

BANK OF MONTREAL /CAN/  
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Pricing Supplement to the Prospectus dated April 27, 2017, the Prospectus Supplement dated September 23, 2018 and the Product Supplement dated May 1, 2017

US\$

**Autocallable Barrier Notes with Contingent Coupons due August 31, 2020**

**Linked to the Lesser Performing of the SPDR® S&P® Oil & Gas Exploration and Production ETF and the Energy Select Sector SPDR Fund**

The notes are designed for investors who are seeking monthly contingent periodic interest payments (as described in more detail below), as well as a return of principal if the closing price of **both** the SPDR® S&P® Oil & Gas Exploration and Production ETF and the Energy Select Sector SPDR Fund (the “Underlying Assets”) on any monthly Observation Date beginning in November 21, 2019 is greater than 100% of its Initial Stock Price (the “Call Level”). Investors should be willing to have their notes automatically redeemed prior to maturity and be willing to lose some or all of their principal at maturity.

The notes will pay a Contingent Interest Payment on each monthly Contingent Interest Payment Date at the rate set forth below if the closing price of each of the Underlying Assets on the applicable monthly Observation Date is greater than its Coupon Barrier. However, if the closing price of either Underlying Asset is less than or equal to the Coupon Barrier on an Observation Date, the notes will not pay the Contingent Interest Payment for that Observation Date.

If on any monthly Observation Date beginning in November 21, 2019, the closing price of each of each Underlying Asset is greater than its Call Level, the notes will be automatically called. On the Call Settlement Date, for each \$1,000 principal amount, investors will receive the principal amount plus the Contingent Interest Payment.

The notes do not guarantee any return of principal at maturity. Instead, if the notes are not automatically called, the payment at maturity will be based on the Final Stock Price of each of the Underlying Assets and whether the closing

price of either Underlying Asset has declined from its Initial Stock Price below its Trigger Price during the Monitoring Period (a “Trigger Event”), as described below.

If the notes are not automatically redeemed, a Trigger Event has occurred, and the Final Stock Price for either of the Underlying Assets is lower than its Initial Stock Price on the Valuation Date, investors will be subject to one-for-one loss of the principal amount of the notes for any percentage decrease from the Initial Stock Price to the Final Stock Price of the Lesser Performing Underlying Asset. In such a case, you will receive a cash amount at maturity that is less than the principal amount.

The notes will not be listed on any securities exchange.

All payments on the notes are subject to the credit risk of Bank of Montreal.

The notes will be issued in minimum denominations of \$1,000 and integral multiples of \$1,000.

Our subsidiary, BMO Capital Markets Corp. (“BMOCM”), is the agent for this offering. See “Supplemental Plan of Distribution (Conflicts of Interest)” below.

The notes will not be subject to conversion into our common shares or the common shares of any of our affiliates under subsection 39.2(2.3) of the Canada Deposit Insurance Corporation Act (the “CDIC Act”).

**Terms of the Notes:**

**Pricing Date:** On or about May 28, 2019 **Valuation Date:** On or about August 24, 2020

**Settlement Date:** On or about May 31, 2019 **Maturity Date:** On or about August 31, 2020

**Specific Terms of the Notes:**

Autocallable Note Number	Underlying Asset Issuer	Ticker Symbol	Initial Stock Price	Coupon and Barrier Trigger Price	Contingent Interest Rate	CUSIP	Principal Amount	Price to Public <sup>(1)</sup>	Agent’s Commission <sup>(1)</sup>	Proceeds to Bank of Montreal
ARC520	SPDR® S&P® Oil & Gas Exploration and Production ETF	XOP		65% of the Initial Stock Price	9.60% (0.80% per month)	06367WKQ5		100%	2.25% US\$	97.75% US\$
	Energy Select Sector SPDR Fund	XLE		65% of the Initial Stock Price						

<sup>(1)</sup> Certain dealers who purchase the notes for sale to certain fee-based advisory accounts may forego some or all of their selling concessions, fees or commissions. The public offering price for investors purchasing the notes in these accounts may be between \$977.50 and \$1,000 per \$1,000 in principal amount.

*Investing in the notes involves risks, including those described in the “Selected Risk Considerations” section beginning on page P-5 of this preliminary pricing supplement, the “Additional Risk Factors Relating to the Notes” section beginning on page PS-4 of the product supplement, and the “Risk Factors” sections beginning on page S-1 of the prospectus supplement and on page 8 of the prospectus.*

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of the notes or passed upon the accuracy of this preliminary pricing supplement, the product supplement, the prospectus supplement or the prospectus. Any representation to the contrary is a criminal offense.**

The notes will be our unsecured obligations and will not be savings accounts or deposits that are insured by the United States Federal Deposit Insurance Corporation, the Deposit Insurance Fund, the Canada Deposit Insurance Corporation or any other governmental agency or instrumentality or other entity.

On the date of this preliminary pricing supplement, based on the terms set forth above, the estimated initial value of the notes is \$960.40. The estimated initial value of the notes on the Pricing Date may differ from this value but will not be less than \$945 per \$1,000. However, as discussed in more detail in this preliminary pricing supplement, the actual value of the notes at any time will reflect many factors and cannot be predicted with accuracy.

**BMO Capital Markets Corp.**

**Key Terms of the Notes:**

Underlying Assets:	SPDR <sup>®</sup> S&P <sup>®</sup> Oil & Gas Exploration and Production ETF (NYSE Arca symbol: XOP) and Energy Select Sector SPDR Fund (NYSE Arca symbol: XLE). See the section below entitled “The Underlying Assets” for additional information.
Underlying Indices:	S&P <sup>®</sup> Oil & Gas Exploration & Production Select Industry <sup>®</sup> Index and Energy Select Sector Index.
Contingent Interest Payment Dates:	Interest, if payable, will be paid on the last business day of each month beginning on June 28, 2019, to and including the Maturity Date, subject to the automatic redemption feature. The final Contingent Interest Payment Date will be the Maturity Date.
Contingent Interest Payments:	If the price of each Underlying Asset on an Observation Date is greater than the Coupon Barrier, a Contingent Interest Payment will be paid on the Contingent Interest Payment Date, at the rate specified on the cover page.
Contingent Interest Rate:	9.60% per annum (0.80% of the principal amount per month) unless earlier redeemed. Accordingly, each Contingent Interest Payment, if payable, will equal \$8.00 for each \$1,000 in principal amount per month.
Coupon Barrier and Trigger Price:	For each Underlying Asset, 65% of the Initial Stock Price (rounded to two decimal places)
Automatic Redemption:	If, on any monthly Observation Date beginning in November 21, 2019, the closing price of <b>each</b> Underlying Asset is greater than its Call Level, the notes will be automatically redeemed.
Payment upon Automatic Redemption:	If the notes are automatically redeemed, then, on the applicable Call Settlement Date, for each \$1,000 principal amount, investors will receive \$1,000 plus the Contingent Interest Payment.
Observation Dates:	Five trading days prior to the Contingent Interest Payment Date. Each Observation Date is subject to postponement, as set forth in the product supplement in the section “General Terms of the Notes—Market Disruption Events.”
Call Settlement Dates:	The last business day of each month, beginning on November 29, 2019. The Call Settlement Date for the final Call Date will be the Maturity Date.
Payment at Maturity:	If the notes are not automatically redeemed, the payment at maturity for the notes is based on the performance of the Underlying Assets. You will receive \$1,000 for each \$1,000 in principal amount of the notes, unless (a) a Trigger Event has occurred with respect to either Underlying Asset <b>and</b> (b) the Final Stock Price of the Lesser Performing Asset is less than its Initial Stock Price.

If a Trigger Event has occurred, and if the Final Stock Price of the Lesser Performing Underlying Asset is less than its Initial Stock Price, you will receive at maturity, for each \$1,000 in principal amount of your notes, a cash amount equal to:

$$\$1,000 + [\$1,000 \times \text{Percentage Change of the Lesser Performing Underlying Asset}]$$

**This amount will be less than the principal amount of your notes, and may be zero.**

In each case, you will also receive the final Contingent Interest Payment at maturity, if payable.

Trigger Event: A Trigger Event will be deemed to occur with respect to an Underlying Asset if its closing price is less than its Trigger Price on any trading day during the Monitoring Period.

Lesser Performing Underlying Asset: The Underlying Asset that has the lowest Percentage Change.

