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ARGUS NORTH AMERICAN NATURAL GAS IMPLIED VOLATILITY FORWARD CURVES

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LAST UPDATED: JANUARY 2013

The most up-to-date Argus North American Natural Gas Implied Volatility Forward Curves methodology is available on
www.argusmedia.com

Introduction

Argus Media is a price reporting organization recognized throughout the world for its impartial, reliable and accurate coverage of key energy commodity markets. Argus price indices are used extensively in natural gas and electricity markets in Europe and globally for crude oil, refined products, coal and environmental markets such as emissions credits.

Argus North American Natural Gas Implied Volatility Forward Curves "Argus Gas Volatilities" represent the market's current price volatility valuation for call, put and straddle options on a monthly basis. Implied volatility is a measure of variation in price derived from observed option prices for a specific forward contract time period. Argus Gas Volatilities are derived from market option prices and differ from historical volatility curves, which are calculated from the historical market prices of the underlying commodity.

Argus Gas Volatilities provide an assessment of implied volatilities at major natural gas locations and/or hubs across North America, including those markets and/or tenors where minimal liquidity exists on a given trading day.

Argus Gas Volatilities are an essential tool for valuing option premiums associated with forward natural gas contracts. Argus Gas Volatilities can also be used in mark-to-market accounting and to support numerous analytical applications such as value-at-risk, potential future exposure, deal valuation, regression analysis, scenario analyses, etc.

Argus Gas Volatilities include daily assessments for CME's NYMEX Henry Hub natural gas market and 37 additional natural gas trading locations, providing monthly granularity for time periods extending a minimum of two years forward. Argus provides implied volatilities at current market prices using "At the Money" (ATM) strike prices for all 38 natural gas locations assessed. The strike price is the price at which a specific derivative contract can be bought or sold, also known as the exercise price. A call option strike price is the price at which the underlying derivative can be bought while a put option strike price is the price at which the underlying derivative can be sold. In addition, Argus Gas Volatilities provide implied volatilities above and below the current market price, for CME's NYMEX Henry Hub, creating a volatility smile. Volatility smile is a pattern in which at-the-money (ATM) options tend to have lower implied volatilities than in-the-money (ITM) or out-of-the-money (OTM) options, which results from the probability of extreme price fluctuations. An ITM call option's strike price is below the market price of the underlying derivative contract, while an ITM put option's strike price is above the market price of the underlying derivative. An OTM call option's strike price is above the market price of the underlying derivative, while an (OTM) put option's strike price is below the market price of the underlying derivative. The volatility smile strike prices are in increments of 25 cents/mmBtu, above and below the current market price. Argus Gas Volatilities include ATM straddle option prices for CME's NYMEX Henry Hub expressed in \$/mmBtu. Straddle options are the purchase or sale of an equal number of puts and call op-

tions, with the same strike price and expiration dates. An options exercise date is the last day of trading for an option contract, and the last day on which an option may be exercised and exchanged for the underlying contract. Argus uses Black-Scholes as the underlying model for calculating natural gas implied volatility. Argus uses the London Interbank Offered Rate (LIBOR) as its interest rate benchmark index. LIBOR is the average interest rate charged by banks borrowing from other banks and is estimated by the leading banks in London. LIBOR is the primary benchmark, along with the Euribor, for short term interest rates around the world. Argus calculates implied volatilities using a calendar (365 days) time to maturity for all options observed.

Argus produces natural gas implied volatility forward curves on every trading day in which the CME's Henry Hub Natural Gas Futures market is open for trading during normal business hours. Argus Gas Volatilities are not published on CME holidays.

Code of Conduct and Compliance

Argus operates a rigorous and transparent controls framework to govern its price reporting activities. This is underpinned by its global compliance policy (www.argusmedia.com) and which includes an ethics policy and a business continuity plan. This strict ethics policy can be found on Argus' website at www.argusmedia.com. Included in this policy are restrictions against Argus employees trading in any energy commodities, including the equities of energy industry participants, and guidelines for the acceptance of gifts from non-Argus individuals and entities. Argus also has strict policies regarding the archiving of email and instant messenger communications, maintenance and archiving of notes and for the archiving of spread sheets and deal lists used in the price index formation process.

The company's Global Compliance Officer oversees the compliance framework, including a rolling program of internal audits to ensure compliance with stated methodologies and policies.

