

NATURAL GAS PRESENTATION

Prepared for the Staff of the
Delaware Public Service Commission

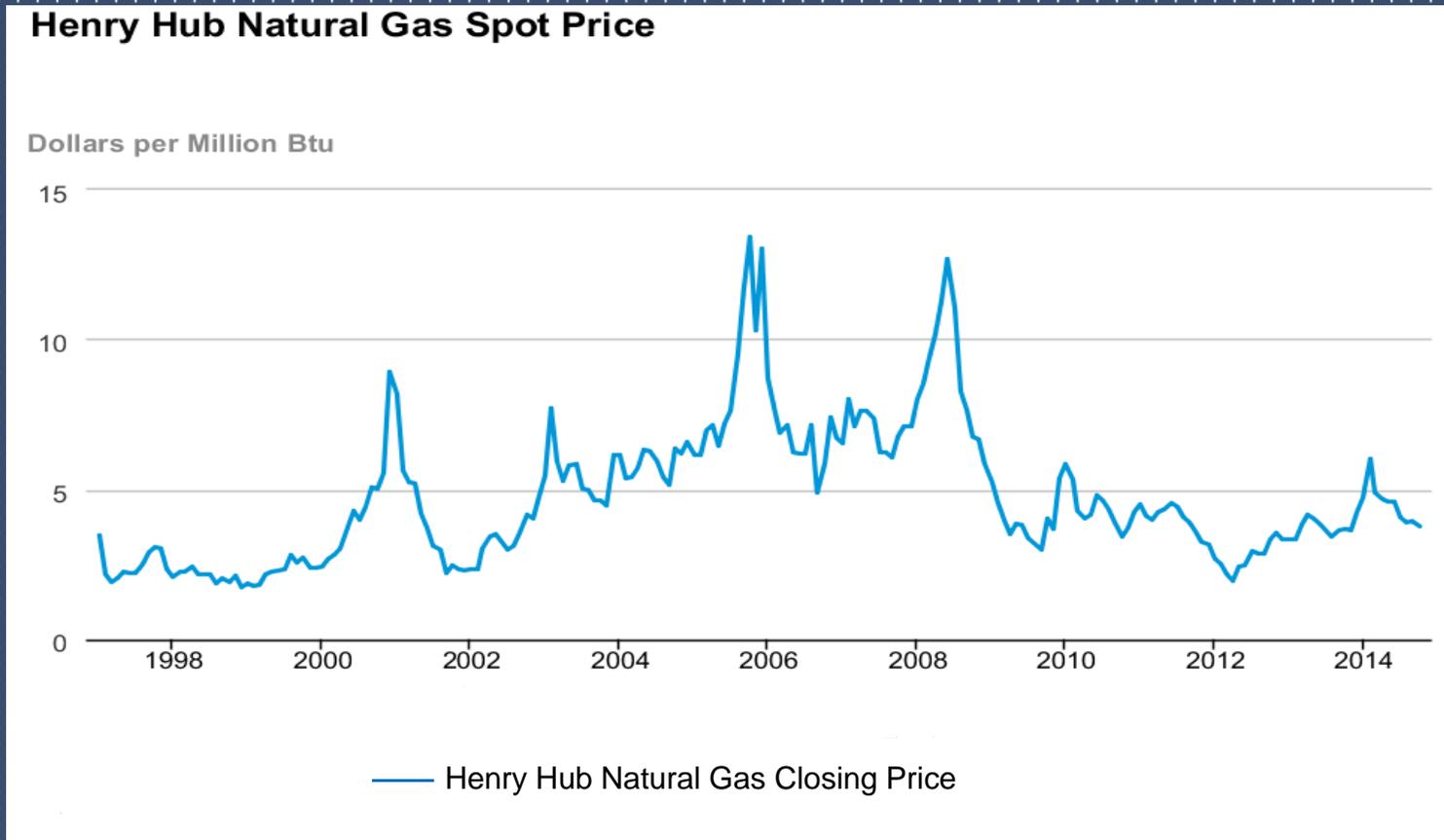
Presented by Exeter Associates, Inc.

HEDGING

- ▶ Despite the significant increases in gas from shale, the Henry Hub in Erath, Louisiana remains the national benchmark for natural gas prices.
- ▶ The Henry Hub is a distribution center owned by Sabine Pipe Line, LLC which interconnects with 9 interstate and 4 intrastate pipelines.
- ▶ Natural gas futures are currently traded on the various exchanges including CME Globex, Open Outcry, CME ClearPort, and the Intercontinental Exchange (ICE). Initially, natural gas futures were traded on the New York Mercantile Exchange (NYMEX). The Henry Hub is the centralized point for trading natural gas futures. The time horizon for trading is the current year plus 12 years on CME ClearPort and Open Outcry. That is, gas may be purchased for any month 12 years into the future.

HEDGING (CONT'D)

Since deregulation, natural gas prices have been volatile:



Source: U.S. Energy Information Administration.

HEDGING (CONT'D)

- ▶ To reduce exposure to this volatility and increase rate stability, many LDCs have adopted hedging programs.
- ▶ “Hedging” is an economic activity in which a party attempts to protect against potential adverse price fluctuations in a market.
- ▶ Hedging has the risk that a utility and its customers will pay above-market prices, and hedging can also have counterparty risk and collateral obligations.
- ▶ Regulators and utilities cannot expect hedging to lower the long-term price paid for natural gas.

HEDGING (CONT'D)

- ▶ Physical and financial forms of hedging exist.
- ▶ Physical hedging includes the use of bilateral, fixed-price, physical forward contracts and storage:
 - A bilateral, fixed-price, physical forward contract is an agreement between a willing buyer and a willing seller. The buyer agrees to buy a certain quantity of gas, at a certain price and location, at a certain future point in time.

For example, the buyer agrees today to pay \$5.00 per Dth for 5,000 Dth per day delivered to Transcontinental Gas Pipe Line (Transco) Zone 3 in January 2016, and the seller agrees to provide the gas.

- The buyer protects against gas prices increasing above \$5.00 per Dth.

HEDGING (CONT'D)

▶ Storage

- The utility injects gas into storage during the summer when prices are typically lower (e.g., \$4.00 per Dth), and withdraws that gas to serve its customers during the winter when gas prices are typically higher (e.g., \$5.00 per Dth). The utility has reduced the amount of gas which would be purchased at the higher \$5.00 per Dth price.

HEDGING (CONT'D)

- ▶ Financial hedging includes:
 - Futures contracts
 - Swaps
 - Options
 - Collars

FUTURES CONTRACTS

- ▶ Natural gas futures trading is for monthly purchases with the same quantity of gas being delivered on each day during a given month at the Henry Hub. One standard monthly futures contract provides for the delivery of 10,000 Dth per month, or during a 30-day month, 333.33 Dth per day. Mini-contracts for 2,500 Dth per month are also now available.
- ▶ Trading for a particular month terminates three business days prior to the first calendar day of the delivery month.
- ▶ For each natural gas futures contract, there is a buyer and a seller.

FUTURES CONTRACTS (CONT'D)

- ▶ Futures contracts that are purchased actually provide for the delivery of gas at the Henry Hub.
- ▶ Most purchasers of futures contracts do not physically take delivery of gas at the Henry Hub, but sell the contract at a gain or loss prior to contract expiration. Sellers of futures contracts close out their positions by buying futures contracts. Most utility purchasers of futures contracts do not have pipeline capacity to deliver gas from the Henry Hub to their citygates.
- ▶ An example of current trading is provided on the following slides.

HENRY HUB NATURAL GAS FUTURES QUOTES

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Henry Hub Natural Gas Futures Quotes View another product..
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Quotes Settlements Volume Time & Sales Contract Specs Margins Calendar

Globex Futures Open Outcry Futures Globex Options Open Outcry Options Auto Refresh is