Monitoring Period: The period from the Pricing Date to and including the Valuation Date.

Percentage Change:  $\frac{\text{Final Stock Price} - \text{Initial Stock Price}}{\text{Initial Stock Price}}$ , expressed as a percentage

Initial Stock Price: With respect to each Underlying Asset, its closing price on the Pricing Date. The Initial Stock Price is subject to adjustment in certain circumstances. See “General Terms of the Notes — Payment at Maturity” and “— Anti-dilution Adjustments” in the product supplement for additional information about these adjustments.

Call Level: With respect to each Underlying Asset, 100% of its Initial Stock Price.

Final Stock Price: The closing price of the applicable Underlying Asset on the Valuation Date.

Pricing Date: On or about May 28, 2019

Settlement Date: On or about May 31, 2019

Valuation Date: On or about August 24, 2020

Maturity Date: On or about August 31, 2020

Physical Delivery Amount: We will only pay cash on the maturity date, and you will have no right to receive any shares of any Underlying Asset.

Calculation Agent: BMOCM

Selling Agent: BMOCM

*The Pricing Date and the settlement date are subject to change. The actual Pricing Date, Settlement Date, Contingent Interest Payment Dates, Observation Dates, Valuation Date and Maturity Date for the notes will be set forth in the final pricing supplement.*

### **Additional Terms of the Notes**

You should read this preliminary pricing supplement together with the product supplement dated May 1, 2017, the prospectus supplement dated September 23, 2018 and the prospectus dated April 27, 2017. **This preliminary pricing supplement, together with the documents listed below, contains the terms of the notes and supersedes all other 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, fact sheets, brochures or other educational materials of ours or the agent.** You should carefully consider, among other things, the matters set forth in “Additional Risk Factors Relating to the Notes” in the product supplement, as the notes involve risks not associated with conventional debt securities. We urge you to consult your investment, legal, tax, accounting and other advisers before you invest in the notes.

You may access these documents on the SEC website at [www.sec.gov](http://www.sec.gov) as follows (or if such address has changed, by reviewing our filings for the relevant date on the SEC website):

Product supplement dated May 1, 2017:

<https://www.sec.gov/Archives/edgar/data/927971/000121465917002863/p427170424b5.htm>

Prospectus supplement dated September 23, 2018:

<https://www.sec.gov/Archives/edgar/data/927971/000119312518280416/d624491d424b5.htm>

Prospectus dated April 27, 2017:

<https://www.sec.gov/Archives/edgar/data/927971/000119312517142728/d254784d424b2.htm>

Please note that references in the product supplement to the prospectus supplement will be deemed to refer to the prospectus supplement dated September 23, 2018.

Our Central Index Key, or CIK, on the SEC website is 927971. As used in this preliminary pricing supplement, “we,” “us” or “our” refers to Bank of Montreal.

We have filed a registration statement (including a prospectus) with the SEC for the offering to which this document relates. Before you invest, you should read the prospectus in that registration statement and the other documents that we have filed with the SEC for more complete information about us and this offering. You may obtain these documents free of charge by visiting the SEC’s website at <http://www.sec.gov>. Alternatively, we will arrange to send

to you the prospectus (as supplemented by the prospectus supplement and product supplement) if you request it by calling our agent toll-free at 1-877-369-5412.

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## Selected Risk Considerations

An investment in the notes involves significant risks. Investing in the notes is not equivalent to investing directly in the Underlying Assets. These risks are explained in more detail in the “Additional Risk Factors Relating to the Notes” section of the product supplement.

**Your investment in the notes may result in a loss.** — The notes do not guarantee any return of principal. If the notes are not automatically redeemed, the payment at maturity will be based on the Final Stock Price of the Lesser Performing Underlying Asset and whether a Trigger Event has occurred. If a Trigger Event has occurred, and if the Final Stock Price of the Lesser Performing Underlying Asset is less than its Initial Stock Price, you will be subject to a one-for-one loss of the principal amount of the notes for any Percentage Change of the Lesser Performing Underlying Asset from its Initial Stock Price. In such a case, you will receive at maturity a cash payment that is less than the principal amount of the notes and may be zero. **Accordingly, you could lose up to the entire principal amount of your notes, and your payments on the notes could be limited to the Contingent Interest Payments, if any.**

**The protection provided by the Trigger Price may terminate on any day during the Monitoring Period.** — If the closing price of the Lesser Performing Underlying Asset on any trading day during the Monitoring Period is less than its Trigger Price, you will be fully exposed at maturity to any decrease in the price of the Lesser Performing Underlying Asset. Under these circumstances, if the Percentage Change of the Lesser Performing Underlying Asset is less than zero, you will lose 1% (or a fraction thereof) of the principal amount of your investment for every 1% (or a fraction thereof) that the applicable Final Stock Price is less than its Initial Stock Price. You will be subject to this potential loss of principal even if, after the Trigger Event, the price of the applicable Underlying Asset increases above the Trigger Price.

**You may not receive any Contingent Interest Payments with respect to your notes.** — We will not necessarily make periodic interest payments on the notes. If the closing price of either Underlying Asset on an Observation Date is less than its Coupon Barrier, we will not pay you the Contingent Interest Payment applicable to that Observation Date. If the closing price of any Underlying Asset is less than the Coupon Barrier on each of the Observation Dates, we will not pay you any Contingent Interest Payments during the term of the notes, and you will not receive a positive return on the notes. Furthermore, the non-payment of the Contingent Interest Payment as to the final Observation Date will coincide with a loss of principal on the notes, because in such a case, the Final Stock Price of the Lesser Performing Underlying Asset will be less than the Trigger Price.

**Your notes are subject to automatic early redemption.** — We will redeem the notes if the closing price of each Underlying Asset on any Observation Date beginning in November 21, 2019 is greater than its Call Level. Following an automatic redemption, you will not receive any additional Contingent Interest Payments on the notes, and you may not be able to reinvest your proceeds in an investment with returns that are comparable to the notes.

**Your return on the notes is limited to the Contingent Interest Payments, if any, regardless of any appreciation in the value of any Underlying Asset.** — You will not receive a payment at maturity with a value greater than your principal amount plus the final Contingent Interest Payment, if payable. In addition, if the notes are automatically called, you will not receive a payment greater than the principal amount plus the applicable Contingent Interest Payment, even if the closing price of any Underlying Asset exceeds the Call Level by a substantial amount. Accordingly, your maximum return on the notes is limited to the potential return represented by the Contingent Interest Payments.

**Your investment is subject to the credit risk of Bank of Montreal.** — Our credit ratings and credit spreads may adversely affect the market value of the notes. Investors are dependent on our ability to pay any amounts due on the notes, and therefore investors are subject to our credit risk and to changes in the market's view of our creditworthiness. Any decline in our credit ratings or increase in the credit spreads charged by the market for taking our credit risk is likely to adversely affect the value of the notes.

**Whether interest is payable on the notes, and your payment at maturity may be determined solely by reference to the Lesser Performing Underlying Asset, even if the other Underlying Asset performs better.** — We will only make each Contingent Interest Payment on the notes if the closing price of both Underlying Assets on the applicable Observation Date exceeds the applicable Coupon Barrier, even if the price of the other Underlying Asset has increased significantly. Similarly, if a Trigger Event occurs with respect to any Underlying Asset, your payment at maturity will be determined by reference to the performance of the Lesser Performing Underlying Asset. Even if the other Underlying Asset has appreciated in value compared to its Initial Level, or has experienced a decline that is less than that of the Lesser Performing Underlying Asset, your return at maturity will only be determined by reference to the performance of the Lesser Performing Underlying Asset.

**The payments on the notes will be determined by reference to each Underlying Asset individually, not to a basket, and the payments on the notes will be based on the performance of the Lesser Performing Underlying Asset.** — Whether each Contingent Interest Payment is payable, and the payment at maturity if a Trigger Event occurs, will be determined only by reference to the performance of the Lesser Performing Underlying Asset, regardless of the performance of the other Underlying Asset. The notes are not linked to a weighted basket, in which the risk may be mitigated and diversified among each of the basket components. For example, in the case of notes linked to a weighted basket, the return would depend on the weighted aggregate performance of the basket components reflected as the basket return. As a result, the depreciation of one basket component could be mitigated by the appreciation of the other basket component, as scaled by the weighting of that basket component. However, in the case of the notes, the individual performance of each Underlying Asset would not be combined, and the depreciation of an Underlying Asset would not be mitigated by any appreciation of the other Underlying Asset. Instead, your receipt of any Contingent Interest Payments on the notes will depend on the price of both Underlying Assets on each Observation Date, and your return at maturity will depend solely on the Final Level of the Lesser Performing Underlying Asset.

