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Pricing Supplement

Dated January 26, 2023

To the Prospectus and Prospectus Supplement, Each Dated September 14, 2021, and the Product Prospectus Supplement ERN-ETF-1 dated March 3, 2022

Buffered Enhanced Return Notes
 Each Linked to a Different Exchange Traded Fund,
 Due February 29, 2024
 Royal Bank of Canada

Royal Bank of Canada is offering two different Buffered Enhanced Return Notes (the “Notes”). Each of the Notes is linked to the performance of a different exchange traded fund (each, a “Reference Asset”). You may participate in one or both of the offerings. The performance of each of the Notes will not depend upon the performance of the other issuance of the Notes.

Reference Asset and Symbol	CUSIP	Initial Price	Buffer Price*	Maximum Redemption Amount	Initial Estimated Value (per \$1,000 in principal amount)
Energy Select Sector SPDR® Fund (“XLE”)	78016HKU3	\$93.11	\$83.80, which is 90% of the Initial Price	125%	\$989.50
Consumer Discretionary Select Sector SPDR® Fund (“XLY”)	78016HKW9	\$144.61	\$130.15, which is 90% of the Initial Price	117%	\$986.38

*Rounded to two decimal places.

- Each of the Notes provides a 200% leveraged positive return if the Final Price of the applicable Reference Asset is greater than its Initial Price, up to the applicable Maximum Redemption Amount per \$1,000 in principal amount.
- If the Final Price of the applicable Reference Asset is less than or equal to its Initial Price, but greater than or equal to its Buffer Price, the Notes will pay the principal amount at maturity.
- If the Final Price of the applicable Reference Asset is less than its Buffer Price, investors will lose 1% of the principal amount of the applicable Notes for each 1% that the applicable Final Price has decreased by more than 10% from its Initial Price.
- Any payments on the Notes are subject to our credit risk.
- The Notes do not pay interest.
- The Notes will not be listed on any securities exchange.

Issue Date: January 31, 2023

Maturity Date: February 29, 2024

Investing in the Notes involves a number of risks. See “Selected Risk Considerations” beginning on page P-7 of this pricing supplement, “Additional Risk Factors Specific to the Notes” beginning on page PS-6 of the product prospectus supplement dated March 3, 2022, and “Risk Factors” beginning on page S-2 of the prospectus supplement dated September 14, 2021.

The Notes will not constitute deposits insured by the Canada Deposit Insurance Corporation, the U.S. Federal Deposit Insurance Corporation or any other Canadian or U.S. government agency or instrumentality. The Notes are not subject to conversion into our common shares under subsection 39.2(2.3) of the Canada Deposit Insurance Corporation Act.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the Notes or determined that this pricing supplement is truthful or complete. Any representation to the contrary is a criminal offense.

	Per XLE Note	Total	Per XLY Note	Total
Price to public ⁽¹⁾	100.00%	\$290,000	100.00%	\$255,000
Underwriting discounts and commissions ⁽¹⁾	1.50%	\$4,350	1.50%	\$3,825
Proceeds to Royal Bank of Canada	98.50%	\$285,650	98.50%	\$251,175

⁽¹⁾ We or one of our affiliates may pay varying selling concessions of up to \$15.00 per \$1,000 in principal amount of each of the Notes in connection with the distribution of the Notes to other registered broker dealers. See “Supplemental Plan of Distribution (Conflicts of Interest)” below. Certain dealers who purchase the Notes for sale to certain fee-based advisory accounts may forego some or all of their underwriting discount or selling concessions. The public offering price for investors purchasing the Notes in these accounts may be between \$985 and \$1,000 per \$1,000 in principal amount.

The initial estimated value of each of the Notes as of the Trade Date was the amount set forth in the table above for each \$1,000 in principal amount of the applicable Notes, which is less than the price to public. The actual value of each of the Notes 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.

Buffered Enhanced Return Notes

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SUMMARY

The information in this "Summary" section is qualified by the more detailed information set forth in this pricing supplement, the product prospectus supplement, the prospectus supplement, and the prospectus.

Issuer:	Royal Bank of Canada ("Royal Bank")
Underwriter:	RBC Capital Markets, LLC ("RBCCM")
Reference Assets:	As set forth on the cover page.
Minimum Investment:	\$1,000 and minimum denominations of \$1,000 in excess thereof
Trade Date (Pricing Date):	January 26, 2023
Issue Date:	January 31, 2023
Valuation Date:	February 26, 2024
Maturity Date:	February 29, 2024, subject to extension for market and other disruptions, as described in the product prospectus supplement dated March 3, 2022.
Payment at Maturity (if held to maturity):	<p>If the Final Price of the applicable Reference Asset is <i>greater than</i> its Initial Price (that is, the Percentage Change is positive), then the investor will receive an amount per \$1,000 principal amount per Note equal to the <i>lesser of</i>:</p> <ol style="list-style-type: none">Principal Amount + [Principal Amount x (Percentage Change x Leverage Factor)] andthe Maximum Redemption Amount <p>If the Final Price of the applicable Reference Asset is <i>less than or equal to</i> its Initial Price, but is greater than or equal to its Buffer Price (that is, the Percentage Change is between 0% and -10.00%), then the investor will receive the principal amount only.</p> <p>If the Final Price of the applicable Reference Asset is <i>less than</i> the Buffer Price (that is, the Percentage Change is between -10.01% and -100%), then the investor will receive a cash payment equal to:</p> $\text{Principal Amount} + [\text{Principal Amount} \times (\text{Percentage Change} + \text{Buffer Percentage})]$ <p><i>In this case, you will lose some or a significant portion of the principal amount.</i></p>
Percentage Change:	<p>The Percentage Change for the applicable Reference Asset, expressed as a percentage, is calculated using the following formula:</p> $\frac{\text{Final Price} - \text{Initial Price}}{\text{Initial Price}}$
Initial Price:	The closing price of the applicable Reference Asset on the Trade Date, as set forth on the cover page of this pricing supplement.
Final Price:	The closing price of the applicable Reference Asset on the Valuation Date.
Leverage Factor:	200% (subject to the Maximum Redemption Amount)
Maximum Redemption Amount:	A percentage of the principal amount, as set forth on the cover page of this pricing supplement.
Buffer Percentage:	10%
Buffer Price:	90% of the Initial Price of the applicable Reference Asset, as set forth on the cover page of this pricing supplement.