Market data is delayed by at least 10 minutes

Month	Options	Charts	Last	Change	Prior Settle	Open	High	Low	Volume	Hi / Low Limit	Updated
FEB 2015	OPT		2.855	+0.060	2.795	2.815	2.918	2.795	32,083	4.295 / 1.295	09:00:24 CT 13 Jan 2015
MAR 2015	OPT		2.851	+0.056	2.795	2.819	2.911	2.794	15,878	4.295 / 1.295	09:00:26 CT 13 Jan 2015
APR 2015	OPT		2.831	+0.043	2.788	2.802	2.883	2.798	10,664	4.288 / 1.288	09:00:26 CT 13 Jan 2015
MAY 2015	OPT		2.854	+0.046	2.808	2.834	2.900	2.810 a	3,636	4.308 / 1.308	09:00:03 CT 13 Jan 2015
JUN 2015	OPT		2.900	+0.040	2.860	2.863	2.946	2.863	2,340	4.360 / 1.360	09:00:24 CT 13 Jan 2015
JUL 2015	OPT		2.958	+0.045	2.913	2.923	2.986	2.923	972	4.413 / 1.413	09:00:03 CT 13 Jan 2015
AUG 2015	OPT		2.961 b	+0.037	2.924	2.938	2.991	2.938	998	4.424 / 1.424	08:58:35 CT 13 Jan 2015
SEP 2015	OPT		2.947 a	+0.040	2.907	2.918	2.981 b	2.918	606	4.407 / 1.407	08:59:07 CT 13 Jan 2015
OCT 2015	OPT		2.970	+0.038	2.932	2.930	3.007	2.930	1,944	4.432 / 1.432	08:59:24 CT 13 Jan 2015
NOV 2015	OPT		3.072	+0.036	3.036	3.030	3.103	3.030	285	4.536 / 1.536	08:55:07 CT 13 Jan 2015
DEC 2015	OPT		3.260	+0.029	3.231	3.248	3.283 b	3.231	160	4.731 / 1.731	08:59:07 CT 13 Jan 2015
JAN 2016	OPT		3.400 a	+0.024	3.376	3.386	3.436 b	3.386	285	4.876 / 1.876	08:59:43 CT 13 Jan 2015
FEB 2016	OPT		3.404	+0.029	3.375	3.392	3.406 b	3.392	123	4.875 / 1.875	08:54:44 CT 13 Jan 2015
MAR 2016	OPT		3.366	+0.025	3.341	3.372	3.372	3.366	407	4.841 / 1.841	08:55:38 CT 13 Jan 2015
APR 2016	OPT		3.238	+0.025	3.213	3.240	3.240	3.230	52	4.713 / 1.713	08:52:48 CT 13 Jan 2015
MAY 2016	OPT		3.235	+0.016	3.219	3.235	3.235	3.235	16	4.719 / 1.719	08:50:32 CT 13 Jan 2015
JUN 2016	OPT		3.270	+0.015	3.255	3.270	3.270	3.270	2	4.755 / 1.755	08:16:41 CT 13 Jan 2015
JUL 2016	OPT		3.310	+0.015	3.295	3.310	3.310	3.310	3	4.795 / 1.795	08:16:36 CT 13 Jan 2015
AUG 2016	OPT		3.320	+0.016	3.304	3.320	3.320	3.320	3	4.804 / 1.804	08:16:35 CT 13 Jan 2015

HENRY HUB NATURAL GAS FUTURES QUOTES (CONT'D)

SEP 2016	OPT		3.305	+0.014	3.291	3.305	3.305	3.305	1	4.791 / 1.791	13 Jan 2015
OCT 2016	OPT		3.338	+0.022	3.316	3.330	3.338	3.330	3	4.816 / 1.816	08:52:23 CT 13 Jan 2015
NOV 2016	OPT		-	-	3.402	-	-	-	0	4.902 / 1.902	06:57:13 CT 13 Jan 2015
DEC 2016	OPT		3.620	+0.035	3.585	3.600	3.620	3.600	9	5.085 / 2.085	08:37:02 CT 13 Jan 2015
JAN 2017	OPT		3.756	+0.015	3.741	3.756	3.756	3.756	2	5.241 / 2.241	07:33:31 CT 13 Jan 2015
FEB 2017	OPT		3.745 b	+0.010	3.735	-	3.745 b	-	0	5.235 / 2.235	08:17:35 CT 13 Jan 2015
MAR 2017	OPT		3.690 b	+0.005	3.685	-	3.690 b	-	31	5.185 / 2.185	08:34:43 CT 13 Jan 2015
APR 2017	OPT		3.493 b	+0.005	3.488	-	3.493 b	-	31	4.988 / 1.988	08:34:43 CT 13 Jan 2015
MAY 2017	OPT		-	-	3.490	-	-	-	0	4.990 / 1.990	06:57:13 CT 13 Jan 2015
JUN 2017	OPT		3.530 b	+0.005	3.525	-	3.530 b	-	0	5.025 / 2.025	06:57:13 CT 13 Jan 2015
JUL 2017	OPT		3.590	+0.028	3.562	3.590	3.590	3.590	4	5.062 / 2.062	08:19:03 CT 13 Jan 2015
AUG 2017	OPT		3.590	+0.019	3.571	3.590	3.590	3.590	4	5.071 / 2.071	08:37:57 CT 13 Jan 2015
SEP 2017	OPT		3.580	+0.020	3.560	3.580	3.580	3.580	3	5.060 / 2.060	08:20:11 CT 13 Jan 2015
OCT 2017	OPT		-	-	3.584	-	-	-	0	5.084 / 2.084	06:57:13 CT 13 Jan 2015
NOV 2017	OPT		-	-	3.666	-	-	-	0	5.166 / 2.166	06:57:13 CT 13 Jan 2015
DEC 2017	OPT		-	-	3.836	-	-	-	0	5.336 / 2.336	06:57:13 CT 13 Jan 2015
JAN 2018	OPT		3.980	+0.003	3.977	3.980	3.980	3.980	1	5.477 / 2.477	08:21:26 CT 13 Jan 2015
FEB 2018	OPT		-	-	3.959	-	-	-	0	5.459 / 2.459	06:57:13 CT 13 Jan 2015
MAR 2018	OPT		-	-	3.901	-	-	-	1	5.401 / 2.401	07:21:22 CT 13 Jan 2015
APR 2018	OPT		-	-	3.641	-	-	-	1	5.141 / 2.141	07:21:22 CT 13 Jan 2015
MAY 2018	OPT		-	-	3.640	-	-	-	0	5.140 / 2.140	06:57:13 CT 13 Jan 2015
JUN 2018	OPT		-	-	3.670	-	-	-	0	5.170 / 2.170	06:57:13 CT 13 Jan 2015
JUL 2018	OPT		-	-	3.704	-	-	-	0	5.204 / 2.204	06:57:13 CT 13 Jan 2015
AUG 2018	OPT		-	-	3.716	-	-	-	0	5.216 / 2.216	06:57:13 CT 13 Jan 2015
SEP 2018	OPT		-	-	3.710	-	-	-	0	5.210 / 2.210	06:57:13 CT 13 Jan 2015
OCT 2018	OPT		-	-	3.734	-	-	-	0	5.234 / 2.234	06:57:13 CT 13 Jan 2015
NOV 2018	OPT		-	-	3.816	-	-	-	0	5.316 / 2.316	06:57:13 CT 13 Jan 2015
DEC 2018	OPT		-	-	3.988	-	-	-	0	5.488 / 2.488	06:57:13 CT 13 Jan 2015

FUTURES CONTRACTS

- ▶ A futures contract would function to stabilize prices as follows:
 - A utility buys a January 2016 futures contract today at \$5.00 per Dth. Just before trading on the January 2016 futures contract terminates in December 2015, the utility would sell the contract at the prevailing market price.
 - If the prevailing market price is \$6.00 per Dth, the utility would realize a hedging gain of \$1.00 per Dth. The utility would still need to purchase gas for January 2016, and would do so. The utility could purchase the gas at the existing market price (e.g., \$6.00 per Dth) and use the \$1.00 per Dth futures contract gain to offset the \$6.00 per Dth price, for an effective net cost to customers of \$5.00 per Dth.

FUTURES CONTRACTS (CONT'D)

- Conversely, if the prevailing market price is \$4.00 per Dth when the contract is sold, the utility would realize a loss of \$1.00 per Dth. The utility would go out and purchase \$4.00 per Dth gas for delivery to its system, and the \$1.00 per Dth futures contract loss would result in an effective net cost to customers of \$5.00 per Dth.
- Paying \$5.00 per Dth for a futures contract effectively locks in a \$5.00 per Dth cost of gas regardless of the actual market price of gas at the time of delivery.

SWAPS

- ▶ A natural gas swap is a contract in which two parties agree to exchange period payments for natural gas. They are called swaps because the transaction involves buyers and sellers swapping cash flows. In the most common type of swap, one party agrees to pay a fixed price for natural gas on specific dates to a counterparty which, in turn, agrees to pay a floating price for natural gas that references a published index price such as the Henry Hub closing price.
- ▶ Natural gas swaps are generally financial transactions that do not involve the purchase of physical natural gas. Natural gas swaps can be traded bilaterally through two counterparties, via an over-the-counter (OTC) broker, or an electronic platform such as ICE.

SWAPS (CONT'D)

- ▶ Swap example: On a particular day, gas for delivery in January 2016 is trading at \$5.00 per Dth on the Henry Hub. On that day, one party agrees to pay \$5.00 per Dth for 5,000 Dth of January 2016 Henry Hub gas, and the second party agrees to pay the first party the January 2016 closing Henry Hub price for 5,000 Dth. If the closing January 2016 Henry Hub price is \$6.00 per Dth, the second party pays the first party \$5,000. If the closing January 2016 Henry Hub price is \$4.00 per Dth, the first party pays the second party \$5,000.
- ▶ Swaps are a condensed version of the buying and the selling of Henry Hub futures contracts. Parties enter into the swap (one transaction) rather than buying a futures contract and then selling the contract (two transactions), with the same hedging impact on the gas costs paid for by utility customers.
- ▶ In our example, if the first party was the utility, its customer would pay a net effective cost of \$5.00 for gas in January 2016.

