Los Alamos County
Department of Public Utilities

Overview of RBC Gas Prepay Structure

February 5, 2025

LOS ALAMOS
Department of Public Utilities

RBC Capital Markets

Prepaid Gas Transactions

Executive Summary

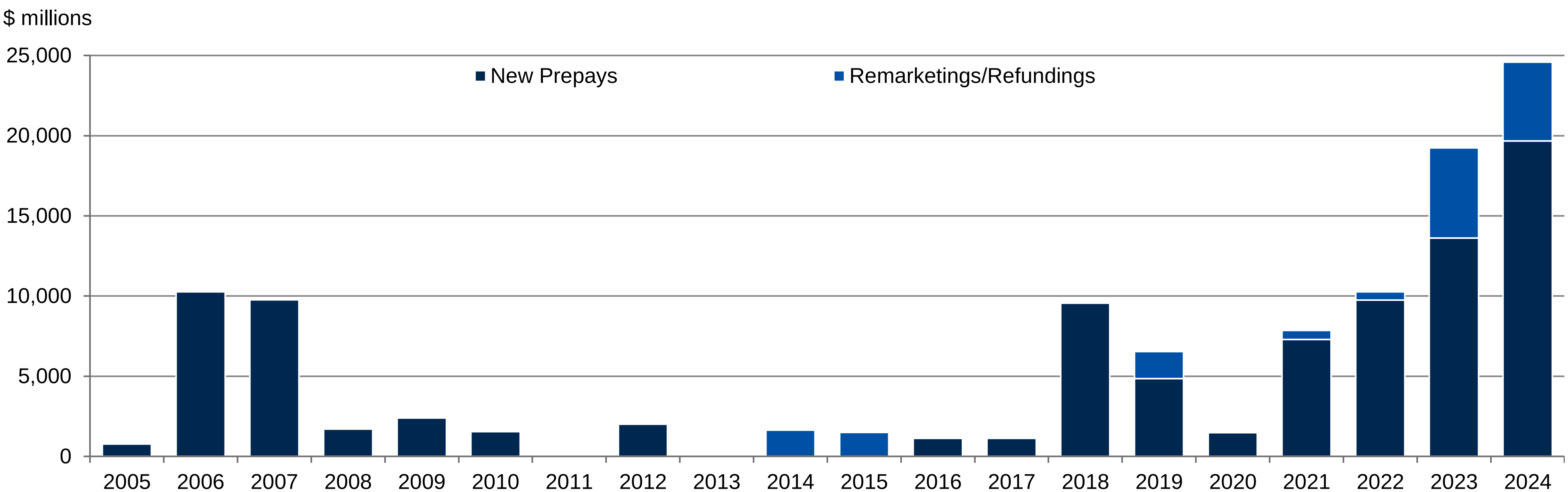
- Prepaid Gas Transactions involve a US Tax-Exempt Issuer (NMMEAA) issuing tax-exempt bonds to prepay for its future energy needs
  - The bond issue size is based on the projected cost of the gas over term of the transaction (discounted at Gas Supplier's taxable cost of funding), plus costs of issuance
- The ability of NMMEAA to borrow the pre-payment cost at a lower, ***tax-exempt*** rate than the pre-payment discount rate (RBC's ***taxable*** cost of funds), results in a funding arbitrage that generates a discount from index gas during the term of the transaction
- Prepaid transactions generate larger discounts when the overall level of interest rates are higher resulting in greater spreads between tax-exempt and taxable rates, a situation that prevails in today's markets
  - Los Alamos, as a participating Gas Purchaser, realizes its benefit in the form of reduced natural gas costs
  - RBC, as Gas Supplier and Underwriter, benefits from underwriting and commodity fees
- Prepayments are permitted under the tax code through statute and codification
  - In 2005, Congress passed the National Energy Policy Act of 2005 (Section 1327), which specifically provides for these transactions.
    - The statute provides a Safe Harbor for Prepaid Natural Gas in the "Arbitrage Rules" under § 148 (b)(4)
    - A change of law is required to change the statute
- No member of the NMMEAA financing team, including your independent, fiduciary capacity Municipal Advisor, is aware of an alternative to a Prepaid Gas Transaction to produce pricing discounts to what otherwise would be on-market (i.e., "spot" or "Index") pricing. Additionally, the legal terms of the previous transactions (including the 2019 Issue) require the participants to remain in future refundings as long as the "minimum discount" is achieved
- To the best of the Financing Team's knowledge and belief, the only opportunity costs to Los Alamos of participating in the NMMEAA Prepaid Transaction are:
  - The inability to commit the same gas volumes to an alternative Prepaid Transaction
    - While it is theoretically possible that a future alternative transaction in a different rate environment could produce a greater discount, there can be no assurance of such advantage. The 5 to 7 year Put Bond structure utilized in the last two remarketings effectively allows NMMEAA the opportunity to issue bonds in different rate environments and today's higher rate environment is generating increased discounts
    - Additionally, NMMEAA benefits significantly from the 30-year gas curve from 2008 when gas prices were much higher, that higher value gas curve would be lost if the 2019 transaction were not remarketed. The current gas curve is approximately 35% lower which directly impacts the achievable discount
    - Current market conditions generate a discount significantly greater than the discounts obtained in the past two remarketings. Additionally, the 2025 transaction is being structured to include all delivery point index premiums for the terms of the financing (2030)

