Ontario Energy Board Cost of Capital – Update and macroeconomic outlook

prepared for the Ontario Energy Board by London Economics International LLC

April 21st, 2021

London Economics International LLC ("LEI") was retained by the Ontario Energy Board ("OEB") to monitor macroeconomic conditions to ensure the cost of capital parameters for 2021 rates (issued by the OEB on November 9th, 2020) reflect current outlooks. As part of this quarterly review, LEI updated calculations of the return on equity ("ROE"), the deemed long-term debt rate ("DLTDR"), and the deemed short-term debt rate ("DSTDR") using data as of March 31st, 2021. This analysis resulted in an ROE of 8.52%, with deemed long-term and short-term debt rates of 3.20% and 1.69%, respectively. These values differ slightly from the cost of capital parameters published for 2021 rates of 8.39% (ROE), 2.95% (DLTDR), and 1.74% (DSTDR), which were calculated using data as of December 31st, 2020, but are consistent with the prevailing macroeconomic conditions and market sentiment at the end of the first quarter of 2021. In line with LEI's previous quarterly updates, we continue to provide special analysis focused on the extraordinary circumstances arising due to the COVID-19 pandemic and its impact on the global economy.

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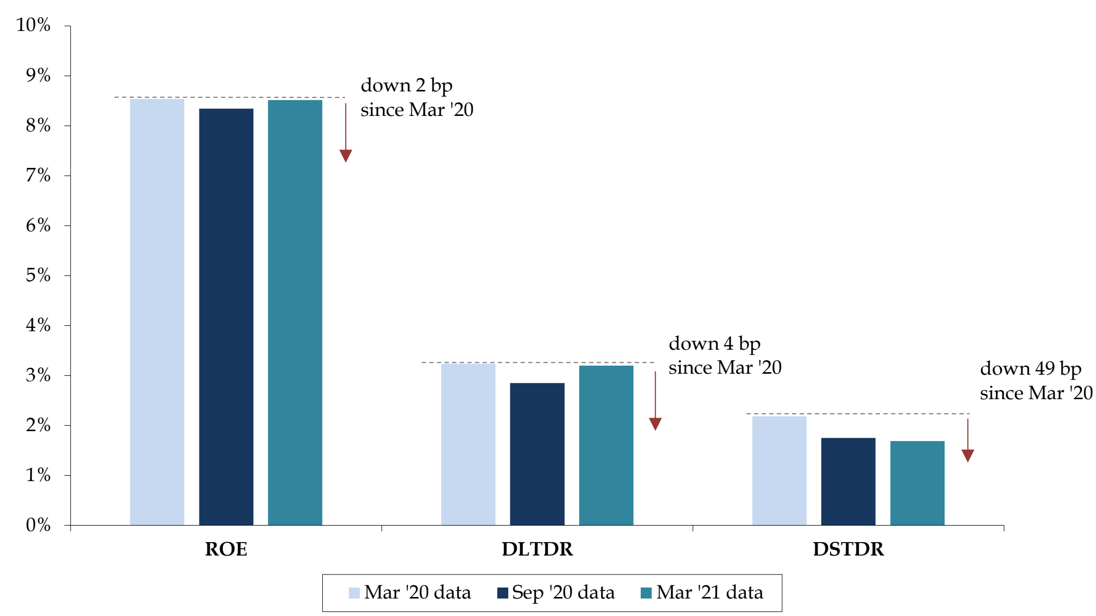
1 Executive summary

This quarterly report updates the Ontario Energy Board ("OEB") on recent macroeconomic trends on a global, North American, and provincial scale since the Board's publication of the 2021 cost of capital parameters. Specifically, this report outlines:

- a recap of the key macroeconomic events that have taken place since LEI's previous briefing note;
- a review of the ongoing economic impact of the global pandemic caused by COVID-19, in particular the rollout of the immunization program, as well as a third wave of infections that has resulted in renewed lockdown restrictions; and
- findings of the variance analysis conducted on the cost of capital parameters – namely the return on equity ("ROE"), the deemed long-term debt rate ("DLTDR"), and the deemed short-term debt rate ("DSTDR").

In addition to the review of current macroeconomic developments, LEI has cross-checked the 2021 cost of capital parameters with data as of March 31st, 2021, where possible. The results of this analysis are outlined in Figure 1 below.

Figure 1. Summary of cost of capital parameters using data as of March 31st, 2021



Source: LEI analysis.

On November 9th, 2020, the OEB approved the following cost of capital parameters for rates effective in 2021 (using data as of September 30th, 2020): ROE of 8.34%, DLTDR of 2.85%, and DSTDR of 1.75%.[1] Compared with these values, LEI's current update using data as of March 31st,

[1] OEB. 2021 Cost of Capital Parameters. November 9, 2020.

2021 sees the parameters increasing by 18 basis points for the ROE, increasing by 35 basis points for the DLTDR, and decreasing by 6 basis point for the DSTDR. The increase in the ROE and DLTDR values reflect increased expectations of growth for 2021 associated with vaccine rollout and increased consumer confidence, while the minor decrease in the DSTDR can be attributed to ongoing restrictions that have been implemented in early 2021 as a third wave threatens growth prospects. A summary of these changes is shown in Figure 2 below.

