is out of service) and under typical weather conditions. In the event of multiple equipment outages or extreme weather conditions, constraints imposed by the transmission system become a factor that must be considered in unit commitment decisions to maintain both system and local area reliability. Another limitation imposed by the transmission system that might affect unit commitment is the ability to import power from or export power to neighboring systems. Some generating units are required by MISO to be on-line to prevent a single contingency event from causing a violation of a voltage limit, a transient stability limit, or transmission element rating. MISO refers to these units as "VLR," or voltage and local reliability units.

Q34. WERE THERE ANY REGIONAL TRANSMISSION CONSTRAINTS THAT AFFECTED THE ETI SERVICE AREA DURING THE RECONCILIATION PERIOD?

A. Yes. Within the Entergy transmission system there are several regional constraints that can have an effect on operations, and two of these regional constraints affect the ETI service area. These two ETI regional constraints are West of the Atchafalaya Basin ("WOTAB") – comprising essentially the western half of Louisiana and all of the ETI service area – and Western WOTAB – a subset of WOTAB comprising approximately the region within the ETI service area west of the Trinity River. In both cases, limited transmission capability into these regions requires that some generation within each region operate in VLR status to provide

reliable service to the region. All of the long-term to short-term planning processes must account for these regional transmission constraints.

Q35. HOW DID MISO MANAGE OPERATING RESERVE REQUIREMENTS DURING THE RECONCILIATION PERIOD?

A. The North American Electric Reliability Corporation ("NERC") establishes the general requirement that every system maintain adequate operating reserves. Each regional reliability council that is a member of NERC may establish its own more specific requirements for its members. Operating reserve is provided by sources of power that can be called upon within a short period of time in the event of a contingency, such as a unit trip or a transmission line trip. MISO addresses operating reserve requirements as part of its unit commitment and economic dispatch instructions.

Q36. WERE THERE ANY PURCHASED POWER CONSTRAINTS DURING THE RECONCILIATION PERIOD?

A. Yes. The commercial terms of the long-term purchased power contracts included in ETI's resource portfolio dictated how those resources could be offered into the MISO markets.

Q37. DID ETI HAVE TO MANAGE ANY CONSTRAINTS ASSOCIATED WITH SHORT-TERM POWER PURCHASES DURING THE RECONCILIATION PERIOD?

A. No. As mentioned previously, participation in the MISO wholesale markets eliminates the need to seek out and transact on short-term bi-lateral opportunities because all of those short-term resources are now offered into and evaluated by MISO based on relative economics. As a result, those short-term opportunities are now available to serve ETI load through the MISO unit commitment and economic dispatch processes without the necessity of ETI taking independent action.

VI. NATURAL GAS

A. Responsibilities of the Fossil Fuel Supply Team and Overall Procurement Strategy

Q38. WHAT FUELS DOES THE FOSSIL FUEL SUPPLY TEAM HAVE THE RESPONSIBILITY FOR PURCHASING?

A. The Fossil Fuel Supply team has the responsibility for purchasing natural gas, coal, and fuel oil for all of the EOCs, including ETI. In the case of ETI, however, purchases are almost exclusively limited to natural gas since distillate fuel oil is burned in very small quantities at Nelson 6 and Sabine Unit 5 for startup and flame stabilization. Total fuel oil purchases for ETI during the Reconciliation Period were only 9,211 barrels, as shown in Schedule FR-16.2. Fuel oil purchases are made in the spot market. Coal purchases will be discussed later in this testimony.

Q39. PLEASE DESCRIBE THE RESPONSIBILITIES OF THE FOSSIL FUEL SUPPLY TEAM WITH RESPECT TO NATURAL GAS PROCUREMENT.

A. The Fossil Fuel Supply Team does not directly determine how much gas to purchase. These decisions are made based on analysis, input, and feedback by various teams within the EMO, including the Fossil Fuel Supply Team. Members of the Fossil Fuel Supply Team participate in planning teams, providing input about market conditions such as price and availability of fuels. Once the planning teams determine the appropriate quantities of natural gas that should be purchased, the Fossil Fuel Supply Team accomplishes the actual procurement.

As it relates to natural gas procurement, the overall responsibilities of the Fossil Fuel Supply Team are to:

- conduct natural gas procurement operations in a manner that supports ETI's commitment to provide high quality service and a reliable supply of electric energy;
- maintain sufficient supplies of natural gas from a diverse group of suppliers to reliably meet ETI's fuel requirements;
- acquire supplies of gas that provide flexibility in volumes taken at reasonable prices under the facts and circumstances known or knowable at the pertinent time;
- administer existing natural gas contracts in a manner that ensures a reasonable cost;
- manage the inventories of natural gas; and

- participate in the planning process by supplying market prices, availability, and other information regarding natural gas resources.

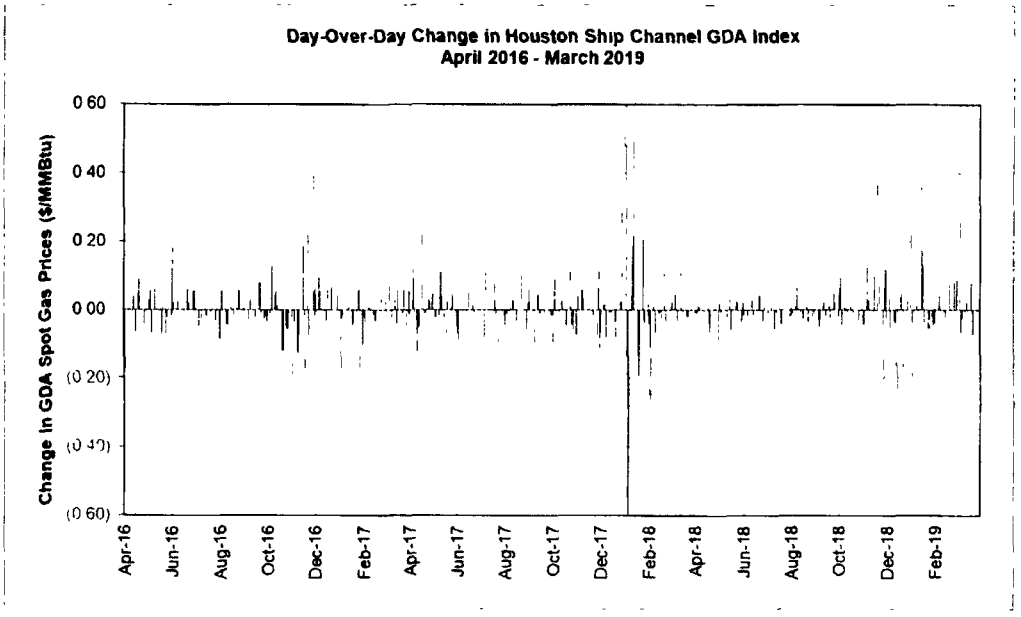
B. Natural Gas Markets and Indices

1. Overview of the Natural Gas Markets

Q40. PLEASE SUMMARIZE THE NATURAL GAS MARKETS DURING THE RECONCILIATION PERIOD.

