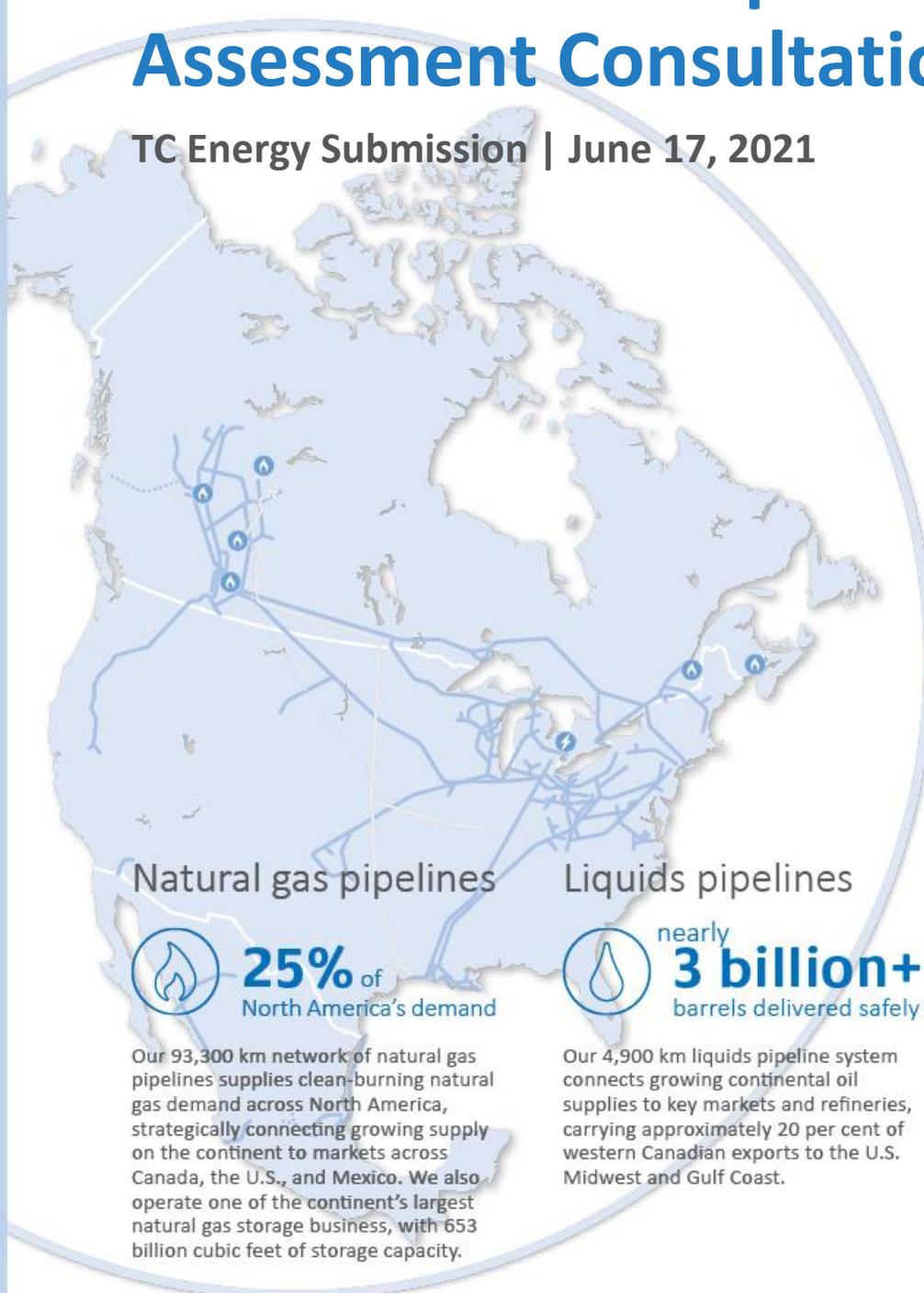


Comments on the Independent Electricity System Operator's Gas Phase-Out Impact Assessment Consultation

TC Energy Submission | June 17, 2021



Natural gas pipelines



25% of North America's demand

Our 93,300 km network of natural gas pipelines supplies clean-burning natural gas demand across North America, strategically connecting growing supply on the continent to markets across Canada, the U.S., and Mexico. We also operate one of the continent's largest natural gas storage business, with 653 billion cubic feet of storage capacity.

Liquids pipelines



nearly **3 billion+** barrels delivered safely

Our 4,900 km liquids pipeline system connects growing continental oil supplies to key markets and refineries, carrying approximately 20 per cent of western Canadian exports to the U.S. Midwest and Gulf Coast.

Power and storage



4 million+ homes powered

We own or have interests in seven power generation facilities with combined capacity of approximately 4,200 megawatts, roughly 75 per cent is emission-less energy.

General Comments to the Independent Electricity System Operator

TC Energy is writing to provide comments to the Independent Electricity System Operator (IESO) as it looks to scope an assessment on reliability, operability, timing, cost and wholesale market issues resulting from potential changes to Ontario's power generation profile. We appreciate IESO's leadership to undertake a fact-based analysis to clarify the narrative around the role of natural gas in the electricity mix and implications of any changes to Ontario's power generation portfolio. Natural gas is an important piece of Ontario's energy mix and TC Energy is proud of the role our robust and reliable pipeline network plays in ensuring Ontarians have access to affordable energy. As this work is being undertaken to address municipalities' concerns around their role in tackling climate change, we believe it would be better positioned as an assessment on the implications of various greenhouse gas (GHG) reduction scenarios resulting from changes to the electricity mix. This would more effectively focus on Ontario's long-term goals for the electricity system and how to achieve at the lowest cost to society: low-emitting, low environmental impact and equitable power access.