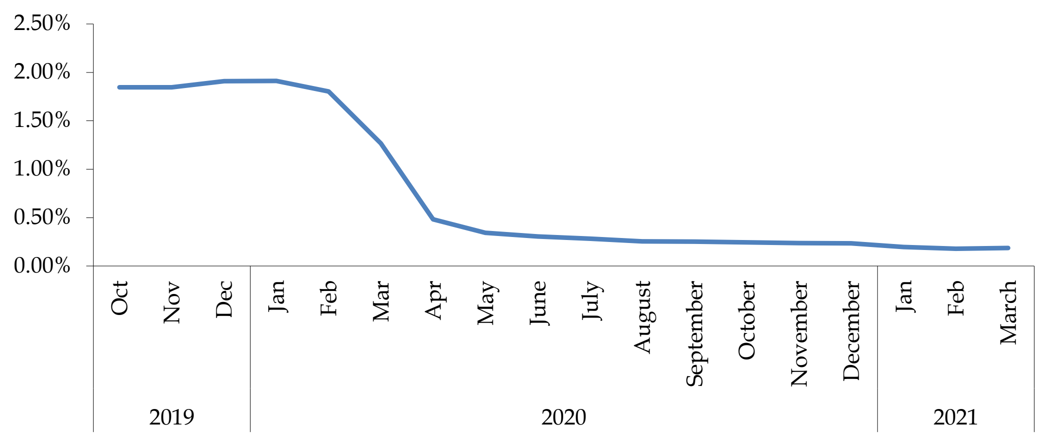
Figure 2. Comparison of cost of capital parameters to previous updates

Cost of capital parameter	Value based on March 2020 data	Value based on September 2020 data	Value based on March 2021 data	Difference (since September 2020)	Difference (since March 2020)
Return on equity	8.53%	8.34%	**8.52%**	0.18%	-0.02%
Deemed long-term debt rate	3.23%	2.85%	**3.20%**	0.35%	-0.04%
Deemed short-term debt rate	2.18%	1.75%	**1.69%**	-0.06%	-0.49%

Source: LEI analysis.

The only decline relative to the OEB's 2021 cost of capital parameters occurred in the DSDTR, which has decreased (i) by 0.06% since September 2020, and (ii) by 0.49% since March 2020. This reflects the persistence of the low banker's acceptance ("BA") rate, which fell at the start of the global pandemic in the early months of 2020, as depicted in Figure 3 below. The BA rate has decreased to an average of 0.19% in the month of March 2021, down from 1.27% just 12 months ago in March 2020. This decline reflects continued short-term uncertainty surrounding the impact of COVID-19 and has been visible in near-term borrowing metrics since the start of the pandemic.

Figure 3. Average of 3-month BA rate, 2019 Q4 – 2021 Q1



Source: Investment Industry Regulatory Organization of Canada. *Canadian Bankers' Acceptance (BA) Rates – 3 Month Rates.*

Applying the updated parameters (using March 2021 data) to the deemed capital structure (i.e., 40% equity, 56% long-term debt, and 4% short-term debt) yields a WACC of ~5.27%, an increase from the 5% WACC obtained using the OEB's approved 2021 parameters.

2 Macroeconomic outlook in 2021

In this section, we identify the most important factors impacting the global and regional economies in the first quarter of 2021 and consider the consensus research and expectations for the rest of 2021. We briefly recap our previous briefing note and discuss the economic impact of the global pandemic due to COVID-19. Following this recap, the remaining sections are divided into the global and North American outlook, followed by Canadian and Ontario outlooks. A summary of this research is presented in Figure 4 below.

Figure 4. Summary of macroeconomic outlooks for 2021

Region	Growth trend relative to previous briefing note	Interest rate trend relative to previous briefing note	Key factors
Global	Uneven recovery underway	Remains low	▪ As leading economies such as the US and China return to pre-pandemic growth levels, likelihood of growth is strong but will be driven by each country's ability to contain subsequent waves of COVID-19 and successfully distribute vaccines ▪ Economic stimulus programs, pent-up demand and excess savings will drive growth and may lead to inflationary pressures
Canada	Slow recovery underway	Remains low	▪ Multiple new waves and lockdown restrictions may drag growth, although expanded fiscal support may soften impact ▪ Vaccine rollout programs lagging and may also drag growth in 2021
Ontario	Uncertainty remains despite strong recovery potential	n/a	▪ Ontario continues to represent a significant portion (37%) of the total case count in Canada, and variants of concern ("VOCs") have taken hold ▪ Strong economic activity remains in the housing construction and home sales segment, as well as rising business confidence

Sources: International Monetary Fund; Bank of Canada; Ontario Ministry of Finance.

2.1 Recap of previous briefing note and COVID-19 update

In the first quarter of 2021, the world's economies stepped up efforts to emerge from the sharp economic decline that characterized 2020 due to the global pandemic resulting from COVID-19. Even as the International Monetary Fund ("IMF") termed the recession The Great Lockdown, the impact of the shutdowns remains uneven.[2] Since a brief reopening in the summer months of 2020, many major economies in Europe, North America, and around the world experienced subsequent waves of outbreaks within their jurisdictions. In many countries, these subsequent peaks have been higher than the first wave in the spring of 2020.

However, an earlier than expected and successful vaccine development has raised expectations for 2021, with the federal government in Canada setting a goal to immunize all who want a vaccine by the end of September 2021 (roughly 60% of the population). In the last briefing note, LEI noted that "*complicating the immunization program has been the emergence of a faster-spreading*

[2] International Monetary Fund. *World Economic Outlook, April 2020: Chapter 1: The Great Lockdown.* April 2020.

variant of the virus from the UK." This has proven to be prescient as the emergence of faster-spreading variants, also referred to as Variants of Concern ("VOC"), have led to more aggressive waves of outbreaks. VOCs have driven rising COVID-19 case counts in several jurisdictions, including in Canada. In Ontario, the province is currently in the midst of its most aggressive wave yet, and the Province is currently in a state of emergency coupled with stay-at-home orders as of April 8th, 2021.[3]