A. Natural gas prices during the Reconciliation Period tended to follow the typical patterns of volatility. By "volatility," I am referring to the tendency of market prices to rise or fall within a specified period of time. This volatility was manifested both in terms of the swing in market prices from one period to the next (*e.g.*, month-to-month, or day-to-day), as well as in the range of market prices within a single trading period. This volatility is exemplified in Figure DSJ-2, below, which shows the day-over-day changes in the Gas Daily Average ("GDA") index price of natural gas in the Houston Ship Channel ("HSC") throughout the Reconciliation Period.

Figure DSJ-2



2. Gas Supply Portfolio

Q41. PLEASE DISCUSS THE COMPANY'S RELATIVE UTILIZATION OF LONG-TERM, MONTHLY, AND DAILY GAS CONTRACTS DURING THE RECONCILIATION PERIOD.

A. During the Reconciliation Period, ETI's gas purchases by volume were approximately 4.5 percent from a long-term contract, 33.2 percent from monthly spot contracts, and 62.3 percent from daily spot contracts.[3]

[3] Calculated from data provided in Schedule FR-16.2.

Q42. PLEASE IDENTIFY THE VARIOUS CATEGORIES OF SPOT CONTRACT PURCHASES BY THE COMPANY DURING THE RECONCILIATION PERIOD.

A. The Company's spot gas purchases during the Reconciliation Period have been classified into general categories, shown in Schedule FR-16.2. These categories may be identified either by the delivery period of the contract, by the relevant market index, or by a combination of the two. The following table shows the various categories of spot gas contract types:

Figure DSJ-3

Spot Gas Contract Types (as designated in FR-16.2)	Delivery Period	Relevant Pricing Index
Monthly Bid-Week	Month	Inside FERC First of Month
Monthly GDA	Month	Platt's Gas Daily Average
Next-Day	Day	Gas Daily Average
Current-Day	Intraday	None

Q43. PLEASE GIVE A GENERAL DESCRIPTION OF EACH OF THESE SPOT GAS CONTRACT TYPES.

A. As noted in the table above, spot gas purchases may be made for delivery over the course of the following month, the following day or weekend, or the remainder of the current day. Regardless of the delivery period covered by the contract, the gas will be delivered ratably over the contract period unless the seller and/or the delivering pipeline(s) agree to more flexible delivery terms. The relevant pricing index for Monthly Bid-Week gas purchases is the index price that is established during "Bid-Week." Bid-week is the last five business days of the month preceding

the month during which gas will be delivered. The Bid-Week index price is published in *Inside FERC* at the beginning of the delivery month.

Although it can be purchased during Bid-Week, the relevant pricing index for Monthly GDA gas is the Gas Daily Average index ("GDA Index") that is published in *Platt's Gas Daily*. Under these types of contracts, the Company secures gas for delivery over the course of the month with the price tied to the GDA Index.

Gas purchased under a Next-Day contract is typically purchased on the morning of the last trading day prior to the date of delivery. The relevant index for Next-Day gas purchases is the GDA Index.

Current-Day gas (also referred to as "Intraday Gas") is purchased for same-day delivery and is delivered over the remaining balance of the day. There is no market index that is representative of Current-Day gas purchases.

Q44. WHAT PROCESS DOES THE COMPANY UNDERTAKE TO DETERMINE HOW MUCH DAILY AND MONTHLY GAS TO PURCHASE?

A. The Market Operations group prepares monthly gas consumption forecasts using a short-term production simulation model. Current projections of operating conditions, estimated fuel prices, and unit availability are input into the simulation. The Fossil Fuel Supply team provides projected gas and fuel oil price inputs into the model. The modeling results are used to prepare reasonable estimates of fuel needs over the upcoming month so that ETI can make the reasonable and necessary monthly procurements of fuel to meet expected generation requirements.

The Fossil Fuel Supply Team is responsible for securing natural gas to satisfy the expected requirements at each plant. Consideration is given not only to the total estimated requirements for the month, but also to how each plant's requirements are expected to vary throughout the month. This means that fuel supplies must be both reliable and flexible. Fuel flexibility, meaning the ability to change the flow of gas to match generation requirements throughout the month, may be accomplished by utilizing a mix of monthly, daily, and intraday spot market purchases and by using gas storage capability.

As indicated above, ETI checks and adjusts its plans over the course of the month to project what resources are expected to serve load in MISO considering price, reliability, and flexibility. The determination of the resources that will serve load is made on a day-ahead basis as part of the MISO Day-Ahead process. In this regard, day-ahead schedules, or awards, are developed that take into account ETI's operating conditions, load, unit status, and fuel prices and availability. A projection of the day-ahead schedules are produced using resource offers to MISO, as discussed earlier in my testimony, and used to aid in the determination of natural gas requirements needed in the daily market.

Q45. DID ETI ALTER ITS GAS PURCHASING STRATEGY DURING THE RECONCILIATION PERIOD?

A. Yes. At ETI's direction, effective June 1, 2017, all gas purchases, other than intraday purchases are priced based on the GDA Index. Previously, monthly gas

purchases were made up of a mix of First of Month and GDA Index priced purchases.

Q46. WHY DID ETI ALTER THIS PURCHASING STRATEGY TO PURCHASE MONTHLY GAS THAT SETTLED DAILY?

A. This strategy allows ETI to better align settlements for gas purchases with its MISO unit offer strategy, which utilizes the incremental cost of fuel in the energy offer to the Day-Ahead Market. The incremental fuel cost in the energy offer is associated with the price of natural gas for purchases made for the upcoming gas day. This strategy mitigates risk if MISO's selection of offers for day-ahead unit commitment differs from the Monthly Plan used to determine the volume of gas to secure on a month-ahead basis.

Q47. HOW DOES THE COMPANY ENSURE THAT IT IS PAYING A REASONABLE PRICE FOR SPOT GAS?

