



NGX Canadian Natural Gas Index™

**Methodology Guide
December 7, 2009**

Natural Gas Exchange Inc.

Index Description

NGX Canadian Natural Gas Index™ is a commodity index based on natural gas as traded on NGX. This Canadian dollar denominated index tracks the performance of Alberta “one-month spot” physical market price.

The index is an Excess Return index where the return reflects an investment rolling from month to month and not any Collateral Return, or interest return on collateral. The initial benchmark value of the index was set at 1000 as of December 7, 2007. The index is calculated on a daily basis as of 2:30 ET (12:30 MT).

Constituents

Underlying Contracts

The index is based on the AECO “C” physical forward contracts which expire at the end of the month preceding the delivery month.

The forward prices used to price and create the index are referred to as “**Prompt**” and “**Deferred**” contracts. The prompt contract is the closest expiring forward contract and the deferred is the second nearest expiring contract.

Example:

During the month of January, the prompt contract is the February contract. The February contract is rolled to the March contract such that by contract expiry (the end of January calendar), the prompt contract is entirely the March contract.

Roll Period

To create the underlying exposure that most closely replicates an investment in the spot physical natural gas market, the prompt contract month is used. The prompt forward contract expires monthly and needs to be replaced by the next contract, the deferred contract. The process of replacing the prompt contract with the deferred is known as the rolling process. The period that is chosen to roll the contracts over is known as the “**Roll Period**”.

The length of the Roll period will be monitored by NGX to ensure the pricing mechanism best reflects the liquid part of the prompt and deferred month contract. An adjustment may be made to shorten, lengthen, or shift the time period of the roll with communication in advance of such change being implemented. (Please note NEW Holiday and Roll Calendar Effective December, 2009)

Contract expiry

The bulk of the volume trading is in the latter part of the month but is always changing. It is the intention of the roll period mechanism to roll when most liquid, although this may not always be achieved.

Contract Price

Settlement Methodology-Aeco Fixed Price

NGX settles our Aeco fixed price products using a physical basis mark, the daily Nymex settle for the corresponding month, and the CME futures FX settle at 12:30pm MST, in the following manner:

$(\text{Nymex settle} + \text{Aeco Phys Basis settle}) * \text{CME FX futures settle}/\text{GISB conversion} = \text{Aeco fixed price}$

Where:

- Nymex Settle = the published settlement number for Month (X)
- Aeco Phys Basis Settle = the mark deemed midmarket for Month (X) by NGX based on market conditions including current screen postings and recent trading activity, and in the case of an illiquid market, a market survey.
- CME FX futures settle = the FX number used corresponds to the settlement date in the 55 day settlement schedule. This number is derived by taking a daily differential from the CME quarterly CAD/USD settlements. For example, for gas flowing in June, the settlement date is July 24th. Using the differential between the spot FX rate as of 1:00 pm MST, and the September 2009 CME futures settle expiring on the 15th of September, an FX rate is assigned to each day, and the rate for July 24th is used.
- GISB conversion - Nymex and Aeco basis are settled in MMBtu, while Aeco fixed price is settled in GJs, so a unit conversion is necessary.
1 MMBtu=1.055056 GJs.

Exclusion of Irregular Market Data

NGX will have the right to exclude any market data from inclusion in the source data, which appears to be irregular to the then prevailing market prices, during the period of investigation of any such transactions. All of such market data will be included in the source data on satisfactory resolution of such investigation, provided that NGX resolves such investigation prior to the opening of the NGX Trading System on the next day.

Calendar

Index Calculation

The index is calculated daily, 365 days/year. The daily index level is set as of settlement at 2:30 ET (12:30 MT).

Roll Process

A modified calendar used for contract roll days which reflects both Canadian and U.S. holidays. A U.S. futures holiday that is not a Canadian holiday will not be included as a roll day. This is to ensure adequate liquidity during the roll period. An index level will such days as only the roll days are tied to this modified calendar. The roll calendar is published on the NGX website (www.ngx.com).

Example: Thursday November 22, 2007 is a U.S. futures holiday but not Canadian holiday. The index is calculated on this day, but this day is not a part of the roll calendar.