The pace of vaccine rollout has diverged markedly across jurisdictions. Further complicating the rollout of immunization programs are supply chain bottlenecks and safety-related reviews – an example of the former occurred at a production facility in for Johnson & Johnson's vaccine in Maryland, whereby 15 million doses were spoilt due to a manufacturing error.[4] With regards to the latter, multiple jurisdictions have opted to pause the administration of certain vaccines either to population younger than 55 years, or altogether due to the emergence of rare blood clots.[5,6]

As noted in LEI's prior briefing note, commentators have observed that 2021 predictions depend "*heavily on the assumption that vaccine rollout will happen quickly and effectively*." It remains to be seen whether these logistical, safety and public perception challenges weaken economic outlook in the subsequent months. However, it is notable that labor market conditions have begun to return to pre-pandemic levels, with the most recent report from Statistics Canada observing that employment was "*within 1.5% of its pre-COVID February 2020 level*."[7]

As noted in previous briefing notes, central banks and governments have taken several monetary and fiscal actions in response to the economic crisis resulting from the pandemic, including lowering interest rates to record lows and adopting expansionary fiscal policies. In subsequent sections, we discuss a number of these measures, and consider the impact on the outlook for 2021.

2.2 Global and North American outlook

The global economic outlook for 2021 continues to appear more optimistic, thanks to the rollout of vaccines, adaptation to working conditions in the pandemic, and continued fiscal stimulus, particularly in the United States. In its April 2021 World Economic Outlook ("WEO"), the IMF estimates that global GDP will rise by 6% in 2021, and 4.4% in 2022; these represent increases of

[3] Government of Ontario. *Declaration of emergency and provincewide stay-at-home order.* April 2021.

[4] Weiland, N. & LaFraniere, S. *Factory Mix-Up Ruins Up to 15 Million Vaccine Doses From Johnson & Johnson.* The New York Times. March 31, 2021.

[5] European Commission. European Medicines Agency. *AstraZeneca's COVID-19 vaccine: EMA finds possible link to very rare cases of unusual blood clots with low blood platelets.* April 7, 2021.

[6] United States Centers for Disease Control and Prevention. *Recommendation to Pause Use of Johnson & Johnson's Janssen COVID-19 Vaccine.* April 13, 2021.

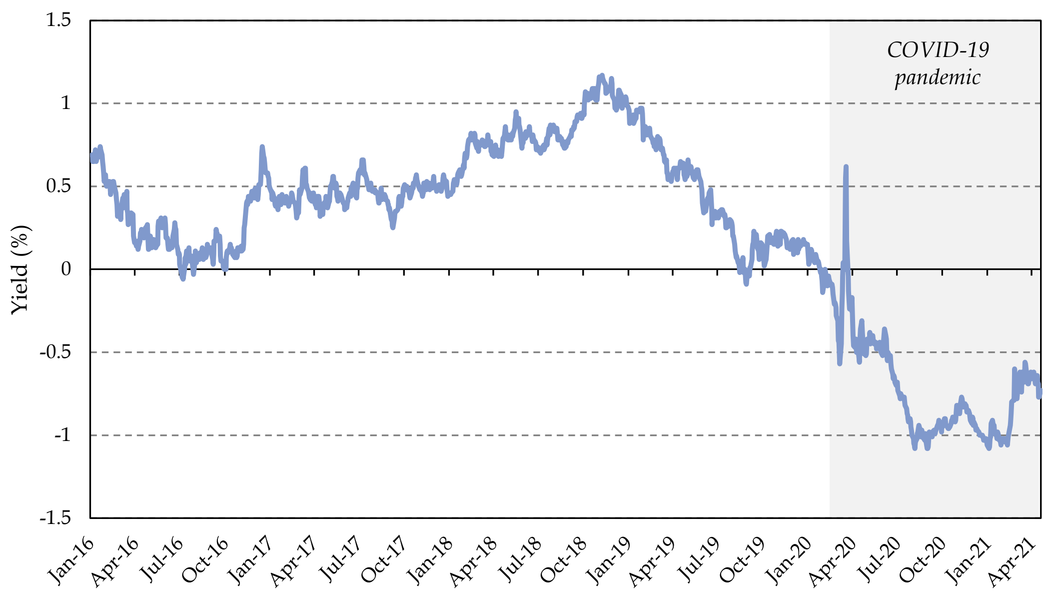
[7] Statistics Canada. *Labour Force Survey, March 2021.* Released April 9, 2021. Accessed at: < https://www150.statcan.gc.ca/n1/daily-quotidien/210409/dq210409a-eng.htm>

0.8 and 0.2 percentage points, respectively, compared to earlier projections in the October 2020 WEO.[8]

The US is predicted to return to pre-pandemic GDP this year, whereas China has already done so in 2020. Global projections, however, carry significant uncertainty, due to the ongoing public health situation (including new variants of COVID-19) and vaccine rollout. As economic recovery advances, there also remains the risk for abrupt changes in monetary policy to prevent overheating, as recent increases in long-term interest rates may indicate. These shifts could have adverse effects on developing economies, further setting them back in their already-lagging recovery.[9]

Inflationary pressures have begun to be observed in forecasts for bond yields. One leading indicator is observed in the US Treasury Inflation Protected Securities ("TIPS") - these are bonds with principal tied to the Consumer Price Index ("CPI"), with payments made semi-annually.[10] Recent data on yields for 10-year TIPS shows a slight rising trend in the last quarter, however they have not recovered to pre-pandemic levels yet – see Figure 5 below.

Figure 5. 10-Year Treasury Inflation-Protected Security (2016 – 2021 YTD)



Sources: US Federal Reserve. Data retrieved from St Louis Fed website.