OPTIONS

- ▶ There are two basic categories of options: calls and puts.
- ▶ For each option transaction, there is a buyer and a seller.
- ▶ The most commonly traded options are Henry Hub options. A Henry Hub natural gas call (put) option represents an option to assume a long (short) position in the underlying Henry Hub natural gas futures traded on the NYMEX.

OPTIONS (CONT'D)

- ▶ A call option is an option to buy gas at a certain price at a certain future point in time. For example, an option to purchase 10,000 Dth for January 2016 delivery at \$5.00 per Dth at a cost of \$0.50 per Dth. The total cost of the option to the buyer would be \$5,000. The seller would receive the \$5,000. The \$5.00 per Dth price is commonly referred to as the “strike price.”
- ▶ If the Henry Hub price for January 2016 gas is \$6.00 per Dth, the buyer of the call option would exercise their option by selling the call option, and realize a hedging gain of \$1.00 per Dth on the option, less the \$0.50 per Dth initial cost, for a net gain of \$0.50 per Dth.

OPTIONS (CONT'D)

- ▶ If the Henry Hub price for January 2016 gas is \$4.00 per Dth, the option would be worthless and simply expire, and the utility would incur a hedging loss of \$0.50 per Dth for the volume of the call.
- ▶ The benefits of using a call option rather than purchasing a futures contract would include the buyer only exercising the option if it were in its best interest to do so. In our previous example, if January 2016 gas is \$4.00 per Dth, the net effective cost of gas under a call option transaction would be \$4.50 per Dth (\$4.00 per Dth market price plus \$0.50 per Dth option cost). The net effective cost of gas under the futures market transaction is \$5.00 per Dth. If January 2016 gas is \$6.00, the net effective cost of the futures market transaction is \$5.50 (\$6.00 per Dth market price less \$0.50 option gain).

OPTIONS (CONT'D)

- ▶ Because of the risks involved, utilities typically don't engage in the selling of call options unless they are combined with other transactions. Utilizing the previous example, if a utility sold a \$5.00 per Dth call option for January 2016 at \$0.50 per Dth and the January 2016 Henry Hub price were to reach \$10.00 per Dth, the utility would experience a net loss of \$4.50 per Dth (\$5.00 per Dth option loss offset by \$0.50 per Dth option sale), and the utility's customers would effectively pay \$14.50 per Dth for gas in January 2016, if permitted by regulators.

OPTIONS (CONT'D)

- ▶ A put option is an option to sell gas at a certain price at a certain future point in time. For example, an option to sell 10,000 Dth for January 2016 delivery at \$5.00 per Dth at a cost of \$0.50 per Dth. The total cost of the option would be \$5,000, the seller would receive the \$5,000.
- ▶ If the Henry Hub price for January 2016 gas is \$6.00 per Dth, the option would be worthless and simply expire. The buyer of the put option would not elect to sell gas to the seller of the option at \$5.00 per Dth when the market price of gas was \$6.00 per Dth.
- ▶ If the Henry Hub price for January 2016 gas is \$4.00 per Dth, the buyer of the put option would elect to sell that option and realize a net gain of \$1.00 per Dth on the option, less the \$0.50 per Dth initial cost, for a net effective cost of \$4.50 per Dth.

OPTIONS (CONT'D)

- ▶ There are both American and European options. American options can be exercised at any time up to and including the expiration date. European options can only be exercised on the expiration date.
- ▶ Examples of current American and European call and put option pricing are presented on the following slides. On this date, the Henry Hub price was approximately \$2.85 per Dth for the February 2015 contract.

NATURAL GAS OPTIONS (AMERICAN) SETTLEMENTS

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Natural Gas Options (American) Settlements View another product.. ▾

Quotes **Settlements** Volume Time & Sales Contract Specs Margins Calendar

Futures **Options**

Type: American Options ▾

Expiration: Mar 2015 ▾

Trade Date: Thursday, 22 Jan 2015 (Prelim) ▾

Strike	Type	Open	High	Low	Last	Change	Settle	Estimated Volume	Prior Day Open Interest
2400	Call	-	-	.432A	-	UNCH	-	0	10
2500	Call	-	-	.358A	-	UNCH	-	0	0
2750	Call	-	-	.211A	-	UNCH	-	10	10
2800	Call	.250	.250	.189A	-	UNCH	-	48	27
2850	Call	.182	.182	.168A	-	UNCH	-	1	150
2900	Call	-	.253B	.150A	-	UNCH	-	0	27
2950	Call	.148	.228B	.134A	-	UNCH	-	3	166
3000	Call	.177	.206B	.120	-	UNCH	-	35	390
3050	Call	.148	.188B	.107A	-	UNCH	-	28	131
3100	Call	.139	.169B	.095A	-	UNCH	-	31	214
3150	Call	.121	.152B	.084A	-	UNCH	-	26	234
3200	Call	.080	.086	.075A	-	UNCH	-	16	230
3250	Call	.102	.102	.065	-	UNCH	-	162	1,029
3300	Call	.120	.120	.060A	-	UNCH	-	41	224
3350	Call	.055	.060	.053A	-	UNCH	-	22	481
3400	Call	.050	.053	.048A	-	UNCH	-	46	243
3450	Call	-	-	.043A	-	UNCH	-	0	282
3500	Call	.061	.082B	.038	-	UNCH	-	288	1,289
3550	Call	.034	.034	.034	-	UNCH	-	3	1,011
3600	Call	.033	.034	.031	-	UNCH	-	27	1,603
3650	Call	.029	.030	.028	-	UNCH	-	235	691
3700	Call	.027	.027	.026A	-	UNCH	-	5	859
3750	Call	.024	.026	.023	-	UNCH	-	145	1,229
3800	Call	.022	.023	.021	-	UNCH	-	16	503
3850	Call	.020	.020	.020	-	UNCH	-	22	179
3900	Call	-	-	.018A	-	UNCH	-	0	349
3950	Call	-	-	.017A	-	UNCH	-	0	73
4000	Call	.030	.031B	.014A	-	UNCH	-	256	5,669

NATURAL GAS OPTIONS (AMERICAN) SETTLEMENTS (CONT'D)

4050	Call	-	-	.015A	-	UNCH	-	0	155
4100	Call	-	-	.014A	-	UNCH	-	0	687
4150	Call	-	-	.013A	-	UNCH	-	0	142
4200	Call	-	-	.012A	-	UNCH	-	0	524
4250	Call	-	-	.011A	-	UNCH	-	0	2,082
4300	Call	-	-	.011A	-	UNCH	-	0	343
4350	Call	-	-	.010A	-	UNCH	-	1	476
4400	Call	-	-	.010A	-	UNCH	-	0	229
4450	Call	.010	.010	.009A	-	UNCH	-	1	142
4500	Call	.010	.010	.006	-	UNCH	-	22	3,512
4550	Call	-	-	.008A	-	UNCH	-	0	172
4600	Call	-	-	.008A	-	UNCH	-	0	198
4650	Call	.006	.006	.006	-	UNCH	-	1	119
4700	Call	-	-	.007A	-	UNCH	-	0	148
4750	Call	-	-	.007A	-	UNCH	-	0	838
4800	Call	-	-	-	-	UNCH	-	0	152
4850	Call	-	-	-	-	UNCH	-	0	112
4900	Call	-	-	-	-	UNCH	-	0	192
4950	Call	-	-	-	-	UNCH	-	0	36
5000	Call	.003	.003	.003	-	UNCH	-	1	4,489
5050	Call	-	-	-	-	UNCH	-	0	16
5100	Call	-	-	-	-	UNCH	-	0	152
5150	Call	-	-	-	-	UNCH	-	0	111
5200	Call	-	-	-	-	UNCH	-	0	33
5250	Call	-	-	-	-	UNCH	-	0	1,583
5300	Call	-	-	-	-	UNCH	-	0	50
5350	Call	-	-	-	-	UNCH	-	0	11
5400	Call	-	-	-	-	UNCH	-	0	38
5450	Call	-	-	-	-	UNCH	-	0	115
5500	Call	.002	.002	.002	-	UNCH	-	2	2,896
5550	Call	-	-	-	-	UNCH	-	0	7
5600	Call	-	-	-	-	UNCH	-	0	23
5650	Call	-	-	-	-	UNCH	-	0	13
5700	Call	-	-	-	-	UNCH	-	0	3
5750	Call	-	-	-	-	UNCH	-	0	169
5800	Call	.002	.002	.002	-	UNCH	-	6	10
5850	Call	-	-	-	-	UNCH	-	0	4
5900	Call	-	-	-	-	UNCH	-	0	36
5950	Call	-	-	-	-	UNCH	-	0	39
6000	Call	-	-	-	-	UNCH	-	0	8,464
6050	Call	-	-	-	-	UNCH	-	0	19
6100	Call	-	-	-	-	UNCH	-	0	23
6150	Call	-	-	-	-	UNCH	-	0	41
6200	Call	-	-	-	-	UNCH	-	0	54

NATURAL GAS OPTIONS (AMERICAN) SETTLEMENTS (CONT'D)

