

**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  
Index Linked Securities**

**February 14, 2023**

**Maximum \$20,000,000 (200,000 Debt Securities)  
RBC Solactive Canada Utilities 160 AR Index Autocallable 15.00%  
Securities (CAD), Series 153, F-Class  
Due March 7, 2030  
Non-Principal Protected Debt Securities**

Royal Bank of Canada (the “**Bank**”) is offering up to \$20,000,000 of RBC Solactive Canada Utilities 160 AR Index Autocallable 15.00% Securities (CAD), Series 153, F-Class (which we refer to as the “**Debt Securities**”), designed for investors who are prepared and can afford to take the risk that they will lose substantially all of their investment and the Interest Payment (defined herein) will not be made on the Debt Securities, because they believe that the Closing Level (defined herein) of the Solactive Canada Utilities 160 AR Index (the “**Underlying Index**”), an adjusted return index that aims to track the gross total return performance of the Solactive Canada Utilities Index TR (the “**Target Index**”), subject to a reduction of a synthetic dividend of 160 index points per annum calculated daily in arrears (the “**Adjusted Return Factor**”), will be greater than or equal to the Autocall Redemption Level (defined herein) on an Observation Date (defined herein), and, in any event, greater than or equal to the Protection Barrier Level (defined herein) on the Final Valuation Date (defined herein). Payment at maturity will be based on the performance of the Underlying Index. **For the avoidance of doubt, the return on the Debt Securities is linked to the Underlying Index and is not linked to the Target Index.** The Debt Securities will be redeemed and the holders of the Debt Securities will receive an Interest Payment on the applicable Interest Payment Date (defined herein) if there is an Autocall Redemption Event (defined herein) on the immediately preceding Observation Date. The return on the Debt Securities is limited; even if the Debt Securities are not redeemed prior to maturity, an Autocall Redemption Event occurs on the final Observation Date and the Final Index Level (defined herein) is greater than or equal to the Autocall Redemption Level, the maximum return on the Debt Securities would be equal to \$105.00 per Debt Security plus an amount equal to 5.00% of any Index Return (defined herein) in excess of \$105.00.

The initial estimated value of the Debt Securities as of February 2, 2023 was \$96.85 per Debt 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 Debt 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 Debt 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 index linked securities that we may offer under our Senior Note Program dated March 28, 2022, as supplemented November 11, 2022 (the “**product supplement**”).

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

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

**An investment in the Debt Securities involves risks. The Debt Securities are linked to the Underlying Index which reflects (i) the applicable price changes of the constituent securities of the Target Index and any dividends and distributions paid in respect of such securities, without deduction of any withholding tax or other amounts accruing thereon to which an investor holding the constituent securities of the Target Index would typically be exposed, less (ii) the Adjusted Return Factor. An investment in the Debt Securities is not the same as a direct investment in the securities that comprise the Target Index and investors have no rights with respect to the securities underlying such index. The return on the Debt Securities will not reflect the total return that an investor would receive if such investor owned the securities that comprise the Target Index. The Debt Securities are considered to be “specified derivatives” under applicable Canadian securities laws. If you purchase Debt Securities, you will be exposed to changes in the level of the Underlying Index and fluctuations in interest rates, among other factors. Index levels are volatile and an investment in the Debt Securities may be considered to be speculative. Since the Debt 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”.**

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

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	<b>Price to public</b>	<b>Selling Commissions and Dealer's fee<sup>(1)</sup></b>	<b>Net proceeds to the Bank</b>
Per Debt Security	\$100.00	\$0.00	\$100.00
Total <sup>(2)</sup>	\$20,000,000	\$0.00	\$20,000,000

(1) No sales commission will be paid in connection with this issuance of Debt Securities. An agency fee will 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 Debt Securities issued under this offering for acting as independent agent.

(2) Reflects the maximum offering size for the Debt 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 Debt 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 Debt Securities will not be listed on any stock exchange. Debt Securities may be resold using the Fundserv network at a price determined at the time of sale by the Calculation Agent (defined herein), which price may be lower than the Principal Amount of such Debt Securities. There is no assurance that a secondary market for the Debt 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 Debt Securities**

Debt Securities described in this pricing supplement will be issued under our Senior Note Program and will be unsecured, unsubordinated debt obligations. The Debt 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 Debt 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 Debt 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 Debt 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 February 14, 2023 is deemed to be incorporated by reference into the base shelf prospectus solely for the purpose of our Senior Note Program and the Debt 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 Debt 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 Debt 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 Debt 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**  
**Index Linked Securities**  
**Maximum \$20,000,000 (200,000 Debt Securities)**

**RBC Solactive Canada Utilities 160 AR Index Autocallable 15.00% Securities (CAD), Series 153, F-Class**  
**Due March 7, 2030**

**Non-Principal Protected Debt Securities**

- Issuer:** Royal Bank of Canada (the “**Bank**”)
- Dealers:** RBC Dominion Securities Inc. (“**RBC DS**”) 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 Debt Securities. See “Plan of Distribution” in the program supplement.
- Issue:** RBC Solactive Canada Utilities 160 AR Index Autocallable 15.00% Securities (CAD), Series 153, F-Class due March 7, 2030.
- Fundserv Code:** RBC4177
- Objective of the Debt Securities:** The Debt 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 and that the Interest Payment (defined below) will not be made on the Debt Securities, because they believe that the Closing Level (defined below) will be greater than or equal to the Autocall Redemption Level (defined below) on an Observation Date (defined below), and, in any event, greater than or equal to the Protection Barrier Level (defined below) on the Final Valuation Date (defined below). The Debt Securities will be redeemed and the holders of the Debt Securities will receive an Interest Payment on the applicable Interest Payment Date (defined below) if there is an Autocall Redemption Event (defined below) on the immediately preceding Observation Date.
- Issue Price:** The Debt Securities will be issued at a price equal to their Principal Amount (defined below).
- Minimum Investment:** 50 Debt Securities or \$5,000.
- Denomination:** Debt Securities are issuable in denominations of \$100.00 (the “**Principal Amount**”) and in minimum increments of \$100.00.
- Issue Date:** March 8, 2023 or such other date as may be agreed to by the Bank and the Dealers.
- Issue Size:** The maximum issue size will be an aggregate amount of \$20,000,000.
- Maturity Date:** March 7, 2030 (approximately a seven-year term), subject to earlier redemption on an Autocall Redemption Event or earlier repayment in full on an Extraordinary Event. See “Description of the Index Linked Securities – Maturity Date and Amount Payable” in the product supplement.
- Principal at Risk Securities:** All but 1% of the Principal Amount of the Debt Securities is fully exposed. You could lose substantially all of your investment. See “Description of the Index Linked Securities — Principal at Risk Securities” and “Risk Factors” in the product supplement.
- Underlying Index:** The return on the Debt Securities is linked to the adjusted returns of the Solactive Canada Utilities 160 AR Index (the “**Underlying Index**”) on the Initial Valuation Date (defined below) and the Observation Dates, including the Final Valuation Date. The Underlying Index is an adjusted return index that aims to track the gross total return performance of the Solactive Canada Utilities Index TR (the “**Target Index**”), subject to a reduction of a synthetic dividend of 160 index points per annum calculated daily in arrears (the “**Adjusted Return Factor**”). **For the avoidance of doubt, the return on the Debt Securities is linked to the Underlying Index and is not linked to the Target Index.** The Closing Level on February 2, 2023 was 3,430.78. The Adjusted Return Factor divided by the Closing Level was therefore equal to 4.6637%

on February 2, 2023. If an Autocall Redemption Event does not occur, over the term of the Debt Securities the sum of the Adjusted Return Factor will be approximately 1120 index points, representing 32.6456% of the Closing Level on February 2, 2023.