[8] International Monetary Fund. *World Economic Outlook: Managing Divergent Recoveries*. Washington, DC, April 2021.

[9] Ibid.

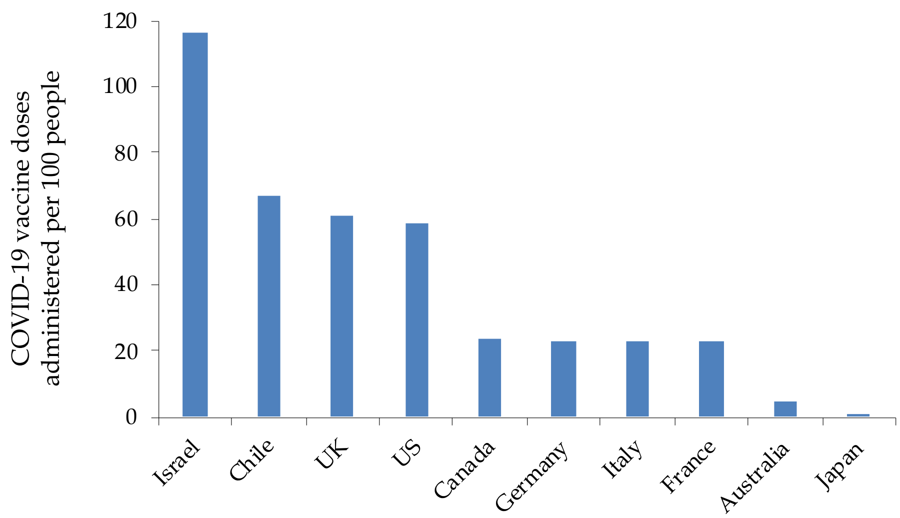
[10] US TreasuryDirect website. *Treasury Inflation-Protected Securities (TIPS)*. Accessed at: < https://www.treasurydirect.gov/indiv/research/articles/res_invest_articles_tips_0704.htm>

The debate on whether this inflation will be sustained or temporary remains open – most recently, Federal Reserve Chair Jerome Powell commented that increased inflation should be temporary as the US economy recovers, despite concerns in the market.[11]

As of April 14, 2021, over 841 million doses of a COVID-19 vaccine have been administered around the world.[12] There are nevertheless significant gaps in vaccinations between countries, even among advanced economies. Israel continues to lead the world, with 116 doses administered per 100 people (the Seychelles also has the same rate of vaccination). As shown in Figure 6 below, Chile, the United States and the United Kingdom are also leaders among OECD economies, whereas other nations, including Canada, have not kept pace.

The European Union has particularly struggled with its vaccine rollout. It recently discovered rare but serious side effects from the AstraZeneca and Johnson & Johnson vaccines, following many months of supply issues and logistical challenges.[13] In Canada, a lack of domestic mass-vaccine manufacturing capacity has led the country to rely on imports, which have been vulnerable to supply chain and delivery issues.[14] Economic outlooks in both Canada and the EU are also likely challenged by the slow pace of vaccine rollout.

Figure 6. Vaccine doses administered per 100 people in selected OECD countries



Note: data as of April 15, 2021. Source: The New York Times.

[11] AP News. *Powell: Higher inflation temporary, no rate hikes in sight*. March 4, 2021.

[12] Holder, Josh. "Tracking Coronavirus Vaccinations Around the World." *The New York Times.* Accessed April 16, 2021.

[13] Stevis-Gridneff, Matina and Monika Pronczuk. "Worry Over 2 Covid Vaccines Deals Fresh Blow to Europe's Inoculation Push." *The New York Times.* April 13, 2021.

[14] BBC News. *Why Canada is falling behind in Covid vaccinations*. February 19, 2021.

In the coming year, the United States is predicted to see its strongest annual growth since 1984, fueled by an accelerated vaccine rollout, significant fiscal stimulus and less stringent public health measures. The national economy will also likely be buoyed by households spending funds from stimulus cheques and deferred spending.[15] The US is experiencing a steady employment recovery, based on the most recent figures from the Bureau of Labor Statistics. Following steady increases in January and February of this year, nonfarm payroll employment rose significantly (by 916,000, or 0.6%) in March 2021, nearly double the February increase in total nonfarm employment, including notable gains in the leisure and hospitality and construction industries. The leisure and hospitality industry was helped by the loosening of public health restrictions across much of the US. While the overall unemployment rate is now down to 6%, from a pandemic high of over 14%, the country still has 8.4 million fewer employed people compared to February 2020.[16]

The US Congress passed yet another round of significant economic stimulus in March 2021, called the American Rescue Plan Act of 2021 ("ARPA"). ARPA included rebate cheques to individuals worth $1,400, enhancements to child tax credits, a six-month extension of unemployment provisions from previous stimulus bills,[17] and other funding provisions that together made ARPA worth $1.9 trillion, or 9% of GDP. President Biden has also recently unveiled an infrastructure plan worth $2 trillion, pointing to significant further economic stimulus ahead, though the ultimate size and configuration will depend on action in Congress.[18] These expansionary fiscal policies coincide with ongoing upward pressure on bond yields as inflation concerns are expected to remain in the US. For example, the most recent 3-month and 1-year Consensus Economics forecast for 10-Year Treasury Bond Yield averages 1.7% and 2.0% for July 2021 and April 2022, respectively.[19] By comparison, the 1-year forecast for July 2021 anticipated a yield of 1.2%, i.e., an increase in 0.5% in ~8 months.[20]

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[15] BMO Capital Markets Economic Research. *North American Outlook*. March 16, 2021.

[16] US Bureau of Labor Statistics. *The Employment Situation – March 2021*. April 2, 2021.