A. To meet the estimated gas requirements for the period, each of the gas buyers surveys the commodity and transportation markets through contacts with marketers and pipelines, solicits bids from competing suppliers, and monitors on-line market transactions to discover market prices, availability, and flexibility. These market contacts may be with different suppliers or multiple contacts with one supplier, but in either case the objective is to ascertain market price, quantity and availability of supply, as well as any other terms necessary to properly evaluate the offers as they are being received. By necessity, these contacts are brief, generally less than one

minute in duration, and during that time the buyer must either accept or reject the offer. Once an offer has been rejected, the seller will market the gas elsewhere and the same deal may not be available later.

The offers for "delivered to plant" gas are compared to offers for commodity only, with adjustments for transportation and compression costs that ETI would incur to arrange its own transportation. The lowest delivered price offers are accepted consistent with the reliability and flexibility requirements of the respective plants.

Q48. WHAT HAPPENS WHEN ACTUAL GAS REQUIREMENTS DIFFER FROM THE MONTHLY OR DAY-AHEAD PROJECTIONS?

A. The monthly and day-ahead projections are based on the Company's best estimates of input assumptions at the time. To the extent that actual fuel requirements are greater than those estimated in the Monthly planning and Day-Ahead processes, depending upon circumstances, the Company may utilize pipeline balancing agreements, withdraw gas from storage, or make additional purchases of natural gas in the intraday market. If the load or generating requirement is lower than had been expected, ETI may, depending upon circumstances at the time, treat the excess as an imbalance on the pipeline, inject the excess gas into storage, move the gas to another location, or sell the excess gas back into the marketplace. Revenues from the sales of natural gas are credited to fuel expense.

Q49. DID THE COMPANY PURCHASE NATURAL GAS OR TRANSPORTATION SERVICE FROM ANY AFFILIATES DURING THE RECONCILIATION PERIOD?

A. No.

3. Market Indices

Q50. WHAT MARKET INDEX IS REPRESENTATIVE OF THE COMMODITY MARKETS IN WHICH ETI PURCHASES NATURAL GAS?

A. Although it is not a perfect indicator of market prices at points outside the Houston Ship Channel itself, the published index for the HSC market area is generally representative of spot gas market prices and trends in the region in which the Lewis Creek, Sabine, and San Jacinto plants are located.

Q51. PLEASE EXPLAIN WHY THE HOUSTON SHIP CHANNEL INDEX IS "NOT A PERFECT INDICATOR" FOR GAS PURCHASES AT THE GAS PLANTS OWNED OR OPERATED BY THE COMPANY.

A. The HSC is a large market region that extends from the east side of Houston to Galveston Bay, and northeastward to the Port Arthur/Beaumont area. Because it is a large and imprecisely-defined area, there can be considerable variation in market prices. The vast majority of HSC sales occur in the geographic region that is east of Houston, and bounded by Interstate 10 to the north, Interstate 45 to the south, and Galveston Bay to the east. Within this central region of the HSC market area, the HSC index tends to be much more representative of the market price. However,

in more remote locations of the HSC market area, market prices are increasingly influenced by prices in other market areas.

The Company's gas-fired resources are located well outside the primary marketing area of the Houston Ship Channel, as shown in Exhibit DSJ-3. As a result, natural gas prices at these sites are greatly influenced by postings in other market areas, including TETCO East Louisiana, TETCO West Louisiana, Florida Gas Transmission Zone 1, and Transco Station 45. When natural gas in these areas is trading at a premium to HSC, market prices at Sabine, Lewis Creek, and San Jacinto will trade higher than the HSC index. Assuming that these transactions are even reported by the seller, they may be excluded from the calculation of the market index range as outliers.

Q52. ARE SPOT MARKET PRICES PUBLISHED FOR THE HOUSTON SHIP CHANNEL?

A. Yes. The spot gas index for monthly purchases is published in *Inside FERC* and is representative of transactions made and reported during bid-week. The spot gas index for daily purchases is published in *Gas Daily* and is representative of transactions that are made for next-day delivery. These indices represent gas that will be delivered ratably (by equal hourly amounts throughout the day) throughout the delivery period. Although other arrangements for swing flexibility may be agreed to by the buyer, seller, or delivering pipeline, the cost of these additional services is not reflected in the published index price.

In addition to the monthly and daily spot gas price indices, both *Gas Daily* and *Inside FERC* publish the common range of prices reported for gas transactions during the trading period that established the posted index price. Exhibit DSJ-4 contains an explanation of how these published indices are calculated.

Q53. ARE THE PUBLISHED INDEX PRICES REPRESENTATIVE OF COST OF NATURAL GAS PURCHASED AND DELIVERED TO THE PLANT?

A. No. The index prices represent the market prices at the HSC. Costs such as transportation that are incurred to deliver the gas to the generating plant are not included in the index price. In addition, as noted previously, costs that may be incurred for the purchase of other services from the supplier or pipeline, such as swing flexibility, are not reflected in the published index prices.

Q54. ARE ANY INDICES PUBLISHED FOR INTRADAY SPOT GAS PURCHASES?

A. No. Intraday purchases are for current day delivery, and the price is highly dependent on market conditions at the time.

Q55. WHAT IS THE PROCESS FOR ENTERING INTO INTRADAY SPOT GAS CONTRACTS?

A. Intraday spot gas is purchased on an "as needed" basis for current day delivery. These deals are transacted on the basis of market surveys and negotiations between the EMO's gas buyers and prospective suppliers.

Q56. HOW DID THE PRICES PAID BY THE COMPANY FOR MONTHLY AND DAILY SPOT GAS COMPARE TO THE PUBLISHED INDICES DURING THE RECONCILIATION PERIOD?

A. Graphic comparisons of the Company's spot gas purchases with the relevant *Gas Daily* and *Inside FERC* indices are provided in Exhibits DSJ-5 through DSJ-9. Data underlying these charts has been provided in the workpapers to my testimony. Those comparisons indicate that the Company's purchases were reasonable and, with appropriate adjustments for costs such as transportation and applicable taxes, compare favorably with recognized market indices.

Q57. IN PREPARING THE COMPARISONS PRESENTED IN YOUR TESTIMONY, WHAT DOCUMENTS SUPPORT THE PURCHASES SET FORTH IN THESE COMPARISONS?