**Potential conflicts.** — We and our affiliates play a variety of roles in connection with the issuance of the notes, including acting as calculation agent. In performing these duties, the economic interests of the calculation agent and other affiliates of ours are potentially adverse to your interests as an investor in the notes. We or one or more of our affiliates may also engage in trading of shares of the Underlying Assets or the securities held by the Underlying Assets on a regular basis as part of our general broker-dealer and other businesses, for proprietary accounts, for other accounts under management or to facilitate transactions for our customers. Any of these activities could adversely affect the price of the Underlying Assets and, therefore, the market value of, and the payments on, the notes. We or one or more of our affiliates may also issue or underwrite other securities or financial or derivative instruments with returns linked or related to changes in the performance of the Underlying Assets. By introducing competing products into the marketplace in this manner, we or one or more of our affiliates could adversely affect the market value of the notes.

**Our initial estimated value of the notes will be lower than the price to public.** — Our initial estimated value of the notes is only an estimate, and is based on a number of factors. The price to public of the notes will exceed our initial estimated value, because costs associated with offering, structuring and hedging the notes are included in the price to public, but are not included in the estimated value. These costs include the underwriting discount and selling concessions, the profits that we and our affiliates expect to realize for assuming the risks in hedging our obligations under the notes and the estimated cost of hedging these obligations. The initial estimated value of the notes may be as low as the amount indicated on the cover page of this preliminary pricing supplement.

**Our initial estimated value does not represent any future value of the notes, and may also differ from the estimated value of any other party.** — Our initial estimated value of the notes as of the date of this preliminary pricing supplement is, and our estimated value as determined on the Pricing Date will be, derived using our internal pricing models. This value is based on market conditions and other relevant factors, which include volatility of the Underlying Assets, dividend rates and interest rates. Different pricing models and assumptions could provide values for the notes that are greater than or less than our initial estimated value. In addition, market conditions and other relevant factors after the Pricing Date are expected to change, possibly rapidly, and our assumptions may prove to be incorrect. After the Pricing Date, the value of the notes could change dramatically due to changes in market conditions, our creditworthiness, and the other factors set forth in this preliminary pricing supplement and the product supplement. These changes are likely to impact the price, if any, at which we or BMOCM would be willing to purchase the notes from you in any secondary market transactions. Our initial estimated value does not represent a

minimum price at which we or our affiliates would be willing to buy your notes in any secondary market at any time.

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**The terms of the notes are not determined by reference to the credit spreads for our conventional fixed-rate debt.** — To determine the terms of the notes, we will use an internal funding rate that represents a discount from the credit spreads for our conventional fixed-rate debt. As a result, the terms of the notes are less favorable to you than if we had used a higher funding rate.

**Certain costs are likely to adversely affect the value of the notes.** — Absent any changes in market conditions, any secondary market prices of the notes will likely be lower than the price to public. This is because any secondary market prices will likely take into account our then-current market credit spreads, and because any secondary market prices are likely to exclude all or a portion of the underwriting discount and selling concessions, and the hedging profits and estimated hedging costs that are included in the price to public of the notes and that may be reflected on your account statements. In addition, any such price is also likely to reflect a discount to account for costs associated with establishing or unwinding any related hedge transaction, such as dealer discounts, mark-ups and other transaction costs. As a result, the price, if any, at which BMOCM or any other party may be willing to purchase the notes from you in secondary market transactions, if at all, will likely be lower than the price to public. Any sale that you make prior to the maturity date could result in a substantial loss to you.

**Owning the notes is not the same as owning shares of the Underlying Assets or a security directly linked to the Underlying Assets.** — The return on your notes will not reflect the return you would realize if you actually owned shares of the Underlying Assets or a security directly linked to the performance of the Underlying Assets and held that investment for a similar period. Your notes may trade quite differently from the Underlying Assets. Changes in the price of the Underlying Assets may not result in comparable changes in the market value of your notes. Even if the prices of the Underlying Assets increase during the term of the notes, the market value of the notes prior to maturity may not increase to the same extent. It is also possible for the market value of the notes to decrease while the prices of the Underlying Assets increase. In addition, any dividends or other distributions paid on the Underlying Assets will not be reflected in the amount payable on the notes. The return on the notes may be less than the return on an investment in the Underlying Assets.

**You will not have any shareholder rights and will have no right to receive any shares of the Underlying Assets at maturity.** — Investing in your notes will not make you a holder of any shares of the Underlying Assets, or any securities held by the Underlying Assets. Neither you nor any other holder or owner of the notes will have any voting rights, any right to receive dividends or other distributions, or any other rights with respect to those securities.

**No Delivery of Shares of the Underlying Assets.** — The notes will be payable only in cash. You should not invest in the notes if you seek to have the shares of the Underlying Assets delivered to you at maturity.

**Changes that affect the Underlying Index will affect the market value of the notes, whether the notes will be automatically called, and the amount you will receive at maturity.** — The policies of the index sponsor of each Underlying Index, concerning the calculation of the Underlying Index, additions, deletions or substitutions of the components of the Underlying Index and the manner in which changes affecting those components, such as stock dividends, reorganizations or mergers, may be reflected in the Underlying Index and, therefore, could affect the share price of the Underlying Assets, the amounts payable on the notes, whether the notes are automatically called, and the market value of the notes prior to maturity. The amounts payable on the notes and their market value could also be affected if the index sponsor changes these policies, for example, by changing the manner in which it calculates the

Underlying Index, or if the index sponsor discontinues or suspends the calculation or publication of the Underlying Index.

**We have no affiliation with the index sponsors of the Underlying Indices and will not be responsible for its actions.** — The sponsors of the Underlying Indices are not our affiliates, and will not be involved in the offering of the notes in any way. Consequently, we have no control over the actions of these index sponsors, including any actions of the type that would require the calculation agent to adjust the payment to you at maturity. The index sponsors have no obligation of any sort with respect to the notes. Thus, the index sponsors have no obligation to take your interests into consideration for any reason, including in taking any actions that might affect the value of the notes. None of our proceeds from the issuance of the notes will be delivered to the index sponsors.

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**Adjustments to the Underlying Assets could adversely affect the notes.** — The sponsor and advisor of each Underlying Asset is responsible for calculating and maintaining that Underlying Asset. The sponsor and advisor of each Underlying Asset can add, delete or substitute the stocks comprising an Underlying Asset or make other methodological changes that could change the share price of the Underlying Assets at any time. If one or more of these events occurs, the calculation of the amount payable at maturity may be adjusted to reflect such event or events. Consequently, any of these actions could adversely affect the amounts payable on the notes and/or the market value of the notes.

**We and our affiliates do not have any affiliation with the investment advisor or the Underlying Asset Issuers and are not responsible for its public disclosure of information.** — The investment advisor of each Underlying Asset Issuer advises the Underlying Asset Issuer on various matters, including matters relating to the policies, maintenance and calculation of the Underlying Asset. We and our affiliates are not affiliated with these investment advisors or the Underlying Asset Issuers in any way and have no ability to control or predict their actions, including any errors in or discontinuance of disclosure regarding the methods or policies relating to the Underlying Assets. Neither the investment advisors nor the Underlying Asset Issuers are involved in the offering of the notes in any way or have any obligation to consider your interests as an owner of the notes in taking any actions relating to the Underlying Asset Issuers 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 advisors, the Underlying Asset Issuers or the Underlying Assets contained in any public disclosure of information. You, as an investor in the notes, should make your own investigation into the Underlying Asset Issuers.

**The correlation between the performance of the Underlying Assets and the performance of the Underlying Indices may be imperfect.** — The performance of each Underlying Asset is linked principally to the performance of the applicable Underlying Index. However, because of the potential discrepancies identified in more detail in the product supplement, the return on an Underlying Asset may correlate imperfectly with the return on its Underlying Index.