Prepaid Gas Transactions (*cont.*)

Executive Summary

- The inability to commit the same gas volumes to a physical delivery arrangement
  - Because no future physical delivery arrangement can be expected to be at below market pricing, Los Alamos's potential interest in such an arrangement would be to lock in fixed future pricing for budgetary / rate stability purposes
  - Los Alamos can realize any desired future fixed pricing objectives through financial, rather than physical delivery contracts

Par Amount of Energy Prepays Issued from 2005 to Present



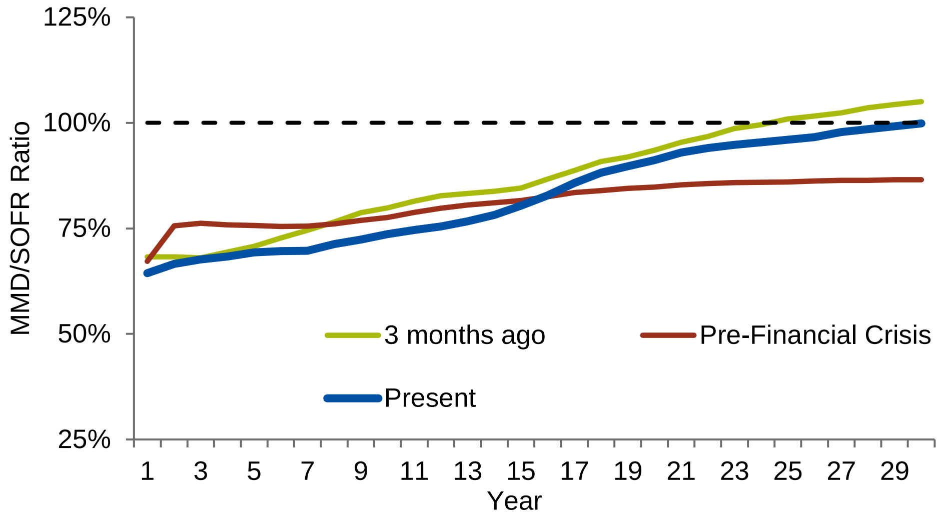
Source: *Refinitiv TM3, Bloomberg as of 01/28/2025*

Energy Prepay Market Update & Structure Overview

Energy prepayment transactions are generally structured with 25-30 year tax-exempt bonds, subject to a mandatory put in 5-7 years

- Prepaid energy (natural gas and electricity) transactions provide larger energy discounts when the difference between taxable and tax-exempt markets (including credit spreads) are greater.
- Long-term (25-30 years) tax-exempt bonds with 5-7 year put structure maximizes transaction economics
  - The greatest difference in tax-exempt and taxable rates usually falls within the 1-7 year range
  - The gas price discount is locked in for the initial period and then subject to reset at the mandatory put date
  - Terms shorter than 5 years require more frequent remarketings, increasing the risk of less favorable future conditions and increasing costs
  - If a refinancing cannot produce adequate energy discount, the transaction is unwound on the mandatory put date and the unamortized prepayment is used to redeem the bonds, terminating the Prepaid Transaction
- The put structure developed by RBC is the current market standard for prepaid energy bonds
- **RBC has acted as Energy Supplier and Underwriter on over $20.2 billion of Prepaid Energy Bonds from 2014 to present**