Methodology

Liquid Natural Gas Forward Markets

Argus Gas Volatilities reflect market value as of 2:30 pm EST – the close of the CME's Henry Hub natural gas futures primary trading session, providing consistency and corresponding with the CME closing prices for any given trading day.

Argus gathers information on forward option markets from numerous sources, including brokers, traders and through the mid- and back offices of energy companies. Argus uses natural gas option transactions, bids and offers, option spreads, straddle options, collars and other financial data to derive its final implied volatility forward curve assessment.

Market information is cross-checked and validated to ensure the accuracy of the data. Information that Argus cannot validate may

be excluded from the assessment process. Transactions done after 2:30pm EST are not considered for that trading day's forward curve assessments.

Executed transactions are typically used as the final forward curve value in the absence of additional information. For markets and terms where end of day bids and/or offers are available, the last executed transaction may be ignored if it falls outside the prevailing bid/offer range. In the event there is only a bid or offer available, the transaction price must be lower than the offer price and/or greater than the bid price. In situations where both a bid and offer are available, but no transactions, Argus determines value as being at the midpoint of the bid/offer spread, assuming the bid offer spread is not wider than what Argus determines is a normal bid/offer spread for a particular market location and term. If the bid/offer spread is considered to be wider than is normally the case, Argus will value the curve within the bid/offer spread but will not necessarily value the curve at the midpoint.

Illiquid Natural Gas Forward Markets

In the absence of any market information for a particular location and/or term on a given day, Argus will seek to establish if the location typically trades on a spread basis to another, more liquid, natural gas market. At times, Argus may use proprietary curve valuation models that utilize advanced statistical analyses to formulate implied volatility curves in cases in which no market information is available for a particular market location and/or term. Argus constantly reviews markets, liquidity and trading patterns to ensure its forward curve valuations are in line with energy market information needs.

Definition of Forward Implied Volatility Contracts

Monthly

Monthly natural gas contracts are for the contracted volume of natural gas divided by the number of days in a given month. This daily required volume of natural gas is then delivered rateably over a 24 hour delivery schedule for every day during the contracted delivery month.

Trading Locations for Argus North American Natural Gas Forward Price Curves

Gulf Coast/South Texas Markets:

HSC

Other IDs: Houston Ship Channel

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the settlement differential between the CME Henry Hub futures contract final contract settlement price and the monthly HSC Index published in the Inside FERC Gas Market Report ("IFGMR")

Katy

Other IDs: Katy Hub

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the settlement differential between the CME Henry Hub futures contract final contract settlement price and the monthly Katy Index published in the IFGMR

Carthage

Other IDs: Carthage Hub

Financial/Physical: Physical

Product(s) assessed: Physical natural gas delivered rateably throughout the appropriate delivery month into the Carthage Hub in northeast Texas

NGPL – STX

Other IDs: NGPL South Texas

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly NGPL- South Texas Index published in the IFGMR

TGP – 500

Other IDs: TGP 500 leg; 500; TGP Zone 1

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly TGP – 500 leg Index published in the IFGMR

TGP – 800

Other IDs: TGP 800 leg; 800;

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly TGP – 800 leg Index published in the IFGMR

Sonat

Other IDs: Southern

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly Sonat Index published in the IFGMR

TETCO - ELA

Other IDs: none

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly TETCO - ELA Index published in the IFGMR

FGT – Z3

Other IDs: FGT Zone 3

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly FGT – Zone 3 Index published in the IFGMR

Midwest Markets:

PEPL

Other IDs: Panhandle Eastern Pipe Line, PEPL Oklahoma

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly PEPL Index published in the IFGMR

ANR - SW

Other IDs: ANR Southwest, ANR Oklahoma

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly ANR - SW Index published in the IFGMR

NGPL – Midcont.

Other IDs: NGPL Midcontinent, Oklahoma

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly NGPL - Midcontinent Index published in the IFGMR

NNG Ventura

Other IDs: Ventura

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly NNG - Ventura Index published in the IFGMR

NNG Demarc

Other IDs: Demarc, NNG – Demarcation, Demarcation

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly NNG - Demarc Index published in the IFGMR

Chicago CG

Other IDs: Chicago Citygates

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly Chicago Citygates Index published in the Natural Gas Intelligence (“NGI”) Bidweek Survey

Michcon CG

Other IDs: Michcon Citygates

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly Michcon Citygates Index published in the IFGMR