The Target Index is a gross total return index that reflects the price changes of its constituent securities and the reinvestment in the index of any dividends and distributions paid in respect of such securities. For the calculation of the level of the Target Index, any dividends or other distributions paid on the constituent securities of the Target Index are assumed to be reinvested across all of the constituent securities of the Target Index. There is no assurance of the ability of issuers of the securities comprising the Target Index to declare and pay dividends or make distributions in respect of the constituents of the Target Index or to sustain or increase such dividends and distributions at or above historical levels. As of February 2, 2023, the annual dividend yield on the Target Index was 4.286%, representing an aggregate dividend yield of approximately 34.146% compounded annually over the term of the Debt Securities, on the assumption that the dividend yield remains constant. The performance of the Underlying Index will vary higher or lower from the performance of a price return index (being an index which tracks the price performance of its constituent securities without taking into account the effects of dividends and distributions) with the same constituents and weights as the Target Index over the term of the Debt Securities depending on whether the impact of the dividends and other distributions reinvested in the Target Index is greater or less than the impact the Adjusted Return Factor has on the Closing Level over the term of the Debt Securities. The Target Index is adjusted quarterly, ordinarily in March, June, September and December, and is also subject to extraordinary adjustments in compliance with the rules of the Index Sponsor (defined below). For further details regarding these adjustments and the methodology for the Target Index, refer to the Index Sponsor's website at [www.solactive.com](http://www.solactive.com).

See "Description of the Index Linked Securities – Indices" in the product supplement. See Appendix A to this pricing supplement for summary information regarding the Underlying Index.

Debt Securities do not represent an interest in the Underlying Index, the Target Index or in the securities of the entities that comprise the Target Index, and holders will have no right or entitlement to such securities including, without limitation, redemption rights (if any), voting rights or rights to receive dividends or other distributions paid on such securities. The return on the Debt Securities will not reflect the total return that an investor would receive if such investor owned the securities that comprise the Target Index. There is no requirement for the Bank to hold any interest in the Underlying Index, the Target Index or in the securities of the entities that comprise the Target Index.

This pricing supplement has been prepared for the sole purpose of assisting prospective investors in making an investment decision with respect to the Debt Securities. This pricing supplement relates only to the Debt Securities offered hereby and does not relate to the Underlying Index, the Target Index and/or the Index Sponsor. The Bank and the Dealers have not verified the accuracy or completeness of any information pertaining to the Underlying Index or determined whether there has been any omission by the Index Sponsor 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 the Index Sponsor 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 the Underlying Index or Index Sponsor is accurate or complete. Prospective investors should independently investigate the Underlying Index and the Index Sponsor and decide whether an investment in the Debt Securities is appropriate. The Index Sponsor has not participated in the preparation of this pricing supplement and the Debt Securities are not in any way sponsored, endorsed, sold or promoted by the Index Sponsor. See "Description of the Index Linked Securities – Indices" in the product supplement.

**Index Sponsor:** “**Index Sponsor**” means Solactive AG.

**Initial Index Level:** The “**Initial Index Level**” is the Closing Level on March 2, 2023 (the “**Initial Valuation Date**”).

**Protection Barrier Level:** The “**Protection Barrier Level**” is 70.00% of the Initial Index Level.

**Final Index Level:** The “**Final Index Level**” is (i) if an Autocall Redemption Event occurs, the Closing Level on the applicable Observation Date or (ii) if no Autocall Redemption Event occurs, the Closing Level on March 4, 2030 (the “**Final Valuation Date**”).

**Closing Level:** The “**Closing Level**” on any date is the official closing level of the Underlying Index quoted on www.solactive.com for such date, as determined by the Calculation Agent (defined below). The official closing level of the Underlying Index is available from other sources, such as Bloomberg; however, neither the Bank nor the Dealers make any representation as to the accuracy of such information and all calculations regarding the Closing Level will be made by the Calculation Agent.

**Observation Dates:** An “**Observation Date**” for the purposes of determining whether an Autocall Redemption Event has occurred and whether the Interest Payment will be payable will occur annually on the dates specified below in each year that the Debt Securities are outstanding, from and including March 4, 2024 to and including the Final Valuation Date. If any such Observation Date is not an Exchange Day (defined in the product supplement), it shall be postponed to the next succeeding Exchange Day. Provided that an Autocall Redemption Event does not occur prior to the Final Valuation Date, the Bank intends the Observation Dates to be:

March 4, 2024	March 3, 2025
March 2, 2026	March 2, 2027
March 2, 2028	March 2, 2029
March 4, 2030 (the Final Valuation Date)	

**Interest Payment Dates:** The “**Interest Payment Date**” for the Interest Payment, if any, will occur annually on the dates specified below in each year that the Debt Securities are outstanding, from and including March 7, 2024 to and including the Maturity Date. Provided that an Autocall Redemption Event does not occur prior to the Final Valuation Date, the Bank intends the Interest Payment Dates to be:

March 7, 2024	March 6, 2025
March 5, 2026	March 5, 2027
March 7, 2028	March 7, 2029
March 7, 2030 (the Maturity Date)	

For certainty, no Interest Payment will be made on any Interest Payment Date unless an Autocall Redemption Event occurred on the immediately preceding Observation Date.

**Autocall Redemption Event:** An “**Autocall Redemption Event**” will occur if the Closing Level on an Observation Date is greater than or equal to the Initial Index Level (the “**Autocall Redemption Level**”). On the next succeeding Interest Payment Date following the occurrence of an Autocall Redemption Event (the “**Autocall Redemption Date**”) the Debt Securities will be redeemed for an amount equal to the Principal Amount thereof (the “**Autocall Redemption Amount**”).

If an Autocall Redemption Event occurs, in addition to the Autocall Redemption Amount, an interest payment (the “**Interest Payment**”) on the Debt Securities will be payable on the next succeeding Autocall Redemption Date, in arrears, as follows:

- (a) if an Autocall Redemption Event occurs on the first Observation Date, the Interest Payment payable per Debt Security will be equal to the sum of (i) \$15.00 and (ii) if the Index Return (defined below) exceeds \$15.00,  $5.00\% \times (\text{Index Return} - \$15.00)$ ;
- (b) if an Autocall Redemption Event occurs on the second Observation Date, the Interest Payment payable per Debt Security will be equal to the sum of (i) \$30.00 and (ii) if the Index Return exceeds \$30.00,  $5.00\% \times (\text{Index Return} - \$30.00)$ ;

(c) if an Autocall Redemption Event occurs on the third Observation Date, the Interest Payment payable per Debt Security will be equal to the sum of (i) \$45.00 and (ii) if the Index Return exceeds \$45.00,  $5.00\% \times (\text{Index Return} - \$45.00)$ ;

(d) if an Autocall Redemption Event occurs on the fourth Observation Date, the Interest Payment payable per Debt Security will be equal to the sum of (i) \$60.00 and (ii) if the Index Return exceeds \$60.00,  $5.00\% \times (\text{Index Return} - \$60.00)$ ;

(e) if an Autocall Redemption Event occurs on the fifth Observation Date, the Interest Payment payable per Debt Security will be equal to the sum of (i) \$75.00 and (ii) if the Index Return exceeds \$75.00,  $5.00\% \times (\text{Index Return} - \$75.00)$ ;

(f) if an Autocall Redemption Event occurs on the sixth Observation Date, the Interest Payment payable per Debt Security will be equal to the sum of (i) \$90.00 and (ii) if the Index Return exceeds \$90.00,  $5.00\% \times (\text{Index Return} - \$90.00)$ ; or

(g) if an Autocall Redemption Event occurs on the Final Valuation Date, the Interest Payment payable per Debt Security on the Maturity Date will be equal to the sum of (i) \$105.00 and (ii) if the Index Return exceeds \$105.00,  $5.00\% \times (\text{Index Return} - \$105.00)$ .

If an Autocall Redemption Event does not occur on an Observation Date, no Interest Payment will be payable on the Debt Securities on the next succeeding Autocall Redemption Date.

