

**Pricing Supplement to Short Form Base Shelf Prospectus dated March 25, 2022,  
the Prospectus Supplement thereto dated March 28, 2022, as supplemented November 11, 2022 and  
the Prospectus Supplement thereto dated March 28, 2022, as supplemented November 11, 2022**

*No securities regulatory authority has expressed an opinion about these securities and it is an offence to claim otherwise.*

*This pricing supplement together with the short form base shelf prospectus dated March 25, 2022, the prospectus supplement dated March 28, 2022 and the prospectus supplement dated March 28, 2022, to which it relates, as amended or supplemented, and each document incorporated by reference into such prospectus, constitutes a public offering of these securities only in those jurisdictions where they may be lawfully offered for sale and therein only by persons permitted to sell such securities.*

*The securities to be issued hereunder have not been, and will not be, registered under the United States Securities Act of 1933, as amended and, subject to certain exceptions, may not be offered, sold or delivered, directly or indirectly, in the United States of America or for the account or benefit of U.S. persons.*



**Royal Bank of Canada  
Senior Note Program  
Equity Linked Securities  
Maximum \$20,000,000 (200,000 Securities)  
RBC Energy Basket Callable Yield 10.50% Securities (CAD),  
Series 645  
Due December 14, 2029  
Non-Principal Protected Securities**

**December 5, 2022**

Royal Bank of Canada (the “Bank”) is offering up to \$20,000,000 of RBC Energy Basket Callable Yield 10.50% Securities (CAD), Series 645 (which we refer to as the “Securities” for the purpose of this pricing supplement only and not for the purpose of the “base shelf prospectus” as defined below), designed for investors who are prepared and can afford to take the risk that they will lose substantially all of their investment, that regular Interest Payments (defined herein) will not be made on the Securities, and that the Securities will be redeemed early, because they believe that the Portfolio Value (defined herein) will be greater than or equal to the Coupon Barrier Value (defined herein) but less than the Autocall Redemption Value (defined herein) on each Observation Date (defined herein) and that the Final Portfolio Value (defined herein) will be greater than or equal to the Protection Barrier Value (defined herein). Payment at maturity (if no early redemption has occurred) will be based on the price performance of the common shares of the six Canadian energy companies listed in Appendix A. Holders of the Securities will also receive Interest Payments payable quarterly on each Interest Payment Date (defined herein) each at a fixed amount of \$2.625 per Security if there is a Digital Payout Event (defined herein) on the immediately preceding Observation Date. The return on the Securities is limited; even if a Digital Payout Event occurs on each Observation Date, the Securities are not redeemed prior to maturity and the Final Portfolio Value is greater than or equal to the Protection Barrier Value, the maximum return on the Securities would be equal to \$73.50 per Security.

The Portfolio (defined herein) is notional only, meaning that the Underlying Securities (defined herein) in the Portfolio will be used solely as a reference to calculate the amount payable on the Securities. Holders of Securities do not have an ownership interest or other interest (including, without limitation, redemption rights (if any), voting rights or rights to receive dividends or other distributions) in the shares in the Portfolio and will only have a right against the Bank to be paid any amounts due under the Securities. All actions (e.g., purchases, sales and liquidations, etc.) taken in connection with the Portfolio are notional actions only.

The initial estimated value of the Securities as of November 25, 2022 was \$94.94 per Security, which is less than the price to the public and is not an indication of the actual profit to the Bank or its affiliates. The actual value of the Securities at any time will reflect many factors, cannot be predicted with accuracy, and may be less than this amount. We describe our determination of the initial estimated value in more detail below. See “Risk Factors” and “Preparation of Initial Estimated Value”.

The Securities are described in this pricing supplement delivered together with our short form base shelf prospectus dated March 25, 2022 (the “base shelf prospectus”), the prospectus supplement establishing our Senior Note Program dated March 28, 2022, as supplemented November 11, 2022 (the “program supplement”) and a prospectus supplement which generally describes equity, unit and debt linked securities that we may offer under our Senior Note Program dated March 28, 2022, as supplemented November 11, 2022 (the “product supplement”).

**The Securities are not fixed income securities and are not designed to be alternatives to fixed income or money market instruments.  
The Securities are structured products that possess downside risk.**

**The Securities will not constitute deposits insured under the *Canada Deposit Insurance Corporation Act*.**

**An investment in the Securities involves risks. An investment in the Securities is not the same as a direct investment in the securities that comprise the Portfolio and investors have no rights with respect to the securities in the Portfolio. The Securities are considered to be “specified derivatives” under applicable Canadian securities laws. If you purchase Securities, you will be exposed to fluctuations in interest rates and changes in the Portfolio Value, among other factors. Price changes may be volatile and an investment in the Securities may be considered to be speculative. Since the Securities are not principal protected and the Principal Amount (defined herein) will be at risk, you could lose substantially all of your investment. See “Risk Factors”.**

---

**Price: \$100 per Security**  
**Minimum Subscription: \$5,000 (50 Securities)**

---

	<b>Price to public</b>	<b>Selling Commissions and Dealer's fee<sup>(1)</sup></b>	<b>Net proceeds to the Bank</b>
Per Security	\$100.00	\$2.50	\$97.50
Total <sup>(2)</sup>	\$20,000,000	\$500,000	\$19,500,000

(1) A commission of 2.50% of the Principal Amount of Securities issued under this offering will be paid to the Dealers (defined below) for further payment to representatives, including representatives employed by the Dealers, whose clients purchase the Securities. An agency fee will also be paid, from the Bank's own funds, to Richardson Wealth Limited in an amount up to 0.15% of the Principal Amount of the Securities issued under this offering for acting as independent agent.

(2) Reflects the maximum offering size of the Securities. **There is no minimum amount of funds that must be raised under this offering. This means that the issuer could complete this offering after raising only a small proportion of the offering amount set out above.**

The Securities are offered severally by RBC Dominion Securities Inc. ("**RBC DS**") and Richardson Wealth Limited (collectively, the "**Dealers**") as agents under a dealer agreement dated March 28, 2022, as amended or supplemented from time to time. **RBC DS is our wholly owned subsidiary. Consequently, we are a related and connected issuer of RBC DS within the meaning of applicable securities legislation.** See "Dealers" in this pricing supplement and "Plan of Distribution" in the program supplement.

The Securities will not be listed on any stock exchange. The Securities will be subject to specified early trading charges, depending on when the Securities are sold. There is no assurance that a secondary market for the Securities will develop or be sustained. See "Secondary Market for Securities", "Description of the Securities—Calculation Agent" and "Risk Factors" in the program supplement and "Secondary Market" in this pricing supplement.

### **Bank Trademarks**

Lion & Globe symbol is a registered trademark of Royal Bank of Canada.

## Prospectus for Securities

Securities described in this pricing supplement will be issued under our Senior Note Program and will be unsecured, unsubordinated debt obligations. The Securities are Senior Debt Securities (as defined in the base shelf prospectus referred to below) and are described in four separate documents: (1) the base shelf prospectus, (2) the program supplement, (3) the product supplement, and (4) this pricing supplement, all of which collectively constitute the “prospectus” for the Securities. See “Prospectus for Securities” in the program supplement.

## Documents Incorporated by Reference

This pricing supplement is deemed to be incorporated by reference into the base shelf prospectus solely for the purpose of our Senior Note Program and the Securities issued hereunder. Other documents are also incorporated or deemed to be incorporated by reference into the base shelf prospectus and reference should be made to the base shelf prospectus for full particulars.

## Marketing Materials

The version of the summary for the Securities that was filed with the securities commissions or similar regulatory authorities in each of the provinces and territories of Canada as “marketing materials” (as defined in National Instrument 41-101 – *General Prospectus Requirements*) on December 5, 2022 is deemed to be incorporated by reference into the base shelf prospectus solely for the purpose of our Senior Note Program and the Securities issued hereunder. Any version of marketing materials filed with the securities commission or similar regulatory authority in each of the provinces and territories of Canada in connection with this offering after the date hereof but prior to the termination of the distribution of the Securities under this pricing supplement (including any amendments to, or an amended version of, the marketing materials) is deemed to be incorporated by reference herein and in the base shelf prospectus solely for the purpose of our Senior Note Program and the Securities issued hereunder. Any such marketing materials are not part of this pricing supplement or the base shelf prospectus to the extent that the contents of the marketing materials have been modified or superseded by a statement contained in an amendment to this pricing supplement.

## Caution Regarding Forward-Looking Statements

From time to time, we make written or oral forward-looking statements within the meaning of certain securities laws, including the “safe harbour” provisions of the United States Private Securities Litigation Reform Act of 1995 and any applicable Canadian securities legislation. We may make forward-looking statements in the base shelf prospectus and in the documents incorporated by reference therein, in the program supplement, in the product supplement, in this pricing supplement, in other filings with Canadian regulators or the United States Securities and Exchange Commission, in other reports to shareholders, and in other communications. Forward-looking statements in, or incorporated by reference in, this prospectus include, but are not limited to, statements relating to our financial performance objectives, vision and strategic goals, the Economic, market and regulatory review and outlook section of our management’s discussion and analysis for the year ended October 31, 2022 (the “**2022 Management’s Discussion and Analysis**”) for Canadian, U.S., U.K., European and global economies, the regulatory environment in which we operate, the impact from rising interest rates, the expected closing of the transaction involving HSBC Bank Canada, the Strategic priorities and Outlook sections in the 2022 Management’s Discussion and Analysis for each of our business segments, the risk environment including our credit risk, market risk, liquidity and funding risk, the direction of the coronavirus (COVID-19) pandemic and its potential impact on our business operations, financial results, condition and objectives and on the global economy and financial market conditions, our climate- and sustainability-related beliefs, targets and goals (including our net-zero and sustainable finance commitments), and includes our President and Chief Executive Officer’s statements. The forward-looking information contained in, or incorporated by reference in, this prospectus is presented for the purpose of assisting the holders of our securities and financial analysts in understanding our financial position and results of operations as at and for the periods ended on the dates presented, as well as our financial performance objectives, vision and strategic goals, and may not be appropriate for other purposes. Forward-looking statements are typically identified by words such as “believe”, “expect”, “foresee”, “forecast”, “anticipate”, “intend”, “estimate”, “goal”, “commit”, “target”, “objective”, “plan” and “project” and similar expressions of future or conditional verbs such as “will”, “may”, “might”, “should”, “could” or “would”.

By their very nature, forward-looking statements require us to make assumptions and are subject to inherent risks and uncertainties, which give rise to the possibility that our predictions, forecasts, projections, expectations or conclusions will not prove to be accurate, that our assumptions may not be correct, that our financial performance, environmental & social or other objectives, vision and strategic goals will not be achieved, and that our actual results may differ materially from such predictions, forecasts, projections, expectations or conclusions. We caution readers not to place undue reliance on these statements as a number of risk factors could cause our actual results to differ materially from the expectations expressed in such forward-looking statements. These factors – many of which are beyond our control and the effects of which can be difficult to predict – include: credit, market, liquidity and funding, insurance, operational, regulatory compliance (which could lead to

us being subject to various legal and regulatory proceedings, the potential outcome of which could include regulatory restrictions, penalties and fines), strategic, reputation, competitive, model, legal and regulatory environment, systemic risks and other risks discussed in the risk sections of the 2022 Management's Discussion and Analysis incorporated by reference herein; including business and economic conditions in the geographic regions in which we operate, Canadian housing and household indebtedness, information technology and cyber risks, geopolitical uncertainty, environmental and social risk (including climate change), digital disruption and innovation, privacy, data and third-party related risks, regulatory changes, culture and conduct risks, the effects of changes in government fiscal, monetary and other policies, tax risk and transparency, and the emergence of widespread health emergencies or public health crises such as pandemics and epidemics, including the COVID-19 pandemic and its impact on the global economy, financial market conditions and our business operations, and financial results, condition and objectives. Additional factors that could cause actual results to differ materially from the expectations in such forward-looking statements can be found in the risk section of the 2022 Management's Discussion and Analysis.

We caution that the foregoing list of risk factors is not exhaustive and other factors could also adversely affect our results. When relying on our forward-looking statements to make decisions with respect to us or the Securities, investors and others should carefully consider the foregoing factors and other uncertainties and potential events. Material economic assumptions underlying the forward-looking statements contained in this prospectus are set out in the Economic, market and regulatory review and outlook section and for each business segment under the Strategic priorities and Outlook headings in our 2022 Management's Discussion and Analysis. Except as required by law, we do not undertake to update any forward-looking statement, whether written or oral, that may be made from time to time by us or on our behalf.

Additional information about these and other factors can be found in the risk sections of the 2022 Management's Discussion and Analysis incorporated by reference in this prospectus.