[17] US Congress. *H.R. 1319 – American Rescue Plan Act of 2021.*

[18] BMO Capital Markets Economic Research. *North American Outlook*. March 16, 2021.

[19] Every month, Consensus Economics surveys multiple financial and economic forecasters for estimates of a range of variables such as GDP, inflation and interest rates. US surveys include at least 25 forecasters. (Source: Consensus Economics. *Survey of International Economic Forecasts – G-7 and Western Europe.* July 13, 2020.)

[20] Consensus Economics. *Survey of International Economic Forecasts – G-7 and Western Europe.* April 12, 2021

2.3 Canadian outlook

The first confirmed case of COVID-19 in Canada was recorded on February 20th, 2020, and as of April 15, 2021, nearly 1,097,000 cases had been recorded with 23,500 deaths.[21]

According to Statistics Canada, real GDP shrank by 5.4% in 2020;[22] this represents the sharpest annual contraction since the Great Depression, and represents a steeper decline than that experienced by the US, which saw a real GDP decline of 3.5% in 2020.[23,24] Canadian GDP will likely return to pre-pandemic levels by the third quarter of 2021.[25] A March 2021 report by Consensus Forecasts suggests that Canadian GDP will grow by 5.5% in 2021, based on a survey of 20 financial and economic forecasters.[26]

Despite continued public health restrictions, the Canadian economy demonstrated resilience in the last quarter of 2020, resulting in better-than-expected growth for the year. Economic activity through the end of 2020 resulted in real GDP growth of 2.3% driven by increases in business inventories, government expenditures, business investments in machinery and equipment and housing investment.[27] The first quarter of 2021 also saw continued economic growth, instead of a contraction that had been anticipated following lockdown restrictions at the start of the year. This resilience is likely due to continued government support programs and a greater adaptation to restricted in person activity on the part of businesses.

Canada's economy has several sources of financial strength that could drive a strong recovery this year, including robust spending from the federal government and a nationwide acceleration in the housing market.[28] Business sentiment also continued its sustained improvement since the start of the pandemic: according to the most recent Business Outlook Survey ("BOS") from the Bank of Canada, nearly two-thirds of firms surveyed reported that sales had reached or surpassed pre-pandemic levels, and over half foresee expanding their workforce in the coming year.

[21] Government of Canada website. *Coronavirus disease (COVID-19): Outbreak update.* Accessed on April 16, 2021. Accessed at: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection.html>

[22] Statistics Canada. *Gross domestic product, income and expenditure, fourth quarter 2020*. March 2, 2021.

[23] RBC Economics. *Macroeconomic Outlook*. March 10, 2021.

[24] US Bureau of Economic Analysis. *Gross Domestic Product, 4th Quarter and Year 2020 (Advance Estimate).* January 28, 2021

[25] *See* TD Economics. *Long-Term Economic Forecast*. March 22, 2021.; Scotiabank Economics. *Scotia Flash*. March 31, 2021.

[26] Consensus Forecasts. *Surveys of international Economic Forecasts – G-7 & Western Europe.* March 8, 2021. Note: This survey was released in early March 2021, before COVID-19's third wave in Canada worsened and wide-ranging restrictions were reimposed; as a result, this forecast may not be an accurate reflection of current conditions.

[27] RBC Economics. *Macroeconomic Outlook*. March 10, 2021.

[28] BMO Capital Markets Economic Research. *North American Outlook*. March 16, 2021.

However, businesses tied to high-contact services report continued difficulties.[29] Economic growth should continue into 2022 as well, primarily because of pent-up household savings[30] and significant federal spending commitments in priorities such as climate change and childcare.[31] Notably, the recently announced federal budget for 2021 allocates $17.6 billion towards "a green recovery" on several investment programs such as $5 billion for the Net Zero Accelerator, an investment vehicle for clean technologies, and a reduction in corporate taxes for zero-emission technology manufacturers. The budget has also allocated up to $30 billion over the next five years on early learning and child care.[32]

At the same time, there are various downside risks to these forecasts. More dangerous variants of COVID-19 may delay a wider reopening of the economy and potentially reduce the effectiveness of vaccines.[33] There is also the potential for rising inflationary pressure, due to rising commodity prices, base-effects from falling prices last year, and household demand exceeding supply.[34] Inflationary worries are further discussed below.

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[29] Bank of Canada. *Business Outlook Survey – Spring 2021*. April 12, 2021. The BOS is a quarterly survey summarizing the interviews conducted by the Bank of Canada's regional offices with the senior management of about 100 firms selected in accordance with the composition of the gross domestic product of Canada's business sector. The Spring 2021 survey was conducted from February 16th to March 8th, 2021. The BOS indicator is a summary measure that captures common movements from the main BOS questions, and is above zero when business confidence is above its historical average. As this survey was conducted before many provinces reimposed stricter restrictions to combat the third wave of COVID-19, the survey may not be an accurate reflection of current conditions.

[30] BMO Capital Markets Economic Research. *North American Outlook*. March 16, 2021.