A. The Company has provided contract summaries in Schedule FR-7 and copies of these contracts as workpapers to Schedule FR-7. The Company has also provided its gas transaction database for the Reconciliation Period, as described further below, as well as the monthly and daily market index data, as workpapers to my testimony. Additionally, the comparisons are based on information contained in Schedules FR-16.2 and FR-16.3.

Q58. WHY DID YOU USE SCHEDULES FR-16.2 AND FR-16.3 TO MAKE THESE COMPARISONS?

A. These schedules contain the appropriate information required to make a comparison to the various natural gas market indices. In order to provide the details required by the Commission's Fuel Reconciliation Filing Package instructions for preparing the natural gas portions of Schedules FR-16.2 and FR-16.3, the Company uses data contained in the gas transaction database maintained at the EMO. This database, which is included as a workpaper to my testimony, contains a record of all natural gas transactions the Company made during the Reconciliation Period. For each transaction, the database includes information about the type of contract (*e.g.*, monthly, daily, intraday, imbalance, or sale), the supplier, delivery pipeline, delivery date, volume, and cost.

Q59. WHERE ARE THE COMPANY'S NATURAL GAS COSTS FOR THE RECONCILIATION PERIOD REPORTED?

A. Eligible natural gas costs for the Reconciliation Period have been provided in Schedule FR-16. For reference purposes, natural gas costs allocated on an operating month basis have been provided in Schedules FR-16.1 (Fossil Fuel Burns), FR-16.2 (Fossil Fuel Purchases), and FR-16.3.

4. Natural Gas Transportation

Q60. WHAT ARE THE GENERAL MEANS BY WHICH THE COMPANY TRANSPORTS GAS FROM SUPPLIERS TO ITS PLANTS?

A. The Company may either purchase gas delivered to the plant under bundled service or it may purchase transportation for its own account and move the gas to the plant.

Q61. HOW MUCH GAS WAS TRANSPORTED FOR THE COMPANY'S OWN ACCOUNT DURING THE RECONCILIATION PERIOD?

A. Excluding gas transported into Sabine Station under the WSP (formerly PB Energy Storage Services, Inc. ("PB")) contract, ETI transported approximately 23% of its total purchases during the entire Reconciliation Period, as shown in Exhibit DSJ-10. Actual transport volumes varied by month and even by station.

Q62. UNDER WHAT CONTRACTS DOES THE COMPANY TRANSPORT NATURAL GAS FOR ITS OWN ACCOUNT?

A. During the Reconciliation Period, ETI transported natural gas for its own account under contracts with the TETCO and NGPL pipelines. Natural gas purchases on intrastate pipelines are typically made on a delivered-to-plant basis. Summaries of the Company's transportation contracts have been provided in Schedule FR-7, and the contracts themselves are provided as workpapers to that schedule.

Q63. HOW ARE TRANSPORTATION RATES ON PIPELINES DETERMINED?

A. In the case of interstate pipelines, maximum and minimum rates are set by FERC-approved tariffs. In some cases, the pipelines may offer discounts to the FERC-approved tariffs or negotiated rates. With respect to intrastate pipelines, the transportation rates generally are set by the pipelines, or may be negotiated rates based on volumetric capabilities or contract term.

5. Natural Gas Storage

Q64. DOES THE COMPANY MAINTAIN NATURAL GAS IN INVENTORY?

A. Yes. The Spindletop gas storage facility is owned by the Company, which maintains a natural gas inventory that can be used to serve both the Sabine and Lewis Creek generating stations. The Company has contracted with PB/WSP to operate the storage facility.

Q65. PLEASE DESCRIBE THE SPINDLETOP STORAGE FACILITY.

A. As detailed in Schedule FR-9, the storage facility consists of two salt-dome storage caverns, a compression facility used for injecting gas into the caverns, and a pipeline header system that interconnects the storage caverns with Sabine Station. Utilizing interconnections with Kinder Morgan Tejas Gas Pipeline, Kinder Morgan Texas Pipeline, and Copano Pipeline, the Company is able to deliver gas from the storage caverns to the Lewis Creek power plant. Exhibit DSJ-11 includes information about current storage capacity, injection and withdrawal capacities,

and various operational constraints of the storage facility and the interconnected header system.

Q66. PLEASE EXPLAIN THE OPERATIONS OF THE NATURAL GAS STORAGE FACILITY.

A. The storage facility provides the Company a means of buying natural gas at one point in time, storing it, and using it at some future point in time. This gas storage facility, in many ways, can be compared to the water towers many cities use to provide reliability and flexibility to their water supply system. With both types of systems, a commodity is injected or pumped (with compressors or water pumps) into a container (a storage cavern or a water tower) and is stored for periods when supplies are not available or when the sources of the commodities (gas pipelines or water wells) are unable to provide the flexibility (or rate of delivery) needed to serve its customers' peak needs.

Q67. WHAT IS THE BENEFIT TO ETI OF HAVING A NATURAL GAS STORAGE FACILITY?

A. The primary benefits derived from the storage facility are increased supply reliability and swing flexibility. The storage facility provides a reliable supply of gas for Sabine Station and Lewis Creek during gas supply curtailments that can occur as a result of hurricanes, freezes, or other unusual events. If one of these events were to occur, the gas in storage would be available to supplement existing pipeline supplies. In the event of a total curtailment of supply, the storage facility

is capable of providing 100 percent of the fuel requirements for all of the units at Sabine Station and either one of the Lewis Creek units for a period of up to four days, at a 70 percent capacity factor. In addition to reliability of supply, the storage facility also provides flexibility of gas supply to Sabine Station, both on a daily and instantaneous basis. This flexibility mitigates the Company's dependence on pipelines and/or gas suppliers to provide the needed flexibility.

In addition, by being able to draw from storage, the Company is able to avoid almost all intraday gas purchases for Sabine Station. As shown in Schedule 16.2, the Company purchased approximately 724,000 MMBtus of intraday (or current day) gas out of approximately 145.6 million total MMBtus purchased at the plant, representing 0.5 percent of the total purchases at Sabine Station for the entire Reconciliation Period. Also, to the extent that gas purchases exceed the requirements of the plant, the excess gas may be injected into storage rather than being sold back into the market.

Q68. HAVE THERE BEEN ANY SIGNIFICANT EVENTS DURING THE RECONCILIATION PERIOD THAT HAVE AFFECTED THE OPERATION OF THE STORAGE FACILITY?