**Royal Bank of Canada**  
**Senior Note Program**  
**Equity Linked Securities**  
**Maximum \$20,000,000 (200,000 Securities)**  
**RBC Energy Basket Callable Yield 10.50% Securities (CAD), Series 645**  
**Due December 14, 2029**  
**Non-Principal Protected Securities**

<b>Issuer:</b>	Royal Bank of Canada (the “ <b>Bank</b> ”)
<b>Dealers:</b>	RBC Dominion Securities Inc. (“ <b>RBC DS</b> ”) and Richardson Wealth Limited Richardson Wealth Limited, a dealer to which we are neither related nor connected, participated in the due diligence activities performed by the Dealers in respect of the offering, but did not participate in the structuring and pricing of the offering or the calculation of the initial estimated value of the Securities. See “Plan of Distribution” in the program supplement.
<b>Issue:</b>	RBC Energy Basket Callable Yield 10.50% Securities (CAD), Series 645 due December 14, 2029.
<b>Objective of the Securities:</b>	The Securities have been designed for investors who are prepared and can afford to take the risk that they will lose substantially all of their investment, that regular Interest Payments (defined below) will not be made on the Securities, and that the Securities will be redeemed early, because they believe that the Portfolio Value (defined below) will be greater than or equal to the Coupon Barrier Value (defined below) but less than the Autocall Redemption Value (defined below) on each Observation Date (defined below) and that the Final Portfolio Value (defined below) will be greater than or equal to the Protection Barrier Value (defined below). Holders of the Securities will receive an Interest Payment on each Interest Payment Date (defined below) for which a Digital Payout Event (defined below) occurred on the immediately preceding Observation Date.
<b>Issue Price:</b>	The Securities will be issued at a price equal to their Principal Amount (defined below).
<b>Minimum Investment:</b>	50 Securities or \$5,000.
<b>Denomination:</b>	Securities are issuable in denominations of \$100 (the “ <b>Principal Amount</b> ”) and in minimum increments of \$100.
<b>Issue Date:</b>	December 14, 2022 or such other date as may be agreed to by the Bank and the Dealers.
<b>Issue Size:</b>	The maximum issue size will be an aggregate amount of \$20,000,000.
<b>Maturity Date:</b>	December 14, 2029 (approximately a seven-year term), subject to earlier redemption on an Autocall Redemption Event (defined below) or earlier repayment in full on an Extraordinary Event. See “Description of the Equity, Unit and Debt Linked Securities – Maturity Date and Amount Payable” in the product supplement.
<b>Principal at Risk Securities:</b>	All but 1% of the Principal Amount of the Securities is fully exposed. You could lose substantially all of your investment. See “Description of the Equity, Unit and Debt Linked Securities — Principal at Risk Securities” and “Risk Factors” in the product supplement.
<b>Underlying Securities:</b>	The return on the Securities is linked to the price performance (excluding any dividends and other distributions) of a notional portfolio (the “ <b>Portfolio</b> ”) of the common shares (the “ <b>Underlying Securities</b> ” and each, an “ <b>Underlying Security</b> ”) of the six Canadian energy companies listed in Appendix A (the “ <b>Underlying Security Issuers</b> ” and each, an “ <b>Underlying Security Issuer</b> ”). The Underlying Securities will be equally weighted in the Portfolio (the “ <b>Portfolio Weight</b> ”) at the Initial Valuation Date. Such weightings will not be adjusted or rebalanced during the term of the Securities.  Securities do not represent an interest in the Underlying Securities, and holders will have no right or entitlement to the Underlying Securities, including, without limitation,

redemption rights (if any), voting rights or rights to receive dividends or other distributions paid on any of such Underlying Securities (the annual dividend yield on the Portfolio as of November 25, 2022 was 5.28%, representing an aggregate dividend yield of approximately 43.35% compounded annually over the seven-year term, on the assumption that the dividend yield remains constant). There is no requirement for the Bank to hold any interest in the Underlying Security Issuers.

This pricing supplement has been prepared for the sole purpose of assisting prospective investors in making an investment decision with respect to the Securities. This pricing supplement relates only to the Securities offered hereby and does not relate to the Underlying Securities and/or the Underlying Security Issuers. Additional information relating to the Underlying Securities and/or the Underlying Security Issuers can be obtained from the public disclosure filed by the Underlying Security Issuers on [www.sedar.com](http://www.sedar.com) or other publicly available sources. The Bank and the Dealers have not verified the accuracy or completeness of any information pertaining to the Underlying Security Issuers or determined if there has been any omission by any Underlying Security Issuer to disclose any facts, information or events which may have occurred prior to or subsequent to the date as of which any information has been furnished by any Underlying Security Issuer which may affect the significance or accuracy of such information. Neither the Bank nor any Dealer makes any representation that such publicly available documents or any other publicly available information regarding any Underlying Securities or Underlying Security Issuer are accurate or complete. See Appendix A for information concerning the market price and certain other information regarding the common shares of each of the Underlying Security Issuers on the Toronto Stock Exchange (the “TSX”). Prospective investors should independently investigate the Underlying Security Issuers and decide whether an investment in the Securities is appropriate. None of the Underlying Security Issuers have participated in the preparation of this pricing supplement and the Securities are not in any way sponsored, endorsed, sold or promoted by the Underlying Security Issuers. See “Description of the Equity, Unit and Debt Linked Securities – Underlying Securities and Underlying Security Issuers” in the product supplement.

The decision to offer the Securities pursuant to this supplement will have been taken independently of any decision by the Bank to purchase the Underlying Securities in the primary or secondary market. Except with respect to any hedging activities the Bank engages with respect to its obligations under the Securities, any decision by the Bank to purchase the Underlying Securities in the primary or in the secondary market will have been taken independently of the Bank’s offering of the Securities pursuant to this supplement. The employees responsible for the Bank’s Senior Note Program are not privy to any information regarding either primary or secondary market purchases of the Underlying Securities made by the Bank in connection with any primary distribution made by the Underlying Security Issuers.

**Portfolio Value:**

The “**Portfolio Value**” for the Portfolio on any Exchange Day (defined in the product supplement) is calculated by: (a) multiplying (i) the official closing price of each Underlying Security, as announced by the TSX, on such Exchange Days by (ii) the corresponding Number of Underlying Securities (defined below) for such Underlying Security; and (b) aggregating the resulting products.

**Number of Underlying Securities:**

The “**Number of Underlying Securities**” for each Underlying Security is calculated by: (i) multiplying the Portfolio Weight for such Underlying Security by the aggregate Principal Amount of Securities issued under this offering; and (ii) dividing the resulting product by the official closing price of such Underlying Security, as announced by the TSX, on the Initial Valuation Date.

Once determined, the Number of Underlying Securities for each Underlying Security will not be adjusted during the term of the Securities, except in certain special circumstances. See “Extraordinary Events” below.

**Protection Barrier Value:**

The “**Protection Barrier Value**” is 70.00% of the Initial Portfolio Value.

**Initial Portfolio Value:**

The “**Initial Portfolio Value**” is the Portfolio Value on November 25, 2022 (the “**Initial Valuation Date**”).

<b>Coupon Barrier Value:</b>	The “ <b>Coupon Barrier Value</b> ” is 70.00% of the Initial Portfolio Value.																												
<b>Final Portfolio Value:</b>	The “ <b>Final Portfolio Value</b> ” is the Portfolio Value on November 26, 2029 (the “ <b>Final Valuation Date</b> ”).																												
<b>Percentage Change:</b>	<p>The “<b>Percentage Change</b>” is the amount, expressed as a percentage rounded to two decimal places, equal to:</p> $\frac{(\text{Final Portfolio Value} - \text{Initial Portfolio Value})}{\text{Initial Portfolio Value}}$ <p>See “Description of the Equity, Unit and Debt Linked Securities — Maturity Date and Amount Payable” in the product supplement.</p>																												
<b>Observation Dates:</b>	<p>An “<b>Observation Date</b>” for the purposes of determining the amount of any Interest Payment will occur quarterly on the dates specified below in each year that the Securities are outstanding, from and including February 27, 2023 to and including November 26, 2029. If any such Observation Date is not an Exchange Day, it shall be postponed to the next succeeding Exchange Day.</p> <p>Provided that the Securities are not redeemed by the Bank as described below, the Bank intends the Observation Dates to be:</p> <table> <tr><td>February 27, 2023</td><td>May 25, 2023</td></tr> <tr><td>August 25, 2023</td><td>November 27, 2023</td></tr> <tr><td>February 26, 2024</td><td>May 27, 2024</td></tr> <tr><td>August 26, 2024</td><td>November 25, 2024</td></tr> <tr><td>February 25, 2025</td><td>May 26, 2025</td></tr> <tr><td>August 25, 2025</td><td>November 25, 2025</td></tr> <tr><td>February 25, 2026</td><td>May 25, 2026</td></tr> <tr><td>August 25, 2026</td><td>November 25, 2026</td></tr> <tr><td>February 25, 2027</td><td>May 25, 2027</td></tr> <tr><td>August 25, 2027</td><td>November 25, 2027</td></tr> <tr><td>February 25, 2028</td><td>May 25, 2028</td></tr> <tr><td>August 25, 2028</td><td>November 27, 2028</td></tr> <tr><td>February 26, 2029</td><td>May 25, 2029</td></tr> <tr><td>August 27, 2029</td><td>November 26, 2029</td></tr> </table>	February 27, 2023	May 25, 2023	August 25, 2023	November 27, 2023	February 26, 2024	May 27, 2024	August 26, 2024	November 25, 2024	February 25, 2025	May 26, 2025	August 25, 2025	November 25, 2025	February 25, 2026	May 25, 2026	August 25, 2026	November 25, 2026	February 25, 2027	May 25, 2027	August 25, 2027	November 25, 2027	February 25, 2028	May 25, 2028	August 25, 2028	November 27, 2028	February 26, 2029	May 25, 2029	August 27, 2029	November 26, 2029
February 27, 2023	May 25, 2023																												
August 25, 2023	November 27, 2023																												
February 26, 2024	May 27, 2024																												
August 26, 2024	November 25, 2024																												
February 25, 2025	May 26, 2025																												
August 25, 2025	November 25, 2025																												
February 25, 2026	May 25, 2026																												
August 25, 2026	November 25, 2026																												
February 25, 2027	May 25, 2027																												
August 25, 2027	November 25, 2027																												
February 25, 2028	May 25, 2028																												
August 25, 2028	November 27, 2028																												
February 26, 2029	May 25, 2029																												
August 27, 2029	November 26, 2029																												
<b>Interest Payment Dates:</b>	<p>The “<b>Interest Payment Date</b>” for an Interest Payment, if any, will occur quarterly on the dates specified below in each year that the Securities are outstanding, from and including March 2, 2023 to and including December 14, 2029. Provided that the Securities are not redeemed by the Bank as described below, the Bank intends the Interest Payment Dates to be:</p> <table> <tr><td>March 02, 2023</td><td>May 30, 2023</td></tr> <tr><td>August 30, 2023</td><td>November 30, 2023</td></tr> <tr><td>February 29, 2024</td><td>May 30, 2024</td></tr> <tr><td>August 29, 2024</td><td>November 28, 2024</td></tr> <tr><td>February 28, 2025</td><td>May 29, 2025</td></tr> <tr><td>August 28, 2025</td><td>November 28, 2025</td></tr> <tr><td>March 02, 2026</td><td>May 28, 2026</td></tr> <tr><td>August 28, 2026</td><td>November 30, 2026</td></tr> <tr><td>March 02, 2027</td><td>May 28, 2027</td></tr> </table>	March 02, 2023	May 30, 2023	August 30, 2023	November 30, 2023	February 29, 2024	May 30, 2024	August 29, 2024	November 28, 2024	February 28, 2025	May 29, 2025	August 28, 2025	November 28, 2025	March 02, 2026	May 28, 2026	August 28, 2026	November 30, 2026	March 02, 2027	May 28, 2027										
March 02, 2023	May 30, 2023																												
August 30, 2023	November 30, 2023																												
February 29, 2024	May 30, 2024																												
August 29, 2024	November 28, 2024																												
February 28, 2025	May 29, 2025																												
August 28, 2025	November 28, 2025																												
March 02, 2026	May 28, 2026																												
August 28, 2026	November 30, 2026																												
March 02, 2027	May 28, 2027																												

August 30, 2027	November 30, 2027
March 01, 2028	May 30, 2028
August 30, 2028	November 30, 2028
March 01, 2029	May 30, 2029
August 30, 2029	December 14, 2029

The final Interest Payment, if any, will be made on the earlier of the Autocall Redemption Date (defined below) (if applicable) and the Maturity Date.