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Principal at Risk:

The Notes are *NOT* principal protected. You may lose a substantial portion of your principal amount at maturity if the applicable Final Price is less than the Buffer Price of the applicable Reference Asset.

Calculation Agent:

RBCCM

U.S. Tax Treatment:

By purchasing a Note, each holder agrees (in the absence of a change in law, an administrative determination or a judicial ruling to the contrary) to treat the applicable Notes as a pre-paid cash-settled derivative contract for U.S. federal income tax purposes. However, the U.S. federal income tax consequences of your investment in the Notes are uncertain and the Internal Revenue Service could assert that the Notes should be taxed in a manner that is different from that described in the preceding sentence. Please see the section below, "Supplemental Discussion of U.S. Federal Income Tax Consequences," and the discussion (including the opinion of Ashurst LLP, our special U.S. tax counsel) in the product prospectus supplement dated March 3, 2022 under "Supplemental Discussion of U.S. Federal Income Tax Consequences," which apply to the Notes.

Secondary Market:

RBCCM (or one of its affiliates), though not obligated to do so, may maintain a secondary market in each of the Notes after the issue date. **The amount that you may receive upon sale of your Notes prior to maturity may be less than the principal amount of your Notes.**

Listing:

The Notes will not be listed on any securities exchange.

Clearance and
Settlement:

DTC global (including through its indirect participants Euroclear and Clearstream, Luxembourg as described under "Ownership and Book-Entry Issuance" in the prospectus dated September 14, 2021).

Terms Incorporated
in the Master Note:

As to each of the Notes, all of the applicable terms appearing on the cover page and above the item captioned "Secondary Market" on pages P-2 and P-3 of this pricing supplement, and the terms appearing under the captions "General Terms of the Notes" and "Supplemental Discussion of U.S. Federal Income Tax Consequences" in the product prospectus supplement dated March 3, 2022, as modified by this pricing supplement.

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ADDITIONAL TERMS OF YOUR NOTES

You should read this pricing supplement together with the prospectus dated September 14, 2021, as supplemented by the prospectus supplement dated September 14, 2021 and the product prospectus supplement dated March 3, 2022, relating to our Senior Global Medium-Term Notes, Series I, of which each of these Notes are a part. Capitalized terms used but not defined in this pricing supplement will have the meanings given to them in the product prospectus supplement. In the event of any conflict, this pricing supplement will control. ***The Notes vary from the terms described in the product prospectus supplement in several important ways. You should read this pricing supplement carefully.***

This pricing supplement, together with the documents listed below, contains the terms of the Notes and supersedes all prior or contemporaneous oral statements as well as any other written materials including preliminary or indicative pricing terms, correspondence, trade ideas, structures for implementation, sample structures, brochures or other educational materials of ours. You should carefully consider, among other things, the matters set forth in "Risk Factors" in the prospectus supplement dated September 14, 2021 and "Additional Risk Factors Specific to the Notes" in the product prospectus supplement dated March 3, 2022, as the Notes involve risks not associated with conventional debt securities. We urge you to consult your investment, legal, tax, accounting and other advisors before you invest in the Notes. You may access these documents on the Securities and Exchange Commission (the "SEC") website at www.sec.gov as follows (or if that address has changed, by reviewing our filings for the relevant date on the SEC website):

Prospectus dated September 14, 2021:

<https://www.sec.gov/Archives/edgar/data/1000275/000121465921009470/rbc911212424b3.htm>

Prospectus Supplement dated September 14, 2021:

<https://www.sec.gov/Archives/edgar/data/1000275/000121465921009472/rbc911210424b3.htm>

Product Prospectus Supplement ERN-ETF-1 dated March 3, 2022:

https://www.sec.gov/Archives/edgar/data/1000275/000114036122007839/brhc10034774_424b5.htm

Our Central Index Key, or CIK, on the SEC website is 1000275. As used in this pricing supplement, "we," "us," or "our" refers to Royal Bank of Canada.

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HYPOTHETICAL RETURNS

The examples set out below are included for illustration purposes only. The **hypothetical** Percentage Changes of each Reference Asset used to illustrate the calculation of the Payment at Maturity (rounded to two decimal places) are not estimates or forecasts of any Final Price or the share price of any Reference Asset on any trading day prior to the Maturity Date. All examples are based on the Buffer Percentage of 10%, resulting in a Buffer Price of 90% of the Initial Price, the Leverage Factor of 200%, and a hypothetical Maximum Redemption Amount of 115% of the principal amount of the Notes, and assume that a holder purchased Notes with an aggregate principal amount of \$1,000 and that no market disruption event occurs on the Valuation Date. The actual Maximum Redemption Amount for each of the Notes is set forth on the cover page of this pricing supplement.