A. Yes. In 2015, the Company began preparing to perform a Mechanical Integrity Test ("MIT"), as well as an inspection of the wellhead components and casing ("wellhead inspection") of the Spindletop storage caverns, as required by the Texas Railroad Commission Rule §3.97 ("Rule 97"). To perform the wellhead inspection safely, gas in the subject cavern must be completely withdrawn, and then reinjected

when the inspection is complete. The inspections for Cavern 1 were completed in May 2016 with no issues found, and the cavern was refilled and in full operation in September 2016. In April 2017, the Company began withdrawing gas from Cavern 2 prior to the MIT and wellhead inspections, which were successfully completed with no issues found. Following the inspections, Cavern 2 was refilled and returned to full operation in July 2017.

Q69. WHAT IS THE PURPOSE OF THESE TESTS?

A. The MIT inspection is required to be performed at least once every five years in order to verify the integrity of the storage cavern. The wellhead inspection is required to be performed at least once every 15 years to verify the integrity of the wellhead components and casing.

Q70. HAS THE COMPANY ADDRESSED THIS IN PREVIOUS FUEL RECONCILIATIONS?

A. Yes. Although the entire inspection process for both caverns was not completed at the time, in Docket No. 46076 the Company apprised the Commission of the requirement to perform the inspections, that the dewatering of Cavern 1 that began during that Reconciliation Period was completed in April 2016, and that the inspections on Cavern 1 were successfully completed in May 2016 (during the current Reconciliation Period). The Commission was also advised at that time that the inspection process for Cavern 2 (including emptying the cavern, performing the

inspections, and refilling and returning the cavern to full operation) was expected to begin in the fourth quarter 2016 and be completed in early 2017.

Q71. PLEASE DESCRIBE THE COMPANY'S NATURAL GAS INVENTORY POLICY.

A. The Company places emphasis on maintaining a combination of storage inventory or gas supplies for delivery via firm transportation agreements to provide a reliable supply of fuel for generation to its plants to meet customer load (including the peak generation periods) for four consecutive days during times of the year in which gas industry supply disruptions are more likely to occur. Historically, major supply disruptions are more likely to occur during the winter and during hurricane season. As a result, the Company is typically more conservative in its inventory management approach during the months of June – March than it is in April and May. Especially during these months, the Company's objective is to maintain a level of pressure in the storage cavern that will reliably provide gas to meet its peak demand for all of the units at Sabine Station and one of the two units at Lewis Creek Station for four consecutive days while also reserving some storage capacity for the flexibility function.

Q72. WHAT WERE THE TOTAL PAYMENTS MADE TO WSP FOR THE OPERATION OF THE STORAGE FACILITY?

A. The payments made to WSP, and its predecessor, PB, for the operation of the Spindletop storage facilities during the Reconciliation Period totaled $24.4 million.

The eligible fuel cost related to operation of the facility for the Reconciliation Period was $24.0 million. These costs are shown in Exhibit DSJ-12.

Q73. WHY ARE THE TOTAL PAYMENTS TO PB/WSP DIFFERENT FROM THE AMOUNT INCLUDED IN ELIGIBLE FUEL FACTOR EXPENSE?

A. Total payments represent transportation, taxes, maintenance, and electrical cost associated with all gas delivered to the Spindletop header system during any given month. These costs are charged to inventory as they are incurred and are only charged to fuel expense as gas is withdrawn from inventory and burned. In other words, in a month where the Company experiences a net injection into storage, the eligible fuel cost will be lower than the payments because a portion of the payments are charged to inventory. In a month where the Company experiences a net withdrawal from storage, eligible fuel costs will be higher than payments because the costs that are included in inventory are reversed and charged to eligible fuel. As a result, the amount of PB/WSP costs that are charged to fuel expense will vary from month-to-month depending on the actual amounts invoiced for the month as well as the extent to which there was a net injection or withdrawal for the month. Exhibit DSJ-12 reconciles the total payments made to the storage operator and the amount included in eligible fuel by depicting the amounts charged to (injections) and reversed from (withdrawals) inventory.

Q74. HAS THE COMMISSION PREVIOUSLY REVIEWED THE PAYMENTS BETWEEN THE COMPANY AND PB/WSP?

A. Yes. In Docket No. 32710, the Commission conducted a review of payments to PB and concluded that such costs are properly included in eligible fuel expense.[4]

VII. COAL

Q75. WHAT IS THE PURPOSE OF THIS PORTION OF YOUR TESTIMONY?

A. I discuss coal acquisition activities and the Company's administration of coal supply contracts during the Reconciliation Period. This includes discussion of all reconcilable fuel costs for both Roy S. Nelson Station, Unit 6 ("Nelson 6") and Big Cajun II, Unit 3 ("BCII, U3"), as to both of which ETI is a co-owner. I demonstrate that the Company acted prudently in its coal acquisitions and that the coal costs incurred during the Reconciliation Period were reasonable.

A. Overview

Q76. PLEASE DESCRIBE THE COMPANY'S COAL-FIRED GENERATING RESOURCES.

A. ETI has interests in two coal-fired generating resources. ETI is one of the co-owners of Nelson 6, a nominal 550 MW coal-fired unit located in Westlake, Louisiana. ELL is the majority owner and operator of this unit pursuant to a Joint Ownership and Operating Agreement ("JOPOA") signed with the other co-owners

[4] *Application of Entergy Gulf States, Inc for the Authority to Reconcile Fuel and Purchased Power Costs*, Docket No. 32710, Order at Findings of Fact Nos. 90–94) (Sep. 5, 2007).

of Nelson 6. ETI has a 29.75 percent ownership interest (or 164 MW) in Nelson 6; ELL has a 40.25 percent ownership interest (or 221 MW); and the other co-owners' combined ownership equals the remaining 30 percent interest (or 165 MW). Pursuant to the JOPOA, ELL is responsible for the supply and delivery of coal to Nelson 6.

ETI also owns a 17.85 percent interest (or 103 MW) in BCII, U3 a nominal 579 MW coal-fired unit that is part of the Big Cajun II plant located in New Roads, Louisiana. The co-owners of BCII, U3 operate under a JOPOA. Louisiana Generating, LLC ("LaGen"), a wholesale power generation company, is a co-owner and the operator of the BCII plant and is therefore responsible for the acquisition and delivery of coal to BCII, U3.

Q77. WHAT ARE THE OBJECTIVES OF THE EMO'S COAL PURCHASE AND DELIVERY PROCESS?