**Interest Payments:**

Interest payments (the “**Interest Payments**” and each, an “**Interest Payment**”), if any, on the Securities will be payable on each Interest Payment Date, in arrears, at a fixed interest rate of 2.6250% quarterly ending on an Interest Payment Date (an “**Interest Period**”) for each Interest Period in which a Digital Payout Event occurs on the Observation Date occurring in the Interest Period. On the basis of the foregoing, the interest on each \$100 Principal Amount of Securities for an Interest Period in which a Digital Payout Event has occurred would equal  $\$100 \times 2.6250\%$ .

Thus, if a Digital Payout Event occurs:

- (a) on each Observation Date in any twelve-month period, the amount of interest payable on each \$100 Principal Amount of Securities for that twelve-month period will be \$10.50;
- (b) on three out of the four Observation Dates in any twelve-month period, the amount of interest payable on each \$100 Principal Amount of Securities for that twelve-month period will be \$7.875;
- (c) on two out of the four Observation Dates in any twelve-month period, the amount of interest payable on each \$100 Principal Amount of Securities for that twelve-month period will be \$5.25; and
- (d) on one out of the four Observation Dates in any twelve-month period, the amount of interest payable on each \$100 Principal Amount of Securities for that twelve-month period will be \$2.625.

If a Digital Payout Event does not occur on the Observation Date during a particular Interest Period, no interest will be payable on the Securities for such Interest Period.

**Digital Payout Event:**

A “**Digital Payout Event**” will occur if, on the relevant Observation Date, the Portfolio Value is greater than or equal to the Coupon Barrier Value. RBC DS intends to publish whether there has been a Digital Payout Event on each Observation Date on its website at [www.rbcnotes.com](http://www.rbcnotes.com).

**Autocall Redemption Event:**

An “**Autocall Redemption Event**” will occur if the Portfolio Value on an Observation Date other than the first, second, third and last Observation Dates is greater than or equal to 100.00% of the Initial Portfolio Value (the “**Autocall Redemption Value**”). On the next succeeding Interest Payment Date following the occurrence of an Autocall Redemption Event (the “**Autocall Redemption Date**”) the Securities will be redeemed for an amount equal to the Principal Amount thereof (the “**Autocall Redemption Amount**”). In addition to the Autocall Redemption Amount, an Interest Payment will be paid on the Autocall Redemption Date.

**Payment at Maturity:**

On the Maturity Date, if the Securities have not been previously redeemed, the amount payable (the “**Final Redemption Amount**”) for each \$100 Principal Amount per Security will be equal to:

- (a) if the Final Portfolio Value is greater than or equal to the Protection Barrier Value, \$100; or
- (b) if the Final Portfolio Value is less than the Protection Barrier Value, an amount equal to:

$$\$100.00 + (\$100.00 \times \text{Percentage Change})$$

As a result, the Final Redemption Amount will not be determinable before the Final Valuation Date. See “Risk Factors” below.



In addition to the Final Redemption Amount, an Interest Payment will be paid on the Maturity Date if a Digital Payout Event occurs on the Final Valuation Date. All dollar amounts will be rounded to the nearest whole cent. The minimum payment at maturity is \$1.00.

**Sample Calculations:**

See Appendix B to this pricing supplement for sample calculations of the Final Redemption Amount or Autocall Redemption Amount (in the event of an Autocall Redemption Event) and any Interest Payments payable on the Securities at or prior to (in the event of an Autocall Redemption Event) the Maturity Date.

**Issuer Credit Rating:**

Moody's:	Aa1
Standard & Poor's:	AA-
DBRS:	AA

The Securities themselves have not been and will not be rated. See "Description of the Securities — Ratings" in the program supplement.

**Extraordinary Events:**

Determination of the Portfolio Value, including the Final Portfolio Value, and the Final Redemption Amount may be postponed, or the Bank can accelerate determination of the Final Portfolio Value and the Final Redemption Amount and repay the Securities in full prior to their maturity, in certain circumstances. If an Extraordinary Event occurs then the Calculation Agent may, but is not required to, make such adjustments to any payment or other term of the Securities as it determines to be appropriate, acting in good faith, to account for the economic effect of such event on the Securities and determine the effective date of any such adjustment. See "Description of the Securities — Special Circumstances" in the program supplement and "Description of the Equity, Unit and Debt Linked Securities — Extraordinary Events" in the product supplement.

**Summary of Fees and Expenses:**

A commission of 2.50% of the Principal Amount of Securities issued under this offering will be paid to the Dealers for further payment to representatives, including representatives employed by the Dealers, whose clients purchase the Securities. An agency fee will also be paid, from the Bank's own funds, to Richardson Wealth Limited in an amount up to 0.15% of the Principal Amount of the Securities issued under this offering for acting as independent agent. The selling commissions and the agency fee are indirectly borne by holders of the Securities. There are no fees directly payable by a holder of Securities. See "Description of the Securities — Summary of Fees and Expenses" in the program supplement. An early trading charge may also apply. See "Secondary Market" below.

**Eligibility for Investment:**

Eligible for RRSPs, RRIFs, RESPs, RDSPs, DPSPs and TFSAs. See "Eligibility for Investment" in Appendix C, including the summary of the "prohibited investment" rule.

**Risk Factors:**

You should carefully consider all the information set out in this prospectus for any Securities in which you are considering investing. **In particular, you should evaluate the risks described under "Risk Factors" in each of the base shelf prospectus and the product supplement, as well as the risks described below.** The return on the Securities is unknown and subject to many variables, including interest rate fluctuations and changes in the prices of the Underlying Securities. You should independently determine, with your own advisors, whether an investment in the Securities is suitable for you having regard to your own investment objectives and expectations.

*Limited Upside Participation by the Securities*

The return on the Securities is limited; even if the Portfolio Value is greater than the Coupon Barrier Value but less than the Autocall Redemption Value on each Observation Date and the Final Portfolio Value is greater than or equal to the Protection Barrier Value, the maximum return on the Securities would be equal to \$73.50 per Security. The Securities will not participate in any upside performance of the Underlying Securities.

#### *Lack of Diversification*

The Underlying Security Issuers are Canadian energy companies and are therefore concentrated in this industry sector. This means that the performance of the Securities will be tied entirely to the success of this industry sector. Canadian energy companies are subject to risks that are specific to their industry sector and which may therefore result in the performance of the Securities being substantially different, and potentially substantially worse, than other industry sectors or the securities/equity markets generally.

#### *Uncertain Return until Final Valuation Date*

The return, if any, on the Securities will be uncertain until the Final Valuation Date, unless the Securities are called for redemption prior to the Final Valuation Date. Whether there is a return on the Securities will depend on the Portfolio Value on the Observation Dates and the Final Valuation Date. No Interest Payment will be made on an Interest Payment Date unless there is a Digital Payout Event on the immediately preceding Observation Date. There can be no assurance that the Securities will generate a positive return or that the objectives of the Securities will be achieved. Holders of the Securities may not be repaid the amount they invested in the Securities (other than \$1.00 per Security), depending on the price performance of the Underlying Securities. Historical prices of the Underlying Securities should not be considered as an indication of the future price performance of the Underlying Securities. Investors should understand that the risk involved in this type of investment is greater than that normally associated with other types of investments.

#### *Volatility May Affect the Return on or Trading Value of the Securities*

Volatility is the term used to describe the size and frequency of price and/or market fluctuations. If the volatility, or anticipated volatility, of the Underlying Securities changes over the term of the Securities, the trading value of the Securities may be adversely affected. In addition, if the Portfolio Value on an Observation Date is less than the Coupon Barrier Value, you will not receive an Interest Payment on the relevant Interest Payment Date, and if the Final Portfolio Value is less than the Protection Barrier Value, the Final Redemption Amount will be reduced such that you will receive less than the Principal Amount on the Maturity Date. In periods of high volatility, the likelihood of an investor not receiving some or all of the Interest Payments or a return of the full Principal Amount of the Securities increases.

#### *The Securities may be Redeemed prior to the Maturity Date*

The Securities will be automatically redeemed by the Bank on the Autocall Redemption Date if the Portfolio Value on an Observation Date, other than the first, second, third and last Observation Dates, is greater than or equal to the Autocall Redemption Value. In such event, investors will receive an Autocall Redemption Amount equal to the Principal Amount of the Securities. If the Securities are redeemed by the Bank, investors will not be entitled to receive any further interest that they may have been entitled to receive if the Securities had not been redeemed by the Bank.

#### *The Initial Estimated Value of the Securities Is Less than the Price to the Public and May not Reflect the Secondary Market Price, if any, of the Securities*

The initial estimated value set forth on the cover page of this pricing supplement does not represent a minimum price at which the Bank, RBC DS or any of our affiliates would be willing to purchase the Securities in any secondary market (if any exists) at any time. If you attempt to sell the Securities prior to maturity, their market value may be lower than the initial estimated value and the price you paid for them. This is due to, among other things, changes in the prices of the Underlying Securities and the inclusion in the price to the public of the selling commissions and the agency fee, as well as an amount retained by the Bank to compensate it for the creation, issuance and maintenance of the Securities (which may or may not also include any costs of its hedging obligations thereunder). These factors, together with various market and economic factors over the term of the Securities, could reduce the price at which you may be able to sell the Securities in any secondary market and will affect the value of the Securities in complex and unpredictable ways. Even if there is no change in market

conditions or any other relevant factors, the price, if any, at which you may be able to sell your Securities prior to maturity may be less than your original purchase price. The Securities are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your Securities to maturity.

*The Initial Estimated Value of the Securities Is an Estimate Only, Calculated as of the Time the Terms of the Securities Were Set*

The initial estimated value of the Securities is based on the value of the Bank's obligation to make the payments on the Securities. The return on the Securities can be replicated by purchasing and selling a combination of financial instruments, such as call options and put options. The fair value of the financial instrument components that would replicate the return on the Securities is equal to the fair value of the Securities. The Bank's estimate is based on a variety of assumptions, which may include expectations as to dividends, interest rates, the Bank's internal funding rates and volatility, and the term to maturity and any earlier call date of the Securities. The Bank's internal funding rates may differ from the market rates for the Bank's conventional debt securities. These assumptions are based on certain forecasts about future events, which may prove to be incorrect. Other entities may value the Securities or similar securities at a price that is significantly different than the Bank does. The value of the Securities at any time after the date of this pricing supplement will vary based on many factors, including changes in market conditions, and cannot be predicted with accuracy. As a result, the actual value you would receive if you sold the Securities in the secondary market, if any, should be expected to differ materially from the initial estimated value of the Securities.

**Preparation of Initial Estimated Value:**

The Securities are debt securities of the Bank, the return on which is linked to the price performance of the Portfolio. In order to satisfy the Bank's payment obligations under the Securities, the Bank may choose to enter into certain hedging arrangements (which may include call options, put options or other derivatives) on the Issue Date which may or may not be with RBC DS or one of our other subsidiaries. The terms of these hedging arrangements, if any, take into account a number of factors, including the Bank's creditworthiness, interest rate movements, the volatility of the Underlying Securities, and the term to maturity and any earlier call date of the Securities.

The price of the Securities to the public also reflects the selling commissions and the agency fee, as well as an amount retained by the Bank to compensate it for the creation, issuance and maintenance of the Securities (which may or may not also include any costs of its hedging obligations thereunder). The initial estimated value for the Securities shown on the cover page will therefore be less than their public offering price. See "Risk Factors – The Initial Estimated Value of the Securities Is Less than the Price to the Public and May not Reflect the Secondary Market Price, if any, of the Securities" above.

The Bank has adopted written policies and procedures for determining the fair value of Securities issued by it pursuant to the Senior Note Program. These policies and procedures include: (a) methodologies used for valuing each type of financial instrument component that can be used in combination to replicate the return of the Securities; (b) the methods by which the Bank will review and test valuations to assess the quality of the prices obtained as well as the general functioning of the valuation process; and (c) how to deal with conflicts of interest.

**Suitability for Investment:**

You should consult with your advisors regarding the suitability of an investment in the Securities. The Securities may be suitable for:

- investors seeking an investment product with exposure to the common shares of six Canadian energy companies
- investors who believe that the Portfolio Value will be equal to or above the Coupon Barrier Value on each Observation Date
- investors who believe that the Final Portfolio Value will not be below the Protection Barrier Value

- investors who are willing and can afford to risk substantially all of the principal amount of their investment
- investors looking for the potential to earn a return linked to the price performance of the Portfolio and who are prepared to assume the risks associated with an investment linked to the price performance of the Portfolio
- investors with an investment horizon equal to the term to maturity of the Securities who are prepared to hold the Securities until maturity, but who are willing to assume the risk that the Securities will be redeemed prior to the Maturity Date if the Portfolio Value is equal to or exceeds the Autocall Redemption Value on an Observation Date (other than the first, second, third and last Observation Dates)
- investors who are prepared to take the risk that regular Interest Payments will not be made on the Securities
- investors who understand that the potential return on the Securities is limited; the maximum return on the Securities is equal to \$73.50 per Security

**Book-entry Only Securities:**

The Securities will be OTC Securities (defined in the program supplement) and will be issued through the book-entry-only system through CDS (defined in the program supplement). See “Description of the Securities – Global Securities” and “– Legal Ownership” in the program supplement and “Book-Entry-Only Securities” in the base shelf prospectus.

