Enbridge

Energy on a global scale:
• ~13,600 employees
• Operations in 41 states, 8 provinces, 2 territories
• Headquartered in Calgary
• Hubs in Houston, Toronto, Superior/Duluth & Edmonton

Diversified energy assets:
• Liquids Pipelines: 25% of NA crude oil transported - ~17,000 miles of pipe moving 2.9 million barrels per day
• Gas Transportation: 20% of natural gas consumed in NA – 26,000 miles of pipe moving 19.4 Bcf/d
• Gas Distribution: 3.7 million customers in 500+ communities in Ontario
• Renewable Power: Interests in ~1,750 MW generation, powering ~700,000 homes

Enbridge helps to provide a secure, sustainable and reliable supply of energy across the U.S. & Canada
Line 5

• 30” diameter pipeline transporting up to 540 KBPD of light crude oil, light synthetic crude oil and natural gas liquids, including propane

• Crossing at the Straits of Mackinac consists of two, 20” diameter pipelines that allow for operation of the segment at very low pressures

• Line 5 was designed to meet the unique characteristics of operating beneath the Straits:
  – Extra heavy wall thickness pipe manufactured to rigid standards
  – Highly effective coating and cathodic protection system
  – Seamless pipe supported with anchor devices to counter effects of currents
  – Buried at depths that protect it from moving ice packs

Line 5 has operated for 65 years without a release at the Straits crossing

Spent $75MM on maintenance between 2014-16
Why Line 5 is critical to Michigan and the region

Line 5 safely delivers needed energy to Michigan and the region every day

- State contracted Dynamic Risk Report suggests Michigan’s energy costs would increase by $100 MM annually without Line 5.
- $61 million in property taxes annually in Michigan
  - $2.6 million to seven U.P. counties in 2018
- $500,000+ in community investment last year
- Michigan-based employees, $8 million in salaries

Line 5 is critical infrastructure supporting Michigan’s economy.
How we’ve made Line 5 even safer

In 65 years of operation Line 5 has never experienced a spill at the Straits

- Original design offers unique protections
- Straits crossing operates at 25% of MAOP
- Automated valves on either side of Straits
- 24-7 control center monitoring
- Extensive annual in-line-inspections
- Multiple screw-anchor supports
- Enhanced emergency response equipment and local personnel
- Line 5 was successfully hydro-tested in 2017 to the same pressures as were tested in 1953
- A 3rd party review undertaken for our federal regulator – PHMSA – validated the safety of Line 5 and our risk management program
- Dynamic Risk Report: “These results indicate that time is not a significant factor in the failure probability estimates for the Straits pipelines for the Principal Threats identified.”

We monitor Line 5 around the clock, using both human and automated resources such as real-time computer modeling, aerial surveillance and inline inspection tools, as part of our commitment to safe operations.

An extensive risk management plan ensures Line 5 can safely operate for many years to come
Additional commitments by Enbridge in collaboration with the State of Michigan

Voluntary shut-down of Line 5 when waves in the Straits exceed 8 feet

Additional safety measures to protect against anchor strikes

Evaluation of additional tools and underwater technologies

Replacement of the Line 5 St. Clair River crossing ($20 MM)

Enhanced safety measures for other Line 5 water crossings

Regular ongoing reporting & stewardship to state agencies

Construction of Straits multi-utility tunnel

$500 MM investment

Enbridge has committed to funding multiple safety enhancements on Line 5
Line 5 Straits Tunnel and Replacement Project

Industrial tunnel design:

<table>
<thead>
<tr>
<th>Interior diameter:</th>
<th>~10 feet</th>
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<tbody>
<tr>
<td>Tunnel length:</td>
<td>4 miles, between existing Enbridge facilities on North Shore and South Shore</td>
</tr>
<tr>
<td>Pipeline replacement:</td>
<td>New 30” pipeline in tunnel</td>
</tr>
<tr>
<td>Additional capability:</td>
<td>Broadband &amp; electric transmission lines</td>
</tr>
<tr>
<td>Expected capital cost:</td>
<td>$500 MM</td>
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</tbody>
</table>

http://www.enbridge.com/viewer?item=D29D8B309E7D4FDF9EF1C1392F4F9D7E
Figure 1: Profile drawing of a Line 5 Straits tunnel (illustrated with a 5x vertical exaggeration to aid visualization).
Enbridge is prepared to invest $500 million to construct the tunnel & replace the Straits pipelines.

### Line 5 Straits Tunnel and Replacement Project

<table>
<thead>
<tr>
<th>Year</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Geotech analysis and detailed engineering</td>
<td>Complete tunnel design ...</td>
<td>Permitting reviews/approvals ...</td>
<td>Tunnel and pipeline construction (4Q21 – 4Q23)</td>
<td>Early 2024 target in-service</td>
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<tr>
<td></td>
<td>File permit applications ...</td>
<td>Order Tunnel Boring Machine</td>
<td>Begin Construction</td>
<td></td>
<td></td>
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</tbody>
</table>
This is Amber

She will make it happen!!