6250	Call	-	-	-	-	UNCH	-	0	148
6300	Call	-	-	-	-	UNCH	-	0	34
6350	Call	-	-	-	-	UNCH	-	0	18
6400	Call	-	-	-	-	UNCH	-	0	9
6450	Call	-	-	-	-	UNCH	-	0	103
6500	Call	.002	.002	.002	-	UNCH	-	10	1,757
6550	Call	-	-	-	-	UNCH	-	0	28
6600	Call	-	-	-	-	UNCH	-	0	22
6650	Call	-	-	-	-	UNCH	-	0	24
6700	Call	-	-	-	-	UNCH	-	0	11
6750	Call	-	-	-	-	UNCH	-	0	280
6850	Call	-	-	-	-	UNCH	-	0	12
6900	Call	-	-	-	-	UNCH	-	0	14
6950	Call	-	-	-	-	UNCH	-	0	5
7000	Call	-	-	-	-	UNCH	-	0	1,067
7050	Call	-	-	-	-	UNCH	-	0	3
7100	Call	-	-	-	-	UNCH	-	0	3
7200	Call	-	-	-	-	UNCH	-	0	0
7250	Call	.001	.001	.001	-	UNCH	-	6	51
7350	Call	-	-	-	-	UNCH	-	0	3
7400	Call	-	-	-	-	UNCH	-	0	10
7500	Call	-	-	-	-	UNCH	-	0	142
7550	Call	-	-	-	-	UNCH	-	0	10
7600	Call	-	-	-	-	UNCH	-	0	37
7650	Call	-	-	-	-	UNCH	-	0	30
7700	Call	-	-	-	-	UNCH	-	0	10
7750	Call	-	-	-	-	UNCH	-	0	5
7850	Call	-	-	-	-	UNCH	-	0	35
7900	Call	-	-	-	-	UNCH	-	0	38
7950	Call	-	-	-	-	UNCH	-	0	35
8000	Call	.001	.001	.001	-	UNCH	-	1	194
8150	Call	-	-	-	-	UNCH	-	0	15
8200	Call	-	-	-	-	UNCH	-	0	51
8250	Call	-	-	-	-	UNCH	-	0	8
8300	Call	-	-	-	-	UNCH	-	0	3
8350	Call	-	-	-	-	UNCH	-	0	2
8400	Call	-	-	-	-	UNCH	-	0	24
8450	Call	-	-	-	-	UNCH	-	0	4
8500	Call	.001	.001	.001	-	UNCH	-	1	101
8700	Call	-	-	-	-	UNCH	-	0	2
8750	Call	-	-	-	-	UNCH	-	0	9
9000	Call	-	-	-	-	UNCH	-	0	401
9500	Call	-	-	-	-	UNCH	-	0	7
9650	Call	-	-	-	-	UNCH	-	0	9

NATURAL GAS OPTIONS (AMERICAN) SETTLEMENTS (CONT'D)

9700	Call	-	-	-	-	UNCH	-	0	30
9750	Call	-	-	-	-	UNCH	-	0	20
10000	Call	-	-	-	-	UNCH	-	0	162
10250	Call	-	-	-	-	UNCH	-	0	62
10500	Call	-	-	-	-	UNCH	-	0	30
10750	Call	-	-	-	-	UNCH	-	0	40
11000	Call	-	-	-	-	UNCH	-	0	40
11250	Call	-	-	-	-	UNCH	-	0	50
12000	Call	-	-	-	-	UNCH	-	0	5
12250	Call	-	-	-	-	UNCH	-	0	104
1250	Put	-	-	-	-	UNCH	-	0	1
1500	Put	-	-	-	-	UNCH	-	0	10
1600	Put	-	-	-	-	UNCH	-	0	127
1800	Put	.005	.005	.005	-	UNCH	-	1	47
1850	Put	-	-	-	-	UNCH	-	0	24
2000	Put	.007	.011	.007	-	UNCH	-	395	968
2100	Put	-	.015B	-	-	UNCH	-	0	37
2150	Put	.019	.021	.019	-	UNCH	-	75	23
2200	Put	.022	.026	.021	-	UNCH	-	80	96
2250	Put	.027	.033	.026A	-	UNCH	-	15	1,439
2300	Put	.036	.040	.036	-	UNCH	-	31	850
2350	Put	.044	.049B	.034A	-	UNCH	-	15	355
2400	Put	.038	.061	.036	-	UNCH	-	37	374
2450	Put	.062	.074	.051A	-	UNCH	-	47	194
2500	Put	.064	.089	.060	-	UNCH	-	848	2,575
2550	Put	.096	.105	.073A	-	UNCH	-	77	481
2600	Put	.105	.124	.074A	-	UNCH	-	66	266
2650	Put	.127	.144B	.127	-	UNCH	-	4	86
2700	Put	.147	.168	.145	-	UNCH	-	70	634
2750	Put	.120	.194B	.120	-	UNCH	-	142	1,288
2800	Put	.150	.222B	.150	-	UNCH	-	61	1,225
2850	Put	.191	.252B	.178A	-	UNCH	-	18	755
2900	Put	.258	.284B	.200A	-	UNCH	-	27	780
2950	Put	.247	.317B	.225A	-	UNCH	-	5	193
3000	Put	.320	.350	.258A	-	UNCH	-	27	2,041
3050	Put	-	.385B	.286A	-	UNCH	-	0	673
3100	Put	-	.421B	.317A	-	UNCH	-	0	253
3150	Put	-	.461B	.349A	-	UNCH	-	0	188
3200	Put	-	.501B	.383A	-	UNCH	-	0	307
3250	Put	-	.543B	-	-	UNCH	-	0	916
3300	Put	-	.586B	-	-	UNCH	-	0	277
3350	Put	-	.629B	-	-	UNCH	-	1	150
3400	Put	-	.674B	-	-	UNCH	-	0	211
3450	Put	-	.719B	-	-	UNCH	-	0	70
3500	Put	-	.765B	-	-	UNCH	-	0	3,984

NATURAL GAS OPTIONS (AMERICAN) SETTLEMENTS (CONT'D)

3550	Put	-	.811B	-	-	UNCH	-	0	129
3600	Put	-	.854B	-	-	UNCH	-	0	167
3650	Put	-	.868B	-	-	UNCH	-	0	71
3700	Put	-	-	-	-	UNCH	-	0	320
3750	Put	-	-	-	-	UNCH	-	0	378
3800	Put	-	-	-	-	UNCH	-	0	53
3850	Put	-	-	-	-	UNCH	-	0	99
3900	Put	-	-	-	-	UNCH	-	0	43
3950	Put	-	-	-	-	UNCH	-	0	37
4000	Put	-	-	-	-	UNCH	-	0	1,548
4050	Put	-	-	-	-	UNCH	-	0	32
4100	Put	-	-	-	-	UNCH	-	0	146
4150	Put	-	-	-	-	UNCH	-	0	52
4200	Put	-	-	-	-	UNCH	-	0	47
4250	Put	-	-	-	-	UNCH	-	0	329
4300	Put	-	-	-	-	UNCH	-	0	212
4350	Put	-	-	-	-	UNCH	-	0	20
4400	Put	-	-	-	-	UNCH	-	0	1
4450	Put	-	-	-	-	UNCH	-	0	4
4500	Put	-	-	-	-	UNCH	-	0	102
4550	Put	-	-	-	-	UNCH	-	0	1
4650	Put	-	-	-	-	UNCH	-	0	1
4750	Put	-	-	-	-	UNCH	-	0	1
4850	Put	-	-	-	-	UNCH	-	0	1
4900	Put	-	-	-	-	UNCH	-	0	2
5300	Put	-	-	-	-	UNCH	-	0	1
Total								3,560	76,993

NATURAL GAS OPTIONS (EUROPEAN) SETTLEMENTS

CME Group
How the world advances

Natural Gas Options (European) Settlements View another product..

Type:

Expiration:

Trade Date:

Strike	Type	Open	High	Low	Last	Change	Settle	Estimated Volume	Prior Day Open Interest
2500	Call	-	-	.3670A	-	UNCH	-	0	200
2750	Call	-	-	.2200A	-	UNCH	-	0	200
2800	Call	-	-	.1990A	-	UNCH	-	0	100
2850	Call	-	-	.1780A	-	UNCH	-	0	1,200
2900	Call	-	-	.1580A	-	UNCH	-	400	2,200
2950	Call	-	-	.1410A	-	UNCH	-	0	500
3000	Call	.1720	.2050B	.1260A	.1720	-.0313	-	300	10,275
3050	Call	-	-	.1130A	-	UNCH	-	300	371
3100	Call	-	-	.1010A	-	UNCH	-	4	404
3150	Call	-	-	.0900A	-	UNCH	-	0	50
3200	Call	-	-	.0800A	-	UNCH	-	0	725
3250	Call	-	-	.0720A	-	UNCH	-	150	10,285
3300	Call	-	-	.0640A	-	UNCH	-	800	350
3350	Call	-	-	.0570A	-	UNCH	-	0	195
3400	Call	-	-	.0520A	-	UNCH	-	0	550
3450	Call	-	-	.0460A	-	UNCH	-	0	33
3500	Call	-	-	.0420A	-	UNCH	-	1,567	8,740
3550	Call	-	-	.0380A	-	UNCH	-	0	6
3600	Call	-	-	.0340A	-	UNCH	-	0	1,000
3650	Call	-	-	.0300A	-	UNCH	-	0	1,250
3700	Call	-	-	.0280A	-	UNCH	-	0	1,200
3750	Call	-	-	.0260A	-	UNCH	-	0	5,312
3800	Call	-	-	.0240A	-	UNCH	-	0	625
3850	Call	-	-	.0220A	-	UNCH	-	0	1,100
3900	Call	-	-	.0200A	-	UNCH	-	0	1,417
3950	Call	-	-	.0180A	-	UNCH	-	0	300
4000	Call	-	-	.0170A	-	UNCH	-	500	21,866
4050	Call	-	-	.0160A	-	UNCH	-	0	180