**The Underlying Assets are subject to management risks.** — The Underlying Assets are subject to management risk, which is the risk that the investment advisor's investment strategy, the implementation of which is subject to a number of constraints, may not produce the intended results. For example, an investment advisor may invest a portion of the applicable Underlying Asset Issuer's assets in securities not included in the relevant industry or sector but which the investment advisor believes will help the Underlying Asset track the relevant industry or sector.

**Lack of liquidity.** — The notes will not be listed on any securities exchange. BMOCM may offer to purchase the notes in the secondary market, but is not required to do so. Even if there is a secondary market, it may not provide enough liquidity to allow you to trade or sell the notes easily. Because other dealers are not likely to make a secondary market for the notes, the price at which you may be able to trade the notes is likely to depend on the price, if any, at which BMOCM is willing to buy the notes.

**Hedging and trading activities.** — We or any of our affiliates may carry out hedging activities related to the notes, including in the Underlying Assets, the securities that it holds, or instruments related to the Underlying Assets. We or our affiliates may also trade in the Underlying Assets, such securities, or instruments related to the Underlying Assets from time to time. Any of these hedging or trading activities on or prior to the Pricing Date and during the term of the

notes could adversely affect the payments on the notes.

**Many economic and market factors will influence the value of the notes.** — In addition to the prices of the Underlying Assets and interest rates on any trading day, the value of the notes will be affected by a number of economic and market factors that may either offset or magnify each other, and which are described in more detail in the product supplement.

**You must rely on your own evaluation of the merits of an investment linked to the Underlying Assets.** — In the ordinary course of their businesses, our affiliates from time to time may express views on expected movements in the prices of the Underlying Assets or the securities held by the Underlying Assets. One or more of our affiliates have published, and in the future may publish, research reports that express views on the Underlying Assets or these securities. However, these views are subject to change from time to time. Moreover, other professionals who deal in the markets relating to Underlying Assets at any time may have significantly different views from those of our affiliates. You are encouraged to derive information concerning the Underlying Assets from multiple sources, and you should not rely on the views expressed by our affiliates.



Neither the offering of the notes nor any views which our affiliates from time to time may express in the ordinary course of their businesses constitutes a recommendation as to the merits of an investment in the notes.

**Significant aspects of the tax treatment of the notes are uncertain.** — The tax treatment of the notes is uncertain. We do not plan to request a ruling from the Internal Revenue Service or from any Canadian authorities regarding the tax treatment of the notes, and the Internal Revenue Service or a court may not agree with the tax treatment described in this preliminary pricing supplement.

The Internal Revenue Service has released a notice that may affect the taxation of holders of “prepaid forward contracts” and similar instruments. According to the notice, the Internal Revenue Service and the U.S. Treasury are actively considering whether the holder of such instruments should be required to accrue ordinary income on a current basis. While it is not clear whether the notes would be viewed as similar to such instruments, it is possible that any future guidance could materially and adversely affect the tax consequences of an investment in the notes, possibly with retroactive effect.

Please read carefully the section entitled “Supplemental U.S. Federal Income Tax Considerations” in this preliminary pricing supplement, the section entitled “United States Federal Income Taxation” in the accompanying prospectus and the section entitled “Certain Income Tax Consequences” in the accompanying prospectus supplement. You should consult your tax advisor about your own tax situation.

#### **Additional Risks Relating to the SPDR<sup>®</sup> S&P<sup>®</sup> Oil & Gas Exploration & Production ETF and Energy Select Sector SPDR Fund**

**The stocks included in the Underlying Indices of the SPDR<sup>®</sup> S&P<sup>®</sup> Oil & Gas Exploration & Production ETF and the Energy Select Sector SPDR Fund are concentrated in one sector.** — All of the stocks included in the Underlying Indices are issued by companies in the oil and gas exploration and production sector. As a result, the stocks that will determine the performance of the Underlying Indices, which the Underlying Assets seek to replicate, are concentrated in one sector. Although an investment in the notes will not give holders any ownership or other direct interests in the stocks comprising the Underlying Indices, the return on an investment in the notes will be subject to certain risks associated with a direct equity investment in companies in the oil and gas exploration and production sector. Accordingly, by investing in the notes, you will not benefit from the diversification which could result from an investment linked to companies that operate in multiple sectors.

The issuers of the stocks held by the Underlying Assets and included in the Underlying Indices develop and produce, among other things, crude oil and natural gas, and provide, among other things, drilling services and other services related to oil and gas production and distribution. Stock prices for these types of companies are affected by supply

and demand both for their specific product or service and for oil and gas products in general. The price of oil and gas, exploration and production spending, government regulation, world events and economic conditions will likewise affect the performance of these companies. Correspondingly, the stocks of companies in this sector are subject to swift price fluctuations caused by events relating to international politics, energy conservation, the success of exploration projects and tax and other governmental regulatory policies. Weak demand for the companies' products or services or for oil and gas products and services in general, as well as negative developments in these other areas, would adversely impact the value of the stocks held by the Underlying Assets and included in the Underlying Indices, the market price of the Underlying Assets, and the value of the notes.

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**Examples of the Hypothetical Payment at Maturity for a \$1,000 Investment in the Notes**

The following table illustrates the hypothetical payments on a note at maturity, assuming that the notes are not automatically called. The hypothetical payments are based on a \$1,000 investment in the note, a hypothetical Initial Stock Price of \$100.00 for each Underlying Asset, a hypothetical Trigger Price of \$65.00 for each Underlying Asset (65% of its hypothetical Initial Stock Price), a hypothetical Call Level of \$100.00 for each Underlying Asset (100% of its hypothetical Initial Stock Price), a range of hypothetical Final Stock Prices of the Lesser Performing Underlying Asset and the effect on the payment at maturity if (i) a Trigger Event occurs with respect to **any** Underlying Asset or (ii) if a Trigger Event does not occur with respect to **any** Underlying Asset.

The hypothetical examples shown below are intended to help you understand the terms of the notes. If the notes are not automatically called, the actual cash amount that you will receive at maturity will depend upon the Final Stock Prices of the Underlying Assets, and whether a Trigger Event has occurred. If the notes are automatically called prior to maturity, the hypothetical examples below will not be relevant, and you will receive on the applicable Call Settlement Date, for each \$1,000 principal amount, the principal amount plus the Contingent Interest Payment.

As discussed in more detail above, your total return on the notes will depend on the number of applicable Interest Payment Dates on which the applicable Contingent Interest Payment is payable. It is possible that the only payments on your notes will be the payment, if any, due at maturity. The payment at maturity will not exceed the principal amount, and may be significantly less.

**Payment at Maturity (Excluding Contingent Interest Payments)**

Hypothetical Final Stock Price of the Lesser Performing Underlying Asset	Hypothetical Final Stock Price Expressed as a Percentage of the Initial Stock Price of the Lesser Performing Underlying Asset	Payment at Maturity (Excluding Contingent Interest Payments)	
		(i) if the closing market price of an Underlying Asset does not fall below the Trigger Price on any day during the Monitoring Period	(ii) if the closing market price of an Underlying Asset falls below the Trigger Price on any day during the Monitoring Period
\$150.00	150.00%	\$1,000.00	\$1,000.00

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\$125.00	125.00%	\$1,000.00	\$1,000.00
\$110.00	110.00%	\$1,000.00	\$1,000.00
\$100.00	100.00%	\$1,000.00	\$1,000.00
\$90.00	90.00%	\$1,000.00	\$900.00
\$80.00	80.00%	\$1,000.00	\$800.00
\$75.00	75.00%	\$1,000.00	\$750.00
\$70.00	70.00%	\$1,000.00	\$700.00
\$65.00	65.00%	\$1,000.00	\$650.00
\$50.00	50.00%	N/A	\$500.00
\$25.00	25.00%	N/A	\$250.00
\$0.00	0.00%	N/A	\$0.00

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## Supplemental U.S. Federal Income Tax Considerations

*The following, together with the discussion of U.S. federal income taxation in the accompanying prospectus and prospectus supplement, is a general description of the material U.S. tax considerations relating to the notes. It does not purport to be a complete analysis of all tax considerations relating to the notes. Prospective purchasers of the notes should consult their tax advisors as to the consequences under the tax laws of the country of which they are resident for tax purposes and the tax laws of Canada and the U.S. of acquiring, holding and disposing of the notes and receiving payments under the notes. This summary is based upon the law as in effect on the date of this preliminary pricing supplement and is subject to any change in law that may take effect after such date.*

The following section supplements the discussion of U.S. federal income taxation in the accompanying prospectus and prospectus supplement with respect to United States holders (as defined in the accompanying prospectus). It applies only to those holders who are not excluded from the discussion of U.S. federal income taxation in the accompanying prospectus. It does not apply to holders subject to special rules including holders subject to Section 451(b) of the Code. In addition, the discussion below assumes that an investor in the notes will be subject to a significant risk that it will lose a significant amount of its investment in the notes. Bank of Montreal intends to treat Contingent Interest Payments with respect to the notes as U.S. source income for U.S. federal income tax purposes.