- Example 1 — Calculation of the Payment at Maturity where the Percentage Change is positive.
- Percentage Change: 2%
- Payment at Maturity: $\$1,000 + [\$1,000 \times (2\% \times 200\%)] = \$1,000 + \$40 = \$1,040$
- On a \$1,000 investment, a 2% Percentage Change results in a Payment at Maturity of \$1,040, a 4% return on the Notes.
- Example 2 — Calculation of the Payment at Maturity where the Percentage Change is positive (and the Payment at Maturity is subject to the Maximum Redemption Amount).
- Percentage Change: 35%
- Payment at Maturity: $\$1,000 + (\$1,000 \times 35\% \times 200\%) = \$1,000 + \$700 = \$1,700$
- However, the hypothetical Maximum Redemption Amount is \$1,150 per \$1,000 in principal amount.
- On a \$1,000 investment, a 35% Percentage Change results in a Payment at Maturity of \$1,150, a 15% return on the Notes.
- Example 3 — Calculation of the Payment at Maturity where the Percentage Change is negative (but not by more than the Buffer Percentage).
- Percentage Change: -8%
- Payment at Maturity: At maturity, if the Percentage Change is negative BUT not by more than the Buffer Percentage, then the Payment at Maturity will equal the principal amount.
- On a \$1,000 investment, a -8% Percentage Change results in a Payment at Maturity of \$1,000, a 0% return on the Notes.
- Example 4 — Calculation of the Payment at Maturity where the Percentage Change is negative (by more than the Buffer Percentage).
- Percentage Change: -35%
- Payment at Maturity: $\$1,000 + [\$1,000 \times (-35\% + 10\%)] = \$1,000 - \$250 = \750
- On a \$1,000 investment, a -35% Percentage Change results in a Payment at Maturity of \$750, a -25% return on the Notes.

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The table set forth below is included for illustration purposes only. The table illustrates the hypothetical payments at maturity for a hypothetical range of performance for the Reference Asset, based on the Leverage Factor of 200%, the Buffer Percentage of 10% and a hypothetical Maximum Redemption Amount of 115% of the principal amount.

Hypothetical Percentage Changes are shown in the first column on the left. The second column shows the corresponding Redemption Amount for these Percentage Changes, expressed as a percentage of the principal amount of the Notes. The third column shows the Redemption Amount to be paid on the Notes per \$1,000 in principal amount.

Hypothetical Percentage Change	Redemption Amount as Percentage of Principal Amount	Redemption Amount per \$1,000 in Principal Amount
40.00%	115.00%	\$1,150.00
30.00%	115.00%	\$1,150.00
20.00%	115.00%	\$1,150.00
10.00%	115.00%	\$1,150.00
7.50%	115.00%	\$1,150.00
5.00%	110.00%	\$1,100.00
2.00%	104.00%	\$1,040.00
0.00%	100.00%	\$1,000.00
-5.00%	100.00%	\$1,000.00
-10.00%	100.00%	\$1,000.00
-20.00%	90.00%	\$900.00
-30.00%	80.00%	\$800.00
-40.00%	70.00%	\$700.00
-50.00%	60.00%	\$600.00
-60.00%	50.00%	\$500.00
-70.00%	40.00%	\$400.00
-80.00%	30.00%	\$300.00
-90.00%	20.00%	\$200.00
-100.00%	10.00%	\$100.00

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SELECTED RISK CONSIDERATIONS

An investment in any of the Notes involves significant risks. Investing in the Notes is not equivalent to investing directly in the applicable Reference Asset. These risks are explained in more detail in the section "Additional Risk Factors Specific to the Notes" in the product prospectus supplement. In addition to the risks described in the prospectus supplement and the product prospectus supplement, you should consider the following:

Risks Relating to the Terms of the Notes

- **You May Receive Less Than the Principal Amount at Maturity** — Investors in each of the Notes could lose a substantial portion of their principal amount if there is a decline in the share price of the applicable Reference Asset. You will lose 1% of the principal amount of the Notes for each 1% that the applicable Final Price is less than the applicable Initial Price by more than 10%.
- **The Notes Do Not Pay Interest and Your Return May Be Lower than the Return on a Conventional Debt Security of Comparable Maturity** — There will be no periodic interest payments on the Notes as there would be on a conventional fixed-rate or floating-rate debt security having the same maturity. The return that you will receive on the Notes, which could be negative, may be less than the return you could earn on other investments. Even if your return is positive, your return may be less than the return you would earn if you purchased one of our conventional senior interest bearing debt securities.
- **Your Potential Payment at Maturity Is Limited** — The Notes will provide less opportunity to participate in the appreciation of the applicable Reference Asset than an investment in a security linked to that Reference Asset providing full participation in the appreciation, because the payment at maturity will not exceed the applicable Maximum Redemption Amount. Accordingly, your return on the Notes may be less than your return would be if you made an investment in a security directly linked to the positive performance of the applicable Reference Asset.
- **Payments on the Notes Are Subject to Our Credit Risk, and Changes in Our Credit Ratings Are Expected to Affect the Market Value of the Notes** — The Notes are our senior unsecured debt securities. As a result, your receipt of the applicable amount due on the maturity date is dependent upon our ability to repay our obligations at that time. This will be the case even if the share price of the applicable Reference Asset increases after the Trade Date. No assurance can be given as to what our financial condition will be at the maturity of the Notes.
- **You Will Not Have Any Rights to the Securities Included in the Applicable Reference Asset** — As a holder of the Notes, you will not have voting rights or rights to receive cash dividends or other distributions or other rights that holders of securities included in the applicable Reference Asset would have. The Final Price will not reflect any dividends paid on the securities included in that Reference Asset, and accordingly, any positive return on the Notes may be less than the potential positive return on those securities.
- **Payments on the Notes Are Subject to Postponement Due to Market Disruption Events and Adjustments** — The payment at maturity and the Valuation Date are subject to adjustment as described in the product prospectus supplement. For a description of what constitutes a market disruption event as well as the consequences of that market disruption event, see "General Terms of the Notes-Market Disruption Events" in the product prospectus supplement.

