

T R I B U T E E N E R G Y

TESI

S T O R A G E I N C .

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November 28, 2019

Ontario Energy Board
2300 Yonge Street, 27th Floor
Toronto Ontario, Canada
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Attention: Board Secretary

In the Matter of an Application by Tribute Energy Storage Inc. for a de-designation of the Bayfield and Stanley reservoirs pursuant to section 36.1(1)(b) of the Ontario Energy Board Act, 1998, S.O. 1998, c. 15, Sched. B

The Application

Tribute Energy Storage Inc. ("TESI") is making this application to the Ontario Energy Board ("OEB", or "the Board") pursuant to subsection 36.1(1)(b) of the *Ontario Energy Board Act* ("OEB Act"). TESI's application is requesting the OEB to de-designate the depleted Bayfield and Stanley natural gas production reservoirs from their current categorization as natural gas Designated Storage Areas ("DSAs"), which was confirmed by the OEB in its *Decision with Reasons* (EB-2011-0076 and EB-2011-0077) released on December 21, 2012, following a public hearing.

Sincerely,

[Original signed by]

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Bayfield and Stanley Reservoirs as Gas Storage

In 2017, TESI purchased the rights and intellectual information pertaining to the Bayfield and Stanley reservoirs from Tribute Resources Inc. (“TRB”).

The envisaged development, financing and construction by TRB of these two previously designated reservoirs, pursuant to the OEB Decision’s grant of four (4) years to complete the development, was never able to be completed, nor was the proposed >60 km pipeline built to allow for the connection of the reservoirs. The hearing panel was aware of the early evolving evidence of worsening gas storage economics due to persistent depressed gas market prices and ongoing narrow seasonal price spreads. The hearing panel allowed this unprecedented lengthy condition of four (4) years for development, to see if the applicant could adjust to and withstand the low prices and spreads, and if the gas market prices would recover and increase during that time. This situation did not resolve itself or recover within the time of the OEB condition, nor have gas prices recovered since.

The core reason for the seven (7) year development hiatus, which now appears to be permanent, was simply due to ongoing unprofitable project economics and poor financial model outcomes, which are directly attributable to the sustained gas price decrease across all North American natural gas markets¹. TRB recognized that it was impossible to finance the storage projects using conventional bank financing under these gas market price conditions; it was for this reason that TRB sold these reservoir projects.

For many decades, natural gas price spreads between summer and winter injection and withdrawal periods were historically central to the positive economics of Ontario gas storage development. A minimum \$2.00/GJ price spread between summer and winter gas prices was once viewed as minimally profitable to finance and develop new gas storage, particularly when gas prices were in the \$5 - \$8/GJ range². This spread expectation has since disappeared, with gas commodity prices varying inside the \$2 - \$3/GJ range³, which is uneconomic to develop new gas storage.

New gas storage has since remained uneconomic to develop and deliver gas into and the Dawn Hub regional market. The evidence is clear that no new natural gas storage projects are being proposed and no applications have been filed with the OEB since the Bayfield and Stanley applications were prepared in 2008.

This ongoing price decrease, depression and ceiling has been the direct result of significantly more accessible reserves of gas since the industry’s well known proliferation of formation fracking practices across the North American continent. Developing new gas storage is highly unlikely given the over-supply gas futures/scenarios across published and forecast indices in

¹ NGI Data: *Canada Natural Gas Prices*;

https://www.naturalgasintel.com/data/data_products/daily?region_id=canada

² Ontario Energy Board: Historic natural gas rates; <https://www.oeb.ca/rates-and-your-bill/natural-gas-rates/historical-natural-gas-rates>

³ Enbridge Gas Distribution Inc.: Natural gas prices, Ontario; <http://www.energystore.com/natural-gas-prices-Enbridge-residential.cfm>

the North American gas trading hubs for the foreseeable future, anticipated in terms of several decades. Reserves, once thought impossible to access and produce, are now increasingly available with high-tech industry drilling, fracking and connection/pipeline advances. Gas prices are forecast to remain low for decades. A review of the Canadian Gas Price Reporter and the forward strips will confirm this pricing pattern. In 2019, gas prices reached new lows, which are having an adverse impact on new drilling and production maintenance across the continent.