RBC DS intends to publish whether there has been an Autocall Redemption Event on each Observation Date on its website at [www.rbcnotes.com](http://www.rbcnotes.com).

**Payment at Maturity:**

On the Maturity Date, if an Autocall Redemption Event has not previously occurred, the amount payable (the “**Final Redemption Amount**”) for each \$100.00 Principal Amount per Debt Security will be equal to:

(a) if the Final Index Level is greater than or equal to the Protection Barrier Level, \$100.00; or

(b) if the Final Index Level is less than the Protection Barrier Level, an amount equal to the Index Return, but in any event not less than \$1.00. 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 (being the final Autocall Redemption Date) if an Autocall Redemption Event occurs on the Final Valuation Date, as described above.

**Index Return:**

“**Index Return**” means (i) for the purpose of calculating the Final Redemption Amount,  $\$100.00 \times (X_f / X_i)$  and (ii) for all other purposes,  $((X_f / X_i) - 1) \times \$100.00$ .

where:

“**X<sub>f</sub>**” means the Final Index Level, and

“**X<sub>i</sub>**” means the Initial Index Level.

**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 the Interest Payment payable on the Debt Securities (in the event of an Autocall Redemption Event).

**Issuer Credit Rating:**

Moody’s: Aa1

Standard & Poor’s: AA-

DBRS: AA

The Debt 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 Closing Level, including the Initial Index Level and/or the Final Index Level, and the Final Redemption Amount may be postponed, or the Bank can accelerate determination of the Final Index Level and the Final Redemption Amount and repay the Debt 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 Debt Securities as it

determines to be appropriate, acting in good faith, to account for the economic effect of such event on the Debt 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 Index Linked Securities — Extraordinary Events” in the product supplement.

**Summary of Fees and Expenses:** No sales commission will be payable in connection with this issuance of Debt Securities. The Bank will pay, from the Bank’s own funds, an agency fee to Richardson Wealth Limited in an amount up to 0.15% of the Principal Amount of the Debt Securities issued under this offering for acting as independent agent. The agency fee is indirectly borne by holders of the Debt Securities. There are no fees directly payable by a holder of Debt Securities. See “Description of the Securities — Summary of Fees and Expenses” in the program supplement.

**Eligibility for Investment:** Eligible for RRSPs, RRIFs, RESPs, RDSPs, DPSPs and TFSA’s. 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 Debt 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 Debt Securities is unknown and subject to many variables, including interest rate fluctuations and changes in the Underlying Index levels. You should independently determine, with your own advisors, whether an investment in the Debt Securities is suitable for you having regard to your own investment objectives and expectations.

*Limited Upside Participation by the Debt Securities*

The return on the Debt Securities is limited; even if the Closing Level is less than the Autocall Redemption Level on each of the first six Observation Dates and the Final Index Level is greater than or equal to the Autocall Redemption Level, the maximum return on the Debt Securities would be equal to \$105.00 per Debt Security plus an amount equal to 5.00% of any Index Return in excess of \$105.00. The Debt Securities will only participate in this 5.00% upside performance of the Index in excess of \$105.00.

*Concentration of the Constituent Securities in the Target Index*

The constituent securities in the Target Index are all Canadian utilities company stocks and are therefore all concentrated in one industry sector. This means that the performance of the Debt Securities will be tied entirely to the success of this one industry sector. Canadian utilities companies are subject to risks that are specific to that industry sector and which may therefore result in the performance of the Debt Securities being substantially different, and potentially worse, than other industry sectors or the securities/equity markets generally.

*Uncertain Return Until Final Valuation Date*

The return, if any, on the Debt Securities will be uncertain until the Final Valuation Date, unless the Debt Securities are called for redemption prior to the Final Valuation Date. Whether there is a return on the Debt Securities will depend on the Closing Level on the Observation Dates. No Interest Payment will be made on an Interest Payment Date unless there is an Autocall Redemption Event on the immediately preceding Observation Date. There can be no assurance that the Debt Securities will generate a positive return or that the objectives of the Debt Securities will be achieved. Holders of the Debt Securities may not be repaid the amount they invested in the Debt Securities (other than \$1.00 per Debt Security), depending on the performance of the Underlying Index. Historical levels of the Underlying Index should not be considered as an indication of the future performance of the Underlying Index. 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 Debt 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 Index changes over the term of the Debt Securities, the trading value of the Debt Securities may be adversely affected. In addition, if the Closing Level on an Observation Date is less than the Autocall Redemption Level, you will not receive an Interest Payment on the relevant Interest Payment Date and if there is no early redemption and the Final Index Level is less than the Protection Barrier Level, 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 the Interest Payment or a return of the full Principal Amount of the Debt Securities increases.

#### *The Debt Securities May be Redeemed Prior to the Maturity Date*

The Debt Securities will be automatically redeemed by the Bank on the Autocall Redemption Date if the Closing Level on an Observation Date is greater than or equal to the Autocall Redemption Level. In such event, investors will receive an Autocall Redemption Amount equal to the Principal Amount of the Debt Securities and will also receive the applicable Interest Payment. If the Debt Securities are redeemed by the Bank prior to maturity, investors will not be entitled to receive any future Interest Payment that they may have been entitled to receive if the Debt Securities had not been redeemed by the Bank.

#### *The Underlying Index and Target Index Have Limited Performance Histories*

The Underlying Index and Target Index have limited performance histories. The Underlying Index and Target Index were first launched and published on November 30, 2022 and July 28, 2020, respectively. Accordingly, there is limited trading history for the Underlying Index and Target Index and as such, the Debt Securities may perform in unexpected ways and may involve greater risk than securities linked to one or more indices with a more established record of performance. This may make it more difficult for an investor to make an informed decision with respect to the Debt Securities.

#### *Changes Affecting the Underlying Index or the Target Index Could Impact the Debt Securities*

The policies of the Index Sponsor in respect of the Underlying Index, the Target Index and their calculations, additions, deletions or substitutions of the constituent securities of the Target Index and the manner in which changes affecting the constituent securities of the Target Index, such as stock dividends, reorganizations or mergers, are reflected, could affect the Closing Level and, therefore, could affect the amounts payable on the Debt Securities, and the price of the Debt Securities prior to maturity.

#### *Return Calculated With Reference to Performance of the Underlying Index*

The return on the Debt Securities is calculated with reference to the performance of the Underlying Index, which is not a price return index and instead aims to track the gross total return performance of the Target Index less the Adjusted Return Factor. Although the Target Index is a gross total return index that reflects the applicable performance of the constituent securities of the Target Index and any dividends and distributions paid in respect of such securities, without deduction of any withholding tax or other amounts to which an investor holding the constituent securities of the Target Index would typically be exposed, an investment in the Debt Securities is not the same as making a direct investment in the constituent securities of the Target Index, including the fact that an investor will not have the right to receive any dividends, distributions or other income or amounts accruing or paid on such securities, nor will an investor have the right to exercise any voting rights on such securities. In addition, the Adjusted Return Factor is not representative of an estimate or a forecast of any dividends that may be paid or payable, or of any distributions that may be made, now or in the future on the constituent securities of the Target Index.

#### *Returns on the Underlying Index Are Reduced by the Adjusted Return Factor and will be Lower than Returns on the Target Index*

Since the Closing Level is based on the application of the Adjusted Return Factor to daily changes in the closing level of the Target Index, the performance of the Underlying Index will be less than that of the Target Index or a direct investment in the constituent securities of the Target Index. Furthermore, the difference between the Underlying Index and the Target Index over a longer period is subject to the effects of compounding returns and, as a result, may be greater or less than the Adjusted Return Factor pro-rated over the same period.

*The Adjusted Return Factor is a Fixed Point Deduction*

The Adjusted Return Factor is a fixed point deduction which means that the Underlying Index is based on the daily gross total return performance of the Target Index less a fixed number of points. The Adjusted Return Factor does not vary with the level of the Target Index and, as a result, the Adjusted Return Factor will result in the subtraction of a greater percentage of the level of the Target Index in circumstances where the level of the Target Index decreases over time.