Risks Relating to the Secondary Market for the Notes

- **There May Not Be an Active Trading Market for the Notes—Sales in the Secondary Market May Result in Significant Losses** — There may be little or no secondary market for the Notes. The Notes will not be listed on any securities exchange. RBCCM and our other affiliates may make a market for one or both of the Notes; however, they are not required to do so. RBCCM or any of our other affiliates may stop any market-making activities at any time. Even if a secondary market for any of the Notes develops, it may not provide significant liquidity or trade at prices advantageous to you. We expect that transaction costs in any secondary market would be high. As a result, the difference between bid and asked prices for your Notes in any secondary market could be substantial.

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Risks Relating to the Initial Estimated Value of the Notes

- **The Initial Estimated Value of the Notes Is Less than the Price to the Public** — The initial estimated value of each of the Notes that is set forth on the cover page of this pricing supplement does not represent a minimum price at which we, RBCCM or any of our affiliates would be willing to purchase the Notes in any secondary market (if any exists) at any time. If you attempt to sell the Notes prior to maturity, their market value may be lower than the price you paid for them and the initial estimated value. This is due to, among other things, changes in the share price of the applicable Reference Asset, the borrowing rate we pay to issue securities of this kind, and the inclusion in the price to the public of the underwriting discount and the estimated costs relating to our hedging of the Notes. These factors, together with various credit, market and economic factors over the term of the Notes, are expected to reduce the price at which you may be able to sell the Notes in any secondary market and will affect the value of the Notes in complex and unpredictable ways. Assuming no change in market conditions or any other relevant factors, the price, if any, at which you may be able to sell your Notes prior to maturity may be less than your original purchase price, as any such sale price would not be expected to include the underwriting discount or the hedging costs relating to the Notes. In addition to bid-ask spreads, the value of the Notes determined for any secondary market price is expected to be based on the secondary rate rather than the internal funding rate used to price the Notes and determine the initial estimated value. As a result, the secondary price will be less than if the internal funding rate was used. The Notes are not designed to be short-term trading instruments. Accordingly, you should be able and willing to hold your Notes to maturity.
- **The Initial Estimated Value of the Notes that Is Set Forth on the Cover Page of this Pricing Supplement Is an Estimate Only, Calculated as of the Time the Terms of the Notes Were Set** — The initial estimated value of the Notes is based on the value of our obligation to make the payments on the Notes, together with the mid-market value of the derivative embedded in the terms of the Notes. See “Structuring the Notes” below. Our estimate is based on a variety of assumptions, including our credit spreads, expectations as to dividends, interest rates and volatility, and the expected term of the Notes. These assumptions are based on certain forecasts about future events, which may prove to be incorrect. Other entities may value the Notes or similar securities at a price that is significantly different than we do.

The value of each of the Notes at any time after the Trade Date 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 Notes in any secondary market, if any, should be expected to differ materially from the initial estimated value of your Notes.

Risks Relating to the Reference Asset

- **An Investment in the Notes Is Subject to Risks Associated with Specific Economic Sectors** — The stocks held by each Reference Asset to which the Notes are linked are issued by companies engaged in a specific sector of the economy, specifically, the energy sector, as to XLE, and the consumer discretionary sector, as to the XLY. Accordingly, an investment in the Notes is subject to the specific risks of companies that operate in each of those sectors. An investment in the Notes may accordingly be more risky than a security linked to a more diversified set of securities.
- **You Must Rely on Your Own Evaluation of the Merits of an Investment Linked to the Applicable Reference Asset** — In the ordinary course of their business, our affiliates may have expressed views on expected movements in the Reference Assets or the equity securities that they represent, and may do so in the future. These views or reports may be communicated to our clients and clients of our affiliates. However, these views are subject to change from time to time. Moreover, other professionals who transact business in markets relating to any Reference Asset may at any time have significantly different views from those of our affiliates. For these reasons, you are encouraged to derive information concerning the applicable Reference Asset from multiple sources, and you should not rely solely on views expressed by our affiliates.
- **An Investment in the Notes Is Subject to Management Risk** — The Reference Assets are not managed according to traditional methods of “active” investment management, which involve the buying and selling of securities based on economic, financial and market analysis and investment judgment. Instead, each Reference

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Asset, utilizing a “passive” or indexing investment approach, attempts to approximate the investment performance of its underlying index by investing in a portfolio of securities that generally replicate its underlying index. Therefore, unless a specific security is removed from its underlying index, the Reference Asset generally would not sell a security because the security’s issuer was in financial trouble. In addition, each Reference Asset is subject to the risk that the investment strategy of its investment advisor may not produce the intended results.

- **The Reference Assets and Their Underlying Indices Are Different** — The performance of each Reference Asset may not exactly replicate the performance of its respective underlying index, because these Reference Assets will reflect transaction costs and fees that are not included in the calculation of the applicable underlying index. It is also possible that the performance of these Reference Assets may not fully replicate or may in certain circumstances diverge significantly from the performance of their underlying indices due to the temporary unavailability of certain securities in the secondary market, the performance of any derivative instruments contained in the Reference Assets, or due to other circumstances. These Reference Assets may use futures contracts, options, swap agreements, currency forwards and repurchase agreements in seeking performance that corresponds to their underlying indices and in managing cash flows.