**Listing:**

The Securities will not be listed on any stock exchange. See “Risk Factors” in the product supplement.

**Secondary Market:**

RBC DS has indicated to the Bank that it intends to use its best reasonable efforts to establish and maintain an over-the-counter market for the Securities by making itself available as a purchaser of the Securities if and so long as RBC DS in its sole discretion believes that there is a reasonable likelihood that it will be able to sell such Securities at a profit or at no more than a nominal loss. RBC DS may, in its sole discretion, cease to offer to purchase Securities without any requirement to provide notice to holders of Securities, registered or beneficial, including in circumstances where RBC DS perceives that the supply of Securities exceeds demand or if any change occurs in conditions imposed by regulatory or legislative action such that RBC DS determines that it can no longer lawfully purchase or sell Securities without incurring unreasonable expenses or complying with onerous conditions. If RBC DS offers to purchase Securities in connection with a secondary market transaction, there is no assurance that the purchase price will be the highest possible price available in any secondary market for the Securities, and such purchase price may be less an early trading charge as specified below. See “Risk Factors – The Initial Estimated Value of the Securities Is Less than the Price to the Public and May not Reflect the Secondary Market Price, if any, of the Securities” above.

Information regarding the Portfolio Value, the Autocall Redemption Value, the Coupon Barrier Value, the Protection Barrier Value and the daily closing price for the Securities may be accessed at [www.rbcnotes.com](http://www.rbcnotes.com). There is no assurance that a secondary market for the Securities will develop or be sustained. See “Secondary Market for Securities” in the program supplement.

If a Security is sold within the first 270 days from the Issue Date, the proceeds from the sale of the Securities will be reduced by an early trading charge (“**Early Trading Charge**”) equal to a percentage of the Principal Amount determined as set out below.

If Sold Within the Following No. of Days from Issue Date	Early Trading Charge (% of Principal Amount)
1 - 45 days	3.00%
46 - 90 days	2.75%
91 - 135 days	2.50%
136 - 180 days	2.00%

181 - 225 days	1.50%
226 - 270 days	1.00%
Thereafter	Nil

**Fiscal Agent:** RBC DS. See “Description of the Securities – Fiscal Agency, Calculation Agency and Fundserv Depository Agreement” in the program supplement.

**Calculation Agent:** RBC DS. See “Description of the Securities – Calculation Agent” in the program supplement and “Risk Factors” in the product supplement.

**Tax:** An initial purchaser of Securities who acquires Securities from the Bank on the Issue Date and who, at all relevant times, for purposes of the *Income Tax Act* (Canada), is an individual (other than a trust), is a resident of Canada, deals at arm’s length with and is not affiliated with the Bank, and acquires and holds the Securities as capital property will be required to include in computing income all interest received or receivable on the Securities, as well as certain accrued interest thereon on a disposition thereof. If, on maturity or other disposition (including on early redemption or repayment in full by the Bank), such a holder receives an amount that is less than the adjusted cost base of the Securities, such holder will realize a capital loss equal to the shortfall. See “Certain Canadian Tax Considerations” in Appendix C. **Potential purchasers of Securities should consult with their own tax advisors having regard to their particular circumstances.**

## APPENDIX A

### Certain Information Concerning the Common Shares of each of the Underlying Security Issuers on the Toronto Stock Exchange

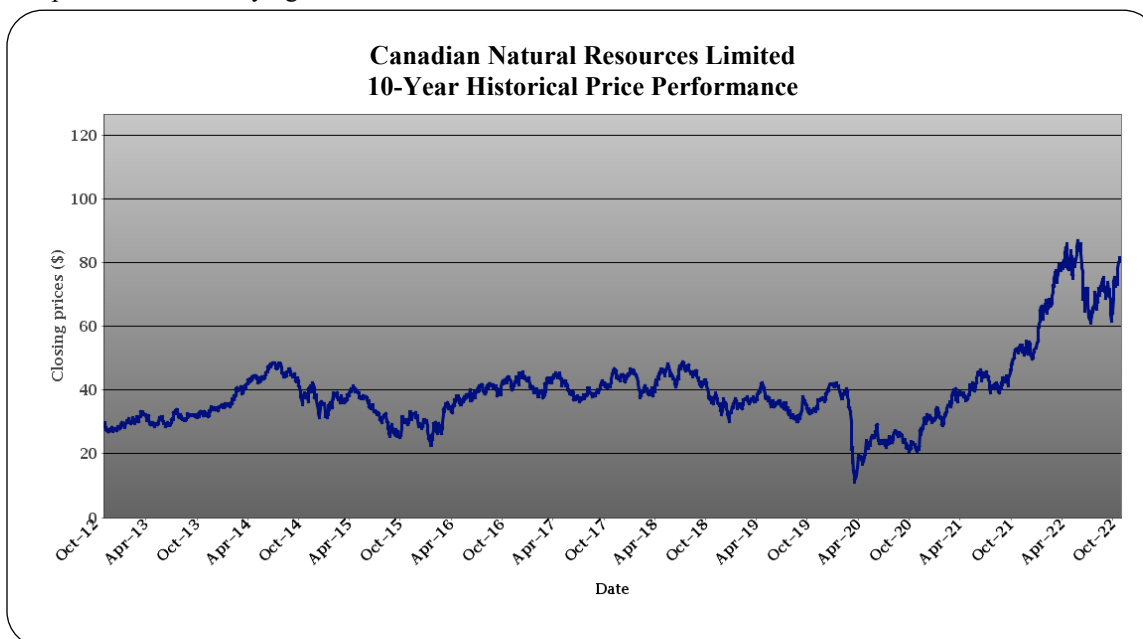
Entity Name	Symbol	Exchange	Portfolio Weight	Closing Prices (as of November 25, 2022)
Canadian Natural Resources Limited	CNQ	TSX	16.667%	80.52
Cenovus Energy Inc.	CVE	TSX	16.667%	27.11
TC Energy Corporation	TRP	TSX	16.667%	65.97
Enbridge Inc.	ENB	TSX	16.667%	55.94
Tourmaline Oil Corp.	TOU	TSX	16.667%	80.38
Suncor Energy Inc.	SU	TSX	16.667%	47.38

#### Canadian Natural Resources Limited

Canadian Natural Resources Limited acquires, explores for, develops, and produces natural gas, crude oil, and related products. Canadian Natural Resources Limited operates in the Canadian provinces of Alberta, northeastern British Columbia and Saskatchewan. Canadian Natural Resources Limited also operates in areas which have access for exploration activities and where pipeline systems already exist. The company's common shares are listed on the TSX under the symbol "CNQ". The annual dividend yield of the common shares of Canadian Natural Resources Limited as of November 25, 2022 was 5.39%.

#### Historical Price Performance

The following chart sets forth the historical price performance of the common shares of Canadian Natural Resources Limited for the period from October 31, 2012 to October 31, 2022. Historical price performance does not take into account distributions or dividends paid on the Underlying Securities.



**Historical price performance of the common shares of Canadian Natural Resources Limited will not necessarily predict future price performance of the common shares of Canadian Natural Resources Limited or the Securities.** The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

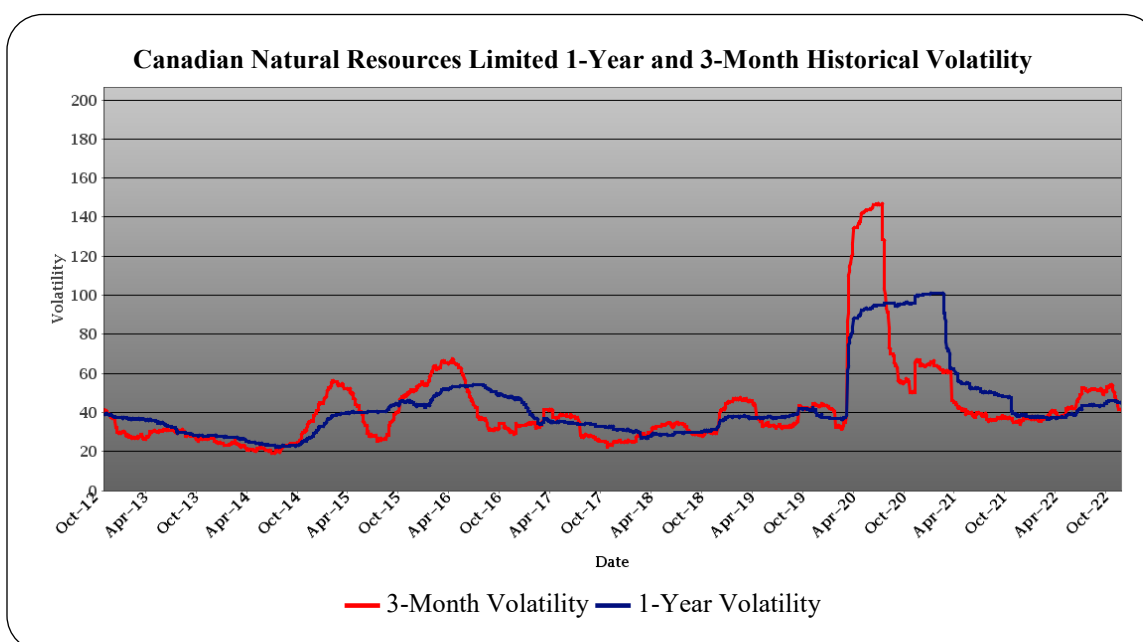
#### Historical annual percentage change of the common shares of Canadian Natural Resources Limited

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Percentage change (%)	-24.93	25.49	-0.06	-15.87	43.46	4.98	-26.67	27.50	-27.17	74.73

Source: Bloomberg L.P.: Measures annualized period as of December 31 of the previous year.

The following chart sets forth the one-year and three-month historical volatility of the common shares of Canadian Natural Resources Limited for the period from October 31, 2012 to October 31, 2022.

**Historical volatility is not a guarantee of future volatility.**



The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

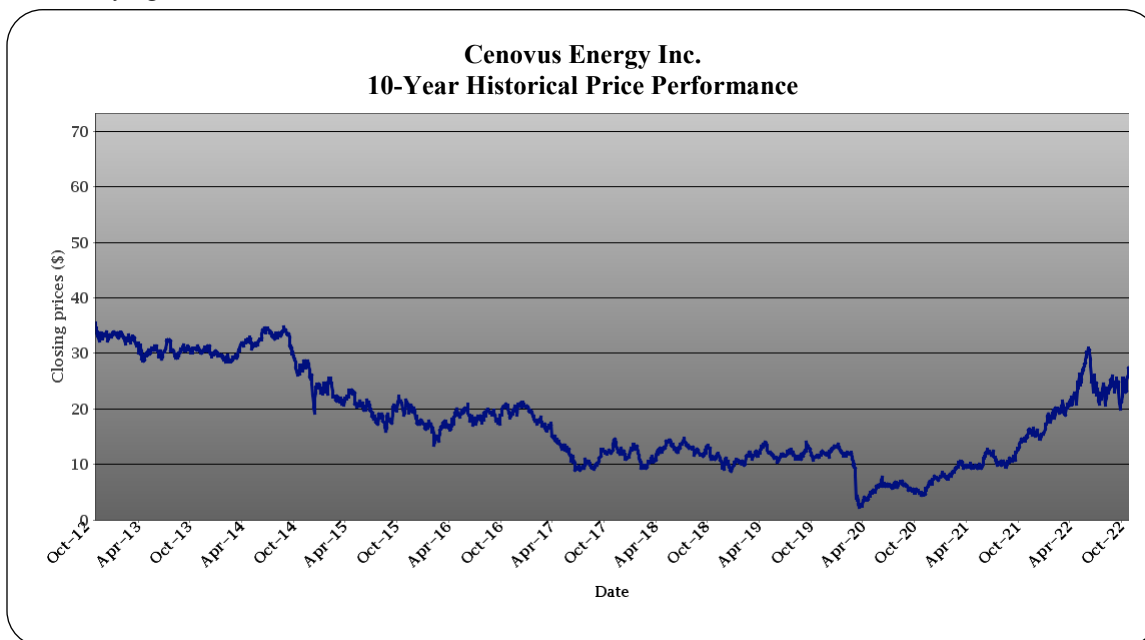
Volatility is the term used to describe the magnitude and frequency of the changes in a security's value over a given time period. A higher volatility means that a security's value can potentially be spread out over a larger range of values. This means that the price of the security can change dramatically over a short time period in either direction. A lower volatility means that a security's value does not fluctuate dramatically, but changes in value at a steady pace over a period of time.