The Bayfield and Stanley reservoirs are located over 60 kms from the nearest appropriate connection point: the Dawn-Trafalgar gas transmission system, now owned and operated by Enbridge Gas Distribution Inc. (“EGI”). These depleted gas reservoirs lie within the outer fringe of the more densely located, in-service gas storage pools, used in Ontario primarily for balancing winter gas demands. Even at the time of the Bayfield and Stanley OEB hearing, the price to plan, finance and construct the connecting pipeline was significant, and later became an impenetrable barrier to proceeding with the gas storage project due to unprofitable project economics.

In 2010, then-Union Gas Limited (“Union”) had joined TRB as a development partner with the hopes and expectations that the reservoirs would be developed together. The Board is aware that Union withdrew from the joint venture partnership and requested its deposit back when Union also came to the conclusion that it was impossible to develop these reservoirs on any foreseeable positive economic basis. TRB refunded Union its deposit money and held the projects until such time as they were sold, at a loss, to TESI in 2017, for one-fifth of what had been invested in the reservoir developments. The sale price was a fraction of the original amount invested in the reservoir development, and was based on an independent accounting firm valuation of their residual value. TESI planned to use the reservoirs for Compressed Air Energy Storage (“CAES”) and purchased the Petroleum & Natural Gas “PNG” rights with this in mind.

Ontario has approximately 248 billion cubic feet (“Bcf”) of developed natural gas storage (~26% of Canada’s total storage capacity)⁴. 193 Bcf is used to supply the annual needs in-franchise Ontario gas customers; the balance of 55 Bcf is owned now by EGI and is unregulated. Of the total 248 Bcf in Ontario, the OEB has directed that 200 Bcf be priority reserved for Ontario customers, for future needs. Existing and connected gas storage, which is in excess of Ontario in-franchise customer requirements referred to above, is largely sold periodically by EGI in auction formats to ex-franchise, non-Ontario customers. There is therefore sufficient (and excess) gas storage to meet Ontario customer needs, for several decades, leaving excess domestic gas storage to be sold to ex-franchise customers, also for the foreseeable future.

TESI views all of these reservoirs as valuable provincial assets, regardless of ownership or operatorship, with EGI possessing 36 natural gas storage facilities in Ontario⁵. Demand for

⁴ Canada Energy Regulator: *Market Snapshot: Where does Canada store natural gas?*; <http://www.cer-rec.gc.ca/nrg/ntgrtd/mrkt/snpsht/2018/05-03whrdscncstrnrglgs-eng.html>

⁵ Enbridge Gas Distribution Inc.: *Enbridge Natural Gas Storage*; https://www.enbridge.com/~/_media/Enb/Documents/Factsheets/FS_Natural_Gas_Storage.pdf

natural gas in Ontario is forecast to grow only ~60% between 2019 to 2035, from 45 to 120 Petajoules (“PJ”), or 3.75% per year⁶ according to one forecast. Aiken and Associates suggests that the growth forecast would be ~1% per year, with the exception of new greenhouse demand. In either forecast, the result is that Bayfield and Stanley will not be needed or economic for gas DSA purposes. The TransCanada PipeLines Ltd. (“TransCanada”) interprovincial pipeline is not anywhere near full capacity at this time⁷, and it too would be capable of supplying central Canada with increased winter volumes without any need for a system expansion.

TESI believes that there is therefore no practical or demonstrable need in the foreseeable future for the Bayfield and Stanley pools to remain as lightly regulated, single purpose natural gas DSAs, as they will likely never become ‘used and useful assets’, a term well familiar to this regulator. In addition to the price spreads acting as an ongoing sufficient barrier to development of these reservoirs, their considerable distance from and cost to connect to Dawn-Trafalgar transmission system is another formidable barrier.