During periods of market volatility, securities held by these Reference Assets may be unavailable in the secondary market, market participants may be unable to calculate accurately their net asset value per share and their liquidity may be adversely affected. This kind of market volatility may also disrupt the ability of market participants to create and redeem shares of the applicable Reference Asset. Further, market volatility may adversely affect, sometimes materially, the prices at which market participants are willing to buy and sell shares of the applicable Reference Asset. As a result, under these circumstances, the market value of shares of these Reference Assets may vary substantially from the applicable net asset value per share. For all of the foregoing reasons, the performance of these Reference Assets may not correlate with the performance of their underlying indices as well as their net asset value per share, which could materially and adversely affect the value of the Notes in the secondary market and/or reduce the payments on the Notes.

- **We and Our Affiliates Do Not Have Any Affiliation with the Advisor or the Sponsor of the Reference Assets or the Underlying Indices and Are Not Responsible for Their Public Disclosure of Information** — We and our affiliates are not affiliated with the investment advisor or the sponsor of any Reference Asset or their underlying indices in any way and have no ability to control or predict their actions, including any errors in or discontinuance of disclosure regarding their methods or policies relating to the Reference Assets or the underlying indices. The investment advisor or the sponsor of the Reference Assets and the underlying indices are not involved in the offering of the Notes in any way and have no obligation to consider your interests as an owner of the Notes in taking any actions relating to the Reference Assets that might affect the value of the Notes. Neither we nor any of our affiliates has independently verified the adequacy or accuracy of the information about the investment advisor, the sponsor, or the Reference Assets contained in any public disclosure of information. You, as an investor in the Notes, should make your own investigation into the Reference Assets.
- **The Policies of the Reference Assets’ Investment Advisor or Underlying Indices Could Affect the Amount Payable on the Notes and Their Market Value** — The policies of the Reference Assets’ investment advisor concerning the management of the Reference Assets, or the index sponsor for each underlying index, concerning the calculation of each underlying index, additions, deletions or substitutions of the securities held by the Reference Assets could affect the market price of shares of the Reference Assets and, therefore, the amount payable on the Notes on the maturity date and the market value of the Notes before that date. The amount payable on the Notes and their market value could also be affected if the Reference Assets’ investment advisor or relevant sponsors change these policies, for example, by changing the manner in which an investment advisor manages the Reference Assets, or if the sponsor changes the manner in which it calculates the applicable underlying index, or if a Reference Asset’s investment advisor discontinues or suspends maintenance of a Reference Asset, in which case it may become difficult to determine the market value of the applicable Notes. The Reference Assets’ investment advisor has no connection to the offering of the Notes and has no obligations to you as an investor in the Notes in making its decisions regarding the Reference Assets.
- **The Payments on the Notes Are Subject to Postponement due to Market Disruption Events and Adjustments** — The Valuation Date and the payment at maturity are subject to adjustment as described in the

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product prospectus supplement. For a description of what constitutes a market disruption event as well as the consequences of that market disruption event, see “General Terms of the Notes—Market Disruption Events” in the product prospectus supplement.

Risks Relating to Conflicts of Interest and Our Trading Activities

- **Our Business Activities May Create Conflicts of Interest** — We and our affiliates expect to engage in trading activities related to the applicable Reference Asset that are not for the account of holders of the Notes or on their behalf. These trading activities may present a conflict between the holders' interests in the Notes and the interests we and our affiliates will have in their proprietary accounts, in facilitating transactions, including options and other derivatives transactions, for their customers and in accounts under their management. These trading activities, if they influence the prices of the applicable Reference Asset, could be adverse to the interests of the holders of the Notes. We and one or more of our affiliates may, at present or in the future, engage in business with the issuers of the securities held by the applicable Reference Asset, including making loans to or providing advisory services. These services could include investment banking and merger and acquisition advisory services. These activities may present a conflict between our or one or more of our affiliates' obligations and your interests as a holder of the Notes. Moreover, we and our affiliates may have published, and in the future expect to publish, research reports with respect to one or both of the Reference Assets. This research is modified from time to time without notice and may express opinions or provide recommendations that are inconsistent with purchasing or holding the applicable Notes. Any of these activities by us or one or more of our affiliates may affect the price of one or both of the applicable Reference Assets, and, therefore, the market value of the applicable Notes.

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INFORMATION REGARDING THE REFERENCE ASSETS

The following information regarding the Reference Assets is derived from publicly available information.

Shares of the XLE and XLY are registered under the Exchange Act of 1934. Accordingly, periodic filings of the XLE and XLY are available on the website maintained by the SEC, www.sec.gov. Information on that website is not included or incorporated by reference in this document.

Each Reference Asset is an investment portfolio maintained and managed by the applicable investment advisor. The Notes are not sponsored, endorsed, sold or promoted by the investment advisor. The investment advisor makes no representations or warranties to the owners of the Notes or any member of the public regarding the advisability of investing in the Notes. The investment advisor has no obligation or liability in connection with the operation, marketing, trading or sale of the Notes.

The Energy Select Sector SPDR® Fund (“XLE”)

The XLE seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of the Energy Select Sector Index. The Energy Select Sector Index measures the performance of the energy sector of the U.S. equity market. The XLE is composed of companies engaged in the oil, gas and consumable fuel, energy equipment and services industries. The XLE trades on the NYSE Arca under the ticker symbol “XLE.”

The Consumer Discretionary Select Sector SPDR® Fund (“XLY”)

The XLY seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of the Consumer Discretionary Select Sector Index. The Consumer Discretionary Select Sector Index measures the performance of the consumer sector of the U.S. equity market. The XLY trades on the NYSE Arca under the ticker symbol “XLY.”