NATURAL GAS OPTIONS (EUROPEAN) SETTLEMENTS (CONT'D)

4100	Call	-	-	.0150A	-	UNCH	-	0	1,878
4150	Call	-	-	.0140A	-	UNCH	-	0	3,694
4200	Call	-	-	.0130A	-	UNCH	-	0	2,385
4250	Call	-	-	.0120A	-	UNCH	-	0	18,165
4300	Call	-	-	.0110A	-	UNCH	-	0	984
4350	Call	-	-	.0110A	-	UNCH	-	0	1,750
4400	Call	-	-	.0100A	-	UNCH	-	0	2,176
4450	Call	-	-	.0100A	-	UNCH	-	0	1,456
4500	Call	-	-	.0090A	-	UNCH	-	0	16,729
4530	Call	-	-	-	-	UNCH	-	0	2
4550	Call	-	-	.0090A	-	UNCH	-	0	933
4560	Call	-	-	-	-	UNCH	-	0	2
4600	Call	-	-	.0080A	-	UNCH	-	0	1,146
4650	Call	-	-	.0080A	-	UNCH	-	0	717
4700	Call	-	-	.0080A	-	UNCH	-	0	304
4750	Call	-	-	.0070A	-	UNCH	-	0	11,303
4800	Call	-	-	-	-	UNCH	-	0	666
4850	Call	-	-	-	-	UNCH	-	0	412
4900	Call	-	-	-	-	UNCH	-	0	381
4950	Call	-	-	-	-	UNCH	-	0	87
5000	Call	-	-	-	-	UNCH	-	0	18,966
5100	Call	-	-	-	-	UNCH	-	0	1,075
5150	Call	-	-	-	-	UNCH	-	0	27
5200	Call	-	-	-	-	UNCH	-	0	57
5250	Call	-	-	-	-	UNCH	-	0	16,522
5290	Call	-	-	-	-	UNCH	-	0	22
5300	Call	-	-	-	-	UNCH	-	0	300
5350	Call	-	-	-	-	UNCH	-	0	250
5400	Call	-	-	-	-	UNCH	-	0	200
5500	Call	-	-	-	-	UNCH	-	0	16,587
5550	Call	-	-	-	-	UNCH	-	0	15
5600	Call	-	-	-	-	UNCH	-	0	755
5650	Call	-	-	-	-	UNCH	-	0	2,709
5700	Call	-	-	-	-	UNCH	-	0	510
5750	Call	-	-	-	-	UNCH	-	0	5,921
5800	Call	-	-	-	-	UNCH	-	0	158
5850	Call	-	-	-	-	UNCH	-	0	205
5900	Call	-	-	-	-	UNCH	-	0	400
5950	Call	-	-	-	-	UNCH	-	0	32
6000	Call	-	-	-	-	UNCH	-	0	22,702
6250	Call	-	-	-	-	UNCH	-	0	1,640
6300	Call	-	-	-	-	UNCH	-	0	200
6350	Call	-	-	-	-	UNCH	-	0	80
6400	Call	-	-	-	-	UNCH	-	0	29

NATURAL GAS OPTIONS (EUROPEAN) SETTLEMENTS (CONT'D)

6450	Call	-	-	-	-	UNCH	-	0	5
6500	Call	-	-	-	-	UNCH	-	0	6,226
6650	Call	-	-	-	-	UNCH	-	0	60
6700	Call	-	-	-	-	UNCH	-	0	275
6750	Call	-	-	-	-	UNCH	-	0	1,900
6800	Call	-	-	-	-	UNCH	-	0	8
6850	Call	-	-	-	-	UNCH	-	0	50
6900	Call	-	-	-	-	UNCH	-	0	176
7000	Call	-	-	-	-	UNCH	-	0	11,551
7050	Call	-	-	-	-	UNCH	-	0	100
7150	Call	-	-	-	-	UNCH	-	0	54
7200	Call	-	-	-	-	UNCH	-	0	4
7250	Call	-	-	-	-	UNCH	-	0	150
7400	Call	-	-	-	-	UNCH	-	0	25
7450	Call	-	-	-	-	UNCH	-	0	25
7500	Call	-	-	-	-	UNCH	-	0	4,017
7600	Call	-	-	-	-	UNCH	-	0	200
7700	Call	-	-	-	-	UNCH	-	0	70
7750	Call	-	-	-	-	UNCH	-	0	25
8000	Call	-	-	-	-	UNCH	-	0	12,483
8500	Call	-	-	-	-	UNCH	-	0	625
9000	Call	-	-	-	-	UNCH	-	0	4,550
9150	Call	-	-	-	-	UNCH	-	0	80
9250	Call	-	-	-	-	UNCH	-	0	100
9500	Call	-	-	-	-	UNCH	-	0	130
10000	Call	-	-	-	-	UNCH	-	0	10,389
10500	Call	-	-	-	-	UNCH	-	0	450
11000	Call	-	-	-	-	UNCH	-	0	150
12000	Call	-	-	-	-	UNCH	-	0	3,325
13000	Call	-	-	-	-	UNCH	-	0	100
14000	Call	-	-	-	-	UNCH	-	0	1
15000	Call	-	-	-	-	UNCH	-	0	1,600
16000	Call	-	-	-	-	UNCH	-	0	2,300
18000	Call	-	-	-	-	UNCH	-	0	1
1500	Put	-	-	-	-	UNCH	-	0	100
2000	Put	-	.0080B	-	-	UNCH	-	2,150	8,450
2250	Put	-	.0290B	-	-	UNCH	-	400	6,000
2350	Put	-	.0460B	-	-	UNCH	-	100	350
2400	Put	-	.0560B	-	-	UNCH	-	0	900
2500	Put	-	.0830B	-	-	UNCH	-	2,800	14,300
2600	Put	-	.1170B	-	-	UNCH	-	0	700
2650	Put	-	.1390B	-	-	UNCH	-	0	100
2700	Put	-	.1620B	-	-	UNCH	-	0	4
2750	Put	-	.1860B	-	-	UNCH	-	704	27,911

NATURAL GAS OPTIONS (EUROPEAN) SETTLEMENTS (CONT'D)

2800	Put	-	2130B	-	-	UNCH	-	0	100
2850	Put	-	.2420B	.1820A	-	UNCH	-	0	2,180
2900	Put	-	.2730B	.2050A	-	UNCH	-	0	1,485
2950	Put	-	.3060B	.2300A	-	UNCH	-	0	531
3000	Put	-	.3400B	-	-	UNCH	-	50	56,440
3050	Put	-	.3770B	.2920A	-	UNCH	-	0	230
3100	Put	-	.4150B	.3230A	-	UNCH	-	0	6,633
3150	Put	-	.4540B	.3550A	-	UNCH	-	0	4,050
3200	Put	-	.4950B	.3890A	-	UNCH	-	0	378
3250	Put	-	.5360B	-	-	UNCH	-	0	26,120
3300	Put	-	.5790B	-	-	UNCH	-	0	700
3350	Put	-	.6220B	-	-	UNCH	-	0	445
3400	Put	-	.6660B	-	-	UNCH	-	0	830
3450	Put	-	.7110B	-	-	UNCH	-	0	238
3500	Put	-	.7570B	-	-	UNCH	-	0	19,873
3550	Put	-	.8030B	-	-	UNCH	-	0	8
3600	Put	-	.8500B	-	-	UNCH	-	0	1,120
3650	Put	-	.8730B	-	-	UNCH	-	0	468
3700	Put	-	-	-	-	UNCH	-	0	1,175
3750	Put	-	-	-	-	UNCH	-	0	9,235
3800	Put	-	-	-	-	UNCH	-	0	1,503
3850	Put	-	-	-	-	UNCH	-	0	1,050
3900	Put	-	-	-	-	UNCH	-	0	1,845
3950	Put	-	-	-	-	UNCH	-	0	362
4000	Put	-	-	-	-	UNCH	-	0	15,835
4050	Put	-	-	-	-	UNCH	-	0	209
4100	Put	-	-	-	-	UNCH	-	0	2,770
4150	Put	-	-	-	-	UNCH	-	0	14,175
4200	Put	-	-	-	-	UNCH	-	0	2,268
4250	Put	-	-	-	-	UNCH	-	0	14,014
4300	Put	-	-	-	-	UNCH	-	0	1,820
4350	Put	-	-	-	-	UNCH	-	0	1,390
4400	Put	-	-	-	-	UNCH	-	0	2,422
4450	Put	-	-	-	-	UNCH	-	0	1,575
4500	Put	-	-	-	-	UNCH	-	0	3,938
4550	Put	-	-	-	-	UNCH	-	0	650
4600	Put	-	-	-	-	UNCH	-	0	654
4650	Put	-	-	-	-	UNCH	-	0	100
4750	Put	-	-	-	-	UNCH	-	0	6,590
4800	Put	-	-	-	-	UNCH	-	0	200
4850	Put	-	-	-	-	UNCH	-	0	210
4900	Put	-	-	-	-	UNCH	-	0	303
4950	Put	-	-	-	-	UNCH	-	0	50
5000	Put	-	-	-	-	UNCH	-	0	2,875
5200	Put	-	-	-	-	UNCH	-	0	55