Dawn

Other IDs: Union Dawn; Dawn, Ontario

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly Dawn Index published in the IFGMR

Northeast Markets:**Dominion**

Other IDs: Dominion South; South Point; Dominion Appalachia

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the settlement differential between the CME Henry Hub futures contract final contract settlement price and the monthly Dominion Index published in the IFGMR

TCO

Other IDs: Columbia Gas Appalachia

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the settlement differential between the CME Henry Hub futures contract

final contract settlement price and the monthly Columbia Gas Appalachia Index published in the IFGMR

TETCO – M3

Other IDs: M3

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the settlement differential between the CME Henry Hub futures contract final contract settlement price and the monthly TETCO – M3 Index published in the IFGMR

Transco Zone 6 (non-NY)

Other IDs: non-NY, Zone 6

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly Transco zone 6 (non-NY) Index published in the IFGMR

Transco - Zone 6 (NY)

Other IDs: NY

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly Transco zone 6 (NY) Index published in the IFGMR

TGP - Z6 dvlid.

Other IDs: Tennessee Zone 6

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly TGP zone 6 delivered Index published in the IFGMR

Iroquois - Zone 2

Other IDs: none

Financial/Physical: Financial

Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly Iroquois Zone 2 Index published in the IFGMR

Niagara

Other IDs: none

Financial/Physical: Physical

Product(s) assessed: natural gas delivered rateably throughout the appropriate delivery month into Niagara on TCPL

West Markets:

Waha

Other IDs: none
 Financial/Physical: Financial
 Product(s) assessed: Financial Basis swap settled against the settlement differential between the CME Henry Hub futures contract final contract settlement price and the monthly Waha Index published in the IFGMR

TW Permian

Other IDs: Transwestern Permian Basin
 Financial/Physical: Financial
 Product(s) assessed: Financial Basis swap settled against the settlement differential between the CME Henry Hub futures contract final contract settlement price and the monthly Transwestern, Permian Basin Index published in the IFGMR

EP San Juan

Other IDs: El Paso San Juan Basin, San Juan Basin; San Juan
 Financial/Physical: Physical
 Product(s) assessed: Financial Basis swap settled against the settlement differential between the CME Henry Hub futures contract final contract settlement price and the monthly El Paso, San Juan Basin Index published in the IFGMR

NWPL Rockies

Other IDs: Northwest, Rocky Mountains, Rockies
 Financial/Physical: Financial
 Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly NWPL Rockies Index published in the IFGMR

CIG Rockies

Other IDs: CIG Rocky Mountains, Colorado Interstate Gas, CIG
 Financial/Physical: Financial
 Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly CIG Rockies Index published in the IFGMR

Opal

Other IDs: Kern River Opal;
 Financial/Physical: Physical
 Product(s) assessed: natural gas delivered rateably throughout the appropriate delivery month into Opal on the Kern River pipeline

AECO

Other IDs: AB NIT, AECO Hub, TCPL Alberta, AECO-C, Alberta Energy Company/Nova Inventory Transfer
 Financial/Physical: Financial
 Product(s) assessed: Financial Basis swap settled against the

final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly AECO Index published in NGX

Sumas

Other IDs: Northwest Sumas
 Financial/Physical: Financial
 Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly Sumas Index published in the IFGMR

Malin

Other IDs: PG&E Malin
 Financial/Physical: Financial
 Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly Malin Index published in the NGI Bidweek Survey

PG&E CG

Other IDs: PG&E Citygate
 Financial/Physical: Financial
 Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly PG&E Citygate Index published in the NGI Bidweek Survey

Socal

Other IDs: Socal Gas Co, Socal Gas, Socal Border
 Financial/Physical: Financial
 Product(s) assessed: Financial Basis swap settled against the final price differential between the CME Henry Hub futures contract final contract settlement price and the monthly Socal Border Index published in the NGI Bidweek Survey

Kern River

Other IDs: Kern River delivered
 Financial/Physical: Physical
 Product(s) assessed: natural gas delivered rateably throughout the appropriate delivery month into Kern River in California

Contact Information:

For methodological questions about Argus North American Natural Gas Implied Volatility Forward Curves, please contact Al Pollard, Vice-President of Risk Management Products, at 713-429-6338; al.pollard@argusmedia.com.

For questions about how you can begin receiving Argus North American Natural Gas Implied Volatility Forward Curves, please contact the Argus sales team at: Tel: 713-968-0000; email sales@argusmedia.com.