You should consult your tax advisor concerning the U.S. federal income tax and other tax consequences of your investment in the notes in your particular circumstances, including the application of state, local or other tax laws and the possible effects of changes in federal or other tax laws.

NO STATUTORY, JUDICIAL OR ADMINISTRATIVE AUTHORITY DIRECTLY DISCUSSES HOW THE NOTES SHOULD BE TREATED FOR U.S. FEDERAL INCOME TAX PURPOSES. AS A RESULT, THE U.S. FEDERAL INCOME TAX CONSEQUENCES OF AN INVESTMENT IN THE NOTES ARE UNCERTAIN. BECAUSE OF THE UNCERTAINTY, YOU SHOULD CONSULT YOUR TAX ADVISOR IN DETERMINING THE U.S. FEDERAL INCOME TAX AND OTHER TAX CONSEQUENCES OF YOUR INVESTMENT IN THE NOTES, INCLUDING THE APPLICATION OF STATE, LOCAL OR OTHER TAX LAWS AND THE POSSIBLE EFFECTS OF CHANGES IN FEDERAL OR OTHER TAX LAWS.

We will not attempt to ascertain whether the Underlying Asset or any of the entities whose stock is owned by the Underlying Asset would be treated as a “passive foreign investment company” within the meaning of Section 1297 of the Code or a “U.S. real property holding corporation” within the meaning of Section 897 of the Code. If an

Underlying Asset or any of the entities whose stock is owned by the Underlying Asset were so treated, certain adverse U.S. federal income tax consequences could possibly apply. You should refer to any available information filed with the SEC by the Underlying Asset or any of the entities whose stock is owned by the Underlying Asset and consult your tax advisor regarding the possible consequences to you in this regard.

In the opinion of our counsel, Morrison & Foerster LLP, it would generally be reasonable to treat a note with terms described in this preliminary pricing supplement as a pre-paid cash-settled contingent income-bearing derivative contract in respect of the Underlying Asset for U.S. federal income tax purposes, and the terms of the notes require a holder and us (in the absence of a change in law or an administrative or judicial ruling to the contrary) to treat the notes for all tax purposes in accordance with such characterization. Although the U.S. federal income tax treatment of the Contingent Interest Payments is uncertain, we intend to take the position, and the following discussion assumes, that such Contingent Interest Payments (including any interest payment on or with respect to the maturity date) constitute taxable ordinary income to a United States holder at the time received or accrued in accordance with the holder's regular method of accounting. If the notes are treated as described above, it would be reasonable for a United States holder to take the position that it will recognize capital gain or loss upon the sale or maturity of the notes in an amount equal to the difference between the amount a United States holder receives at such time (other than amounts properly attributable to any interest payments, which would be treated, as described above, as ordinary income) and the United States holder's tax basis in the notes. In general, a United States holder's tax basis in the notes will be equal to the price the holder paid for the notes. Capital gain recognized by an individual United States holder is generally taxed at ordinary income rates where the property is held for one year or less. The deductibility of capital losses is subject to limitations.

## **Alternative Treatments**

Alternative tax treatments of the notes are also possible and the Internal Revenue Service might assert that a treatment other than that described above is more appropriate. For example, it would be possible to treat the notes, and the Internal Revenue Service might assert that the notes should be treated, as a single debt instrument. Because the notes have a term that exceeds one year, such a debt instrument would be subject to the special tax rules governing contingent payment debt instruments. If the notes are so treated, a United States holder would generally be required to accrue interest currently over the term of the notes (based upon the yield at which we would issue a non-contingent fixed-rate debt instrument with terms and conditions similar to the note) irrespective of the Contingent Interest Payments, if any, paid on the notes. In addition, any gain a United States holder might recognize upon the sale or maturity of the notes would be ordinary income and any loss recognized by a holder at such time would be ordinary loss to the extent of interest that same holder included in income in the current or previous taxable years in respect of the notes, and thereafter, would be capital loss.

Because of the absence of authority regarding the appropriate tax characterization of the notes, it is also possible that the Internal Revenue Service could seek to characterize the notes in a manner that results in other tax consequences that are different from those described above.

The Internal Revenue Service has released a notice that may affect the taxation of holders of the notes. According to the notice, the Internal Revenue Service and the Treasury Department are actively considering whether the holder of an instrument such as the notes should be required to accrue ordinary income on a current basis irrespective of any interest payments, and they sought taxpayer comments on the subject. It is not possible to determine what guidance they will ultimately issue, if any. It is possible, however, that under such guidance, holders of the notes will ultimately be required to accrue income currently and this could be applied on a retroactive basis. The Internal Revenue Service and the Treasury Department are also considering other relevant issues, including whether additional gain or loss from such instruments should be treated as ordinary or capital and whether the special “constructive ownership rules” of Section 1260 of the Code might be applied to such instruments. Holders are urged to consult their tax advisors concerning the significance, and the potential impact, of the above considerations. We intend to treat the notes for U.S. federal income tax purposes in accordance with the treatment described in this preliminary pricing supplement unless and until such time as the Treasury Department and Internal Revenue Service determine that some other treatment is more appropriate.

## **Backup Withholding and Information Reporting**

Please see the discussion under “United States Federal Income Taxation—Other Considerations—Backup Withholding and Information Reporting” in the accompanying prospectus for a description of the applicability of the backup withholding and information reporting rules to payments made on your notes.

## **Non-United States Holders**

The following discussion applies to non-United States holders of the notes. A non-United States holder is a beneficial owner of a note that, for U.S. federal income tax purposes, is a non-resident alien individual, a foreign corporation, or a foreign estate or trust.

While the U.S. federal income tax treatment of the notes (including proper characterization of the Contingent Interest Payments for U.S. federal income tax purposes) is uncertain, U.S. federal income tax at a 30% rate (or at a lower rate under an applicable income tax treaty) will be withheld in respect of the Contingent Interest Payments paid to a non-United States holder unless such payments are effectively connected with the conduct by the non-United States holder of a trade or business in the U.S. (in which case, to avoid withholding, the non-United States holder will be required to provide a Form W-8ECI). We will not pay any additional amounts in respect of such withholding. To claim benefits under an income tax treaty, a non-United States holder must obtain a taxpayer identification number and certify as to its eligibility under the appropriate treaty's limitations on benefits article, if applicable (which certification may generally be made on a Form W-8BEN or W-8BEN-E, or a substitute or successor form). In addition, special rules may apply to claims for treaty benefits made by corporate non-United States holders. A non-United States holder that is eligible for a reduced rate of U.S. federal withholding tax pursuant to an income tax treaty may obtain a refund of any excess amounts withheld by filing an appropriate claim for refund with the Internal Revenue Service. The availability of a lower rate of withholding or an exemption from withholding under an applicable income tax treaty will depend on the proper characterization of the Contingent Interest Payments under U.S. federal income tax laws and whether such treaty rate or exemption applies to such payments. No assurance can be provided on the proper characterization of the Contingent Interest Payments for U.S. federal income tax purposes and, accordingly, no assurance can be provided on the availability of benefits under any income tax treaty. Non-United States holders must consult their tax advisors in this regard.



Except as discussed below, a non-United States holder will generally not be subject to U.S. federal income or withholding tax on any gain (not including for the avoidance of doubt any amounts properly attributable to any interest which would be subject to the rules discussed in the previous paragraph) upon the sale or maturity of the notes, provided that (i) the holder complies with any applicable certification requirements (which certification may generally be made on a Form W-8BEN or W-8BEN-E, or a substitute or successor form), (ii) the payment is not effectively connected with the conduct by the holder of a U.S. trade or business, and (iii) if the holder is a non-resident alien individual, such holder is not present in the U.S. for 183 days or more during the taxable year of the sale or maturity of the notes. In the case of (ii) above, the holder generally would be subject to U.S. federal income tax with respect to any income or gain in the same manner as if the holder were a United States holder and, in the case of a holder that is a corporation, the holder may also be subject to a branch profits tax equal to 30% (or such lower rate provided by an applicable U.S. income tax treaty) of a portion of its earnings and profits for the taxable year that are effectively connected with its conduct of a trade or business in the U.S., subject to certain adjustments. Payments made to a non-United States holder may be subject to information reporting and to backup withholding unless the holder complies with applicable certification and identification requirements as to its foreign status.