NATURAL GAS OPTIONS (EUROPEAN) SETTLEMENTS (CONT'D)

5250	Put	-	-	-	-	UNCH	-	0	150
5350	Put	-	-	-	-	UNCH	-	0	125
5400	Put	-	-	-	-	UNCH	-	0	200
5500	Put	-	-	-	-	UNCH	-	0	400
5600	Put	-	-	-	-	UNCH	-	0	600
5650	Put	-	-	-	-	UNCH	-	0	3,495
5700	Put	-	-	-	-	UNCH	-	0	310
5750	Put	-	-	-	-	UNCH	-	0	361
5800	Put	-	-	-	-	UNCH	-	0	143
5850	Put	-	-	-	-	UNCH	-	0	110
5900	Put	-	-	-	-	UNCH	-	0	450
5950	Put	-	-	-	-	UNCH	-	0	32
6000	Put	-	-	-	-	UNCH	-	0	870
6250	Put	-	-	-	-	UNCH	-	0	50
6300	Put	-	-	-	-	UNCH	-	0	200
6350	Put	-	-	-	-	UNCH	-	0	80
6400	Put	-	-	-	-	UNCH	-	0	150
6650	Put	-	-	-	-	UNCH	-	0	60
6700	Put	-	-	-	-	UNCH	-	0	490
6750	Put	-	-	-	-	UNCH	-	0	45
6850	Put	-	-	-	-	UNCH	-	0	50
6900	Put	-	-	-	-	UNCH	-	0	50
7000	Put	-	-	-	-	UNCH	-	0	100
7050	Put	-	-	-	-	UNCH	-	0	100
7150	Put	-	-	-	-	UNCH	-	0	50
7250	Put	-	-	-	-	UNCH	-	0	0
7400	Put	-	-	-	-	UNCH	-	0	25
7450	Put	-	-	-	-	UNCH	-	0	25
7500	Put	-	-	-	-	UNCH	-	0	200
7750	Put	-	-	-	-	UNCH	-	0	25
8000	Put	-	-	-	-	UNCH	-	0	150
8500	Put	-	-	-	-	UNCH	-	0	200
9150	Put	-	-	-	-	UNCH	-	0	50
9500	Put	-	-	-	-	UNCH	-	0	150
10000	Put	-	-	-	-	UNCH	-	0	275
12000	Put	-	-	-	-	UNCH	-	0	150
Total								10,225	564,189

COSTLESS COLLARS

- ▶ A costless collar for a utility involves the buying of a call option and the selling of a put option to create a ceiling and a floor. How this works is best illustrated by this example:

When the NYMEX for March 2015 was trading at \$2.85 per Dth, call options with a strike price of \$3.25 per Dth were selling at about \$0.10 per Dth, and put options with a strike price of \$2.60 per Dth were selling at about \$0.10 per Dth.

- ▶ To create a costless collar at these prices, the utility would sell a March 2015 \$3.25 per Dth put and receive \$0.10 per Dth, and would take the \$0.10 per Dth received from the sale of the put to buy a March 2015 \$2.60 per Dth call. This would establish a costless collar with a \$3.25 per Dth ceiling price and a \$2.60 per Dth floor price. That is, the utility would be guaranteed to pay between \$2.60 and \$3.25 per Dth for gas.

COSTLESS COLLARS (CONT'D)

- ▶ If the March 2015 price of gas is above \$3.25 per Dth, say \$4.00 per Dth, the utility would have a call option hedging gain (when it sold the option) of \$0.75 per Dth. The utility would buy market-priced gas at \$4.00 per Dth, and the \$0.75 per Dth gain would result in an effective net cost of \$3.25 per Dth.
- ▶ If the March 2015 price of gas is between \$3.25 and \$2.60 per Dth, say \$3.00 per Dth, the call option to buy gas at \$3.25 per Dth would have no value because gas could be bought at less than \$3.25 per Dth (i.e., \$3.00) and the option would expire. The put option to sell gas at \$2.60 per Dth would also have no value because gas could be sold at more than \$2.60 per Dth (i.e., \$3.00), and the option would expire. In this scenario, the net effective cost of gas to the utility is \$3.00 per Dth.

COSTLESS COLLARS (CONT'D)

- ▶ If the March 2015 price of gas is less than \$2.60 per Dth, say \$2.00 per Dth, the utility would have a put option hedging loss (when it had to buy the option) of \$0.60 per Dth. The utility would buy market-priced gas at \$2.00 per Dth, and the \$0.60 per Dth loss would result in an effective net cost of \$2.60 per Dth.

DELMARVA POWER & LIGHT COMPANY

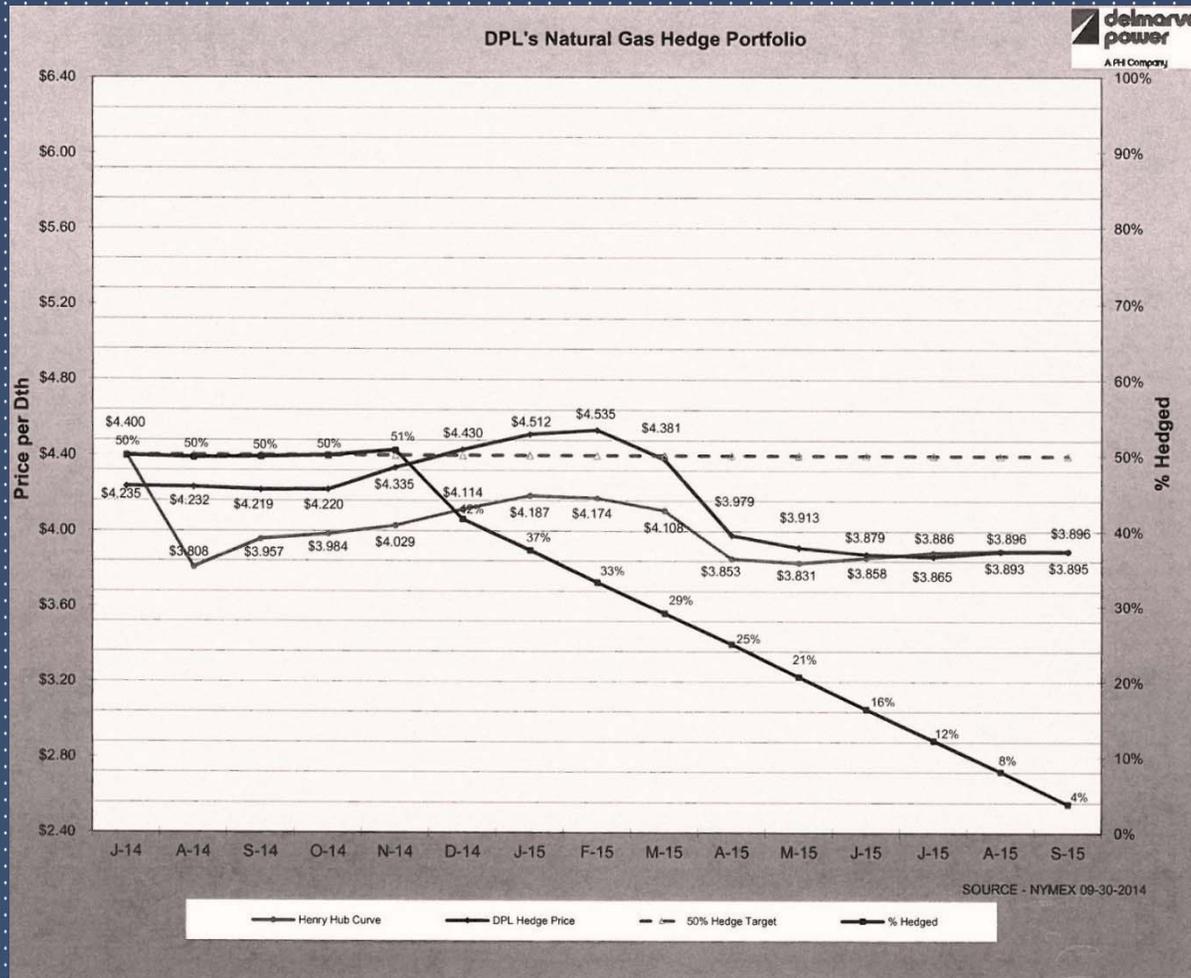
Objective: Reduce gas commodity price volatility while limiting customers' exposure to adverse changes in the market price of natural gas.