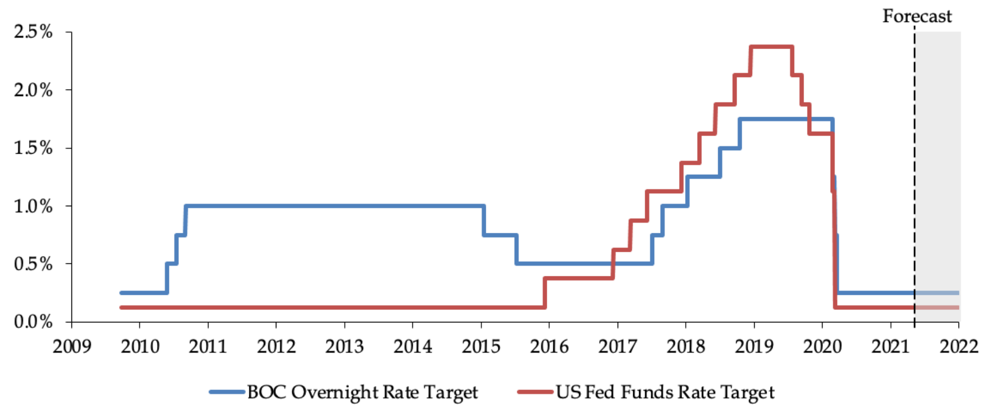
[31] RBC Economics. *Macroeconomic Outlook*. March 10, 2021.

[32] Government of Canada. *A Recovery Plan for Jobs, Growth and Resilience. Budget 2021.* Department of Finance April 19, 2021.

[33] BMO Capital Markets Economic Research. *North American Outlook*. March 16, 2021.

[34] RBC Economics. *Macroeconomic Outlook*. March 10, 2021.

Figure 7. Comparison of Canadian and US interest rates, 2009 Q4 - 2021 Q1 (with forecast)



Notes: The US Fed Funds Rate Target is taken as the midpoint of the target range.
Sources: Bank of Canada; US Federal Reserve Economic Data ("FRED")

As shown in Figure 7, interest rates in both Canada and the US were cut sharply in response to the economic impact of the Great Lockdown in North America. Consistent with the intentions of the Bank of Canada[35] and in line with recent comments by US Federal Reserve Chair, Jerome Powell,[36] the low interest rate environment is expected to persist through 2021 and 2022.

With low interest rates likely to remain for the short to medium term, worries about inflation have risen to the fore. A policy of quantitative easing, coupled with robust fiscal stimulus in both Canada and the US, has already led to significant growth in money supply. While much of the money received by households remains in savings,[37] as it begins to be spent, there is the risk of strong inflationary pressures. Inflation may also occur due to rising input prices being passed through to final consumers: in the Bank of Canada's most recent BOS, more than half of reporting firms expect upward pressure on input price growth, due to rising commodity prices, shipping, freight, and subcontracting fees, and wage growth. As a result, majority of firms expect to raise their output prices over the next twelve months.[38] However, into 2022, commodity prices may begin to stabilize in Canada, moving inflation back to the Bank of Canada target of 2%.[39]

To provide further context to the macroeconomic outlook in Canada, LEI has also tracked movements in consumer credit levels as reported by Statistics Canada. Consumer credit has been highly volatile over the past year. After a precipitous drop in the second quarter of 2020, credit

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[35] Bank of Canada. *Bank of Canada will hold current level of policy rate until inflation objective is sustainably achieved, continues quantitative easing*. March 10, 2021.

[36] Board of Governors of the Federal Reserve System. *Federal Reserve issues FOMC statement*. March 17, 2021.

[37] CIBC Economics. *Economic Insights – Going Old School: What to Make of Soaring Money Supply Growth*. February 2, 2021.

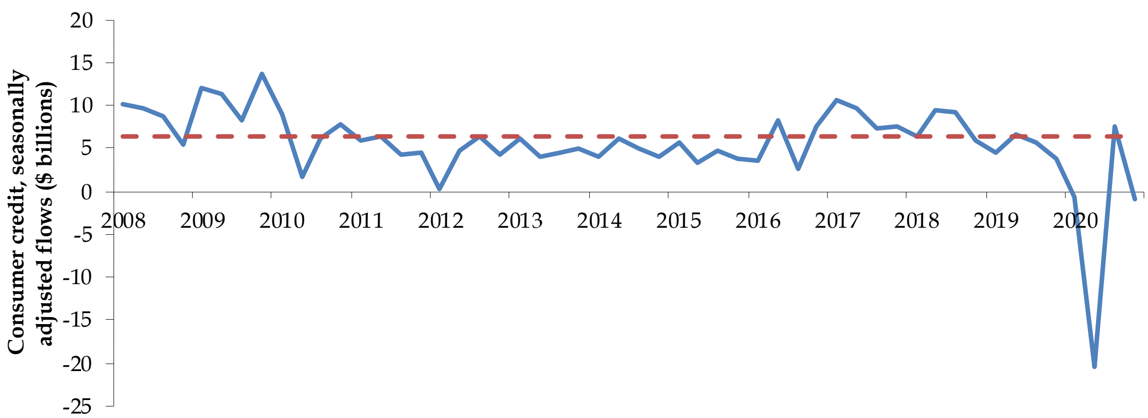
[38] Bank of Canada. *Business Outlook Survey – Spring 2021*. April 12, 2021.

[39] RBC Economics. *Macroeconomic Outlook*. March 10, 2021.

recovered strongly in the third quarter, reaching above the average 2008-2019 level. However, this increase proved somewhat short-lived, as credit flows fell below zero once again in the last quarter of the year (although nowhere near the level in Q2 2020). This volatility illustrates the unevenness of economic recovery, particularly for many workers, as public health restrictions have been imposed and lifted in cycles.

These movements, shown in Figure 8 below, do not match the qualitative observations above related to gradual recovery in the overall economy, indicating that households may not have proved as resilient as the wider economy.

Figure 8. Consumer credit, 2008 Q1 – 2020 Q4



Note: The latest consumer credit data was most recently published in March 2021 for 2020 Q4. Data for the first quarter of 2021 is not yet available.

Source: Statistics Canada. *CANSIM Table 38-10-0238-01.* Accessed April 8, 2021.