## Cenovus Energy Inc.

Cenovus Energy Inc. is an integrated oil company. Cenovus Energy Inc. comprises natural gas, crude oil, and natural gas liquids reserves. Cenovus Energy Inc. has established natural gas and crude oil production in Alberta and Saskatchewan as well as refineries in Illinois and Texas. The company's common shares are listed on the TSX under the symbol "CVE". The annual dividend yield of the common shares of Cenovus Energy Inc. as of November 25, 2022 was 1.45%.

### Historical Price Performance

The following chart sets forth the historical price performance of the common shares of Cenovus Energy Inc. for the period from October 31, 2012 to October 31, 2022. Historical price performance does not take into account distributions or dividends paid on the Underlying Securities.



**Historical price performance of the common shares of Cenovus Energy Inc. will not necessarily predict future price performance of the common shares of Cenovus Energy Inc. or the Securities.** The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

#### Historical annual percentage change of the common shares of Cenovus Energy Inc.

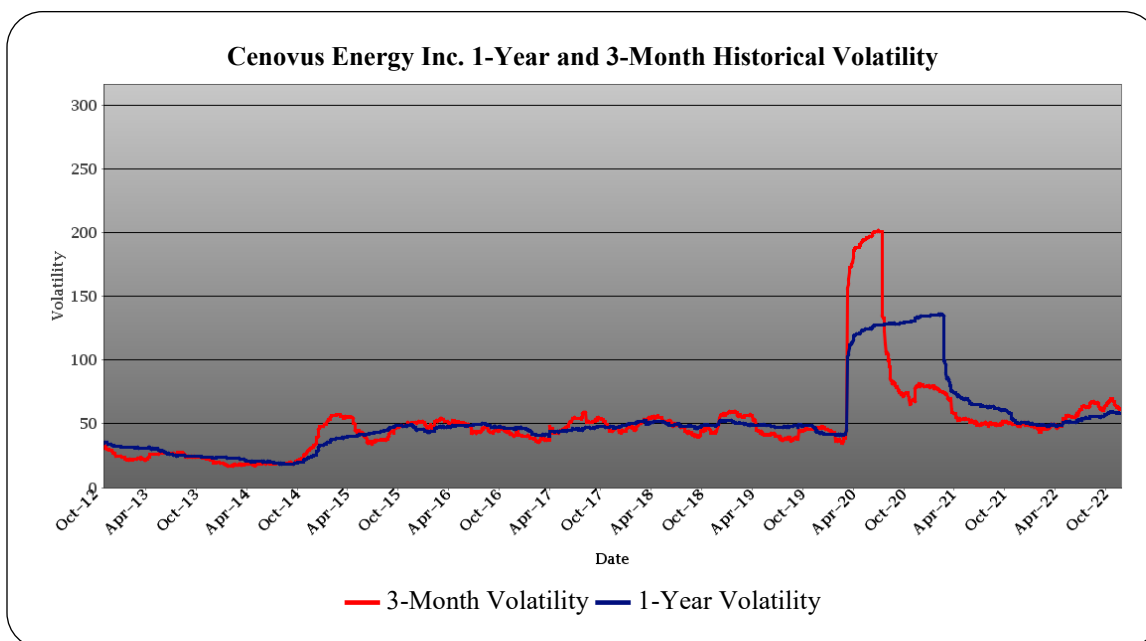
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Percentage change (%)	-1.60	-8.68	-21.15	-26.99	16.00	-43.45	-16.38	37.50	-41.29	100.13

Source: Bloomberg L.P.: Measures annualized period as of December 31 of the previous year.



The following chart sets forth the one-year and three-month historical volatility of the common shares of Cenovus Energy Inc. for the period from October 31, 2012 to October 31, 2022.

**Historical volatility is not a guarantee of future volatility.**



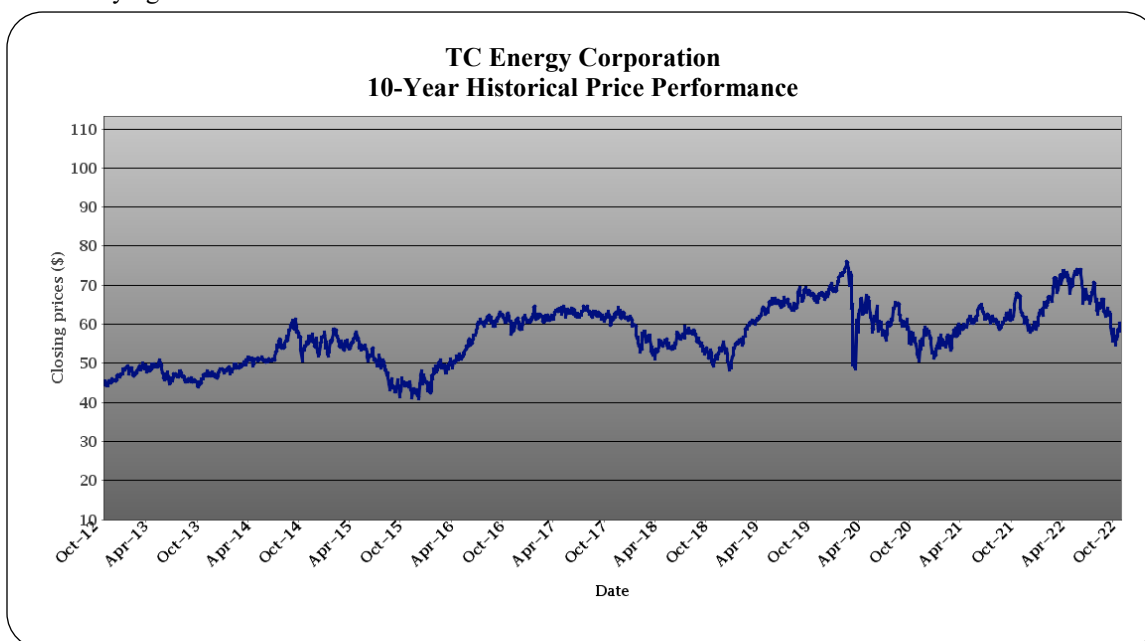
The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

## TC Energy Corporation

TC Energy Corporation is focused on natural gas transmission and power services. TC Energy Corporation's network of pipeline transports the majority of Western Canada's natural gas production to markets in Canada and the United States. TC Energy Corporation also has interests in power plants in Canada and the United States. TC Energy Corporation's common shares are listed on the TSX under the symbol "TRP". The annual dividend yield of the common shares of TC Energy Corporation as of November 25, 2022 was 5.41%.

### Historical Price Performance

The following chart sets forth the historical price performance of the common shares of TC Energy Corporation for the period from October 31, 2012 to October 31, 2022. Historical price performance does not take into account distributions or dividends paid on the Underlying Securities.



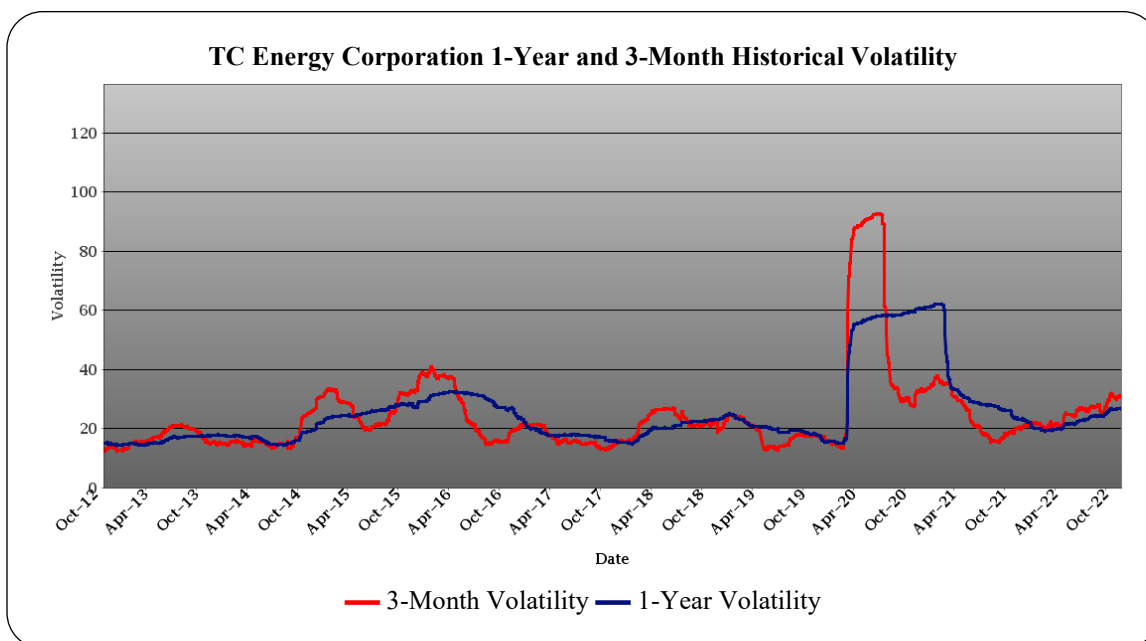
**Historical price performance of the common shares of TC Energy Corporation will not necessarily predict future price performance of the common shares of TC Energy Corporation or the Securities.** The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

Historical annual percentage change of the common shares of TC Energy Corporation										
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Percentage change (%)	5.59	3.23	17.63	-20.86	33.97	1.06	-20.32	41.87	-25.17	13.68

Source: Bloomberg L.P.; Measures annualized period as of December 31 of the previous year.

The following chart sets forth the one-year and three-month historical volatility of the common shares of TC Energy Corporation for the period from October 31, 2012 to October 31, 2022.

**Historical volatility is not a guarantee of future volatility.**



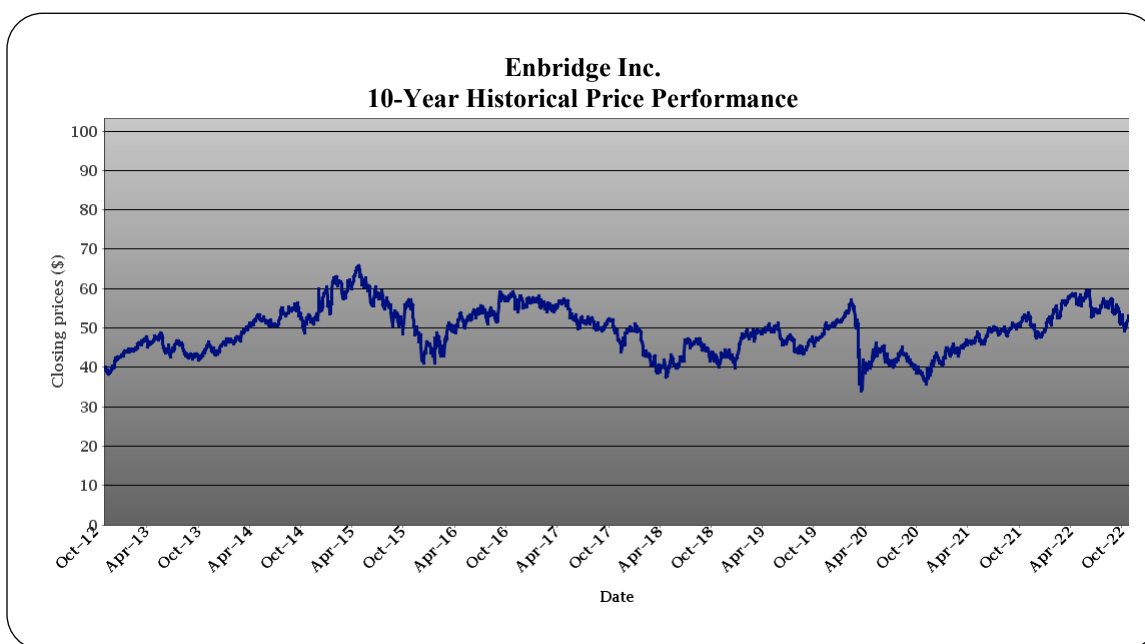
The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

## Enbridge Inc.

Enbridge Inc. provides energy transportation, distribution, and related services in North America and internationally. Enbridge Inc. operates a crude oil and liquids pipeline system and, is involved in: (i) international energy projects, and (ii) natural gas transmission and midstream businesses. Enbridge Inc. also distributes natural gas and electricity, and provides retail energy products. Enbridge Inc.'s common shares are listed on the TSX under the symbol "ENB". The annual dividend yield of the common shares of Enbridge Inc. as of November 25, 2022 was 6.15%.