MMD / SOFR Term Structure



MMD vs. SOFR Swap Yield Curves

Rates as of Market Close January 28, 2025

Term (Yrs)	MMD	SOFR	Spread (bps)
1	2.67%	4.14%	147
2	2.69%	4.04%	135
3	2.72%	4.02%	130
4	2.75%	4.02%	127
5	2.79%	4.03%	124
7	2.82%	4.05%	123
10	3.00%	4.07%	107
15	3.32%	4.13%	81
20	3.76%	4.12%	36
25	3.89%	4.05%	16
30	3.96%	3.97%	1

Note: Conversion of Pre-Financial LIBOR Swap rates less 11 bps equate to SOFR Swap rates

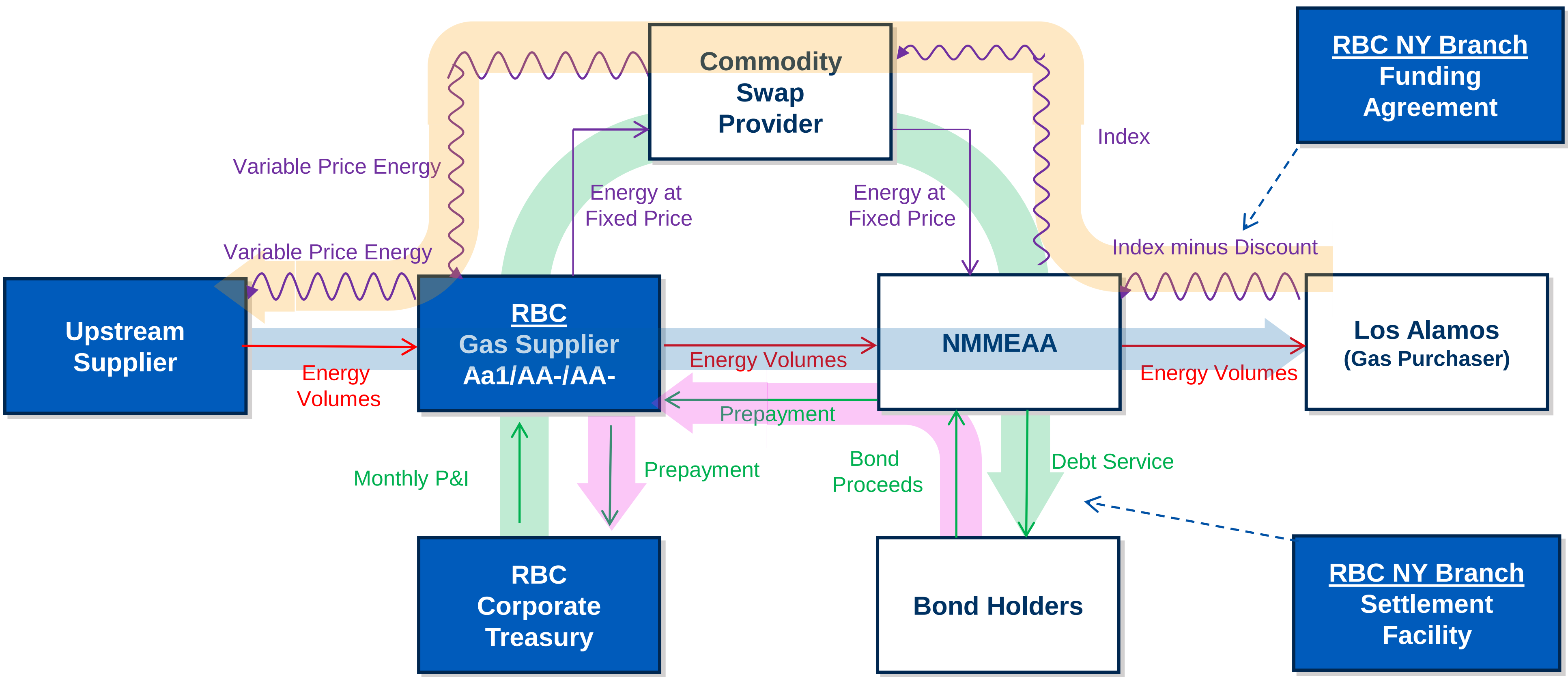
- Current Rate (01/28/2025): 5-year MMD: **2.79%**, 5-Year SOFR: **4.03%**, spread: **124 bps** | 10-year MMD: **3.00%**, 10-Year SOFR: **4.07%**, spread: **107 bps**
- Average Rate 2024: 5-year MMD: **2.60%**, 5-Year SOFR: **3.85%**, spread: **125 bps** | 10-year MMD: **2.71%**, 10-Year SOFR: **3.78%**, spread: **107 bps**