Market Disruption

Should trading not be available for one or more days during the roll period, the remaining days will be used to roll the remainder of the prompt exposure to the deferred contract on an equal weighted basis. Should extraordinary circumstances arise such that there are not enough days to roll the exposure in an efficient manner, the roll period may be adjusted at the discretion of the NGX.

Index Management

Changes to Methodology Guide

The rules and practices for constructing the index necessarily change over time in order to reflect developments in the market. NGX will endeavor to provide reasonable advance notice of any such changes, as well as an assessment of any expected impact on the index.

Information Sources and Publications

NGX Canadian Natural Gas Index and NGX Price Indices are published by NGX and by selected third party publishers. All NGX indices are published on the NGX website at www.ngx.com.

Contact Information

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About NGX

NGX is Canada's leading energy exchange and North America's largest physical clearing and settlement facility. Since 1994, NGX's unique market model has provided traders with one of the most highly liquid, secure and efficient environments available for trading and clearing natural gas and electricity contracts. NGX is based in Calgary and wholly owned by TSX Group, which collectively manages all aspects of Canada's senior and junior equity markets.



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Appendix: Index Calculation

Index Price (I) Calculation

The Index Price can be calculated each day based on the following formula:

$$I = (P_{\text{prompt}} \times W_{\text{prompt}} + P_{\text{deferred}} \times W_{\text{deferred}}) \times RA$$

where:

P_{prompt} = Price of the Prompt contract

W_{prompt} = Weight of the prompt contract

P_{deferred} = Price of the deferred contract

W_{deferred} = Weight of the deferred contract

RA = Cumulative roll adjustment

IG ratio = Day 1 Index to Gas ratio

Non-Roll Period

During the period starting from the beginning of a new trading month until the beginning of the Roll Period:

$$W_{\text{prompt}} = 1$$

$$W_{\text{deferred}} = 0$$

IG ratio = 161.746866154. Derived from a Day 1 gas price of \$6.1825. (At the index start date, the index was equal to 1000, so 1000/Day 1 Gas Price=161.746866154)

Example:

$$P_{\text{prompt}} = 6.02$$

$$W_{\text{prompt}} = 1$$

$$P_{\text{deferred}} = 5.9975$$

$$W_{\text{deferred}} = 0$$

$$RA_{(5)} = RA_{(4)}$$

$$\text{So } I = (6.02 \times 1 + 6.36 \times 0) \times 1.00 \text{ (RA during first month of trading will be 1.00)} \times \text{IG ratio}$$

$$I = (6.02) \times 1.00 \times \text{IG ratio}$$

$$I = 6.02 \times 161.746866154$$

$$I = 973.72$$

Roll Period

During the roll period:

$$W_{\text{prompt}} = W_{\text{prompt}(t-1)} - (1 / N)$$

$$W_{\text{deferred}} = W_{\text{deferred}(t-1)} + (1 / N) \times (P_{\text{prompt}} / P_{\text{deferred}})$$

Where N = number of roll days = 8

$$\text{So } I = (P_{\text{prompt}} \times W_{\text{prompt}} + P_{\text{deferred}} \times W_{\text{deferred}}) \times RA \times \text{IG ratio}$$

$$I = [5.91 \times (.875 - .1/8)] + [6.01 \times (.125 + 1/8) \times (5.91/6.01)] \times 1.00 \times 161.746866154$$

$$I = [4.4325 + (1.5025 \times .985)] \times 161.746866154$$

$$I = 956.32$$

Post Roll Period

In the period between the end of the roll period and before the beginning of the next trading month:

$$W_{\text{prompt}} = 0$$

$$W_{\text{deferred}} = 1$$

Cumulative Roll Adjustment (RA)

The Cumulative Roll Adjustment (RA) is adjusted at the beginning of each trading month to reflect the cumulative impact of rolling from prompt to deferred contracts over the life of the index. This is necessary because typically, the price of the prompt contract is different than the price of the deferred contract. The RA reflects the volume adjustment that an investor would have to make in order to remain fully invested when rolling from one contract to the next.

On the first day of a new trading month the RA is calculated:

$$RA_{(t)} = RA_{(t-1)} \times W_{(t-1)}$$

On every other day of the month, the RA is calculated:

$$RA_{(t)} = RA_{(t-1)}$$