*Dividends and Distributions of the Constituent Securities of the Target Index May Vary When Compared to Historical Levels*

The Underlying Index is not a price return index and instead aims to track the gross total return performance of the Target Index less the Adjusted Return Factor, which represents a reduction for a synthetic dividend of 160 index points per annum calculated daily in arrears. The level of the Target Index and, in turn, the Closing Level, may be affected by the ability of issuers comprising the Target Index to declare and pay dividends or make distributions in respect of the equity securities of the issuers comprising the Target Index. Historical levels of dividends and distributions paid in respect of the constituent securities comprising the Target Index are not indicative of future payments, which payments are uncertain and depend upon various factors, including, without limitation, the financial position, earnings ratio and cash requirements of the applicable issuer and the state of financial markets in general. It is not possible to predict if dividends or distributions paid in respect of the constituent securities comprising the Target Index will increase, decrease or remain the same over the term of the Debt Securities. If the dividends paid out by the constituent securities comprising the Target Index over a period of time decrease below the synthetic dividends represented by the Adjusted Return Factor (taking into account the reinvestment and compounding impacts), the Closing Level at the end of such period will be lower than the closing level of a price return index comprised of the same constituent securities at the end of such period.

*The Initial Estimated Value of the Debt Securities Is Less than the Price to the Public and May not Reflect the Secondary Market Price, if any, of the Debt 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 Debt Securities in any secondary market (if any exists) at any time. If you attempt to sell the Debt 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 level of the Underlying Index and the inclusion in the price to the public of the agency fee, as well as an amount retained by the Bank to compensate it for the creation, issuance and maintenance of the Debt 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 Debt Securities, could reduce the price at which you may be able to sell the Debt Securities in any secondary market and will affect the value of the Debt 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 Debt Securities prior to maturity may be less than your original purchase price. The Debt Securities are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your Debt Securities to maturity.

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

The initial estimated value of the Debt Securities is based on the value of the Bank's obligation to make the payments on the Debt Securities. The return on the Debt 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 Debt Securities is equal to the fair value of the Debt 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 Debt 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 Debt Securities or similar securities at a price that is significantly different than the Bank does. The value of the Debt 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 Debt Securities in the secondary market, if any, should be expected to differ materially from the initial estimated value of the Debt Securities.

**Preparation of Initial Estimated Value:**

The Debt Securities are debt securities of the Bank, the return on which is linked to the performance of the Underlying Index. In order to satisfy the Bank's payment obligations under the Debt 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 Index, and the term to maturity and any earlier call date of the Debt Securities.

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

The Bank has adopted written policies and procedures for determining the fair value of Debt 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 Debt 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 Debt Securities. The Debt Securities may be suitable for:

- investors seeking an investment product with exposure to the common shares of the Canadian utilities companies comprising the Target Index
- investors who believe that the Closing Level will be greater than or equal to the Autocall Redemption Level on an Observation Date
- investors who believe that the Final Index Level will not be below the Protection Barrier Level
- 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 performance of the Underlying Index, which is not a price return index and instead aims to track the gross total return performance of the Target Index less the

Adjusted Return Factor, and who are prepared to assume the risks associated with an investment linked to the performance of the Underlying Index

- investors with an investment horizon equal to the term to maturity of the Debt Securities who are prepared to hold the Debt Securities until maturity, but who are willing to assume the risk that the Debt Securities will be redeemed prior to the Maturity Date if the Closing Level is greater than or equal to the Autocall Redemption Level on one of the first six Observation Dates
- investors who are prepared to take the risk that the Interest Payment will not be paid on the Debt Securities
- investors who understand that the potential return on the Debt Securities is limited; the maximum return on the Debt Securities is equal to \$105.00 per Debt Security plus an amount equal to 5.00% of any Index Return in excess of \$105.00

**Book-entry Only Securities:** The Debt Securities will be Fundserv Securities (defined in the program supplement) and will be issued through the “book-entry-only system”. See “Description of the Securities – Global Securities” and “– Legal Ownership” in the program supplement. If the Debt Securities are issued in fully registered and certificated form in the circumstances described in the program supplement under “Description of the Securities – Legal Ownership – Book-Entry-Only Fundserv Securities”, the Autocall Redemption Amount and the Interest Payment (in the event of an Autocall Redemption Event) will be paid by the Bank to the registered holder.

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

**Secondary Market:** Debt Securities may be purchased through dealers and other firms that facilitate purchase and related settlement using the Fundserv network. Debt Securities may be resold using the Fundserv network at a sale price equal to the price posted on Fundserv as of the close of business on the Exchange Day on which the order is placed, as determined by and posted to Fundserv by the Calculation Agent, which sale price may be lower than the Principal Amount of such Debt Securities. Generally, to be effective on a Business Day (defined in the program supplement), a redemption request will need to be initiated by 2:00 p.m. (Toronto time) on that Business Day (or such other time as may be established by Fundserv). Any request received after such time will be deemed to be a request sent and received on the next following Business Day.

See “Risk Factors – The Initial Estimated Value of the Debt Securities Is Less than the Price to the Public and May not Reflect the Secondary Market Price, if any, of the Debt Securities” above and “Secondary Market for Securities – Fundserv” in the program supplement.

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

**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 Debt Securities who acquires Debt 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 Debt Securities as capital property is referred to herein as a “**Resident Holder**”. A Resident Holder will be required to include in income, on a transfer of a Debt Security (other than to the Bank), the excess, if any, of the price for which it was so transferred by the Resident Holder over its principal amount at the time of the transfer. Furthermore, a Resident Holder will be required to include in computing income any Interest Payment

received or receivable on the Debt Securities. If, on maturity or other disposition (including on early redemption or repayment in full by the Bank), such a Resident Holder receives an amount that is less than the adjusted cost base of the Debt Securities, such holder will realize a capital loss equal to the shortfall. See “Certain Canadian Tax Considerations” in Appendix C. **Potential purchasers of Debt Securities should consult with their own tax advisors having regard to their particular circumstances.**

## APPENDIX A

### Summary Information Regarding the Underlying Index

#### The Solactive Canada Utilities 160 AR Index

The following is a summary description of the Solactive Canada Utilities 160 AR Index based on information obtained from the Index Sponsor's website at [www.solactive.com](http://www.solactive.com). The Solactive Canada Utilities 160 AR Index is owned, calculated, administered and published by the Index Sponsor, Solactive AG, assuming the role as administrator under the Regulation (EU) 2016/1011.

<b>Underlying Index</b>	Solactive Canada Utilities 160 AR Index
<b>Target Index</b>	Solactive Canada Utilities Index TR
<b>Adjusted Return Factor</b>	160 index points per annum (see below)
<b>Number of Constituents comprising Target Index</b>	14
<b>Country</b>	Canada
<b>Index Sponsor</b>	Solactive AG
<b>Closing Level (February 2, 2023)</b>	3,430.78

#### Public Information

Information contained in this pricing supplement with respect to the Underlying Index, the Target Index and the constituent securities in the Target Index was obtained from a number of public sources that the Bank believes to be reliable. Information relating to the Underlying Index and the Target Index can be obtained from the website maintained by the Index Sponsor, [www.solactive.com](http://www.solactive.com), as well as other publicly available sources. The Bank and the Dealers, as well as their respective affiliates and associates, have not independently verified the accuracy or completeness of any such information, including the calculation, maintenance or publication of the Underlying Index or the Target Index.

The Solactive Canada Utilities 160 AR Index was first launched and published on November 30, 2022. The Solactive Canada Utilities Index TR was first launched on July 28, 2020. Additional information with respect to the Underlying Index and the Target Index can be found at [www.solactive.com/indices](http://www.solactive.com/indices).