- ▶ The utility conducts its hedging in accordance with the hedging plan approved in PSC Docket No. 08-266F, Order No. 7658, dated October 6, 2009.
- ▶ The plan has a one-year time horizon that requires DPL to hedge 50 percent of its estimated monthly purchases, including storage injections.
- ▶ The 50 percent monthly hedge target is achieved by hedging 1/12th of the 50 percent target each month, beginning 12 months prior to the month in which the physical gas is to be purchased.

DELMARVA POWER & LIGHT COMPANY (CONT'D)

- ▶ Hedges may be purchased at any time during the month.
- ▶ DPL has employed financial swaps, futures, and options during the past 10 years to hedge the price of gas supplies.
- ▶ DPL now exclusively uses financial mini-swaps which have a contract size of 2,500 Dth per month, which are a better match to comply with the utility's requirement to hedge 1/12th of its monthly purchase requirements.
- ▶ Quarterly Report on Hedging Activities is provided to Staff and DPL.
- ▶ Select pages of the Report follow.

DELMARVA POWER & LIGHT COMPANY (CONT'D)



DELMARVA POWER & LIGHT COMPANY (CONT'D)

Delmarva Power & Light Company Position Summary (Dth) and % Hedged as of **9/30/2014**

	A	B	C	D	E	F	G	H	I	J	K	L
Item	Month/Yr	Citygate Purchase Req	Storage Injection	Storage Withdrawl	Total Purchase Req	Target 50% Hedge Quantity	Hedge Volume Swaps	Hedge Volume Option	Total Hedge Volume	Hedge % Based on 100% Options & Swaps	Total Unhedge Volume	Unhedged %
					[B + C + D]	[E x 50%]			[G + H]	[I / E]	[E / I]	[K / E]
1	Jul-14	213,024	437,546	(5,175)	645,395	322,697	322,500	-	322,500	50%	322,895	50%
2	Aug-14	211,770	437,165	(5,175)	643,761	321,880	320,000	-	320,000	50%	323,761	50%
3	Sep-14	277,591	520,564	(5,175)	792,980	396,490	395,000	-	395,000	50%	397,980	50%
4	Oct-14	451,007	409,413	(5,175)	855,246	427,623	427,500	-	427,500	50%	427,746	50%
5	Nov-14	1,006,701	-	(173,175)	833,526	416,763	422,500	-	422,500	51%	411,026	49%
6	Dec-14	2,038,629	-	(794,175)	1,244,454	622,227	517,500	-	517,500	42%	726,954	58%
7	Jan-15	2,801,797	-	(940,787)	1,861,010	930,505	697,500	-	697,500	37%	1,163,510	63%
8	Feb-15	2,401,184	-	(820,130)	1,581,055	790,527	525,000	-	525,000	33%	1,056,055	67%
9	Mar-15	1,994,315	-	(429,688)	1,564,627	782,313	455,000	-	455,000	29%	1,109,627	71%
10	Apr-15	927,134	268,419	(5,175)	1,190,378	595,189	297,500	-	297,500	25%	892,878	75%
11	May-15	250,908	577,445	(5,175)	823,178	411,589	170,000	-	170,000	21%	653,178	79%
12	Jun-15	223,297	559,952	(5,175)	778,075	389,037	127,500	-	127,500	16%	650,575	84%
13	Jul-15	219,903	460,701	(5,175)	675,430	337,715	82,500	-	82,500	12%	592,930	88%
14	Aug-15	215,633	467,084	(5,175)	677,542	338,771	55,000	-	55,000	8%	622,542	92%
15	Sep-15	241,139	478,273	(5,175)	714,237	357,119	27,500	-	27,500	4%	686,737	96%

DELMARVA POWER & LIGHT COMPANY (CONT'D)

Delmarva Power & Light Company Forward Hedging Costs as of

9/30/2014

	A	B	C	D	E	F	G	H	I
Item	Month	Act/Est	Settle Price	Swap Qty	WtdAvg Price of Swaps	Swaps Market Value	Total Hedge Volume	Hedge Wtd Avg	M2M Value of Hedges
				[C - H] x G			[E + G]	[F + I]	
1	Jul-14	Est.	\$4.400	322,500	\$4.235	\$53,053	322,500	\$4.235	\$53,053
2	Aug-14	Est.	\$3.808	320,000	\$4.232	(\$135,730)	320,000	\$4.232	(\$135,730)
3	Sep-14	Est.	\$3.957	395,000	\$4.219	(\$103,330)	395,000	\$4.219	(\$103,330)
4	Oct-14	Est.	\$3.984	427,500	\$4.220	(\$100,878)	427,500	\$4.220	(\$100,878)
5	Nov-14	Est.	\$4.029	422,500	\$4.335	(\$129,110)	422,500	\$4.335	(\$129,110)
6	Dec-14	Est.	\$4.114	517,500	\$4.430	(\$163,643)	517,500	\$4.430	(\$163,643)
7	Jan-15	Est.	\$4.187	697,500	\$4.512	(\$226,830)	697,500	\$4.512	(\$226,830)
8	Feb-15	Est.	\$4.174	525,000	\$4.535	(\$189,363)	525,000	\$4.535	(\$189,363)
9	Mar-15	Est.	\$4.108	455,000	\$4.381	(\$124,035)	455,000	\$4.381	(\$124,035)
10	Apr-15	Est.	\$3.853	297,500	\$3.979	(\$37,483)	297,500	\$3.979	(\$37,483)
11	May-15	Est.	\$3.831	170,000	\$3.913	(\$13,968)	170,000	\$3.913	(\$13,968)
12	Jun-15	Est.	\$3.858	127,500	\$3.879	(\$2,635)	127,500	\$3.879	(\$2,635)
13	Jul-15	Est.	\$3.886	82,500	\$3.865	\$1,695	82,500	\$3.865	\$1,695
14	Aug-15	Est.	\$3.896	55,000	\$3.893	\$155	55,000	\$3.893	\$155
15	Sep-15	Est.	\$3.896	27,500	\$3.895	\$40	27,500	\$3.895	\$40
Wtd Avg NYMEX >>>>>				4,842,500	\$4.299	(\$1,172,060)	4,842,500	\$4.299	(\$1,172,060)

CHESAPEAKE UTILITIES COMPANY

Objective: Hedging plan established to reduce the utility's exposure to fluctuations in the market price of natural gas in order to mitigate the impact of such market fluctuations on Chesapeake's customers.

- ▶ Implemented in July 2007 and amended by Commission Order No. 7837, issued September 7, 2010, in the utility's Gas Sales Service Rate filing in Docket No. 09-398.
- ▶ Program has a one-year horizon under which Chesapeake hedges 50 percent of its estimated monthly purchases, including storage injections.

CHESAPEAKE UTILITIES COMPANY (CONT'D)

- ▶ The 50 percent target is achieved by hedging 1/12th of the 50 percent target each month, beginning 12 months prior to the month in which the physical gas is to be purchased. Chesapeake uses only fixed-price purchases for hedging.
- ▶ Fixed-price purchases are made on the second Wednesday of the month at the market close.
- ▶ At the end of each quarter, the utility files a Natural Gas Commodity Procurement Plan Quarterly Report with the Commission, summarizing its hedging activities.
- ▶ Select pages of the Report follow.

CHESAPEAKE UTILITIES COMPANY (CONT'D)

Chesapeake Utilities Corporation
Delaware Division
Natural Gas Commodity Procurement Program
Hedging Detail for October 2014
For the Month Ending
September 30, 2014
*****CONFIDENTIAL*****

Monthly fixed hedge calculation based on current GSR requirements.

Eligible Monthly Fixed Hedged	113,770
Days in the month	31
Daily	3,670
No. of months to hedge	12
Monthly fixed hedge	305

Balance Left to Hedge

Revised from new GSR	3,670
Hedged to date	3,670
Balance left to hedge	0
Months left to hedge	0
Revised Monthly fixed hedge	0

Hedging Detail

Date	Supplier	Financial or Physical	Commodity or Basis	Daily Dts	Monthly Dts	Rate/dt	Total Cost	Accumulated Costs	Cost/dt
October 9, 2013	NJRES	Physical	Commodity	305	9,455	\$3.9760	\$37,593.0800	\$37,593.0800	
November 13, 2013	NJRES	Physical	Commodity	305	9,455	\$3.7250	\$35,219.8750	\$72,812.9550	
December 11, 2013	NJRES	Physical	Commodity	306	9,486	\$4.2190	\$40,021.4340	\$112,834.3890	
January 8, 2014	NJRES	Physical	Commodity	306	9,486	\$4.1090	\$38,977.9740	\$151,812.3630	
February 12, 2014	NJRES	Physical	Commodity	306	9,486	\$4.5700	\$43,351.0200	\$195,163.3830	
March 12, 2014	NJRES	Physical	Commodity	306	9,486	\$4.4810	\$42,506.7660	\$237,670.1490	
April 9, 2014	NJRES	Physical	Commodity	306	9,486	\$4.6040	\$43,673.5440	\$281,343.6930	
May 14, 2014	NJRES	Physical	Commodity	306	9,486	\$4.3490	\$41,254.6140	\$322,598.3070	
June 11, 2014	NJRES	Physical	Commodity	306	9,486	\$4.4950	\$42,639.5700	\$365,237.8770	
July 9, 2014	NJRES	Physical	Commodity	306	9,486	\$4.1720	\$39,575.5920	\$404,813.4690	
August 13, 2014	NJRES	Physical	Commodity	306	9,486	\$3.8620	\$36,634.9320	\$441,448.4010	
September 10, 2014	NJRES	Physical	Commodity	306	9,486	\$3.9540	\$37,507.6440	\$478,956.0450	\$4.2099
Totals				3,670	113,770	49.71% (fixed hedges as compared to the total requirements)			\$4.2099

CHESAPEAKE UTILITIES COMPANY (CONT'D)

Chesapeake Utilities Corporation
 Delaware Division
Natural Gas Commodity Procurement Program
 Hedging Detail for November 2014
For the Month Ending
September 30, 2014
 CONFIDENTIAL

Monthly fixed hedge calculation based on current GSR requirements.