Source: Refinitiv TM3, Bloomberg as of 01/28/2025

Prepaid Gas Transactions

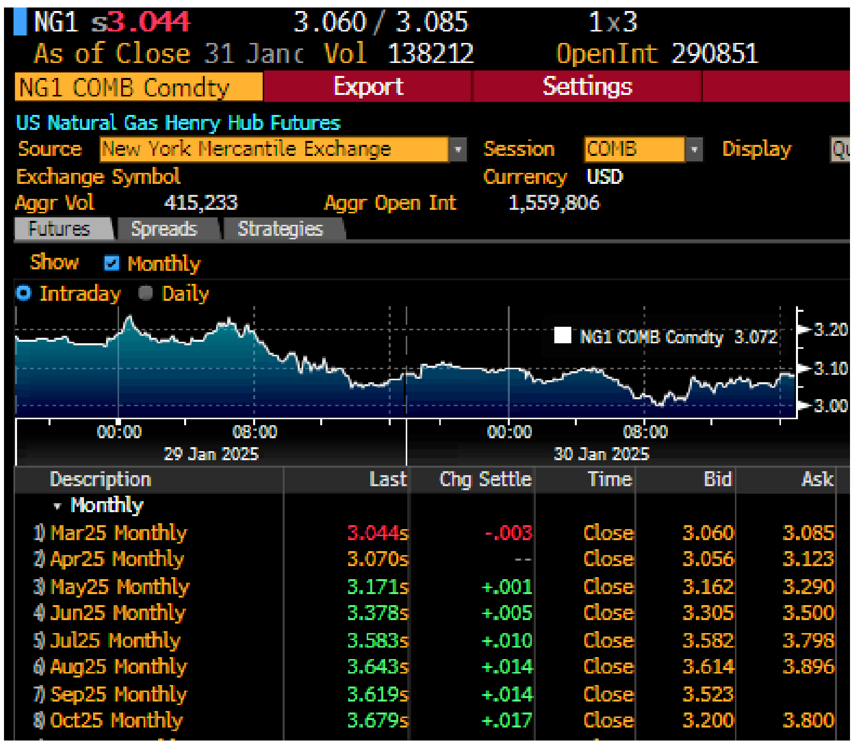
The Big Picture - Flow of Funds

- **Los Alamos's only obligation is to pay for energy delivered by NMMEAA under the Gas Supply Agreement**
- A prepaid gas transaction can be broken down into physical and financial flows
- Under conduit or participant structure, the Gas Purchaser's obligation is to purchase energy delivered to it by the issuing entity
- RBC Commodities manages the physical aspects of the Prepaid Gas Transaction
  - Scheduling
  - Nominations
  - Delivery



Natural Gas Market Pricing

- The national market for natural gas is large, efficient, and largely transparent.
  - In other words, the price at which transactions take place between willing sellers and willing buyers is observable, giving sellers no reason to sell gas at below market prices.
  - This is generally true for both near-term (e.g., next day or next month) gas and future (e.g., 3, 5, or even 10 years forward).
  - Accordingly, absent a Prepaid Transaction, Los Alamos, and all other buyers of natural gas, expect to, and do, pay the then-prevailing market price (sometimes referred to as “Index” or “spot”) at any time they purchase gas.
  - Accordingly, committing future gas volume purchases to the NMMEAA transaction does not result in an opportunity cost of foregone below-market pricing opportunities.
- There are regional and local market factors, including a large *force majeure* event on San Juan and the fact that the pipeline points in New Mexico and Arizona are price takers given the importance California demand has on pricing in the region
  - These factors impact Los Alamos’s all-in cost of gas in the substantially same manner regardless of whether the gas is acquired through NMMMEAA (at a discount) or outside of the NMMEAA transaction.