### Historical Price Performance

The following chart sets forth the historical price performance of the common shares of Enbridge Inc. for the period from October 31, 2012 to October 31, 2022. Historical price performance does not take into account distributions or dividends paid on the Underlying Securities.



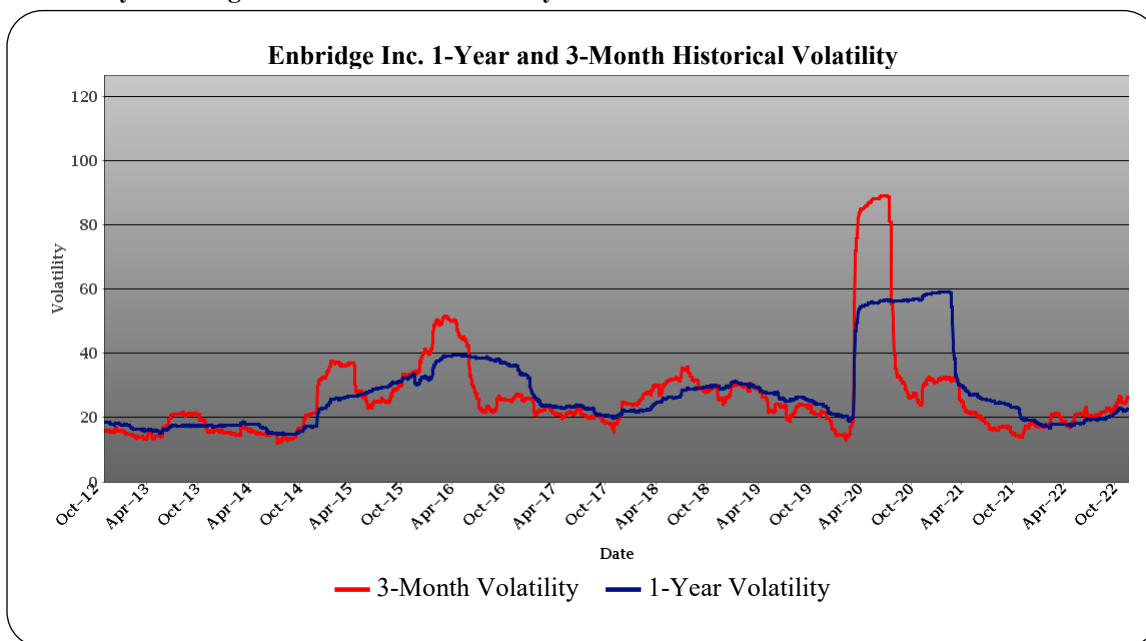
**Historical price performance of the common shares of Enbridge Inc. will not necessarily predict future price performance of the common shares of Enbridge Inc. or the Securities.** The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

Historical annual percentage change of the common shares of Enbridge Inc.										
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Percentage change (%)	12.94	7.88	28.72	-23.00	22.83	-12.99	-13.73	21.74	-21.15	21.37

Source: Bloomberg L.P.: Measures annualized period as of December 31 of the previous year.

The following chart sets forth the one-year and three-month historical volatility of the common shares of Enbridge Inc. for the period from October 31, 2012 to October 31, 2022.

**Historical volatility is not a guarantee of future volatility.**



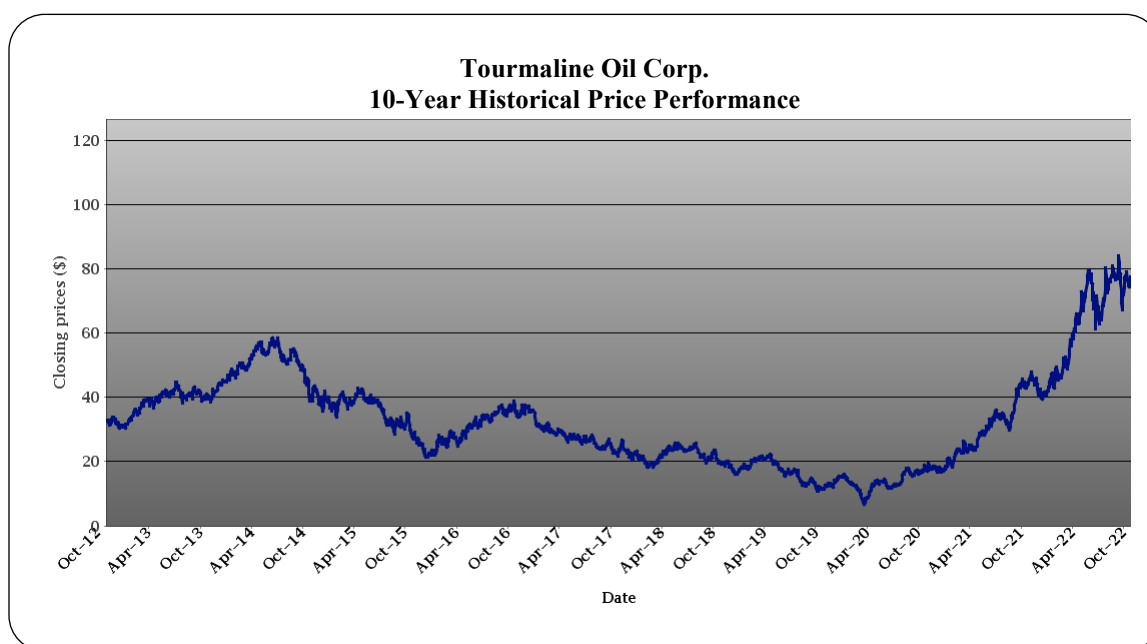
The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

## Tourmaline Oil Corp.

Tourmaline Oil Corp. is an intermediate crude oil and natural gas exploration and production company. Tourmaline Oil Corp. is focused on long-term growth through an aggressive exploration, development, production and acquisition program in the Western Canadian Sedimentary Basin. The company's common shares are listed on the TSX under the symbol "TOU". The annual dividend yield of the common shares of Tourmaline Oil Corp. as of November 25, 2022 was 9.52%.

### Historical Price Performance

The following chart sets forth the historical price of the common shares of Tourmaline Oil Corp. for the period from August 31, 2012 to August 31, 2022. Historical price performance does not take into account distributions or dividends paid on the Underlying Securities.



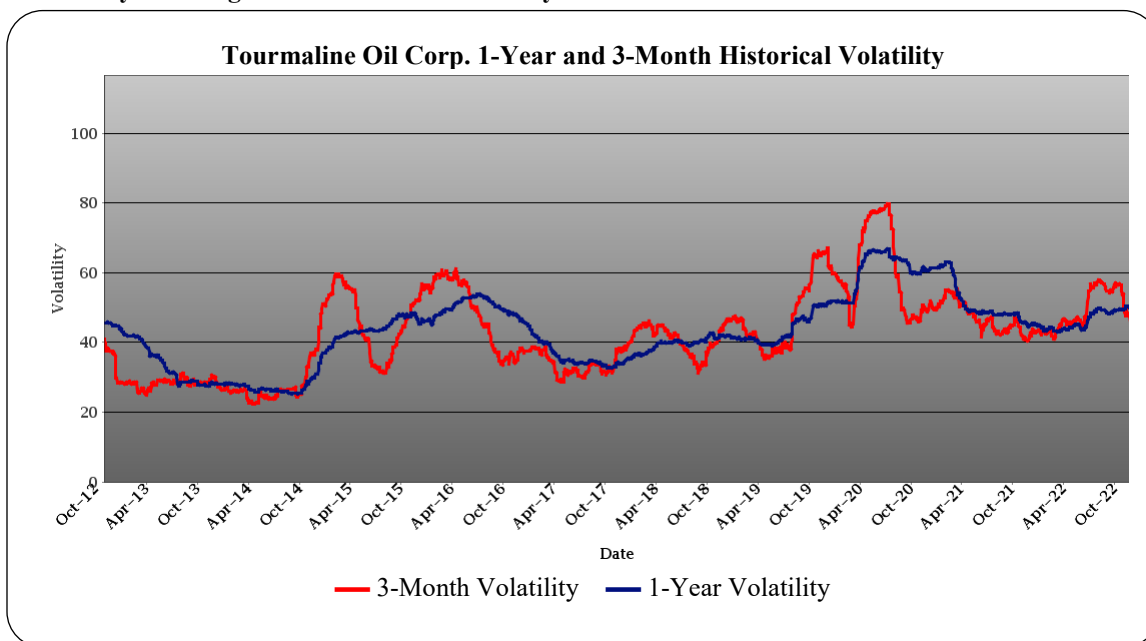
**Historical price performance of the common shares of Tourmaline Oil Corp. will not necessarily predict future price performance of the common shares of Tourmaline Oil Corp. or the Securities.** The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

Historical annual percentage change of the common shares of Tourmaline Oil Corp.										
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Percentage change (%)	17.27	43.13	-13.42	-42.25	60.67	-36.56	-25.46	-10.37	12.75	138.00

Source: Bloomberg L.P.: Measures annualized period as of December 31 of the previous year.

The following chart sets forth the one-year and three-month historical volatility of the common shares of Tourmaline Oil Corp. for the period from October 31, 2012 to October 31, 2022.

**Historical volatility is not a guarantee of future volatility.**



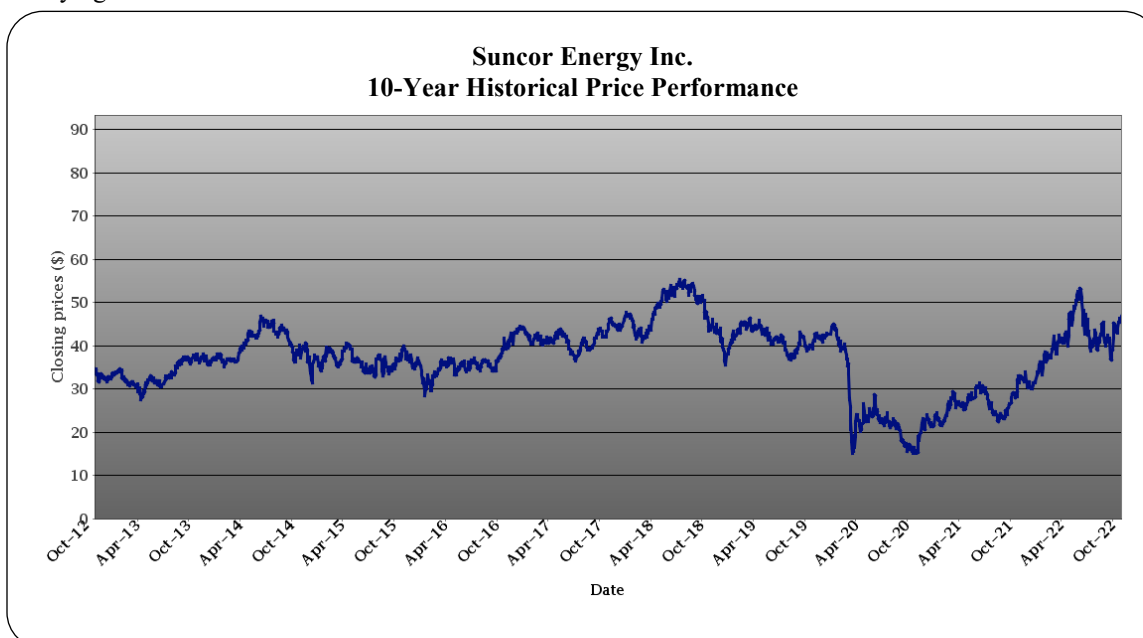
The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

## Suncor Energy Inc.

Suncor Energy Inc. is an integrated energy company focused on developing the Athabasca oil sands basin. Suncor Energy Inc. extracts and upgrades oil sands into refinery feedstock and diesel fuel, explores for, develops and produces natural gas, refines crude oil and markets a range of petroleum and petrochemical products, and operates crude oil pipelines and retail petroleum stations. The company's common shares are listed on the TSX under the symbol "SU". The annual dividend yield of the common shares of Suncor Energy Inc. as of November 25, 2022 was 3.76%.

### Historical Price Performance

The following chart sets forth the historical price performance of the common shares of Suncor Energy Inc. for the period from October 31, 2012 to October 31, 2022. Historical price performance does not take into account distributions or dividends paid on the Underlying Securities.