2.4 Ontario outlook

Ontario's economy also saw stronger-than-expected growth in the final quarter of 2020, despite tighter public health restrictions. However, into the new year, province-wide containment measures blunted the momentum of recovery. The situation in the province remains highly volatile and difficult to predict, particularly given the persistent growth in COVID-19 cases. Ontario continues to represent a significant and growing portion of the total Canada case count, with nearly 404,000 (or 37%) of all cases, and 7,639 deaths as of April 15th, 2021.[40] Of particular note is the spread of COVID-19 variants of concern in the province, which carry greater risk of hospitalization, admission to intensive care, and death.[41] As of April 6, 2021, VOCs represent 65%

[40] Government of Canada website. *Coronavirus disease (COVID-19): Outbreak update.* Accessed on April 16, 2021. Accessed at: <https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection.html>

[41] Science Advisory and Modelling Consensus Tables. *Update on COVID-19 Projections*. April 1, 2021. p. 7.

of all new cases in Ontario.[42] Starting April 8, 2021 the province is once again under a stay-at-home order, with stringent restrictions on non-essential businesses.[43]

Nonetheless, forecasters remain optimistic for strong growth in 2021. The most recent economic growth forecasts for Ontario project a growth of 6.2% in 2021, following a contraction of 5.7% in 2020.[44,45] There are numerous signs of strong future economic activity, including positive capital spending intentions from non-residential sources, and strong housing construction and record home sales that should support household spending.[46] As the province's vaccination campaign progresses, business confidence should also increase; this is reflected in capital investment intentions, which have already increased by 9.1% in 2021 in Ontario.[47] The greatest downside risk present is likely the current stay-at-home order and third wave of COVID-19, which may somewhat delay households spending their accumulated savings.

[42] Ontario COVID-19 Science Advisory Table. *Ontario Dashboard*. Accessed on April 16, 2021.

[43] Office of the Premier. *Ontario Enacts Provincial Emergency and Stay-at-Home Order*. April 7, 2021.

[44] Taken as the average of forecasts published by RBC, BMO, and TD. *See* TD Economics. *Provincial Economic Forecast – The Stars Align: Growth Prospects Marked Up Across Regions*. March 19, 2021.; RBC Economics. *Provincial Outlook*. March 10, 2021.; BMO Capital Markets Economic Research. *Provincial Economic Outlook*. April 1, 2021.

[45] The strict lockdown measures in place at the time of writing had not yet been announced at the time that banks published their provincial outlooks.

[46] TD Economics. *Provincial Economic Forecast – The Stars Align: Growth Prospects Marked Up Across Regions*. March 19, 2021.

[47] RBC Economics. *Provincial Outlook*. March 10, 2021.

3 Cost of capital parameters – Q1 2021 update

The OEB conducts its annual cost of capital parameter update using data as of September 30th of that year, with rates becoming effective on January 1st of the following year. As part of this quarterly review, LEI has conducted an internal update of the 2021 cost of capital parameters using data as of March 31st, 2021, where possible.

3.1 Return on equity

The ROE is the allowed return on shareholders' invested capital that is comparable to the return that investors would expect to earn from other investments with similar levels of business risk. Using data as of March 31st, 2021 from the Bank of Canada, Consensus Economics, and Bloomberg, LEI calculated the updated ROE as **8.52%**, which is 18 basis points higher than the ROE approved in the OEB's cost of capital parameter review (for rates effective in 2021). See Appendix A for a detailed illustration of this calculation.

3.2 Deemed long-term debt rate

The DLTDR reflects the interest rate that would be charged to an A-rated commercial business customer for a long-term (30-year) commercial loan. Following LEI's update of the OEB's cost of capital parameter calculations, the deemed long-term debt rate was determined to be **3.20%**, up 35 basis points compared to the 2021 cost of capital parameters. See Appendix A for a detailed illustration of this calculation.

3.3 Deemed short-term debt rate

Finally, the DSTDR reflects the interest rate that would be charged to an A-rated commercial business customer for a short-term (e.g., 3-month) loan by a commercial bank.[48] We note that the DSTDR calculation incorporates the results of a confidential survey of prime Canadian banks, conducted by OEB Staff, whereby estimates for the spread of short-term debt issuances over BA rates are provided. As this confidential survey occurs once annually, LEI utilized the data from the most recent survey (August 2020) for its internal update.

The calculated deemed short-term debt rate is **1.69%**, down 6 basis points from the previous update. See Appendix A for a detailed illustration of this calculation.

[48] The EB-2009-0084, *Report of the Board, on the Cost of Capital for Ontario's Regulated Utilities*, December 11, 2009 refers to "short-term" loans. However, the OEB Staff Report issued on January 14, 2016 refers to "3-month loans". As mentioned in LEI's previous quarterly update, while the Board report is policy, LEI believes that it would be appropriate to define 'short-term' in this context.

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4 Appendix A: Cost of Capital Parameter Calculations

Figure 9. ROE and LTDR calculation

Cost of Capital Parameter Calculations (For rate changes effective in 2021)