Description	Last	Chg Settle	Time	Bid	Ask
Monthly					
1) Mar25 Monthly	3.044s	-.003	Close	3.060	3.085
2) Apr25 Monthly	3.070s	--	Close	3.056	3.123
3) May25 Monthly	3.171s	+.001	Close	3.162	3.290
4) Jun25 Monthly	3.378s	+.005	Close	3.305	3.500
5) Jul25 Monthly	3.583s	+.010	Close	3.582	3.798
6) Aug25 Monthly	3.643s	+.014	Close	3.614	3.896
7) Sep25 Monthly	3.619s	+.014	Close	3.523	
8) Oct25 Monthly	3.679s	+.017	Close	3.200	3.800

	Time	VWAP	Chg	Spr to HH	Src
Regional Hubs					
Cheyenne Hub	01/31	2.60	-0.17	-0.32	BBG Nat...
Opal, WY	01/30	2.988	-0.256	+0.068	BBG Nat...
Waha Hub (TX)	01/31	0.92	-1.39	-2.00	BBG Nat...
White River Hub	01/31	2.60	-0.27	-0.32	BBG Nat...
Pioneer Pipeline					
Plant Tailgate	12/28	2.8755	+0.27	-0.0445	BBG Nat...
Colorado Interstate Gas					
CIG Mainline	01/31	2.55	-0.331	-0.37	BBG Nat...
South Rockies	01/31	2.65	-0.02	-0.27	BBG Nat...
WIC Pool	11/03	1.82	+0.03	-1.10	BBG Nat...
El Paso Nat Gas Co					
Blanco, NM	01/30	2.89	-0.23	-0.03	BBG Nat...
Bondad Station	01/31	2.48	-0.39	-0.44	BBG Nat...
Mesquite, AZ	05/04	6.82	-0.11	+3.90	BBG Nat...
Permian Basin	01/31	1.02	-1.29	-1.90	BBG Nat...
South Mainline	01/31	2.78	-0.39	-0.14	BBG Nat...
Topock, AZ	01/31	2.65	-0.90	-0.27	BBG Nat...
Waha Pool	01/31	0.95	-1.322	-1.97	BBG Nat...

Obtaining Fixed Pricing For Future Deliveries

- It is more common than not for utilities (and other substantial users of natural gas) to desire fixed pricing on some portion of its expected future purchases
- While there certainly are entities that speculate on the future price of commodities, stocks, bonds, etc., the vast majority of natural gas industry participants desire fixed future pricing for budgetary and rate-payer predictability purposes
- Fixed pricing on future purchases can be obtained through a fixed price, fixed volume, physical delivery agreement
  - The seller offering such an agreement to Los Alamos would be aware of the futures market pricing for the contracted volumes, as well as delivery-point specific considerations affecting the net price and would make arrangements to protect itself from losses associated with unhedged future price guarantees
  - As noted earlier, Los Alamos cannot enter into a physical delivery agreement for the same volumes it commits to a NMMEAA transaction as that would result in double the needed volumes
- However, Los Alamos does have available to it financial arrangements, including NYMEX futures, and commodity swaps (e.g., an exchange or “swap” of the future Index price for a fixed price known today) through which it can substantially fix one or all of the total price components:
  - NYMEX Henry Hub Last Day price component;
  - Local delivery “Spread” to NYMEX HH LD; and
  - Delivery point “Index Premium”
- In all likelihood, any seller offering future physical delivery at a fixed price would be using these same tools to work for a known profit margin rather than take the unedged risk that its offered price is below market
- Accordingly, participating in the NMMEAA transaction does not prevent Los Alamos from obtaining any desired future fixed pricing

Additional Volumes

- Los Alamos's discount /MMBtu would be materially higher if it were to extend its scheduled future gas purchases from NMMEAA beyond the current 2039 expectation
- The financing team is aware of Los Alamos's objectives to reduce and, ultimately, eliminate natural gas use
- However, to the extent that future purchases are reasonably expected while the "phase out" efforts proceed, Los Alamos can benefit from committing those expected volume purchases from NMMEAA
- If future volume needs currently considered to be reasonably expected are ultimately not needed, including due to unexpectedly successful gas phase out efforts, those expectations can be simply adjusted downward – Los Alamos will not be obligated to take gas for which it does not have a need/use
- Los Alamos has opportunity to add new volumes for the years 2039-2055 in this transaction. These additional volumes have the advantage of actually increasing the already high gas price from approx. $7.89/MMBtu to approx. $8.12/ MMBtu for the entire transaction due to the final 15 years having a gas price of approx. $8.72/MMBtu
- Los Alamos does not have the opportunity to add these additional volumes to a different prepaid transaction because they cannot be done on a forward basis to a new transaction
- The additional volumes will significantly enhance the discount from this refunding. Current estimates (final discount will not be locked in until bonds are sold in early March and all variables determined) are that the discount will increase by approx. 50%
- Virtually every prepaid transaction that has been remarketed over the last six years has seen participant extend additional volumes out to the original term of 30 years