Eligibility Criteria for Index Components

The stocks included in each Select Sector Index are selected from the universe of companies represented by the S&P 500® Index. Standard & Poor’s Financial Services LLC (“S&P”) acts as index calculation agent in connection with the calculation and dissemination of each Select Sector Index. Each stock in the S&P 500® Index is allocated to only one Select Sector Index, and the Select Sector Indices together comprise all of the companies in the S&P 500® Index.

Index Maintenance

Each Select Sector Index was developed and is maintained in accordance with the following criteria:

- Each of the component stocks in a Select Sector Index (the “Component Stocks”) is a constituent company of the S&P 500® Index.
- The eleven Select Sector Indices together will include all of the companies represented in the S&P 500® Index and each of the stocks in the S&P 500® Index will be allocated to at least one of the Select Sector Indices.
- Each constituent stock of the S&P 500® Index is assigned to a Select Sector Index based on the Global Industry Classification Sector (GICS) structure. Each Select Sector Index is made up of all the stocks in the applicable GICS sector.
- Each Select Sector Index is calculated by the index sponsor, Standard & Poor’s, using a capped market capitalization methodology where single index constituents or defined groups of index constituents are confined to a maximum weight and the excess weight is distributed proportionally among the remaining index constituents. Each Select Sector Index is rebalanced from time to time to re-establish the proper weighting.
- For reweighting purposes, each Select Sector Index is rebalanced quarterly after the close of business on the third Friday of March, June, September and December using the following procedures: (1) The rebalancing reference date is the second Friday of March, June, September and December; (2) With prices reflected on the rebalancing reference date, and membership, shares outstanding and investable weight factors as of the rebalancing effective date, each company is weighted by float-adjusted market capitalization methodology. Modifications are made as defined below.

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- (i) If any Component Stock has a weight greater than 24%, that Component Stock has its float-adjusted market capitalization weight capped at 23%. The 23% weight cap creates a 2% buffer to ensure that no Component Stock exceeds 25% as of the quarter-end diversification requirement date.
- (ii) All excess weight is equally redistributed to all uncapped Component Stocks within the relevant Select Sector Index.
- (iii) After this redistribution, if the float-adjusted market capitalization weight of any other Component Stock(s) then breaches 23%, the process is repeated iteratively until no Component Stocks breaches the 23% weight cap.
- (iv) The sum of the Component Stocks with weights greater than 4.8% cannot exceed 50% of the total index weight. These caps are set to allow for a buffer below the 5% limit.
- (v) If the rule in step (iv) is breached, all the Component Stocks are ranked in descending order of their float-adjusted market capitalization weights and the first Component Stock that causes the 50% limit to be breached has its weight reduced to 4.5%.
- (vi) This excess weight is equally redistributed to all Component Stocks with weights below 4.5%. This process is repeated iteratively until step (iv) is satisfied.
- (vii) Index share amounts are assigned to each Component Stock to arrive at the weights calculated above. Since index shares are assigned based on prices one week prior to rebalancing, the actual weight of each Component Stock at the rebalancing differs somewhat from these weights due to market movements.
- (viii) If, on the second to last business day of March, June, September, or December, a company has a weight greater than 24% or the sum of the companies with weights greater than 4.8% exceeds 50%, a secondary rebalancing will be triggered with the rebalancing effective date being after the close of the last business day of the month. This second rebalancing will use the closing prices as of the second to last business day of March, June, September or December, and membership, shares outstanding, and IVFs as of the rebalancing effective date.

At times, Component Stocks may be represented in the Select Sector Indices by multiple share class lines. Maximum weight capping is based on Component Stock float-adjusted market capitalization, with the weight of multiple class companies allocated proportionally to each share class line based on its float-adjusted market capitalization as of the rebalancing reference date. If no capping is required, both share classes remain in the Select Sector Index at their natural float-adjusted market capitalization.

Each Select Sector Index is calculated using the same methodology utilized by S&P Dow Jones Indices in calculating the S&P 500[®] Index, using a base-weighted aggregate methodology. The daily calculation of each Select Sector Index is computed by dividing the total market value of the companies in the Select Sector Index by a number called the index divisor.

Calculation of Each Underlying Index

Each Select Sector Index is calculated using the same methodology utilized by S&P in calculating the S&P 500[®] Index, using a base-weighted aggregate methodology. The daily calculation of each Select Sector Index is computed by dividing the total market value of the companies in the Select Sector Index by a number called the index divisor.

A SPDR[®] Component Stock which has been assigned to one Select Sector Index may be determined to have undergone a transformation in the composition of its business, and that it should be removed from that Select Sector Index and assigned to a different Select Sector Index. In the event that a SPDR[®] Component Stock's Select Sector Index assignment should be changed, S&P will disseminate notice of the change following its standard procedure for announcing index changes, and will implement the change in the affected Select Sector Indexes after the initial dissemination of information on the sector change.

SPDR[®] Component Stocks removed from and added to the S&P 500[®] Index will be deleted from and added to the appropriate Select Sector Index on the same schedule used by S&P for additions and deletions from the S&P 500[®] Index insofar as practicable.

Additional information regarding the calculation and composition of the Underlying Indices, including the index methodology, may be found on S&P's website. Information included in that website is not included or incorporated by reference into this document.