**Historical price performance of the common shares of Suncor Energy Inc. will not necessarily predict future price performance of the common shares of Suncor Energy Inc. or the Securities.** The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

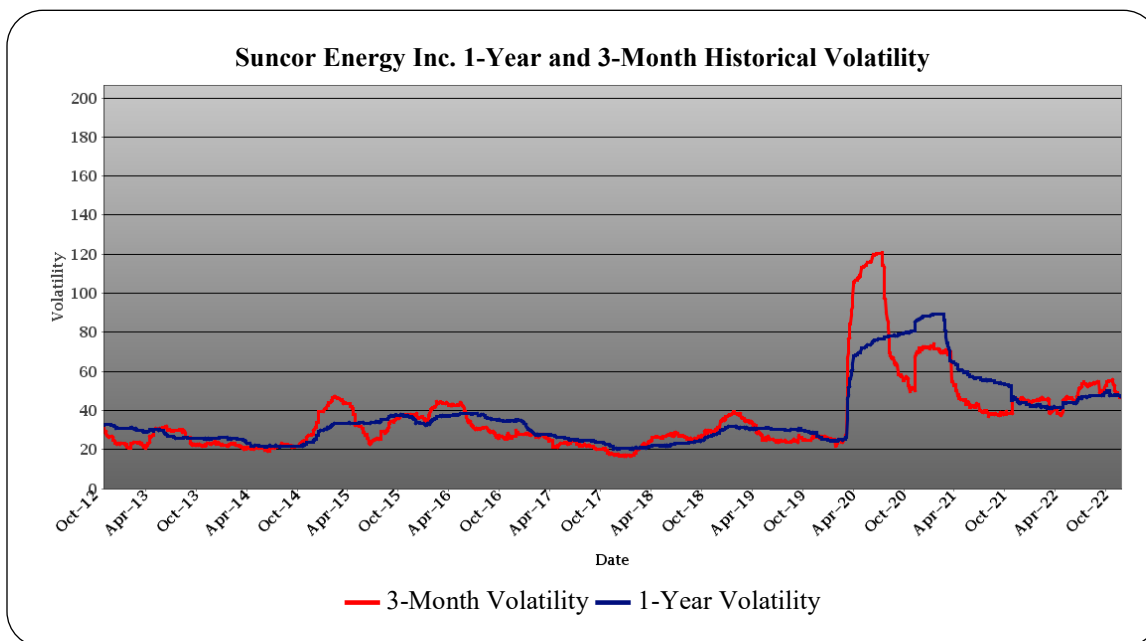
Historical annual percentage change of the common shares of Suncor Energy Inc.										
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Percentage change (%)	11.33	13.85	-0.91	-3.20	22.90	5.13	-17.38	11.62	-49.84	48.24

Source: Bloomberg L.P.: Measures annualized period as of December 31 of the previous year.



The following chart sets forth the one-year and three-month historical volatility of the common shares of Suncor Energy Inc. for the period from October 31, 2012 to October 31, 2022.

**Historical volatility is not a guarantee of future volatility.**



The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

## APPENDIX B

### Sample Calculations of Final Redemption Amount or Autocall Redemption Amount and Interest Payments

The examples set out below are included for illustration purposes only. The Portfolio Values used to illustrate the calculation of the Final Redemption Amount or Autocall Redemption Amount and the Interest Payments over the term of the Securities are not estimates or forecasts of the Portfolio Values on which the Percentage Change, and in turn the Final Redemption Amount, Autocall Redemption Amount and Interest Payments, if any, will depend.

#### *Hypothetical Calculation of the Initial Portfolio Value*

It is assumed that the aggregate Principal Amount of Securities issued under this offering is \$15,000,000.00 and the (hypothetical) closing prices of the Underlying Securities comprising the Portfolio on the Initial Valuation Date are as illustrated in the table below.

Entity Name	Symbol	Closing Price (\$)	Underlying Security Value in Portfolio (\$)	Portfolio Weight	Number of Underlying Securities
Canadian Natural Resources Limited	CNQ	80.52	2,500,000.00	16.667%	31,048.18679
Cenovus Energy Inc.	CVE	27.11	2,500,000.00	16.667%	92,216.89414
TC Energy Corporation	TRP	65.97	2,500,000.00	16.667%	37,896.01334
Enbridge Inc.	ENB	55.94	2,500,000.00	16.667%	44,690.74008
Tourmaline Oil Corp.	TOU	80.38	2,500,000.00	16.667%	31,102.26424
Suncor Energy Inc.	SU	47.38	2,500,000.00	16.667%	52,764.87970

Based on those assumptions, the Initial Portfolio Value would be the sum of the Underlying Security values, which is \$15,000,000.00.

#### *Hypothetical Calculation of the Final Portfolio Value*

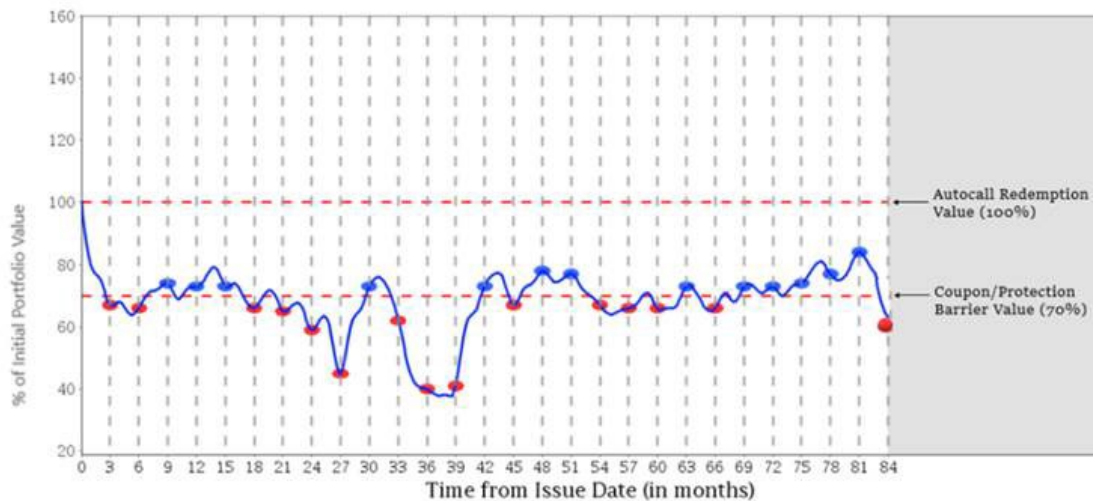
For illustration purposes, it is assumed that no Extraordinary Event has occurred and that the (hypothetical) closing prices of the Underlying Securities comprising the Portfolio on the Final Valuation Date are as illustrated in the table below. For the purposes of the following table, certain dollar values have been rounded to two decimal places.

Entity Name	Symbol	Closing Price (\$)	Number of Underlying Securities	Underlying Security Value in Portfolio (\$)
Canadian Natural Resources Limited	CNQ	98.64	31,048.18679	3,062,593.14
Cenovus Energy Inc.	CVE	33.21	92,216.89414	3,062,523.05
TC Energy Corporation	TRP	80.81	37,896.01334	3,062,376.84
Enbridge Inc.	ENB	68.53	44,690.74008	3,062,656.42
Tourmaline Oil Corp.	TOU	98.47	31,102.26424	3,062,639.96
Suncor Energy Inc.	SU	58.04	52,764.87970	3,062,473.62

Based on those assumptions, the Final Portfolio Value would be the sum of the Underlying Security values, which is \$18,375,263.03.

All examples below assume that a holder of the Securities has purchased Securities with an aggregate principal amount of \$100.00, that no Extraordinary Event has occurred, an Autocall Redemption Value of 100.00% of the Initial Portfolio Value, a Coupon Barrier Value of 70.00% of the Initial Portfolio Value and a Protection Barrier Value of 70.00% of the Initial Portfolio Value. For convenience, each vertical line in the charts below represents both a hypothetical Observation Date and the next succeeding Interest Payment Date. All dollar amounts are rounded to the nearest whole cent.

**Example #1 — Loss Scenario with Payment on the Maturity Date at Less Than the Principal Amount**



- Indicates Observation Dates on which the Coupon Barrier Value is breached; therefore no Interest Payment will occur on the related Interest Payment Date.
- Indicates Observation Dates on which there is a Digital Payout Event; therefore an Interest Payment will occur on the related Interest Payment Date.
- Portfolio Value

In this scenario, there is no Observation Date on which the Portfolio Value is at or above the Autocall Redemption Value and, accordingly, the Securities would not be redeemed before the Maturity Date. On the Final Valuation Date, the Final Portfolio Value is below the Protection Barrier Value.

**(i) Interest Payments**

In this example, there is a Digital Payout Event on 13 of the 28 Observation Dates. On the other 15 Observation Dates, no Digital Payout Event would occur because the Portfolio Value is below the Coupon Barrier Value. Therefore, the Interest Payment of \$2.625 per Interest Period would be payable for 5 Interest Periods on the applicable Interest Payment Date, for total Interest Payments of:

$$\text{Principal Amount of Securities} \times 2.6250\% \text{ per Interest Period} \times 13 \text{ Interest Periods} \\ \$100 \times 2.6250\% \times 13 = \$34.13$$

**(ii) Final Redemption Amount**

In this example, the Initial Portfolio Value ( $X_i$ ) is \$15,000,000.00 and the Final Portfolio Value ( $X_f$ ) is \$9,000,000.00. Therefore, the Final Redemption Amount would be calculated as follows:

Initial Portfolio Value = \$15,000,000.00

Final Portfolio Value = \$9,000,000.00

Percentage Change =  $(\$9,000,000.00 - \$15,000,000.00) / \$15,000,000.00 = -0.4000$  or -40.00%

Since the Final Portfolio Value is below the Protection Barrier Value, the Final Redemption Amount is calculated as follows:

Final Redemption Amount =  $\$100.00 + (\$100.00 \times -40.00\%) = \$60.00$

Therefore, the total amounts payable per Security from the Issue Date to the Maturity Date are:

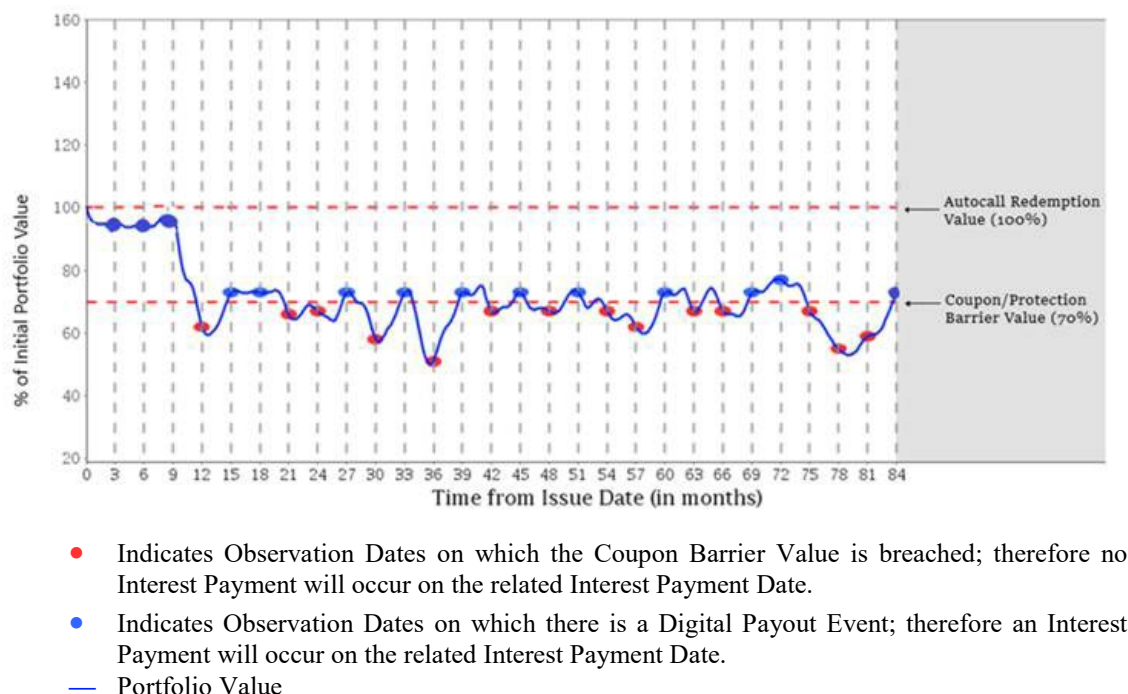
(a) Total Interest Payments: \$34.13

(b) Final Redemption Amount: \$60.00

(c) Total amount paid over the term of the Securities: \$94.13

The equivalent annually compounded rate of return in this example is -0.86%.