Appendices

Capital Markets

Parties Involved in a Prepaid Gas Transaction

NMMEAA (Bond Issuer / Conduit Borrower)	▪ A Joint Action Agency or a Conduit Borrower ▪ Sells the tax-exempt bonds to fund prepayment for natural gas, capitalized interest account (if needed), and costs of issuance ▪ Enters into Prepaid Natural Gas Purchase and Sale Agreement and sells 100% of gas delivered by the gas supplier to the gas purchasers
Los Alamos (Gas Purchaser)	▪ An end user of the gas; purchases at first of month index less the discount ▪ Enters into a Natural Gas Supply Agreement with the Issuer to receive specified monthly quantities of gas for the life of the bonds ▪ Participation limited to purchasing gas on a "take and pay basis"
RBC (Gas Supplier)	▪ Enters into the Prepaid Natural Gas Purchase and Sale Agreement with the Issuer to deliver specified monthly quantities of gas for the life of the bonds ▪ Receives the proceeds of the bonds
Commodity Swap Provider	▪ Enters into a pair of back-to-back commodity swaps with the Issuer and Gas Supplier – Hedges the Issuer and Gas Supplier's fixed price commodity exposure
Other Parties	▪ Bond Counsel ▪ Tax Counsel ▪ Financial Advisor ▪ Underwriter's / Gas Supplier's Counsel

Put Structure Summary

Prepayment	▪ Prepayment for 30 years of fixed gas deliveries, based on a 30 year forward gas price curve
Bond Financing	▪ Municipality issues the bonds for the prepayment ▪ 5 - 7 year amortizing debt with balloon payment (a hard put bond) at the end of the original financing term – Tenor optimizes spread between taxable and tax-exempt rates while spreading out issuance costs – Bonds are remarketed or refinanced at end of the first period and each successive period thereafter – Successive periods expected to be in 5 - 7 year range dependent on market conditions at the time of the remarketing
Target Economics / Term	▪ **Fixed discount to index is initially set only through initial 5 - 7 year period, followed by a reset of the fixed discount for each subsequent reset period** – Minimum savings threshold established at the outset for future reset periods – No guarantee of future savings beyond the initial discount period
Termination Events	▪ Failure of Gas Supplier ▪ Failure of Participants to pay for gas delivered by Issuer ▪ Termination of commodity swap, without replacement ▪ The failure to generate savings in excess of minimum savings threshold in any discount reset will provide the Participant with the option to have its quantities remarketed until the minimum savings threshold can be achieved in a future reset period
Termination Payment	▪ In all Termination Events, RBC is required to make a Termination Payment, which along with funds on hand, is calculated to be sufficient to redeem the bonds ▪ Transaction ratings reflect RBC's ability to perform and make Termination Payment, if necessary
Participant Exposures	▪ Participant is required ONLY to pay for gas delivered by or on behalf of the Conduit Issuer ▪ Participant's risk is limited to loss of access to discounted gas, in the event of Early Termination ▪ **The financing is non-recourse to gas purchasers**

Economic Drivers of the Discount & Current Market Conditions

Component	Definition	Impact on Gas Discount	Current Market Condition
Term of the Prepaid Gas Agreement	Time period from the delivery date to final maturity of the Agreement	The longer the term, the greater the quantity of gas and the associated discount	Recent transactions have been 30 years
Natural Gas Price Curve	A series of forward prices at which parties can purchase gas at fixed prices	The higher and/or steeper the gas price curve, the greater the gas discount	Relatively low gas prices across the curve are having a negative effect on gas discount
Gas Supplier's Discount Rate	Gas Supplier's cost of funds expressed as a spread over SOFR swaps	The higher the funding spread, the greater the gas discount	Regulatory change has driven increased funding needs for financial institutions
Tax-Exempt Bonds' Trading Levels	Gas prepaid bonds trading levels expressed as a spread over MMD benchmark rates	The lower the credit spread, the greater the discount	Prepaid Gas bonds trade at a wider spreads vs. comparably rated credits due to investor sophistication in extracting a portion of the available arbitrage
Yield Spread Between Taxable (SOFR) and Tax-exempt (MMD) Market	Relationship between taxable and tax-exempt markets	The wider the spread in bps, the greater the discount	Spreads have narrowed given "flight to quality" in response to bank credit concerns