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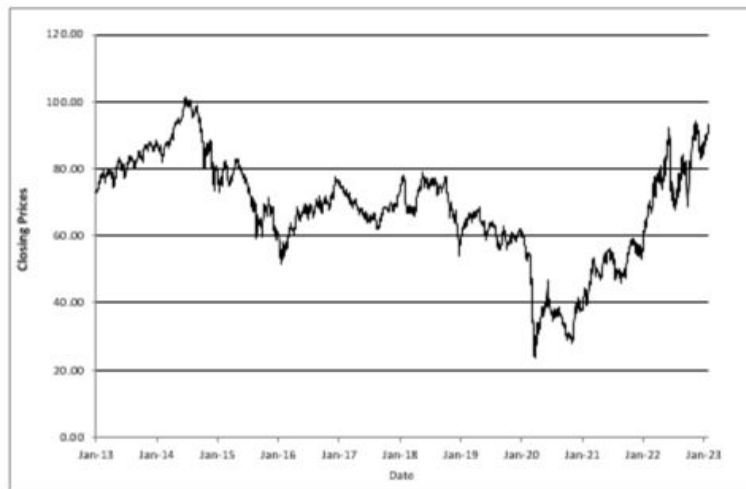
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Historical Information

The graphs below set forth the information relating to the historical performance of each of the Reference Assets from January 1, 2013 to January 26, 2023. We obtained the information in the graphs below from Bloomberg Financial Markets.

We have not independently verified the accuracy or completeness of the information obtained from Bloomberg Financial Markets. The historical performance of each of the Reference Asset should not be taken as an indication of its future performance, and no assurance can be given as to the Final Price of the applicable Reference Asset. We cannot give you assurance that the performance of the applicable Reference Asset will result in any positive return on your initial investment.

Energy Select Sector SPDR® Fund ("XLE")

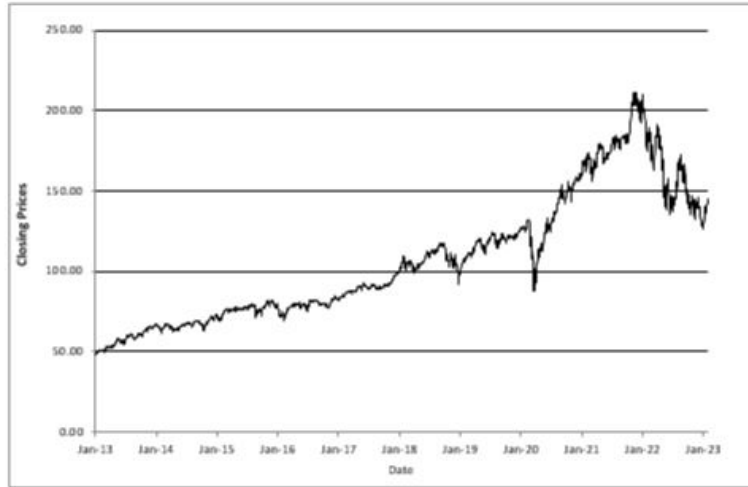


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Consumer Discretionary Select Sector SPDR® Fund (“XLY”)



PAST PERFORMANCE IS NOT INDICATIVE OF FUTURE RESULTS.

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SUPPLEMENTAL DISCUSSION OF U.S. FEDERAL INCOME TAX CONSEQUENCES

The following disclosure supplements, and to the extent inconsistent supersedes, the discussion in the product prospectus supplement dated March 3, 2022 under "Supplemental Discussion of U.S. Federal Income Tax Consequences."

Under Section 871(m) of the Code, a "dividend equivalent" payment is treated as a dividend from sources within the United States. Such payments generally would be subject to a 30% U.S. withholding tax if paid to a non-U.S. holder. Under U.S. Treasury Department regulations, payments (including deemed payments) with respect to equity-linked instruments ("ELIs") that are "specified ELIs" may be treated as dividend equivalents if such specified ELIs reference, directly or indirectly, an interest in an "underlying security," which is generally any interest in an entity taxable as a corporation for U.S. federal income tax purposes if a payment with respect to such interest could give rise to a U.S. source dividend. However, the IRS has issued guidance that states that the U.S. Treasury Department and the IRS intend to amend the effective dates of the U.S. Treasury Department regulations to provide that withholding on dividend equivalent payments will not apply to specified ELIs that are not delta-one instruments and that are issued before January 1, 2025. Based on our determination that the Notes are not delta-one instruments, non-U.S. holders should not be subject to withholding on dividend equivalent payments, if any, under the Notes. However, it is possible that the Notes could be treated as deemed reissued for U.S. federal income tax purposes upon the occurrence of certain events affecting the applicable Reference Asset or the applicable Notes (for example, upon a Reference Asset rebalancing), and following such occurrence the Notes could be treated as subject to withholding on dividend equivalent payments. Non-U.S. holders that enter, or have entered, into other transactions in respect of the applicable Reference Asset or the Notes should consult their tax advisors as to the application of the dividend equivalent withholding tax in the context of the Notes and their other transactions. If any payments are treated as dividend equivalents subject to withholding, we (or the applicable withholding agent) would be entitled to withhold taxes without being required to pay any additional amounts with respect to amounts so withheld.

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SUPPLEMENTAL PLAN OF DISTRIBUTION (CONFLICTS OF INTEREST)

Delivery of each of the Notes will be made against payment for the Notes on January 31, 2023, which is the third (3rd) business day following the Trade Date (this settlement cycle being referred to as "T+3"). See "Plan of Distribution" in the prospectus dated September 14, 2021. For additional information as to the relationship between us and RBCCM, please see the section "Plan of Distribution — Conflicts of Interest" in the prospectus dated September 14, 2021.

We will deliver each of the Notes on a date that is greater than two business days following the Trade Date. Under Rule 15c6-1 of the Exchange Act, trades in the secondary market generally are required to settle in two business days, unless the parties to any such trade expressly agree otherwise. Accordingly, purchasers who wish to trade the Notes more than two business days prior to the original issue date will be required to specify alternative settlement arrangements to prevent a failed settlement.