A. The objectives of the EMO's coal purchase and delivery process are to meet the projected coal demand of the EOCs' coal-fired plants at a reasonable cost with a high degree of service reliability, consistent with known and reasonably-anticipated operating conditions (*e.g.*, expected operating loads and generating unit operations); market conditions (*e.g.*, the price and availability of coal and other fuels); and transportation conditions (*e.g.*, expected cycle-times of delivery, availability of railcars, and other factors affecting transportation).

Q78. WHAT ARE THE COMPONENTS OF ETI'S COAL AND COAL-RELATED COSTS FOR THE RECONCILIATION PERIOD?

A. ETI's reconcilable coal cost is comprised of (1) coal commodity costs, (2) coal transportation costs, and (3) the Louisiana sales and use tax on boiler fuel. These costs are proportional to ETI's ownership of Nelson 6 and BCII, U3. These costs are enumerated and quantified for each of the coal plants on an "as-purchased" basis in Highly Sensitive Schedule FR-17.1, and on an "as-burned" basis in Highly Sensitive Schedule FR-16. The total eligible coal costs that I am supporting, $92,135,635, are summarized in Figure ARM-1 of the testimony of Ms. Meyer, for the amount in the "Coal" line item. These costs represent the cost of coal "as-burned" from inventory.

B. Roy S. Nelson Station, Unit 6

Q79. HOW ARE THE COAL SUPPLY AND COAL TRANSPORTATION CONTRACTS MANAGED FOR NELSON 6?

A. EMO uses a coal inventory forecast to ensure compliance with both transportation and coal supply contract requirements, as well as to meet inventory targets required by the coal inventory policy, which I discuss later in my testimony. The coal inventory forecast includes an estimate of the number of coal trains in service each month, cycle-times (as a way to forecast deliveries), and plant burn. On the basis of this forecast, the EMO makes a monthly coal nomination to the supply mines and the railroad. After the close of each month, EMO adjusts the forecast for the remainder of the year to reflect actual year-to-date delivery and burn data and, to

the extent necessary, adjusts the number of trainsets in service in order to meet the monthly nominated tonnage. In the event forecasted inventory levels fall below the minimum target of 36 days, the Company considers alternative coal supplies, alternative delivery modes, and the potential for additional trainsets in service as options to assist in inventory recovery.

Q80. WHAT IS THE COAL PROCUREMENT STRATEGY FOR NELSON 6?

A. The Company has a coal procurement strategy targeted at committing to supply minimum portions of annual coal supply requirements according to the table below. Deviations may occur from the targeted minimum when market conditions and business judgment support a change.

Year	Targeted Minimum Commitment %
Prompt year	90%
Prompt + 1 year	60%
Prompt + 2 years	30%

In 2016, 2017 and 2018, ELL issued Request for Proposals ("RFPs") to solicit bids for Nelson coal supply consistent with this strategy.

Q81. PLEASE SUMMARIZE THE DELIVERIES TO NELSON 6 DURING THE RECONCILIATION PERIOD.

A. All coal was sourced from mines located in the southern portion of the Powder River Coal Basin ("PRB") in Wyoming. Union Pacific and Kansas City Southern ("UP/KCS") railroads provided transportation for delivered tons through January 2017. From February 2017 forward, BNSF railroad provided transportation for all delivered tons.

Q82. PLEASE DESCRIBE THE SOUTHERN POWDER RIVER COAL BASIN SOURCES USED BY NELSON 6 DURING THE RECONCILIATION PERIOD.

A. During the Reconciliation Period, coal for Nelson 6 was purchased from six sources:

1. Cordero Rojo loadout;
2. Black Thunder loadout;
3. West Thunder loadout;
4. Belle Ayr;
5. Coal Creek; and
6. Eagle Butte.

The Cordero Rojo and Caballo Rojo loadouts make up the Cordero Rojo Complex, while Black Thunder and West Thunder loadouts are part of the Black Thunder Complex. PRB coal was purchased under long-term agreements with Cloud Peak Energy Resources LLC, Arch Coal Sales Company, and Blackjewel Marketing and Sales, LLC (formerly Contura Coal Sales, LLC) from the Cordero

Rojo Complex, Black Thunder Complex, and Belle Ayr mines, with the exception of the following short-term purchases:

1. short-term purchase of 30,000 tons from Contura in November through December 2016;
2. spot purchase of 30,000 tons from Mabanaft in December 2016;
3. over-the-counter purchase of 60,000 tons from Western Fuels Association in November through December 2016;
4. spot purchase of 60,000 tons from Contura in September 2017; and
5. short-term purchase of 180,000 tons from Cloud Peak Energy Resources LLC in October 2017 through February 2018.

Please refer to Exhibit DSJ-13 for a map detailing the location of these mines within the PRB, as well as Schedule FR-16.2 and Schedule FR-16.3 for a more detailed break-down of the annual purchases.

Q83. PLEASE ELABORATE ON HOW THE LONG-TERM ARRANGEMENTS FOR COAL SUPPLY AT NELSON 6 ARE STRUCTURED.

A. ELL[5] has a long-term purchase agreement with Blackjewel that outlines the general terms and conditions under which coal sales and purchases may be made between ELL and the seller, as well as the coal sales confirmation that sets forth required details of the transaction, including the price, any price adjustments, the quantity,

[5] The referenced Master Coal Purchase Agreements were originally executed by Entergy Gulf States Louisiana, L.L.C. ("EGSL"). Following the EGSL/ELL business combination in 2015, the Agreements were assigned to ELL. Therefore, my testimony will reference ELL as the party to the Agreements.

the term, the quality specifications, the source mine(s), the delivery point, and any other transaction-specific provisions mutually agreed upon by ELL and the seller. ELL also has Master Coal Purchase Agreements with Arch Coal Sales Company and Cloud Peak Energy Resources, LLC. These Master Coal Purchase Agreements set out the general terms and conditions under which coal sales and purchases may be made between ELL and the seller. For each transaction, ELL and the seller enter into a written Confirmation Letter that sets forth the transaction details. The respective Confirmation Letters and the Master Coal Purchase Agreements are construed as one single integrated agreement.

Q84. HOW IS THE COST OF COAL DETERMINED UNDER THE ARCH COAL AND CLOUD PEAK CONTRACTS?

A. ELL and the seller agree upon a mutually accepted base price for all coal delivered as set forth in each Confirmation Letter. The base price may also include an adjustment based upon the calorific value, sulfur content, or other qualities of the coal as the parties may mutually agree upon and as set forth in each Confirmation.

