern Canadian refinery markets.

**D. a discussion of the effect on the forecast of possible changes in the key assumptions and key factors requested in item C; and**

There are several factors that could affect the projected supply from the WCSB, as noted by the NEB forecast report<sup>10</sup>:

- Long-term projections envision gradually changing prices. However, oil price spikes in either direction are not uncommon. Periods of lower oil prices would slow activity levels. The exchange rate is also important, because oil exporters are paid for their product in U.S. dollars and a rising Canadian dollar means lower economic returns.
- While the outlook for cost inflation is relatively low at the time of writing, there are a number of large oil sands projects in the construction and planning stage. These projects will be facing competition for labor and materials from conventional oil and gas projects, as well as other large projects. Although companies have taken steps to control construction costs, cost inflation does have the potential to slow the pace of expansion.
- There is evidence that a shortage of skilled workers is developing as the workforce ages and overall demand for labor increases. Many of the oil and gas industry's most experienced and skilled workers will be retiring in the next decade. At the same time, the Canadian labor force is shrinking. This challenge is being addressed through a number of government and industry initiatives, but a potential labor shortage may increase construction costs and the pace of oil development.

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<sup>10</sup> <http://www.neb.gc.ca/clf-nsi/rnrgynfmetn/nrgyrprt/nrgyftr/2011/nrgsppldmndprjctn2035-eng.pdf>



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- Rules and regulations regarding oil sands development continue to evolve. For example, the Government of Alberta has issued new rules regarding tailings ponds and water use, and recently announced a plan to rescind about 20 percent of oil sands leases to establish conservation areas.
- Industry and governments in many jurisdictions are currently examining issues related to multi-stage hydraulic fracturing. These include the amount of fresh water used in the fracturing process, maintaining the separation between fracturing fluids and ground water, and the chemical composition and safe disposal of fracturing fluids. There is potential for these developments to affect the pace and level of production.
- Over the 25-year outlook period, it is possible that technological breakthroughs will occur that accelerate the pace of development in conventional and/or oil sands resources.
- A key simplifying assumption in the report is that there will be sufficient infrastructure to deliver Canadian oil production, and that there will be sufficient markets, domestically and internationally, to absorb the projected production levels.

Additional factors that could affect the projected supply from the WCSB, as noted by CAPP include:

- Unemployment levels in Canada and Alberta are at near record low levels. The demand for manpower exceeds the available supply of skilled workers in many sectors of the economy, including Alberta's oil sands region. Although solutions such as training and immigration are planned, it takes time to ramp up government processes and support systems to increase the supply of qualified manpower. This may pose a challenge for oil sands production to reach forecasted production levels. It may also stress key support sectors, such as education, housing and infrastructure, all of which are integral to achieving the forecast pace of development.
- While most refineries in the Upper Midwest have already invested in conversions to handle increased supplies of heavy crude oil, some additional refineries are undertaking plant conversions and expansions to utilize and

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absorb the growth in crude supplies from the oil sands. The success or failure of the planned refinery conversions can impact the forecast.

- Strong economic growth and development activity in Alberta, other regions in North America, and global markets creates competing demand for key resources essential to oil sands development, such as steel and fabricating facilities. Finite capacity to produce and manufacture key input materials and equipment could result in a degree of queuing for essential components, which could translate into delays for some projects. Continued production growth in Canada and demand in the United States could lead to further expansion projects, such as new pipeline construction or station upgrades.

**E. considering the forecast, a discussion of other facilities, if any, planned by the applicant to supply the forecast demand.**

The forecast demand for capacity to transport the oil produced in western Canada requires a solution designed to meet the current confirmed near-term needs of shippers. The Project is one portion of Enbridge's overall strategy to meet that need. Enbridge has applied for or started construction on the following expansions in addition to the Project:

**Line 61 Expansion Project**

The Line 61 Expansion Project is a planned expansion of the 42-inch diameter pipeline<sup>11</sup> that transports crude oil from the Enbridge Terminal facility in Superior, Wisconsin to the Enbridge terminal facility near Flanagan, Illinois. The current annual capacity of Line 61 is 400,000 bpd and the planned expansion is to 560,000 bpd annual through the addition of new pumping capacity. Line 61 was built and tested for an ultimate annual capacity of 1.2 million bpd. The Line 61 Expansion Project to 560,000 bpd is expected to be in-service by mid-2014.

**Flanagan South Project**

The Flanagan South Project is a 36-inch diameter pipeline that will transport crude oil from the Enbridge Flanagan terminal facility near Pontiac, Illinois to the Enbridge terminal facility in Cushing, Oklahoma. The initial annual capacity of the Flanagan South Project is approximately 600,000 bpd, but it could be

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<sup>11</sup> When constructed, the Line 61 pipeline was referred to as the "Southern Access Project Phases 1 and 2" spanning from Superior, Wisconsin through Wisconsin and ending at the Enbridge Flanagan Terminal near Pontiac, Illinois southwest of Chicago.