Transaction Risks and Mitigants

Structural Bondholder Protections

Project Participants fail to take or pay for Commodity Supply	▪ Draw on DSRF (funded with RBC Funding and Assignment Agreement) allows the Trustee to make required payments ▪ RBC will remarket to other parties with priority given to other municipal utilities ▪ RBC option to terminate transaction and make a Liquidation Payment sufficient to retire the Bonds
Commodity Supply is not Delivered	▪ RBC pays replacement cost (but not less than the monthly Index price), or in the event of force majeure, the monthly Index price to the Issuer and the Issuer pays cost of “Replacement Gas” to Project Participants ▪ By virtue of RBC’s payment to the Issuer, the Trustee has sufficient funds to make required payments
Persistent Delivery Failure	▪ Prepaid Commodity Purchase and Sale Agreement terminates at the option of the Issuer ▪ A Liquidation Payment is made by RBC to the Issuer, calculated to be sufficient to retire outstanding Bonds
Commodity Swap Terminates	▪ Prepaid Commodity Purchase and Sale Agreement terminates ▪ If necessary, RBC’s payment under the commodity swap is passed to the Issuer by the Custodian, allowing the Trustee to make required payments ▪ A Liquidation Payment is made by RBC to the Issuer under the Prepaid Commodity Purchase and Sale Agreement calculated to be sufficient to retire the Bonds
Failed Remarketing of Put Bond	▪ Royal Bank of Canada, NY Branch, Settlement Facility in effect on remarketing date ▪ A Liquidation Payment is made by RBC to the Issuer under the Prepaid Commodity Purchase and Sale Agreement calculated to be sufficient to retire the Bonds

Natural Gas Pre-Payment Transactions - Illustrative Core Economics and Structure (30 Years)

Gas Supply Pre-Payment Agreement									Bond Issue						Discount	
Year	Price Per Unit	$ Cost / 1,000 Units	Discount Factor @ 4.900%	Present Value	Begin Balance	Int @ 4.900%	Value of Gas Deliveries	End Balance	Pre-Payment Cost	Costs of Issuance	Begin Balance	Int @ 4.100%	Bonds Principal + Interest	End Balance	Dollar Savings	$ Savings / Unit
1	10.0	10,000	0.95329	9,533	155,492	7,619	10,000	153,112	155,492	2,368	157,860	6,472	9,328	155,005	672	0.672
2	10.0	10,000	0.90876	9,088	153,112	7,502	10,000	150,614			155,005	6,355	9,328	152,032	672	0.672
3	10.0	10,000	0.86631	8,663	150,614	7,380	10,000	147,994			152,032	6,233	9,328	148,938	672	0.672
4	10.0	10,000	0.82584	8,258	147,994	7,252	10,000	145,246			148,938	6,106	9,328	145,716	672	0.672
5	10.0	10,000	0.78727	7,873	145,246	7,117	10,000	142,363			145,716	5,974	9,328	142,363	672	0.672
6	10.0	10,000	0.75049	7,505	142,363	6,976	10,000	139,339								
7	10.0	10,000	0.71544	7,154	139,339	6,828	10,000	136,166								
8	10.0	10,000	0.68202	6,820	136,166	6,672	10,000	132,838								
9	10.0	10,000	0.65016	6,502	132,838	6,509	10,000	129,348								
10	10.0	10,000	0.61979	6,198	129,348	6,338	10,000	125,686								
11	10.0	10,000	0.59084	5,908	125,686	6,159	10,000	121,844								
12	10.0	10,000	0.56324	5,632	121,844	5,970	10,000	117,815								
13	10.0	10,000	0.53693	5,369	117,815	5,773	10,000	113,587								
14	10.0	10,000	0.51185	5,119	113,587	5,566	10,000	109,153								
15	10.0	10,000	0.48794	4,879	109,153	5,349	10,000	104,502								
16	10.0	10,000	0.46515	4,651	104,502	5,121	10,000	99,622								
17	10.0	10,000	0.44342	4,434	99,622	4,881	10,000	94,504								
18	10.0	10,000	0.42271	4,227	94,504	4,631	10,000	89,135								
19	10.0	10,000	0.40296	4,030	89,135	4,368	10,000	83,502								
20	10.0	10,000	0.38414	3,841	83,502	4,092	10,000	77,594								
21	10.0	10,000	0.36620	3,662	77,594	3,802	10,000	71,396								
22	10.0	10,000	0.34909	3,491	71,396	3,498	10,000	64,894								
23	10.0	10,000	0.33279	3,328	64,894	3,180	10,000	58,074								
24	10.0	10,000	0.31724	3,172	58,074	2,846	10,000	50,920								
25	10.0	10,000	0.30242	3,024	50,920	2,495	10,000	43,415								
26	10.0	10,000	0.28830	2,883	43,415	2,127	10,000	35,542								
27	10.0	10,000	0.27483	2,748	35,542	1,742	10,000	27,284								
28	10.0	10,000	0.26199	2,620	27,284	1,337	10,000	18,620								
29	10.0	10,000	0.24975	2,498	18,620	912	10,000	9,533								
30	10.0	10,000	0.23809	2,381	9,533	467	10,000	0								
		300,000		**155,492**		**144,508**	**300,000**					**31,142**	**46,639**		**3,361**	