Eligible Monthly Fixed Hedged	143,370
Days in the month	30
Daily	4,779
No. of months to hedge	12
Monthly fixed hedge	398

Balance Left to Hedge	
Revised from new GSR	4,779
Hedged to date	4,380
Balance left to hedge	399
Months left to hedge	1
Revised Monthly fixed hedge	399

Hedging Detail

Date	Supplier	Financial or Physical	Commodity or Basis	Daily Dts	Monthly Dts	Rate/dt	Total Cost	Accumulated Costs	Cost/dt
November 13, 2013	NJRES	Physical	Commodity	398	11,940	\$3.7880	\$45,228.7200	\$45,228.7200	
December 11, 2013	NJRES	Physical	Commodity	398	11,940	\$4.2640	\$50,912.1600	\$96,140.8800	
January 8, 2014	NJRES	Physical	Commodity	398	11,940	\$4.1540	\$49,598.7600	\$145,739.6400	
February 12, 2014	NJRES	Physical	Commodity	398	11,940	\$4.6070	\$55,007.5800	\$200,747.2200	
March 12, 2014	NJRES	Physical	Commodity	398	11,940	\$4.5240	\$54,016.5600	\$254,763.7800	
April 9, 2014	NJRES	Physical	Commodity	398	11,940	\$4.6450	\$55,461.3000	\$310,225.0800	
May 14, 2014	NJRES	Physical	Commodity	398	11,940	\$4.3940	\$52,464.3600	\$362,689.4400	
June 11, 2014	NJRES	Physical	Commodity	398	11,940	\$4.5360	\$54,159.8400	\$416,849.2800	
July 9, 2014	NJRES	Physical	Commodity	398	11,940	\$4.2090	\$50,255.4600	\$467,104.7400	
August 13, 2014	NJRES	Physical	Commodity	399	11,970	\$3.9350	\$47,101.9500	\$514,206.6900	
September 10, 2014	NJRES	Physical	Commodity	399	11,970	\$4.0050	\$47,939.8500	\$562,146.5400	\$4.2781
Totals				4,380	131,400	45.55% (fixed hedges as compared to the total requirements)			\$4.2781

CHESAPEAKE UTILITIES COMPANY (CONT'D)

Chesapeake Utilities Corporation
Delaware Division
Natural Gas Commodity Procurement Program
Actual Hedge Price vs. NYMEX Settle
September 30, 2014
CONFIDENTIAL

Delivery Month	Actual Hedge Price	NYMEX Settle Price	Date of Settle	Variance	
				\$	%
Nov-13	\$3.8566	\$3.4970	10/29/13	\$0.3596	10.28%
Dec-13	\$3.9875	\$3.8180	11/26/13	\$0.1695	4.44%
Jan-14	\$4.0996	\$4.4070	12/27/13	(\$0.3074)	-6.98%
Feb-14	\$4.1016	\$5.5570	01/29/14	(\$1.4554)	-26.19%
Mar-14	\$4.1239	\$4.8550	02/26/14	(\$0.7311)	-15.06%
Apr-14	\$4.0494	\$4.5840	03/27/14	(\$0.5346)	-11.66%
May-14	\$4.0777	\$4.7950	04/28/14	(\$0.7173)	-14.96%
Jun-14	\$4.1363	\$4.6190	05/28/14	(\$0.4827)	-10.45%
Jul-14	\$4.2039	\$4.4000	06/26/14	(\$0.1961)	-4.46%
Aug-14	\$4.2160	\$3.8080	08/27/14	\$0.4080	10.71%
Sep-14	\$4.1914	\$3.9570	09/26/14	\$0.2344	5.92%
Oct-14	\$4.2099	\$3.9840	10/29/14	\$0.2259	5.67%
Nov-14	\$4.2781	\$4.1210	TBD	\$0.1571	3.81%
Dec-14	\$4.4263	\$4.1900	TBD	\$0.2363	5.64%
Jan-15	\$4.5054	\$4.2520	TBD	\$0.2534	5.96%
Feb-15	\$4.4947	\$4.2360	TBD	\$0.2587	6.11%
Mar-15	\$4.3699	\$4.1550	TBD	\$0.2149	5.17%
Apr-15	\$3.9962	\$3.8730	TBD	\$0.1232	3.18%
May-15	\$3.9390	\$3.8450	TBD	\$0.0940	2.44%
Jun-15	\$3.9418	\$3.8680	TBD	\$0.0738	1.91%

The NYMEX Settle Price comes from the actual NYMEX close for months through October 2014. All other months reflect the NYMEX Henry Hub gas futures contract as of September 30, 2014.

INTRA-MONTH PRICE VOLATILITY AND EXPOSURE

- ▶ How hedging affects a utility's exposure to price volatility.
- ▶ Let's take a look at the impact on price volatility of the hedging plan of DPL. The effect of Chesapeake's hedging would be similar.
- ▶ Utilities such as DPL secure capacity responses sufficient to meet the demands of its sales customers under design day conditions. The design day used by DPL for capacity planning purposes is a day with an average daily temperature of 0° F.

INTRA-MONTH PRICE VOLATILITY AND EXPOSURE (CONT'D)

- ▶ However, days with an average daily temperature of 0°F would occur infrequently in DPL's service territory (once every five years or so).
- ▶ The highest daily demand DPL would expect to experience during a typical winter would be approximately 150,000 Dth.
- ▶ The average daily demand during the month of January would be approximately 90,000 Dth. Of this daily demand, approximately 30,000 Dth per day would be met with gas withdrawn from storage. Thus, average daily flowing supplies would be 60,000 Dth. Under DPL's hedging plan, the utility would have financially hedged 50 percent of this amount, or 30,000 Dth.

INTRA-MONTH PRICE VOLATILITY AND EXPOSURE (CONT'D)

- ▶ Therefore, on a typical January day, 30,000 Dth would be financially hedged under the utility's hedging plan with no exposure to price volatility.
- ▶ An additional 30,000 Dth would be withdrawn from storage and the price of this gas would have been fixed the previous summer.
- ▶ Therefore, there would be no exposure to price volatility for two-thirds of the gas DPL would have been taking on an average day in January.

INTRA-MONTH PRICE VOLATILITY AND EXPOSURE (CONT'D)

- ▶ The remaining one-third of flowing gas supplies would be exposed to price volatility.
- ▶ On days when demands exceed average daily demands, that is, approach 150,000 Dth, the quantity of financially hedged gas supplies would remain the same (i.e., 30,000 Dth), but the amount physically hedged with storage would increase. On January 7, 2014, when daily demands approached 150,000 Dth, up to about 65,000 Dth was available from storage.

TRENDS IN UTILITY HEDGING PRACTICES

- ▶ A 2008 National Regulatory Research Institute (NRRI) survey indicated that most public service/utility commissions in the U.S. supported or were neutral to hedging.
- ▶ In a follow-up American Gas Association survey conducted in 2009, 90 percent of the respondents said their commissions allowed hedging, but only a small portion required hedging.
- ▶ Since that time, natural gas prices have become more stable due to the development of shale supplies. Weather-driven volatility is still an issue for regulating.
- ▶ In December 2010, the Nevada Public Utilities Commission required Nevada Power Company to suspend future hedging activities because of hedging losses following the 2008 commodity price bubble.

TRENDS IN UTILITY HEDGING PRACTICES (CONT'D)

- ▶ In Pennsylvania, some utilities have reduced the quantities of gas which are hedged, while others which have year-round hedging programs like Delmarva and Chesapeake have eliminated the hedging of summer period purchases.
- ▶ In Indiana, the Utility Regulatory Commission has encouraged the use of long-term, fixed-price contracts to take advantage of what are perceived to be low gas prices. In response, for example, Vectren North (Indiana Gas Company) has entered two 5-year long-term agreements and two 10-year long-term agreements with prices in the very low- to mid-\$4.00 per Dth range.