Need for an Integrated Resource Plan

While we appreciate IESO's direct approach to the debate around proposed changes to the electricity mix, TC Energy sees this issue and resulting assessment highlighting the value of an electricity system integrated resource plan (IRP). An IRP would proactively develop an integrated, least-cost framework through a transparent and inclusive process that considers multiple future scenarios to determine how potential power generation resource portfolios could perform under different market, environmental and policy conditions. This would position IESO to advise on the implications of potential policy or societal shifts in energy demand as they arise. We would be happy to connect directly to discuss our thoughts on this topic.

Natural Gas Combustion and Post-Combustion GHG Emission Reduction Opportunities

In its scoping presentation, IESO discusses using an average of electricity sector emissions from 2016 to 2020 to establish an emissions baseline. TC Energy believes that this baseline does not likely represent the future emissions profile from natural gas fired generation, given forthcoming opportunities to adjust the natural gas mix and/or capture combustion emissions. As Ontario advances its provincial hydrogen strategy, existing natural gas pipelines could provide the opportunity to transport initial volumes of low emission hydrogen through blending. In the near-term, while hydrogen transportation in the natural gas stream may be possible at low concentrations, the impacts of gas composition changes on an array of industry peers and end users must be evaluated to ensure that the energy delivered can be safely used by all consumers. Developing aligned codes and standards will ensure hydrogen's safe and efficient development and transportation. Incorporating hydrogen into the natural gas mix will further reduce end-use emissions by lowering the product's carbon intensity. These changes to the natural gas fleet would lower CO₂ emissions. IESO should also consider the opportunity for carbon capture, utilization and storage deployment to reduce CO₂ emissions on natural gas fired generating assets as it scopes this work.

Implications to Broader Provincial Emission Reduction Opportunities

While we appreciate IESO's scope for this work pertains to items under its purview, namely reliability, cost, market, operability and timing considerations for the electrical grid resulting from an adjusted mix of power generation sources, it does not appear to consider whether decarbonizing the electrical grid through a gas phase-

out is pragmatic or cost-effective in reducing overall provincial emissions. Ontario already has one of the cleanest electricity systems in North America, with its carbon intensity ranking the 6th best of all jurisdictions.¹ There are other sectors in Ontario that offer better decarbonization opportunities. For instance, a recent Ontario Energy Association report highlights many priority opportunities to broadly support provincial emission reductions beyond focusing on natural gas fired generation.² It seems clear that if Ontario's focus is on the trajectory of reducing economy-wide emissions, the capacity and reliability provided by natural gas generation in addressing peak demand conditions (such as during seasonal temperature peaks) is a necessary ingredient in order to decarbonize while maintaining reliability and affordability. Backed by natural gas for seasonal demand peaks, increased use of Ontario's electricity to aid in meeting emissions goals can effectively utilize Ontario's non-emitting resources without jeopardizing reliability.

In a capital constrained world, further decarbonizing an already clean electricity grid while more cost-effective opportunities remain is not the best use of the limited resources available to address climate change. As such, the assessment should identify the abatement cost for each tonne of CO₂ reduction achieved through changes to the electricity mix and provide a cost benefit analysis with other provincial emission reduction opportunities. This will better contextualize the value of pursuing each emissions reduction pathway. If feasible, it would also be helpful to understand each scenario's energy affordability implications given the impact it can have on energy consumers.

Scenario Development

TC Energy believes that by taking a holistic view of broader provincial emission reduction opportunities and considering energy affordability implications, it will become clear that natural gas, nuclear, renewables and energy storage solutions will all be required to cost effectively address climate change goals and maintain grid reliability and affordability. We anticipate an important role for utility sized balancing and ancillary services supplied by mature storage technologies, such as TC Energy's proposed pumped storage project, in all envisioned scenarios. The project will ensure Ontario maximizes value from its power generation, storing excess energy at night during periods of low demand and providing an energy balance by reliably and responsibly delivering that energy during high demand periods. In a rapid decarbonization scenario, storage remains one of the few zero-emission on-demand capacity options. We welcome the opportunity for further engagement with IESO on what a 2030 scenario could look like that incorporates all these asset classes and fully leverages the decarbonization opportunities available within each stream.

Conclusion

TC Energy appreciates the opportunity to provide feedback to IESO as it assesses various power generation scenario implications. We support the Association of Power Producers of Ontario pre-engagement submission to IESO on this topic (submitted by e-mail on May 11, 2021). Natural gas fired electricity generation has played a key role in reducing provincial power generation emissions to date by enabling the transition off coal, provides on-demand power to backstop wind and solar resources, and will support upcoming nuclear refurbishments. Natural

¹ [Ontario Energy Association – Net Zero 2050 \(June 2021\) Figure 8](#)

² [Ontario Energy Association – Net Zero 2050 \(June 2021\)](#)

gas generation will continue to allow the non-emitting generation fleet to be used more effectively for economy-wide electrification while maintaining critical reliability – it's an important part of the solution. As natural gas fired generation will continue to perform an invaluable service for Ontario's power grid, we look forward to IESO's assessment supporting the continued viability and fair treatment of this asset class.

We welcome the opportunity to discuss this issue further – please feel free to reach out to the contact below.

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