Q85. DID ANY TERM COAL SUPPLY CONFIRMATION LETTERS EXPIRE DURING THIS RECONCILIATION PERIOD?

A. Yes. Cloud Peak Energy Confirmation Letter #2194, which was executed on November 14, 2013, expired on December 31, 2016. Cloud Peak Energy Confirmation Letter #2307, which was executed on October 2, 2014, expired on December 31, 2017. In addition, Arch Coal Sales Confirmation Letter #4302,

which was executed on November 13, 2013, expired on December 31, 2016, and Contura Coal Sales Confirmation Letter #104417, which was executed on October 26, 2016, expired on December 31, 2017.

Q86. WERE ANY NEW TERM COAL CONFIRMATION LETTERS EXECUTED DURING THIS RECONCILIATION PERIOD?

A. Yes. Cloud Peak Confirmation Letter #2471, executed on November 1, 2016, was a selection from ELL's 2016 RFP. Arch Coal Confirmation Letter #5324, executed on November 30, 2016, was also a selection from ELL's 2016 RFP, as well as Contura Coal Sales Confirmation #104417, executed October 26, 2016. Blackjewel Marketing and Sales, LLC (formerly Contura Coal Sales, LLC) Confirmation #ENA18(TS)0001, executed on January 1, 2018, and Arch Coal Confirmation #5565, executed on December 19, 2017, were both selections from ELL's 2017 RFP. Arch Coal Confirmation #5758, executed November 16, 2018, and Peabody Coal Sales Confirmation #40008405, executed January 16, 2019, were selections from ELL's 2018 RFP. Please refer to the Highly Sensitive workpapers to Schedule FR-15 for an analysis of bids received in response to ELL's RFPs. Summaries of these Confirmation Letters, as well as copies of the Confirmation Letters themselves, have been provided in Highly Sensitive Schedule FR-7 and associated Highly Sensitive workpapers.

Q87. PLEASE SUMMARIZE ETI'S COSTS OF COAL FOR NELSON 6 DURING THE RECONCILIATION PERIOD.

A. During the Reconciliation Period, ETI burned approximately 27,650,781 MMBtu of coal at an average of $2.06/MMBtu, excluding coal costs recovered through base rates.

Q88. WHAT TYPES OF COSTS ARE INCLUDED IN THE RAIL TRANSPORTATION COSTS FOR ETI'S COAL SUPPLY TO NELSON 6?

A. The transportation costs include all costs to operate trains from the mine or terminal to the plant and then back to the mine or terminal. These costs include crews, locomotives, fuel, right-of-way, switching, storage, maintenance of railroad-controlled track, and train handling expenses at the plant.

Q89. HOW WAS COAL TRANSPORTATION RELATED TO NELSON 6 PROVIDED DURING THE RECONCILIATION PERIOD?

A. During the Reconciliation Period, Nelson 6 received coal under long-term contracts with UP/KCS and BNSF. The UP/KCS contract expired during the Reconciliation Period and was subsequently replaced with the BNSF contract pursuant to a 2016 RFP. Both contracts provided transportation from the Powder River Basin.

Q90. HOW ARE THE COAL COMMODITY AND TRANSPORTATION COSTS SHARED AMONG THE NELSON 6 CO-OWNERS?

A. The costs of the supply and transportation agreements are allocated among all the co-owners in proportion to their ownership. The transportation and supply costs are charged to the stockpile each month and expensed as the coal is consumed.

Q91. IS THERE A PUBLISHED INDEX OR SIMILAR TOOL THAT COMPARES COAL TRANSPORTATION COSTS AMONG UTILITIES?

A. No. Transportation agreements with the railroads have confidentiality provisions that prevent a utility from disclosing certain terms, including pricing of those agreements. Therefore, the information needed to develop a commodity price index is unavailable.

Q92. IS THERE A PUBLISHED INDEX OR SIMILAR TOOL THAT COMPARES DELIVERED COAL PRICES AMONG UTILITIES?

A. No. Utility coal costs include short- and long-term contract pricing. A daily market for coal exists but is not relevant to the term contracts described above.

Q93. SINCE THERE ARE NO PUBLISHED INDICES OR SIMILAR TOOLS, HOW DOES ETI ENSURE THAT THE COSTS THE COMPANY INCURRED FOR FUEL EXPENSES AT NELSON 6 WERE REASONABLE?

A. The PRB coal commodity and coal transportation contracts were acquired under competitive bidding processes pursuant to widely-publicized RFPs. Furthermore,

at ETI's and ELL's direction, EMO uses a coal procurement strategy for Nelson 6 (described earlier in my testimony) in an effort to procure an adequate fuel supply for Nelson 6 in a manner that mitigates exposure to commodity cost volatility.

C. Big Cajun II, Unit 3

Q94. HOW DOES ETI MANAGE ITS OWNERSHIP SHARE OF BCII, UNIT 3?

A. As explained previously, LaGen is the majority owner and project manager of the unit. The BCII, U3 JOPOA established the Management Advisory Committee ("MAC") as a forum for the exchange of operational information and issue resolution between the owners and LaGen. A representative from SPO, acting on behalf of ETI, serves on the MAC.

Q95. PLEASE DESCRIBE ETI'S PARTICIPATION IN THE MANAGEMENT ADVISORY COMMITTEE.

A. The MAC meets quarterly. One or more representatives of SPO, as well as representatives from other Company groups, attend each MAC meeting. Each meeting follows an agenda prepared by the Company representative on the MAC and is intended to provide ETI with pertinent and timely information on BCII, U3 operations. In addition, representatives of the Company routinely consult with and advise LaGen management on a variety of operations and maintenance issues.

Q96. HOW DOES THE COMPANY MANAGE THE COAL SUPPLY AND TRANSPORTATION CONTRACTS AT BCII, U3?

A. Since ETI is a minority owner of BCII, U3, the Company does not directly manage the coal supply or transportation for BCII, U3. Those functions are performed by LaGen, the co-owner/project manager of BCII, U3.

Q97. WHAT WAS THE SOURCE OF COAL FOR BCII, U3 DURING THE RECONCILIATION PERIOD?

A. During the Reconciliation Period, BCII, U3 obtained coal from several different mines in Campbell County, Wyoming located in the Southern Powder River Basin. These coal supplier locations are shown in Schedule FR-18. See also Exhibit DSJ-13 for a map of mine locations within the PRB.