RBC Cost of Funds (Taxable):	**4.900%**
or Required Interest Rate (Tax-Exempt):	**4.100%**
Resulting Base Spread:	**0.800%**
Costs of Issuance Estimate:	1.50% of Bond Issue Size

[1] ***~5-Year Term maximizes spread between RBC's funding cost and Bond Purchasers' required Investment return rate.***

[2] **At end of ~5-Year Term, bonds are remarketed OR early termination value of Pre-Pay Agreement is sufficient to redeem outstanding Bonds.**

Natural Gas Pre-Payment Transactions - Illustrative Core Economics and Structure (15 Years)

Gas Supply Pre-Payment Agreement									Bond Issue						Discount	
Year	Price Per Unit	$ Cost / 1,000 Units	Discount Factor @ 4.900%	Present Value	Begin Balance	Int @ 4.900%	Value of Gas Deliveries	End Balance	Pre-Payment Cost	Costs of Issuance	Begin Balance	Int @ 4.100%	Bonds Principal + Interest	End Balance	Dollar Savings	$ Savings / Unit
1	10.0	10,000	0.95329	9,533	104,502	5,121	10,000	99,622	104,502	1,916	106,417	4,363	9,674	101,106	326	0.326
2	10.0	10,000	0.90876	9,088	99,622	4,881	10,000	94,504			101,106	4,145	9,674	95,578	326	0.326
3	10.0	10,000	0.86631	8,663	94,504	4,631	10,000	89,135			95,578	3,919	9,674	89,822	326	0.326
4	10.0	10,000	0.82584	8,258	89,135	4,368	10,000	83,502			89,822	3,683	9,674	83,831	326	0.326
5	10.0	10,000	0.78727	7,873	83,502	4,092	10,000	77,594			83,831	3,437	9,674	77,594	326	0.326
6	10.0	10,000	0.75049	7,505	77,594	3,802	10,000	71,396								
7	10.0	10,000	0.71544	7,154	71,396	3,498	10,000	64,894								
8	10.0	10,000	0.68202	6,820	64,894	3,180	10,000	58,074								
9	10.0	10,000	0.65016	6,502	58,074	2,846	10,000	50,920								
10	10.0	10,000	0.61979	6,198	50,920	2,495	10,000	43,415								
11	10.0	10,000	0.59084	5,908	43,415	2,127	10,000	35,542								
12	10.0	10,000	0.56324	5,632	35,542	1,742	10,000	27,284								
13	10.0	10,000	0.53693	5,369	27,284	1,337	10,000	18,620								
14	10.0	10,000	0.51185	5,119	18,620	912	10,000	9,533								
15	10.0	10,000	0.48794	4,879	9,533	467	10,000	0								
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		150,000		**104,502**		**45,498**	**150,000**					**19,547**	**48,370**		**1,630**	

- Without **Additional Volumes** the value of the prepayment and resulting arbitrage is lower while divided by the same number of MMBtus delivered.
- In this example, the discount is reduced from 67 cents to 33 cents.
- Additional Volumes need to be reasonably expected. If ultimately not needed, mechanisms to reduce future deliveries are available.

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