A “dividend equivalent” payment is treated as a dividend from sources within the U.S. and such payments generally would be subject to a 30% U.S. withholding tax if paid to a non-United States 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 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, Internal Revenue Service guidance provides 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, 2021. Based on our determination that the notes are not “delta-one” instruments, non-United States 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 Underlying Asset or the notes, and following such occurrence the notes could be treated as delta-one specified ELIs that are subject to withholding on dividend equivalent payments. Non-United States holders that enter, or have entered, into other transactions in respect of the Underlying 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 paying agent) would be entitled to withhold taxes without being required to pay any additional amounts with respect to amounts so withheld.

As discussed above, alternative characterizations of the notes for U.S. federal income tax purposes are possible. Should an alternative characterization, by reason of change or clarification of the law, by regulation or otherwise, cause payments as to the notes to become subject to withholding tax in addition to the withholding tax described above, we will withhold tax at the applicable statutory rate. The Internal Revenue Service has also indicated that it is considering whether income in respect of instruments such as the notes should be subject to withholding tax. Prospective investors should consult their own tax advisors in this regard.

## **Foreign Account Tax Compliance Act**

The Foreign Account Tax Compliance Act imposes a 30% U.S. withholding tax on certain U.S. source payments, including interest (and OID), dividends, other fixed or determinable annual or periodical gain, profits, and income, and on the gross proceeds from a disposition of property of a type which can produce U.S. source interest or dividends (“Withholdable Payments”), if paid to a foreign financial institution (including amounts paid to a foreign financial institution on behalf of a holder), unless such institution enters into an agreement with the Treasury Department to collect and provide to the Treasury Department substantial information regarding U.S. account holders, including certain account holders that are foreign entities with U.S. owners, with such institution. A note may constitute an account for these purposes. The legislation also generally imposes a withholding tax of 30% on Withholdable Payments made to a non-financial foreign entity unless such entity provides the withholding agent with a certification that it does not have any substantial U.S. owners or a certification identifying the direct and indirect substantial U.S. owners of the entity.

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The U.S. Treasury Department and the Internal Revenue Service have announced that withholding on payments of gross proceeds from a sale or redemption of the notes will only apply to payments made after December 31, 2018. However, recently proposed regulations eliminate the requirement of withholding on gross proceeds from the sale or disposition of financial instruments. The U.S. Treasury Department has indicated that taxpayers may rely on these proposed regulations pending their finalization. If we determine withholding is appropriate with respect to the notes, we will withhold tax at the applicable statutory rate, and we will not pay any additional amounts in respect of such withholding. Account holders subject to information reporting requirements pursuant to the Foreign Account Tax Compliance Act may include holders of the notes. Foreign financial institutions and non-financial foreign entities located in jurisdictions that have an intergovernmental agreement with the United States governing the Foreign Account Tax Compliance Act may be subject to different rules. Holders are urged to consult with their own tax advisors regarding the possible implications of this legislation on their investment in the notes.

### **Supplemental Plan of Distribution (Conflicts of Interest)**

BMOCM will purchase the notes from us at a purchase price reflecting the commission set forth on the cover page of this preliminary pricing supplement. BMOCM has informed us that, as part of its distribution of the notes, it will reoffer the notes to other dealers who will sell them. Each such dealer, or each additional dealer engaged by a dealer to whom BMOCM reoffers the notes, will receive a commission from BMOCM, which will not exceed the commission set forth on the cover page. This commission will include a selling concession paid by BMOCM or one of its affiliates to certain dealers of up to 1.60% of the principal amount in connection with the distribution of the notes.

Certain dealers who purchase the notes for sale to certain fee-based advisory accounts may forego some or all of their selling concessions, fees or commissions. The public offering price for investors purchasing the notes in these accounts may be less than 100% of the principal amount, as set forth on the cover page of this document. Investors that hold their notes in these accounts may be charged fees by the investment advisor or manager of that account based on the amount of assets held in those accounts, including the notes.

We will deliver the notes on a date that is greater than two business days following the pricing date. Under Rule 15c6-1 of the Securities Exchange Act of 1934, as amended (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 issue date will be required to specify alternative settlement arrangements to prevent a failed settlement.

We own, directly or indirectly, all of the outstanding equity securities of BMOCM, the agent for this offering. In accordance with FINRA Rule 5121, BMOCM may not make sales in this offering to any of its discretionary accounts without the prior written approval of the customer.

We reserve the right to withdraw, cancel or modify the offering of the notes and to reject orders in whole or in part. You may cancel any order for the notes prior to its acceptance.

You should not construe the offering of the notes as a recommendation of the merits of acquiring an investment linked to the Underlying Asset or as to the suitability of an investment in the notes.

BMOCM may, but is not obligated to, make a market in the notes. BMOCM will determine any secondary market prices that it is prepared to offer in its sole discretion.

We may use the final pricing supplement relating to the notes in the initial sale of the notes. In addition, BMOCM or another of our affiliates may use the final pricing supplement relating to the notes in market-making transactions in any notes after their initial sale. Unless BMOCM or we inform you otherwise in the confirmation of sale, the final pricing supplement is being used by BMOCM in a market-making transaction.

For a period of approximately three months following issuance of the notes, the price, if any, at which we or our affiliates would be willing to buy the notes from investors, and the value that BMOCM may also publish for the notes through one or more financial information vendors and which could be indicated for the notes on any brokerage account statements, will reflect a temporary upward adjustment from our estimated value of the notes that would otherwise be determined and applicable at that time. This temporary upward adjustment represents a portion of (a) the hedging profit that we or our affiliates expect to realize over the term of the notes and (b) the underwriting discount and the selling concessions paid in connection with this offering. The amount of this temporary upward adjustment will decline to zero on a straight-line basis over the three-month period.

No Prospectus (as defined in Directive 2003/71/EC, as amended (the “Prospectus Directive”)) will be prepared in connection with the notes. Accordingly, the notes may not be offered to the public in any member state of the European Economic Area (the “EEA”), and any purchaser of the notes who subsequently sells any of the notes in any EEA member state must do so only in accordance with the requirements of the Prospectus Directive, as implemented in that member state.

The notes are not intended to be offered, sold or otherwise made available to, and should not be offered, sold or otherwise made available to, any retail investor in the EEA. For these purposes, the expression “offer” includes the communication in any form and by any means of sufficient information on the terms of the offer and the notes to be offered so as to enable an investor to decide to purchase or subscribe the notes, and a “retail investor” means a person who is one (or more) of: (a) a retail client, as defined in point (11) of Article 4(1) of Directive 2014/65/EU, as amended (“MiFID II”); or (b) a customer, within the meaning of Insurance Distribution Directive 2016/97/EU, as amended, where that customer would not qualify as a professional client as defined in point (10) of Article 4(1) of MiFID II; or (c) not a qualified investor as defined in the Prospectus Directive. Consequently, no key information document required by Regulation (EU) No 1286/2014, as amended (the “PRIIPs Regulation”), for offering or selling the notes or otherwise making them available to retail investors in the EEA has been prepared, and therefore, offering or selling the notes or otherwise making them available to any retail investor in the EEA may be unlawful under the PRIIPs Regulation.

#### **Additional Information Relating to the Estimated Initial Value of the Notes**

Our estimated initial value of the notes on the date of this preliminary pricing supplement, and that will be set forth on the cover page of the final pricing supplement relating to the notes, equals the sum of the values of the following hypothetical component:

- a fixed-income debt component with the same tenor as the notes, valued using our internal funding rate for structured notes; and

- one or more derivative transactions relating to the economic terms of the notes.

The internal funding rate used in the determination of the initial estimated value generally represents a discount from the credit spreads for our conventional fixed-rate debt. The value of these derivative transactions are derived from our internal pricing models. These models are based on factors such as the traded market prices of comparable derivative instruments and on other inputs, which include volatility, dividend rates, interest rates and other factors. As a result, the estimated initial value of the notes on the Pricing Date will be determined based on market conditions at that time.