#### The Underlying Index

The Solactive Canada Utilities 160 AR Index is an adjusted return index that aims to track the gross total return performance of the Target Index, subject to a reduction of a synthetic dividend of 160 index points per annum calculated daily in arrears. **For the avoidance of doubt, the return on the Debt Securities is linked to the Underlying Index and is not linked to the Target Index.** The Closing Level on February 2, 2023 was 3,430.78. The Adjusted Return Factor divided by the Closing Level was therefore equal to 4.6637% on February 2, 2023. If an Autocall Redemption Event does not occur, over the term of the Debt Securities the sum of the Adjusted Return Factor will be approximately 1120 index points, representing 32.6456% of the Closing Level on February 2, 2023.

The performance of the Underlying Index will vary higher or lower from the performance of a price return index with the same constituents and weights as the Target Index over the term of the Debt Securities depending on whether the impact of the dividends and other distributions reinvested in the Target Index is greater or less than the impact the Adjusted Return Factor has on the Closing Level over the term of the Debt Securities. An investment in the Debt Securities does not represent a direct or indirect investment in any of the constituent securities that comprise the Target Index. Holders of the Debt Securities have no right or entitlement to the dividends or distributions paid on such constituent securities.

#### The Target Index

The Solactive Canada Utilities Index TR is a gross total return index that reflects the price changes of its constituent securities and the reinvestment in the index of any dividends and distributions paid in respect of such securities. For the calculation of the level of the Target Index, any dividends or other distributions paid on the constituent securities of the Target Index are assumed to be reinvested across all of the constituent securities of the Target Index. As of February 2, 2023, the annual dividend yield on the Target Index was 4.286%, representing an aggregate dividend yield of approximately 34.146% compounded annually over the term of the Debt Securities, on the assumption that the dividend yield remains constant. The Target Index is adjusted quarterly, ordinarily in March, June, September and December, and is also subject to extraordinary adjustments in compliance with the rules of the Index Sponsor. For further details regarding these adjustments and the methodology for the Target Index, refer to the Index Sponsor's website at [www.solactive.com](http://www.solactive.com).

The Target Index is a weighted free-float market capitalization index and, on each adjustment, the weighting of the constituents of the Target Index is subject to the weight constraints that the weight of a constituent does not exceed 25%. The methodology for the Target Index provides that the constituent securities fulfill all of the following criteria: (i) part of the Solactive Canada Broad Market Index (PR); and (ii) assigned to the Economy "Utilities" as defined by the Standard FactSet Classification.

**Constituents of the Target Index**

The following table shows, as of February 2, 2023, the top 10 constituent securities included in the Target Index and their respective weightings:

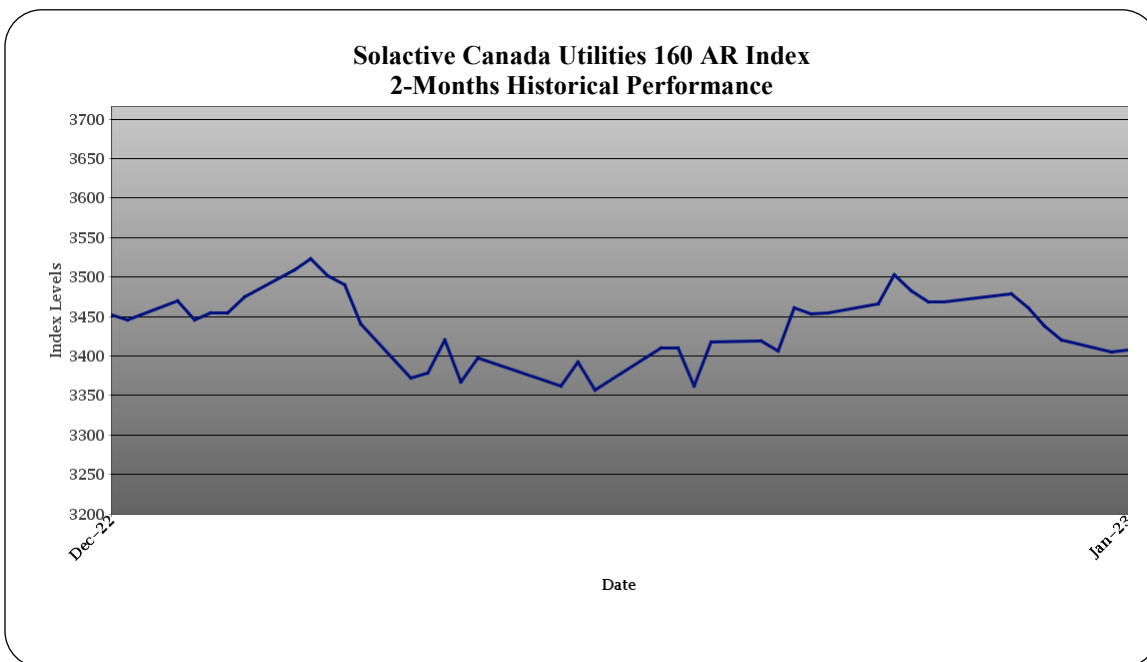
Constituent	Weighting
Fortis Inc.	24.57%
Emera Incorporated	13.43%
Hydro One Limited	10.53%
Northland Power Inc.	8.19%
Canadian Utilities Limited	6.73%
AltaGas Ltd.	6.39%
Algonquin Power & Utilities Corp.	6.20%
Brookfield Infrastructure Corporation	6.02%
Capital Power Corporation	4.75%
Boralex Inc.	3.68%

Source: Solactive AG, [www.solactive.com](http://www.solactive.com).

There can be no guarantee that the constituents of the Target Index or any component thereof will maintain their current level of capitalization or continue to operate their business with emphasis on the areas indicated. Historical performance is representative of historical performance only and is not indicative of, or a representation of, future performance.

**Historical Performance**

The following chart sets forth the historical level of the Solactive Canada Utilities 160 AR Index for the period from December 1, 2022 to January 31, 2023. The historical performance of the Solactive Canada Utilities 160 AR Index tracks the gross total return performance of the Target Index, subject to a reduction of a synthetic dividend of 160 index points per annum calculated daily in arrears.



**Historical performance of the Solactive Canada Utilities 160 AR Index will not necessarily predict future performance of the Solactive Canada Utilities 160 AR Index or the Debt Securities.** The source of the data displayed in this chart is Bloomberg L.P. and its accuracy cannot be guaranteed.

<b>Historical monthly percentage change of the Solactive Canada Utilities 160 AR Index</b>		
Month	December 2022	January 2023
Percentage change (%)	-2.75	1.50

Source: Bloomberg L.P.: Measures monthly period as of the last trading day of the previous month.

### **License Agreement and Disclaimer**

All information contained in this pricing supplement regarding the Underlying Index and the Target Index, including, without limitation, the make-up, performance, method of calculation and changes in their constituents, has been derived from publicly available sources without independent verification. Such information reflects the policies of and is subject to change by the Index Sponsor. The Bank makes no representation or warranty as to the accuracy or completeness of such information. The Index Sponsor independently calculates, maintains and publishes the Underlying Index and Target Index. The Index Sponsor has no obligation to continue to publish, and may discontinue publication of, the Underlying Index or the Target Index. The Index Sponsor has no obligation relating to the Debt Securities or amounts to be paid to an investor, including any obligation to take the needs of the Bank, the Dealers or the beneficial owners of the Debt Securities into consideration for any reason. The Index Sponsor will not receive any of the proceeds of the offering of the Debt Securities, is not responsible for and has not participated in, the offering of the Debt Securities nor is it responsible for, nor will it participate in, the determination or calculation of the amount receivable by beneficial owners of the Debt Securities. The Index Sponsor makes no representation or warranty, express or implied, regarding the advisability of investing in securities generally or the Debt Securities in particular. Neither the Index Sponsor nor any of its affiliates are involved in the operation or distribution of the Debt Securities and neither the Index Sponsor nor its affiliates shall have any liability for operation or distribution of the Debt Securities or the failure of the Debt Securities to achieve their investment objective.