In the initial offering of the Notes, they were offered to investors at a purchase price equal to par, except with respect to certain accounts as indicated on the cover page of this document. In addition to the underwriting discount set forth on the cover page, we or one of our affiliates may also pay an expected fee to a broker-dealer that is unaffiliated with us for providing certain electronic platform services with respect to this offering.

The value of the Notes shown on your account statement may be based on RBCCM's estimate of the value of the applicable Notes if RBCCM or another of our affiliates were to make a market in the Notes (which it is not obligated to do). That estimate will be based upon the price that RBCCM may pay for the applicable Notes in light of then prevailing market conditions, our creditworthiness and transaction costs. For a period of approximately three months after the issue date of the Notes, the value of the Notes that may be shown on your account statement may be higher than RBCCM's estimated value of the Notes at that time. This is because the estimated value of the applicable Notes will not include the underwriting discount or our hedging costs and profits; however, the value of the applicable Notes shown on your account statement during that period may initially be a higher amount, reflecting the addition of RBCCM's underwriting discount and our estimated costs and profits from hedging the Notes. This excess is expected to decrease over time until the end of this period. After this period, if RBCCM repurchases your Notes, it expects to do so at prices that reflect their estimated value.

We may use this pricing supplement in the initial sale of each of the Notes. In addition, RBCCM or another of our affiliates may use this pricing supplement in a market-making transaction in the Notes after their initial sale. ***Unless we or our agent informs the purchaser otherwise in the confirmation of sale, this pricing supplement is being used in a market-making transaction.***

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STRUCTURING THE NOTES

The Notes are our debt securities, the return on which is linked to the performance of the applicable Reference Asset. As is the case for all of our debt securities, including our structured notes, the economic terms of the Notes reflect our actual or perceived creditworthiness at the time of pricing. In addition, because structured notes result in increased operational, funding and liability management costs to us, we typically borrow the funds under these Notes at a rate that is more favorable to us than the rate that we might pay for a conventional fixed or floating rate debt security of comparable maturity. Using this relatively lower implied borrowing rate rather than the secondary market rate, is a factor that reduced the initial estimated value of the Notes at the time their terms were set. Unlike the estimated value that is included on the cover page of this pricing supplement, any value of the applicable Notes determined for purposes of a secondary market transaction may be based on a different funding rate, which may result in a lower value for the Notes than if our initial internal funding rate were used.

In order to satisfy our payment obligations under each of the Notes, we may choose to enter into certain hedging arrangements (which may include call options, put options or other derivatives) on the issue date with RBCCM or one of our other subsidiaries. The terms of these hedging arrangements take into account a number of factors, including our creditworthiness, interest rate movements, the volatility of the applicable Reference Asset, and the tenor of the Notes. The economic terms of the Notes and their initial estimated value depend in part on the terms of these hedging arrangements.

The lower implied borrowing rate is a factor that reduced the economic terms of the Notes to you. The initial offering price of each of the Notes also reflects the underwriting discount and our estimated hedging costs. These factors resulted in the initial estimated value for the Notes on the Trade Date being less than their public offering price. See "Selected Risk Considerations—The Initial Estimated Value of the Notes Is Less than the Price to the Public" above.

VALIDITY OF THE NOTES

In the opinion of Norton Rose Fulbright Canada LLP, the issue and sale of the Notes has been duly authorized by all necessary corporate action of the Bank in conformity with the Indenture, and when the Notes have been duly executed, authenticated and issued in accordance with the Indenture and delivered against payment therefor, the Notes will be validly issued and, to the extent validity of the Notes is a matter governed by the laws of the Province of Ontario or Québec, or the laws of Canada applicable therein, will be valid obligations of the Bank, subject to equitable remedies which may only be granted at the discretion of a court of competent authority, subject to applicable bankruptcy, to rights to indemnity and contribution under the Notes or the Indenture which may be limited by applicable law, to insolvency and other laws of general application affecting creditors' rights, to limitations under applicable limitations statutes, and to limitations as to the currency in which judgments in Canada may be rendered, as prescribed by the Currency Act (Canada). This opinion is given as of the date hereof and is limited to the laws of the Provinces of Ontario and Québec and the federal laws of Canada applicable thereto. In addition, this opinion is subject to customary assumptions about the Trustee's authorization, execution and delivery of the Indenture and the genuineness of signatures and certain factual matters, all as stated in the letter of such counsel dated September 14, 2021, which has been filed as Exhibit 5.3 to the Bank's Form 6-K filed with the SEC on September 14, 2021.

In the opinion of Ashurst LLP, when the Notes have been duly completed in accordance with the Indenture and issued and sold as contemplated by the prospectus supplement and the prospectus, the Notes will be valid, binding and enforceable obligations of the Bank, entitled to the benefits of the Indenture, subject to applicable bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and similar laws of general applicability relating to or affecting creditors' rights and subject to general principles of equity, public policy considerations and the discretion of the court before which any suit or proceeding may be brought. This opinion is given as of the date hereof and is limited to the laws of the State of New York. This opinion is subject to customary assumptions about the Trustee's authorization, execution and delivery of the Indenture and the genuineness of signatures and to such counsel's reliance on the Bank and other sources as to certain factual matters, all as stated in the legal opinion dated September 14, 2021, which has been filed as Exhibit 5.4 to the Bank's Form 6-K dated September 14, 2021.

Exhibit 107.1

The pricing supplement to which this Exhibit is attached is a final prospectus for the related offerings. The maximum aggregate offering price of the offerings is \$545,000.