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subsequently expanded to 800,000 bpd with the addition of pumping capacity. The expected in service date for the Flanagan South Project is mid-2014.

**Line 78 Project**

The Line 78 Project involves constructing approximately 76-miles of new crude oil pipeline from Illinois to Indiana. The Line 78 Project will begin at Enbridge's Flanagan Terminal near Pontiac, Illinois, and travel northeast to Enbridge's Terminal near Griffith, Indiana. The diameter of the pipeline will be up to 36-inches. This project will expand Enbridge's capacity to transport growing supplies of crude oil produced in the Williston Basin region around North Dakota and light and heavy crude production in western Canada. The transportation demand from our customers has exceeded the capacity of Enbridge's Line 62 and other pipelines in the greater Chicago area to transport crude oil to the Enbridge terminals in Griffith, Indiana and Hartsdale, Indiana. From there, these supplies of crude oil will be further transported to regional refineries. The expected in service date for the Line 78 Project is mid-2015.

**Southern Access Extension Project**

The Southern Access Extension Project involves constructing a 165-mile, 24-inch diameter pipeline to transport crude oil from Flanagan, Illinois, where the pipeline will connect with the Enbridge's Lakehead System, to a major refinery hub near Patoka, Illinois. The Southern Access Extension Project is one component of a larger expansion effort by Enbridge to expand access to markets for growing volumes of North Dakota and western Canada light oil production. Subject to pending regulatory approvals, Enbridge anticipates beginning construction in mid-2014, with the Southern Access Extension Project in service in early 2015.

**Seaway Expansion and Twin Projects**

The Seaway Pipeline Expansion and Twin Projects are owned and operated by Seaway Crude Pipeline Company LLC ("Seaway"). Seaway is a 50/50 joint venture between Enbridge Inc. and Enterprise Products Partners L.P. ("Enterprise"), with Enterprise operating the pipeline. In 2012, Seaway completed a project to reverse the flow direction of its pipeline so crude oil now moves from the Enbridge-affiliated terminal facility in Cushing to refineries near Houston, Texas. The pipeline is currently running at an annual rate of 150,000 bpd and the expected rate after the Seaway Expansion Project is 400,000 bpd annual. This expansion has an expected in service date of June 2013. The Seaway Twin Project is a new 512-mile 30-inch diameter pipeline that will run parallel to the existing Seaway Pipeline. The initial annual capacity of the project is 450,000 bpd, increasing the capacity of the Seaway Pipeline System to 850,000 bpd annual. The expected in service date for the Seaway Twin Project is mid-2014.





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**Line 6B Phase 2 Project**

Enbridge is in the process of completing its Line 6B 2012 Maintenance and Rehabilitation Program, which involved replacing 75 miles of the Line 6B pipeline from Griffith to Ortonville in seven segments. The Line 6B Phase 2 Replacement Project involves replacing a total of approximately 210 miles of existing 30-inch diameter Line 6B pipeline in Indiana and Michigan with new pipe. This Line 6B Phase 2 Replacement Project responds to growing demand for pipeline transportation capacity while also reducing the frequency of future integrity inspections and individual repairs in the replacement segments. Portions of the line will be replaced with larger size pipe so Enbridge can restore Line 6B to its original capacity, and have additional capacity to meet the current and long term transportation requirements of its shippers.

**Line 79 Project**

Enbridge is completing construction on a new 35-mile long pipeline from an existing terminal in Stockbridge, Michigan to interconnect with an existing pipeline (which Enbridge will lease) into Marathon's Detroit refinery. This project increases capacity by 80,000 bpd, freeing up the capacity on the existing parallel Line 17 to increase supply into the BP-Husky refinery in Toledo, Ohio.

**Sandpiper Project**

The Sandpiper Project involves the construction of a 565- to 608-mile (depending on final route selection), 24-inch and 30-inch diameter pipeline and associated facilities to transport crude oil from Enbridge Pipelines (North Dakota) LLC's Beaver Lodge Station south of Tioga, North Dakota to the existing Enbridge terminal in Superior, Wisconsin. The Project's initial capacity will be 225,000 bpd into Clearbrook, Minnesota and 375,000 bpd into Superior, Wisconsin. The Project will transport growing production from the Bakken Formation in North Dakota to a terminal near Clearbrook, Minnesota, and then on to the Superior, Wisconsin terminal. From Superior, Wisconsin, volumes from the Sandpiper Project can be transported further through various other pipelines, expanding access to refinery markets in the U.S. Midwest and beyond. The Project has a planned in-service date of first quarter 2016.