Step 1: Analysis of Business Day Information in the Month

Month: **December 2020**

	Day	Bond Yields %			Bond Yield Spreads %	
		Govt. of Canada		A-rated Utility	30-yr. Govt. over 10-yr Govt.	30-yr. Util. over 30-yr Govt.
		10-yr	30-yr	30-yr		
1	1-Mar-21	1.35	1.77	3.03	0.42	1.26
2	2-Mar-21	1.33	1.78	3.04	0.45	1.26
3	3-Mar-21	1.40	1.82	3.09	0.42	1.27
4	4-Mar-21	1.49	1.90	3.18	0.41	1.28
5	5-Mar-21	1.50	1.88	3.18	0.38	1.30
6	6-Mar-21					
7	7-Mar-21					
8	8-Mar-21	1.53	1.91	3.21	0.38	1.30
9	9-Mar-21	1.45	1.84	3.14	0.39	1.30
10	10-Mar-21	1.41	1.84	3.13	0.43	1.29
11	11-Mar-21	1.43	1.88	3.17	0.45	1.29
12	12-Mar-21	1.58	2.02	3.33	0.44	1.31
13	13-Mar-21					
14	14-Mar-21					
15	15-Mar-21	1.54	2.00	3.31	0.46	1.31
16	16-Mar-21	1.56	2.03	3.36	0.47	1.33
17	17-Mar-21	1.58	2.08	3.41	0.50	1.33
18	18-Mar-21	1.61	2.08	3.41	0.47	1.33
19	19-Mar-21	1.59	2.05	3.40	0.46	1.35
20	20-Mar-21					
21	21-Mar-21					
22	22-Mar-21	1.55	2.02	3.35	0.47	1.33
23	23-Mar-21	1.49	1.96	3.28	0.47	1.32
24	24-Mar-21	1.47	1.91	3.23	0.44	1.32
25	25-Mar-21	1.46	1.91	3.23	0.45	1.32
26	26-Mar-21	1.49	1.95	3.26	0.46	1.31
27	27-Mar-21					
28	28-Mar-21					
29	29-Mar-21	1.53	1.99	3.31	0.46	1.32
30	30-Mar-21	1.53	1.95	3.28	0.42	1.33
31	31-Mar-21	1.55	1.97	3.29	0.42	1.32
		1.50	**1.94**	**3.24**	**0.44**	**1.31**
	Sources:	Bank of Canada		Bloomberg		

Step 2: 10-Year Government of Canada Bond Yield Forecast

Source: Consensus Forecasts	Survey Date: March 8, 2021	3-month	12-month	Average	
	March 2021	1.300	1.600	**1.450**	%

Step 3: Long Canada Bond Forecast

10-yr Govt. of Canada Bond Forecast (from Step 2)	1.450	%
Actual Spread of 30-year over 10-year Government of Canada Bond Yield (from Step 1)	0.440	%
Long Canada Bond Forecast (LCBF)	**1.890**	%

Step 4: Return on Equity (ROE) Forecast

Initial ROE			9.75	%
Change in Long Canada Bond Yield Forecast from September 2009				
LCBF (December 2020) (from Step 3)	1.890	%		
Base LCBF	4.250	%		
Difference	-2.360	%		
0.5 x Difference			-1.180	%
Change in A-rated Utility Bond Yield Spread from September 2009				
A-rated Utility Bond Yield Spread (December 2020) (from Step 1)	1.308	%		
Base A-rates Utility Bond Spread	1.415	%		
Difference	-0.107	%		
0.5 x Difference			-0.053	%
Return on Equity based on December 2020 data			**8.52**	%

Step 5: Deemed Long Term Debt Rate Forecast

Long Canada Bond Forecast for December 2020 (from Step 3)	1.890	%
A-rated Utility Bond Yield Spread December 2020 (from Step 1)	1.308	%
Deemed Long-term Debt Rate based on December 2020 data	**3.20**	%

Source: OEB. *Cost of Capital Parameter Updates*. <https://www.oeb.ca/industry/rules-codes-and-requirements/cost-capital-parameter-updates>

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Figure 10. STDR calculation

Cost of Capital Parameter Calculations (For rate changes effective in 2021)

Step 1: Average annual spread over Banker's Acceptance

A.		Average Spread over 90-day Bankers Acceptance		Date of input
	Bank 1	150	bps	Jul/Aug 2020
	Bank 2	130	bps	Jul/Aug 2020
	Bank 3	150	bps	Jul/Aug 2020
	Bank 4	178.75	bps	Jul/Aug 2020
	Bank 5		bps	
	Bank 6		bps	

B.	Discard high and low estimates If less than 4 estimates, take average without discarding high and low.		
	Number of estimates	4	
	High estimate	178.75	bps
	Low estimate	130	bps

C.			
	Average annual spread	150	bps

Step 2: Average 3-month Banker's Acceptance Rate

	Month:	December 2020
	Day	Bankers' Acceptance Rate (%) 3-month
1	1-Mar-21	0.18%
2	2-Mar-21	0.18%
3	3-Mar-21	0.18%
4	4-Mar-21	0.18%
5	5-Mar-21	0.19%
6	6-Mar-21	
7	7-Mar-21	
8	8-Mar-21	0.18%
9	9-Mar-21	0.20%
10	10-Mar-21	0.21%
11	11-Mar-21	0.18%
12	12-Mar-21	0.19%
13	13-Mar-21	
14	14-Mar-21	
15	15-Mar-21	0.20%
16	16-Mar-21	0.19%
17	17-Mar-21	0.18%
18	18-Mar-21	0.18%
19	19-Mar-21	0.18%
20	20-Mar-21	
21	21-Mar-21	
22	22-Mar-21	0.19%
23	23-Mar-21	0.19%
24	24-Mar-21	0.18%
25	25-Mar-21	0.19%
26	26-Mar-21	0.19%
27	27-Mar-21	
28	28-Mar-21	
29	29-Mar-21	0.19%
30	30-Mar-21	0.18%
31	31-Mar-21	0.19%
		0.19%

Step 3: Deemed Short-Term Debt Rate Calculation

Average annual spread	1.50%
Average Banker's Acceptance Rate	0.19%
Deemed Short Term Debt Rate	**1.69%**

Source: OEB. *Cost of Capital Parameter Updates*. <https://www.oeb.ca/industry/rules-codes-and-requirements/cost-capital-parameter-updates.

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