The Index Sponsor is not related to the Bank or the Dealers. The Index Sponsor and the Bank have entered into a license agreement providing the Bank, in exchange for a fee, with the right to use the Underlying Index in connection with the Debt Securities. The Index Sponsor does not guarantee the accuracy or completeness of the Underlying Index or the Target Index, any data included therein, or any data from which it is derived, and the Index Sponsor has no liability for any errors, omissions, or interruptions therein. The Index Sponsor does not make any warranty, express or implied, as to results to be obtained from use of information provided by the Index Sponsor in respect of the Underlying Index or the Target Index and the Index Sponsor expressly disclaims all warranties of suitability with respect thereto.

The Underlying Index and the Target Index are calculated by the Index Sponsor. The Debt Securities are not sponsored, promoted, sold or supported in any other manner by the Index Sponsor nor does the Index Sponsor offer any express or implicit guarantee or assurance either with regard to the results of using the Underlying Index and/or Underlying Index trade mark or the Closing Level at any time or in any other respect. The Underlying Index and the Target Index are calculated and published by the Index Sponsor. The Index Sponsor uses its best efforts to ensure that the Underlying Index and the Target Index are calculated correctly. Irrespective of its obligations towards the Bank, the Index Sponsor has no obligation to point out errors in the Underlying Index or the Target Index to third parties including but not limited to investors and/or financial intermediaries of the Debt Securities. Neither publication of the Underlying Index or the Target Index by the Index Sponsor nor the use of the Underlying Index or the Underlying Index trade marks for the purpose of use in connection with the Debt Securities constitutes a recommendation by the Index Sponsor to invest capital in the Debt Securities nor does it in any way represent an assurance or opinion of the Index Sponsor with regard to any investment in the Debt Securities.

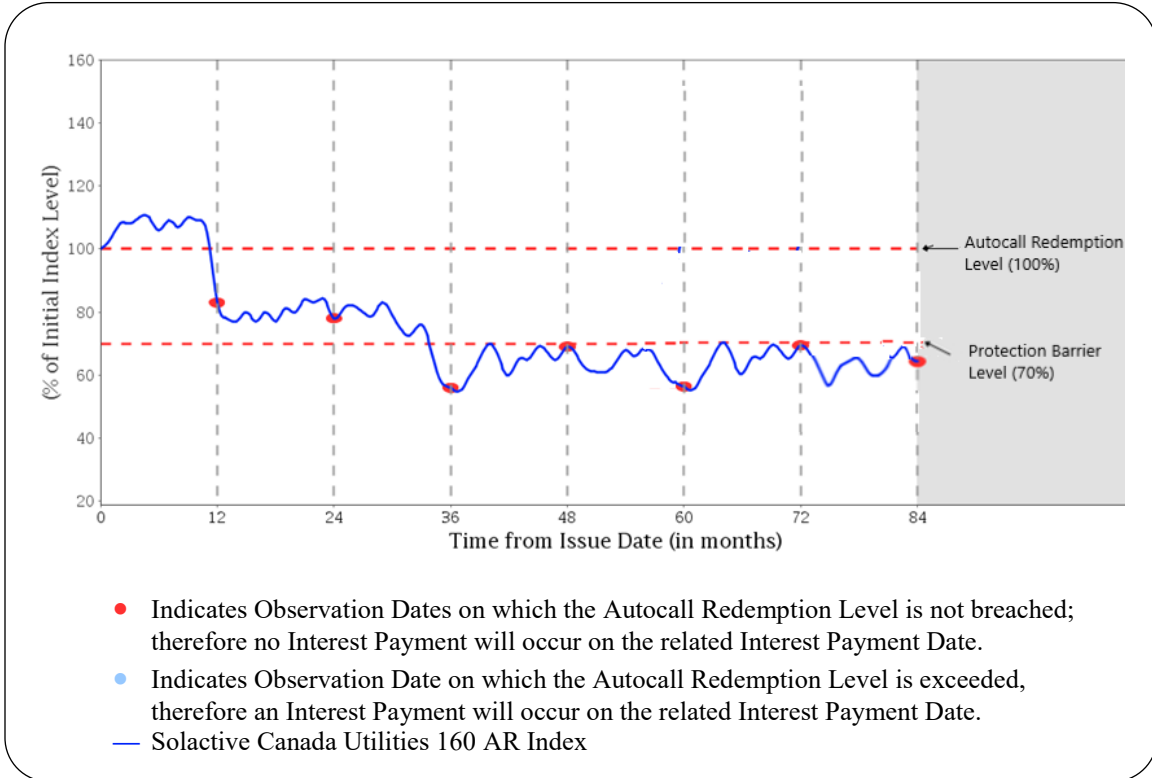
The name “Solactive” is a registered trademark of the Index Sponsor. The Index Sponsor is registered with and regulated by the German Federal Financial Supervisory Authority.

## APPENDIX B

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

The examples set out below are included for illustration purposes only. The performance of the Underlying Index used to illustrate the calculation of the Final Redemption Amount or Autocall Redemption Amount and the Interest Payment over the term of the Debt Securities is not an estimate or forecast of the performance of the Underlying Index or the Debt Securities. All examples assume that a holder of the Debt Securities has purchased Debt Securities with an aggregate principal amount of \$100.00 and that no Extraordinary Event has occurred. All examples assume an Autocall Redemption Level of 100.00% of the Initial Index Level and a Protection Barrier Level of 70.00% of the Initial Index Level. 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



In this scenario, there is no Observation Date on which the Closing Level is greater than or equal to the Autocall Redemption Level and, accordingly, the Debt Securities would not be redeemed. On the Final Valuation Date, the Final Index Level is below the Protection Barrier Level.

#### (i) Interest Payment

In this example, no Autocall Redemption Event would occur because the Closing Level at each Observation Date is below the Autocall Redemption Level. Therefore, an Interest Payment would not be payable on any Interest Payment Date.

#### (ii) Final Redemption Amount

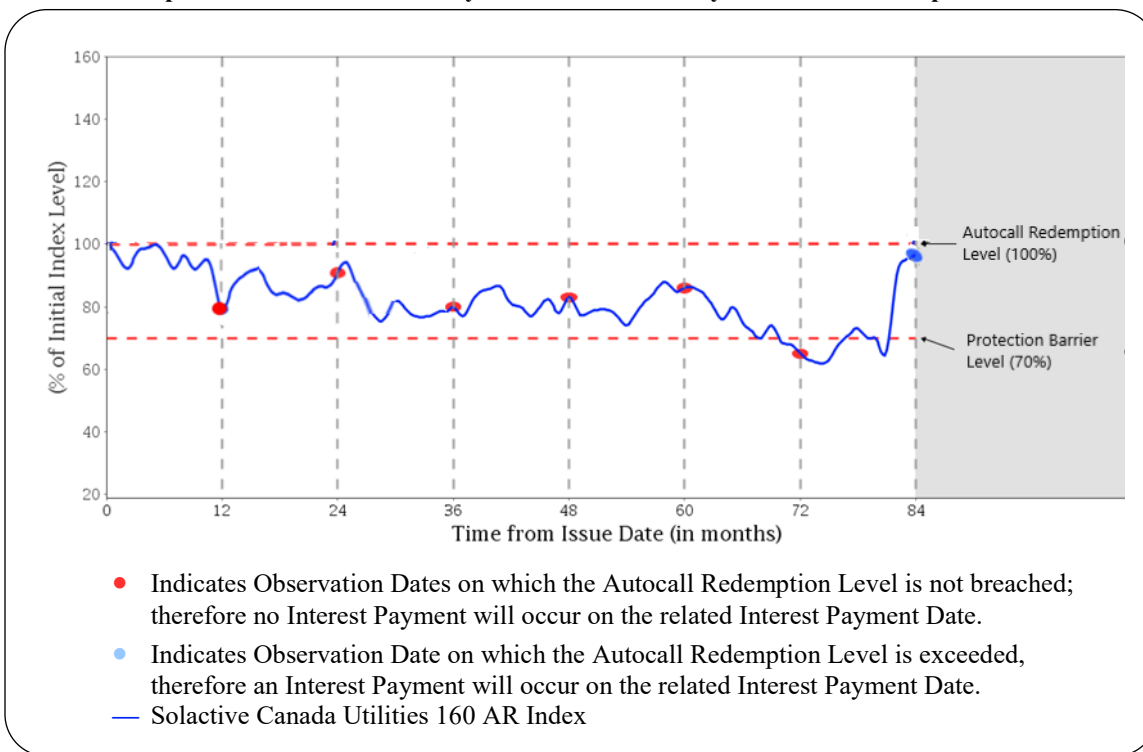
In this example, the Initial Index Level ( $X_i$ ) is 3,430.78 and the Final Index Level ( $X_f$ ) is 2,298.63. Therefore, the Final Redemption Amount is as follows:

$$\begin{aligned} & \$100.00 \times (X_f / X_i) \\ & \$100.00 \times (2,298.63 / 3,430.78) = \$67.00 \end{aligned}$$

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

- (a) Interest Payment: \$0.00
  - (b) Final Redemption Amount: \$67.00
  - (c) Total amount paid over the term of the Debt Securities: \$67.00
- The equivalent annually compounded rate of return in this example is -5.56%.

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



In this scenario, there is no Observation Date on which the Closing Level is greater than or equal to the Autocall Redemption Level and, accordingly, the Debt Securities would not be redeemed. On the Final Valuation Date, the Final Index Level is greater than or equal to the Protection Barrier Level but is below the Autocall Redemption Level.

**(i) Interest Payment**

In this example, no Autocall Redemption Event would occur because the Closing Level at each Observation Date is below the Autocall Redemption Level. Therefore, an Interest Payment would not be payable on any Interest Payment Date.

**(ii) Final Redemption Amount**

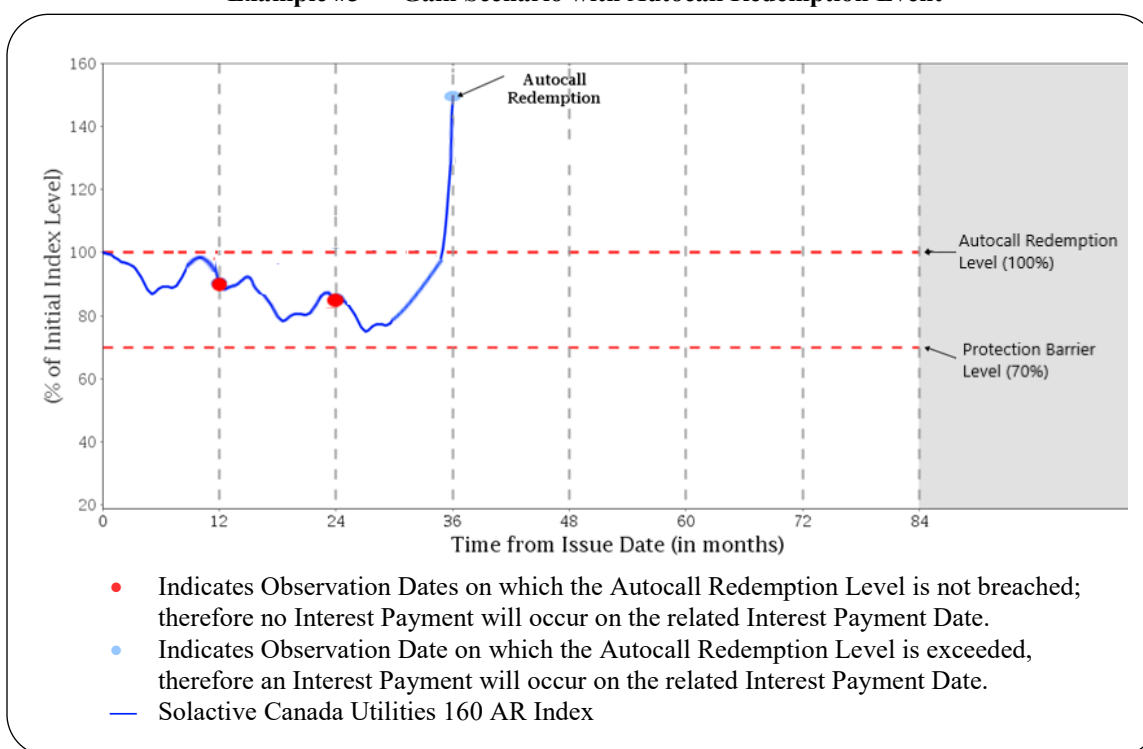
In this example, the Final Index Level is greater than or equal to the Protection Barrier Level. Therefore, the Final Redemption Amount is \$100.00.

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

- (a) Interest Payment: \$0.00
- (b) Final Redemption Amount: \$100.00
- (c) Total amount paid over the term of the Debt Securities: \$100.00

The equivalent annually compounded rate of return in this example is 0.00%.

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



In this scenario, the Closing Level is greater than or equal to the Autocall Redemption Level on the Observation Date that falls 36 months into the term of the Debt Securities. This would constitute an Autocall Redemption Event and an Interest Payment would be payable on the third Interest Payment Date.

#### (i) Interest Payment

In this example, the Initial Index Level ( $X_i$ ) is 3,430.78 and the Final Index Level ( $X_f$ ) is 5,146.17; therefore, there is an Autocall Redemption Event on the third Observation Date. On the first and second Observation Dates, no Autocall Redemption Event would occur because the Closing Level at each such Observation Date is below the Autocall Redemption Level. Therefore, the Interest Payment payable on the Autocall Redemption Date would be calculated as follows:

The Index Return is calculated as follows:

$$\begin{aligned} & ((X_f / X_i) - 1) \times \$100.00 \\ & ((5,146.17 / 3,430.78) - 1) \times \$100.00 = \$50.00 \end{aligned}$$

Since the Index Return is greater than \$45.00, the Interest Payment is:

$$\begin{aligned} & \$45.00 + [5.00\% \times (\text{Index Return} - \$45.00)] \\ & \$45.00 + [5.00\% \times (\$50.00 - \$45.00)] = \$45.25 \end{aligned}$$