## Example #2 — Gain Scenario with Payment on the Maturity Date at the Principal Amount



In this scenario, there is no Observation Date on which the Portfolio Value is at or above the Autocall Redemption Value and, accordingly, the Securities would not be redeemed before the Maturity Date. On the Final Valuation Date, the Final Portfolio Value is at or above the Protection Barrier Value.

### (i) Interest Payments

In this example, there is a Digital Payout Event on 14 of the 28 Observation Dates. On the other 14 Observation Dates, no Digital Payout Event would occur because the Portfolio Value is below the Coupon Barrier Value. Therefore, the Interest Payment of \$2.625 per Interest Period would be payable for 14 Interest Periods on the applicable Interest Payment Date for total Interest Payments of:

$$\begin{aligned} & \text{Principal Amount of Securities} \times 2.6250\% \text{ per Interest Period} \times 14 \text{ Interest Periods} \\ & \$100 \times 2.6250\% \times 14 = \$36.75 \end{aligned}$$

### (ii) Final Redemption Amount

In this example, since the Final Portfolio Value is \$11,250,000.00, which is above its Protection Barrier Value of 70.00% of the Initial Portfolio Value of \$15,000,000.00, the Final Redemption Amount per Security is equal to \$100.00.

Therefore, the total amounts payable per Security from the Issue Date to the Maturity Date are:

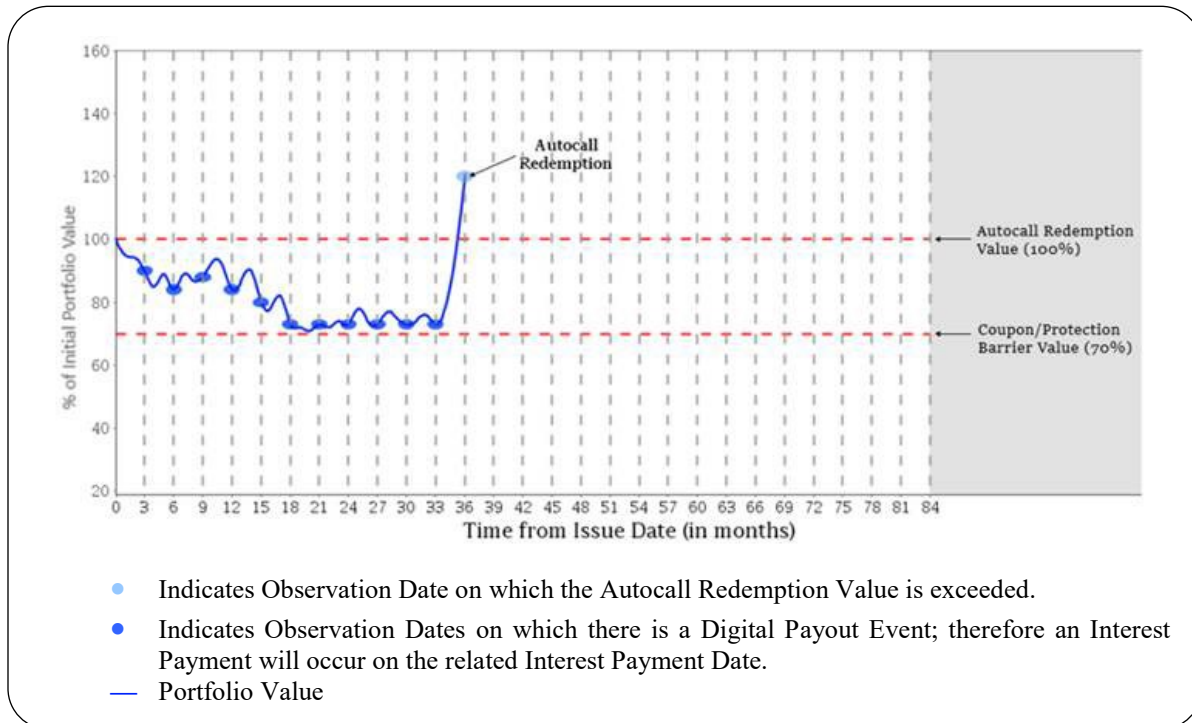
(a) Total Interest Payments: \$36.75

(b) Final Redemption Amount: \$100.00

(c) Total amount paid over the term of the Securities: \$136.75

The equivalent annually compounded rate of return in this example is 4.57%.

### Example #3 — Gain Scenario with Autocall Redemption Event



In this scenario, the Portfolio Value is at or above the Autocall Redemption Value on the Observation Date that falls 36 months into the term of the Securities. This would constitute an Autocall Redemption Event and, on the next succeeding Interest Payment Date, the Bank would redeem the Securities.

#### (i) Interest Payments

In this example, there is a Digital Payout Event on each of the 12 Observation Dates prior to the redemption of the Securities because the Portfolio Value is at or above the Coupon Barrier Value on each such date. Therefore, the Interest Payment of \$2.625 per Interest Period would be payable for each Interest Period on the applicable Interest Payment Date (including on the Autocall Redemption Date), for total Interest Payments of:

$$\begin{aligned} & \text{Principal Amount of Securities} \times 2.6250\% \text{ per Interest Period} \times 12 \text{ Interest Periods} \\ & \$100 \times 2.6250\% \times 12 = \$31.50 \end{aligned}$$

#### (ii) Autocall Redemption Amount

The Autocall Redemption Amount per Security is equal to \$100.00.

Therefore, the total amounts payable per Security from the Issue Date to the Autocall Redemption Date are:

(a) Total Interest Payments: \$31.50

(b) Autocall Redemption Amount: \$100.00

(c) Total amount paid over the term of the Securities: \$131.50

The equivalent annually compounded rate of return in this example is 9.56%.

## APPENDIX C

### Certain Canadian Tax Considerations

In the opinion of the Bank's counsel, Davies Ward Phillips & Vineberg LLP, the following summary fairly describes the principal Canadian federal income tax considerations under the *Income Tax Act* (Canada) (the "**Tax Act**") generally applicable to an initial purchaser of Securities under this pricing supplement who, at all relevant times, for purposes of the Tax Act, deals at arm's length with and is not affiliated with the Bank (a "**Holder**").

This summary is based upon the current provisions of the Tax Act and the regulations thereunder (the "**Regulations**"), all specific proposals to amend the Tax Act or such Regulations publicly announced by the federal Minister of Finance prior to the date hereof (the "**Proposals**") and counsel's understanding of the current administrative and assessing policies and practices of the Canada Revenue Agency ("**CRA**"). Except for the Proposals, this summary does not take into account or anticipate any changes (including retroactive changes) in the law or the administrative and assessing policies or practices of the CRA, whether by judicial, regulatory, governmental or legislative action, nor does it take into account tax laws of any province or territory of Canada, or of any jurisdiction outside Canada. Provisions of provincial income tax legislation vary from province to province in Canada and may differ from federal income tax legislation. No assurance can be given that the Proposals will be implemented in their current form, or at all. This summary assumes that the Holder will neither undertake nor arrange a transaction in respect of the Securities primarily for the purpose of obtaining a tax benefit, has not entered into a "derivative forward agreement" (as defined in the Tax Act) in respect of the Securities and that the Securities are not issued at a discount.

**This summary is of a general nature only and is not intended to constitute, nor should it be relied upon or construed as, tax advice to any particular Holder, nor is it exhaustive of all possible Canadian federal income tax considerations. Holders should consult their own tax advisors as to the potential consequences to them of the acquisition, ownership and disposition of Securities having regard to their particular circumstances.**

#### Holders Resident in Canada

The following discussion applies to a Holder who, at all relevant times, for the purposes of the Tax Act and any applicable income tax treaty or convention, is an individual (other than a trust) who is resident (or deemed to be resident) in Canada and who acquires and holds the Securities as capital property (a "**Resident Holder**"). Certain Resident Holders who might not otherwise be considered to hold their Securities as capital property may, in certain circumstances, be entitled to have their Securities, and all other "Canadian securities" (as defined in the Tax Act) owned by such Resident Holders in the taxation year and all subsequent taxation years, treated as capital property by making the irrevocable election permitted by subsection 39(4) of the Tax Act.

##### *Interest*

The amount of any interest received or receivable (depending on the method regularly followed in computing income under the Tax Act) by a Resident Holder in a taxation year (including on redemption or repayment in full by the Bank) will be required to be included in computing the Resident Holder's income for the taxation year, except to the extent that such amount has already been included in the Resident Holder's income for that or a preceding taxation year.

##### *Disposition of Securities*

On a disposition or deemed disposition of a Security by a Resident Holder to a person (other than the Bank), the amount of any interest accrued on the Security to the time of disposition will be required to be included in computing the Resident Holder's income for the taxation year in which the disposition takes place (except to the extent that such accrued interest has already been included in the Resident Holder's income for that or a preceding taxation year), and will be excluded from the proceeds of disposition of the Security. Because the interest entitlement of a Resident Holder for a particular Interest Period will generally only be determinable on the Observation Date for that period, whether any accrued interest will be payable on a Security at the time of disposition may, in some circumstances, be considered uncertain.

In addition, the Resident Holder should realize a capital gain (or capital loss) to the extent that the proceeds of disposition, net of amounts included in income as interest and any reasonable costs of disposition, exceed (or are exceeded by) the adjusted cost base of the Security to the Resident Holder. One-half of any capital gain realized by a Resident Holder must be included in the income of the Resident Holder. One-half of any capital loss realized by a Resident Holder is deductible against the taxable portion of capital gains realized in the year, in the three preceding years or in subsequent years, subject to the rules and restrictions contained in the Tax Act. Capital gains realized by an individual may give rise to a liability for alternative minimum tax.

### ***Redemption or Repayment by the Bank***

A Resident Holder who holds the Securities until maturity (or earlier redemption or repayment in full by the Bank) and who receives redemption or repayment proceeds that are less than the Principal Amount of the Securities will realize a capital loss to the extent that the amount received at such time (otherwise than on account of interest) is less than the Resident Holder's adjusted cost base of such Securities. The income tax considerations associated with the realization of a capital loss are described above.

### ***Holdings Not Resident in Canada***

The following discussion applies to a Holder who, at all relevant times, for the purposes of the Tax Act is neither resident nor deemed to be resident in Canada, deals at arm's length with any Canadian resident (or deemed Canadian resident) to whom the Holder disposes of the Securities, is neither a "specified shareholder" of the Bank nor a person who does not deal at arm's length with a specified shareholder of the Bank for purposes of the "thin capitalization" rule contained in subsection 18(4) of the Tax Act, does not use or hold and is not deemed to use or hold the Securities in the course of carrying on a business in Canada and is not an insurer carrying on an insurance business in Canada and elsewhere (a "**Non-Resident Holder**").

Interest paid or credited or deemed to be paid or credited on the Securities (including any interest deemed to be paid in certain cases involving the assignment or other transfer of a Security to a resident or deemed resident of Canada) to a Non-Resident Holder will not be subject to Canadian non-resident withholding tax unless any portion of such interest is contingent or dependent on the use of or production from property in Canada or is computed by reference to revenue, profit, cash flow, commodity price or any other similar criterion or by reference to dividends paid or payable to shareholders of any class of shares of the capital stock of a corporation ("**Participating Debt Interest**"). Having regard to the terms of the Securities, interest paid or credited or deemed to be paid or credited on the Securities should not be considered to be Participating Debt Interest.

There should be no other taxes on income (including taxable capital gains) payable by a Non-Resident Holder in respect of a Security.

### **Eligibility for Investment**

The Securities, if issued on the date of this pricing supplement, would be qualified investments (for purposes of the Tax Act) for trusts governed by registered retirement savings plans ("**RRSPs**"), registered retirement income funds ("**RRIFs**"), tax-free savings accounts ("**TFSA**s"), registered disability savings plans ("**RDSPs**"), registered education savings plans ("**RESPs**") and deferred profit sharing plans ("**DPSPs**"), each within the meaning of the Tax Act (other than a DPSP to which payments are made by the Bank or a corporation or partnership with which the Bank does not deal at arm's length within the meaning of the Tax Act).

Notwithstanding the foregoing, if Securities are "prohibited investments" (as that term is defined in the Tax Act) for an RRSP, RRIF, TFSA, RDSP or RESP, the annuitant of the RRSP or RRIF, the holder of the TFSA or RDSP, or the subscriber of the RESP, as the case may be (each a "**Plan Holder**"), will be subject to a penalty tax as set out in the Tax Act. Securities will be prohibited investments for an RRSP, RRIF, TFSA, RDSP or RESP of a Plan Holder who has a "significant interest" (as defined in the Tax Act for purposes of the prohibited investment rules) in the Bank or who does not deal at arm's length, within the meaning of the Tax Act, with the Bank.