Considering there is a growing demand for clean, utility-scale, economically feasible electricity storage, which is currently in very short supply, it is TESI’s plan that these reservoirs may be put to a better, more practical use.

Compressed Air Energy Storage Reservoirs at Bayfield and Stanley

TESI believes that it is in the public interest for these reservoirs to become useable and useful with another purpose. As part of the Board’s first-ever section 36.1(1)(b) review of a de-designation application, TESI believes that the Board should be aware of the alternative purpose to which the reservoirs are proposed to be used.

Rather than leaving these studied and previously approved natural gas DSAs to lie indefinitely valueless, and in limbo, TESI is proposing that the de-designation of these reservoirs as natural gas storage reservoirs will allow for the development of Bayfield and Stanley as CAES containers. This power would be stored, then released for use at higher priced, peak demand hours.

The costs to the Province and the electricity ratepayers from lost, wasted and constrained-off energy are clear, expensive and well documented over several years. Since 2005, Ontario has connected a significant renewable energy generation fleet (8,022 MW as of 2016⁸), which has minimal energy storage available to make it dispatchable. In 2017, ~10.2 TWh of primarily clean energy, or 7.7% of net demand, was wasted or dispatched down⁹.

⁶ Government of Ontario: *Fuels system 20-year outlook*; <https://www.ontario.ca/document/fuels-technical-report/fuels-system-20-year-outlook>

⁷ Canada Energy Regulator: Canadian pipeline transportation system – Energy market assessment; <https://www.cer-rec.gc.ca/nrg/ntgrtd/trnsprtn/2014/index-eng.html#s321>

⁸ National Energy Board: *Canada’s Renewable Power Landscape 2017 – Energy Market Analysis*; <https://www.neb-one.gc.ca/nrg/sttstc/lctrct/rprt/2017cndrnwblpwr/prvnc/on-eng.html>

⁹ IESO Power Data 2017, and OPG Reports 2017 Financial Results

It is recognized that once a depleted natural gas reservoir has been flushed with nitrogen and air, and prepared for CAES, it will never be able to be used for natural gas storage again. Issues such as inconsistent gas quality, potential dampness, and other downhole factors would preclude the formation from holding natural gas in merchantable quality. However, the de-designation of the Bayfield and Stanley reservoirs by the OEB as natural gas DSAs does not commit said reservoirs to development as CAES facilities. De-designation itself can occur without harm to the public interest, as the reservoirs are not currently being developed as natural gas storage containers, nor is it likely that they ever will be due to foreseeable poor/negative economics.

TESI notes that the landowners in Bayfield and Stanley have expressed a clear interest in the reservoirs being developed on an economic basis for CAES, and most have signed a letter to the Ontario Ministry of Natural Resources & Forestry (“MNRF”) in December 2017, appended as Schedule A, expressing their clear support for the projects.

TESI would like to ensure that its application to request removal of the natural gas DSA be coordinated with and be effective conditional on the TESI request for and approval of a MNRF regulation for the injection and withdrawal of air in the Bayfield and Stanley porous rock reservoirs, the application process for which is currently underway. TESI will work with the OEB and its staff to ensure a smooth transition in the DSA status if this application is granted.

SCHEDULE A:

Signed Bayfield & Stanley Landowner Support Letter for Compressed Air Energy Storage Regulation & Development to the Ontario Ministry of Natural Resources & Forestry, Dated December 12, 2017

Please note: The appended *Signed Bayfield & Stanley Landowner Support Letter* references entities which have changed in name, ownership, and/or partnership status since the original letter was drafted and signed on December 12, 2017. Specifically, the Bayfield and Stanley porous rock reservoir assets have been transferred from Tribute Resources Inc. to Bayfield Resources Inc., a wholly-owned subsidiary corporation of Tribute Energy Storage Inc. (“TESI”), the applicant in question. Further, TESI is no longer engaged in an active business partnership, or notable relationship of any kind, with Sigma Energy Storage Inc. in the pursuit of developing the reservoirs as Compressed Air Energy Storage (“CAES”) systems.