## **The Underlying Assets**

We have derived the following information from publicly available documents. We have not independently verified the accuracy or completeness of the following information. We are not affiliated with the Underlying Asset Issuers, and the Underlying Asset Issuers will have no obligations with respect to the notes. This preliminary pricing supplement relates only to the notes and does not relate to the shares of the Underlying Assets or any securities included in the Underlying Indices. Neither we nor any of our affiliates participates in the preparation of the publicly available documents described below. Neither we nor any of our affiliates has made any due diligence inquiry with respect to the Underlying Assets in connection with the offering of the notes. There can be no assurance that all events occurring prior to the date of this preliminary pricing supplement, including events that would affect the accuracy or completeness of the publicly available documents described below and that would affect the trading price of the shares of the Underlying Assets, have been or will be publicly disclosed. Subsequent disclosure of any events or the disclosure of or failure to disclose material future events concerning the Underlying Assets could affect the price of the shares of the Underlying Assets during the Monitoring Period, on each Observation Date and on the Valuation Date, and therefore could affect the payments on the notes.

The selection of the Underlying Assets is not a recommendation to buy or sell the shares of the Underlying Assets. Neither we nor any of our affiliates make any representation to you as to the performance of the shares of the Underlying Assets. Information provided to or filed with the SEC under the Exchange Act and the Investment Company Act of 1940 relating to the Underlying Assets may be obtained through the SEC's website at <http://www.sec.gov>. None of that information is included or incorporated by reference in this preliminary pricing supplement.

We encourage you to review recent prices of the Underlying Assets prior to making an investment decision with respect to the notes.

## **SPDR<sup>®</sup> S&P<sup>®</sup> Oil & Gas Exploration & Production ETF**

This Underlying Asset is an investment portfolio maintained and managed by SSFM. The Underlying Asset trades on the NYSE Arca under the ticker symbol “XOP.” The inception date of the Underlying Asset is June 19, 2006. Prior to January 8, 2007, the Underlying Asset was known as the SPDR<sup>®</sup> Oil & Gas Exploration & Production ETF.

This Underlying Asset seeks to provide investment results that correspond generally to the price and yield performance, before fees and expenses, of the Underlying Index. The Underlying Index represents the oil and gas exploration and production sub-industry portion of the S&P Total Market Index (“S&P TMI”), an index that measures the performance of the U.S. equity market. The Underlying Asset is composed of companies that are in the oil and gas sector exploration and production.

The Underlying Asset utilizes a sampling strategy, which means that it is not required to purchase all of the securities represented in its Underlying Index. Instead, it may purchase a subset of the securities in the Underlying Index in an effort to hold a portfolio of securities with generally the same risk and return characteristics of the Underlying Index. Under normal market conditions, the Underlying Asset will invest at least 80% of its total assets in common stocks that comprise the Underlying Index.

The information above was compiled from the SPDR<sup>®</sup> website. We have not independently investigated the accuracy of that information. Information contained in the SPDR<sup>®</sup> website is not incorporated by reference in, and should not be considered a part of, this document.

## **The Underlying Index: S&P<sup>®</sup> Oil & Gas Exploration & Production Select Industry<sup>®</sup> Index**

We have derived all information contained in this document regarding the Underlying Index, including, without limitation, its make-up, method of calculation and changes in its components, from publicly available information. Such information reflects the policies of, and is subject to change by, Standard & Poor’s Financial Services LLC (“S&P”).

The Underlying Index is an equal-weighted index that is designed to measure the performance of the oil and gas exploration and production sub-industry portion of the S&P TMI. The S&P TMI includes all U.S. common equities listed on the NYSE (including NYSE Arca), the NYSE American, the Nasdaq Global Select Market, and the Nasdaq Capital Market.



To be eligible for inclusion in the Underlying Index, companies must be in the S&P TMI and must be included in the relevant Global Industry Classification Standard (“GICS”) sub-industry. The GICS was developed to establish a global standard for categorizing companies into sectors and industries. In addition to the above, companies must satisfy one of the three following combined size and liquidity criteria:

- float-adjusted market capitalization above \$500 million and float-adjusted liquidity ratio above 90%;
- float-adjusted market capitalization above \$400 million and float-adjusted liquidity ratio above 150%; or

for current constituents, float adjusted market capitalization above US\$300 million and float-adjusted liquidity ratio greater than or equal to 50%.

All U.S. companies satisfying these requirements are included in the Underlying Index. The total number of companies in the Underlying Index should be at least 35. If there are fewer than 35 stocks, stocks from a supplementary list of highly correlated sub-industries that meet the market capitalization and liquidity thresholds above are included in order of their float-adjusted market capitalization to reach 35 constituents. Minimum market capitalization requirements may be relaxed to ensure there are at least 22 companies in the Underlying Index as of each rebalancing effective date.

Eligibility factors include:

**Market Capitalization:** Float-adjusted market capitalization should be at least US\$400 million for inclusion in the Underlying Index. Existing index components must have a float-adjusted market capitalization of \$300 million to remain in the Underlying Index at each rebalancing.

**Liquidity:** The liquidity measurement used is a liquidity ratio, defined as dollar value traded over the previous 12-months divided by the float-adjusted market capitalization as of the Underlying Index rebalancing reference date. Stocks having a float-adjusted market capitalization above \$500 million must have a liquidity ratio greater than 90% to be eligible for addition to the Underlying Index. Stocks having a float-adjusted market capitalization between \$400 and \$500 million must have a liquidity ratio greater than 150% to be eligible for addition to the Underlying Index. Existing index constituents must have a liquidity ratio greater than 50% to remain in the Underlying Index at the quarterly rebalancing. The length of time to evaluate liquidity is reduced to the available trading period for IPOs or spin-offs that do not have 12 months of trading history.

**Takeover Restrictions:** At the discretion of S&P, constituents with shareholder ownership restrictions defined in company bylaws may be deemed ineligible for inclusion in the Underlying Index. Ownership restrictions preventing entities from replicating the index weight of a company may be excluded from the eligible universe or removed from the Underlying Index.

**Turnover:** S&P believes turnover in index membership should be avoided when possible. At times, a company may appear to temporarily violate one or more of the addition criteria. However, the addition criteria are for addition to the Underlying Index, not for continued membership. As a result, an index constituent that appears to violate the criteria for addition to the Underlying Index will not be deleted unless ongoing conditions warrant a change in the composition of the Underlying Index.

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### **Energy Select Sector SPDR® Fund**

This Underlying Asset 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. This Underlying Asset is composed of companies whose primary line of business is directly associated with the energy sector. This Underlying Asset trades on the NYSE Arca under the ticker symbol “XLE.”

### **The Energy Select Sector Index**

The Underlying Index is a modified market capitalization-based index. The index is intended to track the movements of companies that are components of the S&P 500® Index (the “SPX”) and are involved in the development or production of energy products. The index includes companies from the oil, gas and consumable fuels industry, as well as the energy equipment and services industry.

The Underlying Index is one of the Select Sector Indices. The Select Sector Indices are sub-indices of the SPX. Each stock in the SPX is allocated to at least one Select Sector Index, and the combined companies of the Select Sector Indices represent all of the companies in the SPX. The industry indices are sub-categories within each Select Sector Index and represent a specific industry segment of the overall Select Sector Index.

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 SPX.

The Select Sector Indices together will include all of the companies represented in the SPX and each of the stocks in the SPX will be allocated to at least one of the Select Sector Indices.

- The Underlying Index’s “Index Compilation Agent” assigns each constituent stock of the SPX to a Select Sector Index.
- The Index Compilation Agent assigns a company’s stock to a particular Select Sector Index based on S&P Dow Jones Indices’ sector classification methodology as set forth in its Global Industry Classification Standard.

- Each Select Sector Index is calculated by S&P Dow Jones Indices using a modified “market capitalization” methodology. This design ensures that each of the component stocks within a Select Sector Index is represented in a

proportion consistent with its percentage with respect to the total market capitalization of that Select Sector Index.