#### (ii) Autocall Redemption Amount

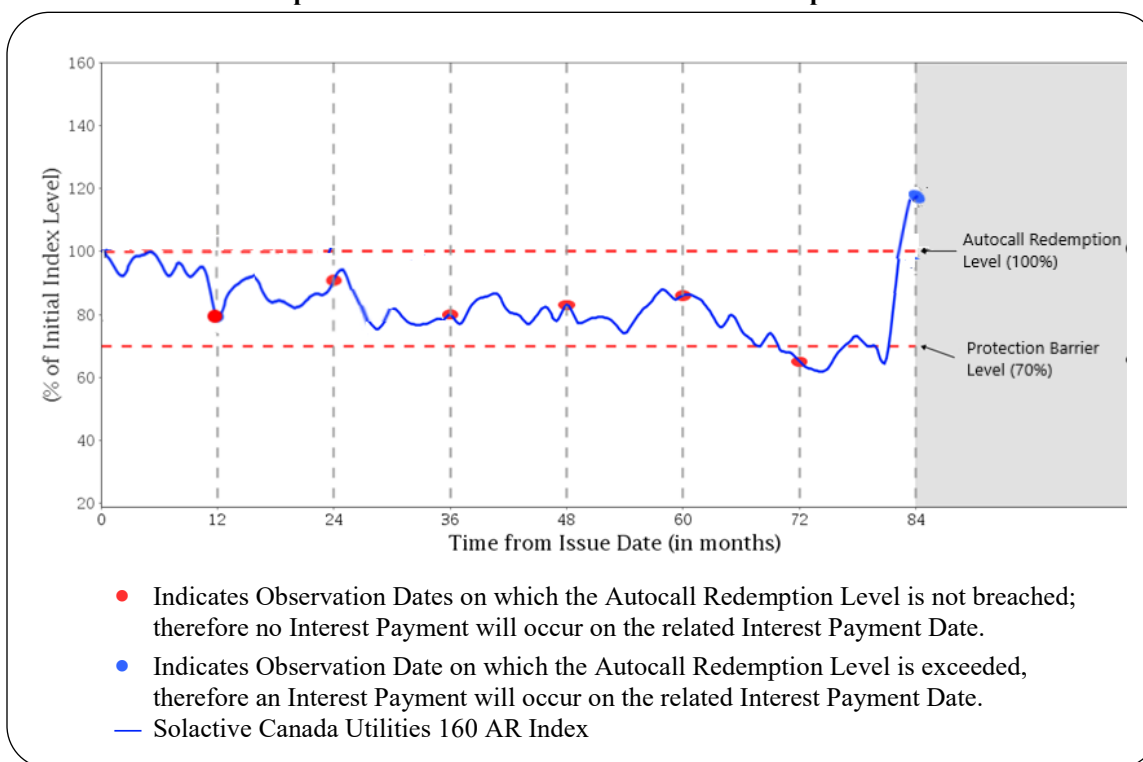
The Autocall Redemption Amount per Debt Security is equal to \$100.00.

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

- (a) Interest Payment: \$45.25
- (b) Autocall Redemption Amount: \$100.00
- (c) Total amount paid over the term of the Debt Securities: \$145.25

The equivalent annually compounded rate of return in this example is 13.25%.

#### Example #4 — Gain Scenario with Autocall Redemption Event



In this scenario, the Closing Level is greater than or equal to the Autocall Redemption Level on the final Observation Date. This would constitute an Autocall Redemption Event and an Interest Payment would be payable on the Maturity Date (being the final Interest Payment Date).

##### (i) Interest Payment

In this example, the Initial Index Level ( $X_i$ ) is 3,430.78 and the Final Index Level ( $X_f$ ) is 4,116.94; therefore, there is an Autocall Redemption Event on the Final Valuation Date (being the final Observation Date). On the first through sixth Observation Dates, no Autocall Redemption Event would occur because the Closing Level at each such Observation Date is below the Autocall Redemption Level. Therefore, the Interest Payment payable on the Maturity Date (being the final Interest Payment Date) would be calculated as follows:

The Index Return is calculated as follows:

$$\begin{aligned} & ((X_f / X_i) - 1) \times \$100.00 \\ & ((4,116.94 / 3,430.78) - 1) \times \$100.00 = \$20.00 \end{aligned}$$

Since the Index Return is less than \$105.00, the Interest Payment is \$105.00.

##### (ii) Autocall Redemption Amount

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

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

- (a) Interest Payment: \$105.00
- (b) Autocall Redemption Amount: \$100.00
- (c) Total amount paid over the term of the Debt Securities: \$205.00

The equivalent annually compounded rate of return in this example is 10.80%.

**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 Debt 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 Debt 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 Debt Securities and that the Debt 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 Debt 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 Debt Securities as capital property (a "**Resident Holder**"). Certain Resident Holders who might not otherwise be considered to hold their Debt Securities as capital property may, in certain circumstances, have their Debt Securities, and all other "Canadian securities" (as defined in the Tax Act) owned by such Resident Holders in the taxation year and each subsequent taxation year, treated as capital property as a result of having made the irrevocable election permitted by subsection 39(4) of the Tax Act.

*Holding Debt Securities*

The amount of any Interest Payment 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.

In certain circumstances, provisions of the Tax Act require a holder of a "prescribed debt obligation" (as defined for the purposes of the Tax Act) to include in income for each taxation year the amount of any interest, bonus or premium receivable on the obligation over its term based on the maximum amount of interest, bonus or premium receivable on the obligation. While the Debt Securities will generally be considered to be prescribed debt obligations to a Resident Holder, based on counsel's understanding of the CRA's current administrative practice, there should be no deemed accrual of interest on a prescribed debt obligation until such time as the return thereon becomes determinable. Counsel has been advised that the Bank anticipates that throughout each taxation year ending before an Autocall Redemption Date including the Maturity Date, the return on the Debt Securities generally will not be determinable. Where this is the case, on the basis of such understanding of the CRA's administrative practice there should be no deemed accrual of interest on the Debt Securities for taxation years (being calendar years) of a Resident Holder ending prior to an Autocall Redemption Date including the Maturity Date (or, if applicable, the date of their earlier repayment in full), except as described below under "Disposition of Debt Securities" where a Debt Security is transferred before any such date.

*Disposition of Debt Securities*

Where a Resident Holder disposes of a Debt Security (other than to the Bank on an Autocall Redemption Date including the Maturity Date or earlier redemption or repayment in full), the Tax Act requires the amount of interest, if any, accrued on the Debt Security that is unpaid at that time to be included in computing the income of the Resident Holder for the taxation year in which the disposition occurs (except to the extent such amount has otherwise been included in computing the income of the Resident Holder for that year or a preceding year), and excludes such amount from the proceeds of disposition. On an assignment or other transfer of a Debt Security by a Resident Holder (other than to the Bank on an Autocall Redemption Date including the Maturity Date or an earlier redemption or repayment in full), a formula amount will be deemed to have accrued on the Debt Security up to the time of the transfer, so that such amount will be required to be included in the income of the

Resident Holder for the taxation year of the Resident Holder in which the transfer occurs. Such formula amount equals the excess, if any, of the price for which it is so transferred over its outstanding principal amount at the time of the transfer.

The Resident Holder should realize a capital loss to the extent that the proceeds of disposition, net of amounts included in income as interest (including any formula amount as described above) and any reasonable costs of disposition are less than the Resident Holder's adjusted cost base of the Debt Securities (which generally should be equal to the cost of the Debt Securities to the Resident Holder). As described above, any gain realized from the disposition of Debt Securities will be included in income and will not give rise to a capital gain. Resident Holders who dispose of Debt Securities prior to an Autocall Redemption Date including the Maturity Date (or earlier redemption or repayment in full by the Bank) should consult their own tax advisors with respect to their particular circumstances.

#### *Payment at Maturity or Early Repayment*

A Resident Holder who holds the Debt Securities until maturity and who receives repayment proceeds that are less than the Principal Amount of the Debt 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 Debt Securities. The income tax considerations associated with the realization of a capital loss are described below.

#### *Treatment of Losses*

One-half of any capital loss realized by a Resident Holder will constitute an allowable capital loss that is deductible against taxable capital gains of the Resident Holder, subject to and in accordance with the provisions of the Tax Act.

#### **Holders 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, is not a "specified shareholder" of the Bank or 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 Debt 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 Debt Securities (including any amount paid at maturity or early repayment in full in excess of the principal amount and interest deemed to be paid in certain cases involving the assignment or other transfer of a Debt Security to a resident or deemed resident of Canada, likely including any formula amount referred to above) 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 Debt Securities and, in particular, that the Target Index is computed, in part by reference to dividends on its constituent securities, interest paid or credited or deemed to be paid or credited on the Debt Securities may be considered to be Participating Debt Interest, although there is uncertainty on this question. Accordingly, the Bank expects that Canadian non-resident withholding tax will be withheld and remitted at the rate of 25% of the gross amount of any interest paid to a Non Resident Holder (although the rate of this withholding tax may ultimately be reduced pursuant to the terms of an applicable income tax treaty or convention between Canada and the country of residence of the Non-Resident Holder). **Non-Resident Holders should consult with their own tax advisors before acquiring Debt Securities.**

#### **Eligibility for Investment**

The Debt 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 ("**TFSAs**"), 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 Debt 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. Debt 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.