For reweighting purposes, each Select Sector Index is rebalanced quarterly after the close of business on the second to last calculation day of March, June, September and December using the following procedures: (1) The rebalancing reference date is two business days prior to the last calculation day of each quarter; (2) With prices reflected on the rebalancing reference date, and membership, shares outstanding, additional weight factor (capping factor) and investable weight factors (as described in the section “Computation of the SPX” below) as of the rebalancing effective date, each company is weighted using the modified market capitalization methodology. Modifications are made as defined below.

(i) The indices are first evaluated to ensure none of the indices breach the maximum allowable limits defined in rules (ii) and (v) below. If any of the allowable limits are breached, the component stocks are reweighted based on their float-adjusted market capitalization weights.

(ii) 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.

(iii) All excess weight is equally redistributed to all uncapped component stocks within the relevant Select Sector Index.

(iv) 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 stock s breaches the 23% weight cap.

(v) The sum of the component stocks with weight 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.

(vi) If the rule in step (v) 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 4.6%.

(vii) This excess weight is equally redistributed to all component stocks with weights below 4.6%. This process is repeated iteratively until step (v) is satisfied.

(viii) 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 business day prior to rebalancing, the actual weight of each component stock at the rebalancing differs somewhat from these weights due to market movements.

(ix) If necessary, the reweighting process may take place more than once prior to the close on the last business day of March, June, September or December to ensure conformity with all diversification requirements.

Each Select Sector Index is calculated using the same methodology utilized by S&P Dow Jones Indices in calculating the SPX, 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.

The Index Compilation Agent at any time may determine that a Component Stock which has been assigned to one Select Sector Index has undergone such a transformation in the composition of its business, and should be removed from that Select Sector Index and assigned to a different Select Sector Index. In the event that the Index Compilation Agent notifies S&P Dow Jones Indices that a Component Stock's Select Sector Index assignment should be changed, S&P Dow Jones Indices will disseminate notice of the change following its standard procedure for announcing index changes and will implement the change in the affected Select Sector Indices on a date no less than one week after the initial dissemination of information on the sector change to the maximum extent practicable. It is not anticipated that Component Stocks will change sectors frequently.

Component Stocks removed from and added to the SPX will be deleted from and added to the appropriate Select Sector Index on the same schedule used by S&P Dow Jones Indices for additions and deletions from the SPX insofar as practicable.

### **The S&P 500® Index**

The S&P 500® Index is intended to provide an indication of the pattern of common stock price movement. The calculation of the level of the SPX is based on the relative value of the aggregate market value of the common stocks of 500 companies as of a particular time compared to the aggregate average market value of the common stocks of 500 similar companies during the base period of the years 1941 through 1943.

S&P calculates the SPX by reference to the prices of the constituent stocks of the SPX without taking account of the value of dividends paid on those stocks. As a result, the return on the notes will not reflect the return you would realize if you actually owned the SPX constituent stocks and received the dividends paid on those stocks.

### **Computation of the S&P 500<sup>®</sup> Index**

Historically, the market value of any component stock of the S&P 500<sup>®</sup> Index was calculated as the product of the market price per share and the number of then outstanding shares of such component stock. In March 2005, S&P began shifting the S&P 500<sup>®</sup> Index halfway from a market capitalization weighted formula to a float-adjusted formula, before moving the S&P 500<sup>®</sup> Index to full float adjustment on September 16, 2005. S&P's criteria for selecting stocks for the S&P 500<sup>®</sup> Index did not change with the shift to float adjustment. However, the adjustment affects each company's weight in the S&P 500<sup>®</sup> Index.

Under float adjustment, the share counts used in calculating the S&P 500<sup>®</sup> Index reflect only those shares that are available to investors, not all of a company's outstanding shares. Float adjustment excludes shares that are closely held by control groups, other publicly traded companies or government agencies.

In September 2012, all shareholdings representing more than 5% of a stock's outstanding shares, other than holdings by "block owners," were removed from the float for purposes of calculating the S&P 500 Index. Generally, these "control holders" will include officers and directors, private equity, venture capital and special equity firms, other publicly traded companies that hold shares for control, strategic partners, holders of restricted shares, ESOPs, employee and family trusts, foundations associated with the company, holders of unlisted share classes of stock, government entities at all levels (other than government retirement/pension funds) and any individual person who controls a 5% or greater stake in a company as reported in regulatory filings. However, holdings by block owners, such as depositary banks, pension funds, mutual funds and ETF providers, 401(k) plans of the company, government retirement/pension funds, investment funds of insurance companies, asset managers and investment funds, independent foundations and savings and investment plans, will ordinarily be considered part of the float.

Treasury stock, stock options, equity participation units, warrants, preferred stock, convertible stock, and rights are not part of the float. Shares held in a trust to allow investors in countries outside the country of domicile, such as depositary shares and Canadian exchangeable shares are normally part of the float unless those shares form a control block.

For each stock, an investable weight factor ("IWF") is calculated by dividing the available float shares by the total shares outstanding. Available float shares are defined as the total shares outstanding less shares held by control holders. This calculation is subject to a 5% minimum threshold for control blocks. For example, if a company's officers and directors hold 3% of the company's shares, and no other control group holds 5% of the company's shares, S&P would assign that company an IWF of 1.00, as no control group meets the 5% threshold. However, if a company's officers and directors hold 3% of the company's shares and another control group holds 20% of the company's shares, S&P would assign an IWF of 0.77, reflecting the fact that 23% of the company's outstanding shares are considered to be held for control. As of July 31, 2017, companies with multiple share class lines are no longer eligible for inclusion in the S&P 500<sup>®</sup> Index. Constituents of the S&P 500<sup>®</sup> Index prior to July 31, 2017 with multiple share class lines will be grandfathered in and continue to be included in the S&P 500<sup>®</sup> Index. If a constituent company of the S&P 500<sup>®</sup> Index reorganizes into a multiple share class line structure, that company will remain in the S&P 500<sup>®</sup> Index at the discretion of the S&P Index Committee in order to minimize turnover.

The S&P 500<sup>®</sup> Index is calculated using a base-weighted aggregate methodology. The level of the S&P 500<sup>®</sup> Index reflects the total market value of all 500 component stocks relative to the base period of the years 1941 through 1943. An indexed number is used to represent the results of this calculation in order to make the level easier to use and track over time. The actual total market value of the component stocks during the base period of the years 1941 through 1943 has been set to an indexed level of 10. This is often indicated by the notation 1941-43 = 10. In practice, the daily calculation of the S&P 500<sup>®</sup> Index is computed by dividing the total market value of the component stocks by the "index divisor." By itself, the index divisor is an arbitrary number. However, in the context of the calculation of the S&P 500<sup>®</sup> Index, it serves as a link to the original base period level of the S&P 500<sup>®</sup> Index. The index divisor keeps the S&P 500<sup>®</sup> Index comparable over time and is the manipulation point for all adjustments to the S&P 500<sup>®</sup> Index, which is index maintenance.

## **Index Maintenance**

Index maintenance includes monitoring and completing the adjustments for company additions and deletions, share changes, stock splits, stock dividends, and stock price adjustments due to company restructuring or spinoffs. Some corporate actions, such as stock splits and stock dividends, require changes in the common shares outstanding and the stock prices of the companies in the S&P 500<sup>®</sup> Index, and do not require index divisor adjustments.

To prevent the level of the S&P 500<sup>®</sup> Index from changing due to corporate actions, corporate actions which affect the total market value of the S&P 500<sup>®</sup> Index require an index divisor adjustment. By adjusting the index divisor for the change in market value, the level of the S&P 500<sup>®</sup> Index remains constant and does not reflect the corporate actions of individual companies in the S&P 500<sup>®</sup> Index. Index divisor adjustments are made after the close of trading and after the calculation of the S&P 500<sup>®</sup> Index closing level.

Changes in a company's total shares outstanding of 5% or more due to public offerings are made as soon as reasonably possible. Other changes of 5% or more (for example, due to tender offers, Dutch auctions, voluntary exchange offers, company stock repurchases, private placements, acquisitions of private companies or non-index companies that do not trade on a major exchange, redemptions, exercise of options, warrants, conversion of preferred stock, notes, debt, equity participations, at-the-market stock offerings or other recapitalizations) are made weekly, and are generally announced on Fridays for implementation after the close of trading the following Friday (one week later). If a 5% or more share change causes a company's IWF to change by five percentage points or more, the IWF is updated at the same time as the share change. IWF changes resulting from partial tender offers are considered on a case-by-case basis.