Q98. DID LAGEN ACQUIRE COAL SOURCED FROM LOCATIONS OTHER THAN THE PRB REGION?

A. No.

Q99. HOW IS COAL TRANSPORTED FROM THE DELIVERY POINT TO BCII, U3?

A. The coal supply for BCII, U3 is shipped by rail from mines in the PRB to Hall Street Terminal in St. Louis, Missouri, where it is transferred from railcar to river barge and transported down the Mississippi River to the Big Cajun II Station. LaGen has contracts with both BNSF Railway and American Commercial Lines to provide

transportation services for the shipment of coal by rail and then by barge. LaGen is in charge of the movement of coal from mines in the PRB to BCII, U3.

Q100. WHAT HAS THE COMPANY DONE TO ENSURE THAT LAGEN PROPERLY CHARGES FOR COAL AND TRANSPORTATION EXPENSE?

A. Due to confidentiality agreements that LaGen has in place with its suppliers, the Company is not permitted to review the coal supply and transportation agreements. However, an annual audit is performed of the accounting records of Big Cajun pertaining to the costs used for billing purposes for Unit 3. In addition, the Company has the right to audit or inspect the books of account and other records maintained by Big Cajun. During the Reconciliation Period, audits were completed for the years 2012 – 2017.

Q101. ARE THE COSTS THE COMPANY INCURRED FOR FUEL EXPENSES AT BCII, U3 REASONABLE?

A. Yes. The Company incurs fuel costs associated with BCII, U3 under the JOPOA. The Company takes reasonable steps to ensure that LaGen properly charges for coal and transportation expenses.

D. Conclusion on Reconcilable Coal Costs

Q102. ARE ETI'S RECONCILABLE COAL COSTS REASONABLE AND NECESSARY?

A. Yes. Fuel expenses are incurred when the plants are dispatched and represent a reasonable cost to serve the Company's customers. All coal supply purchases and transportation arrangements made during the Reconciliation Period were competitively bid or obtained through over-the-counter solicitations. Louisiana state law requires that the Company pay a sales and use tax on boiler fuel. Thus, the Company's reconcilable coal expenses for the Reconciliation Period, including sales and use tax on boiler fuel, are both reasonable and necessary.

1. Coal Inventory Policy

Q103. PLEASE SUMMARIZE THE COAL INVENTORY POLICY APPLICABLE TO NELSON 6.

A. The Coal Inventory Policy applicable to Nelson 6 provides for inventory target levels to help mitigate transportation and unit operating risks. The primary elements of the policy are that it provides for: (1) a base target of 36 days of inventory; (2) an end-of-year 12-month average inventory target of 43 days; and (3) a semi-annual review and analysis to determine if alternative coals will be purchased. It is important to try to maintain an average inventory target of 43 days to mitigate the risk associated with potential supply interruptions due to work stoppage, weather, or other force majeure situations.

Q104. WHAT IS THE COAL INVENTORY PROCESS FOR BCII, U3?

A. Because ETI is not the operator of the BCII, U3 plant, the Company does not have ultimate control over the coal inventory levels at BCII, U3. Under the JOPOA for BCII, U3, ETI each year must nominate for the next calendar year the level of coal to be delivered for its account at BCII, U3. The Company's nomination process is targeted to achieve an end-of-year inventory target of approximately 43 days.

Q105. DO YOU HAVE AN OPINION REGARDING THE INVENTORY LEVELS FOR NELSON 6 AND BCII, U3 DURING THE RECONCILIATION PERIOD?

A. Yes. The solid fuel inventory levels for Nelson 6 and BCII, U3 during the Reconciliation Period were reasonable, and the costs incurred to maintain those levels were reasonable.

2. Coal Inventory Measurement

Q106. IS THE COAL INVENTORY AT NELSON 6 SUBJECT TO PERIODIC PHYSICAL MEASUREMENTS?

A. Yes. An independent contractor performs a physical measurement of coal inventory at Nelson 6 twice a year.

Q107. WHAT IS THE PURPOSE OF THESE MEASUREMENTS?

A. From an operational perspective, these physical measurements of coal inventory provide a more accurate picture of the amount of recoverable coal that is available

at the site. This information is then factored into the determination of the amount of coal to purchase consistent with the Coal Inventory Policy for Nelson 6.

Q108. WHAT METHOD IS EMPLOYED TO PERFORM INVENTORY RECONCILIATIONS AT NELSON 6?

A. An independent contractor, MIKON Corporation ("MIKON"), surveys and determines the volume of the coal inventory stockpile. In addition to the survey, MIKON also cores or samples the stockpile to determine density and Btu content. With those three values determined (volume, density, and Btu), MIKON converts the volume of the stockpile to tons using the density measurements and converts the tons to MMBtus using the Btu content. Once MIKON determines the amount of physical stockpile, it submits a coal inventory report to EMO.

Because MIKON determines the total amount of coal in inventory, it includes any quantity of coal that has been capitalized (*i.e.*, coal that forms part of a permanent base layer which is not useable). Capitalized coal is removed from the physical measurement results prepared by MIKON and those results are compared to the book inventory maintained by the Railcar & Coal Management System database. Any difference between the adjusted physical measurement and book inventory is determined, and the book inventory is adjusted by that difference.

Q109. WHAT CAUSES VARIANCES BETWEEN BOOK AND PHYSICAL MEASUREMENT INVENTORIES?

A. Variances between the book and physical measurement of inventory can be caused by differences in scale calibration, sampling accuracy, equipment performance, and core sampling accuracy, each of which can affect the density and Btu content calculations.

Q110. WERE THERE ANY ADJUSTMENTS TO INVENTORY AS A RESULT OF INVENTORY SURVEYS PERFORMED BY MIKON DURING THE RECONCILIATION PERIOD?

A. Yes. The table below summarizes the inventory adjustments that resulted from MIKON physical measurements during the Reconciliation Period.

Date	Tons
May 15, 2016	(15,837)
Dec 11, 2016	(103,818)
June 16, 2017	(40,455)
Dec 04, 2017	(103,613)
June 04, 2018	(8,453)
Dec 01, 2018	(58,763)

Q111. WERE ANY PHYSICAL MEASUREMENTS PERFORMED AT BCII, U3 DURING THE RECONCILIATION PERIOD?

A. Yes. A contractor for LaGen performed multiple physical inventory measurements during the Reconciliation Period. These physical measurements resulted in the following adjustments to ETI's inventory at BCII, U3:

Date	Tons
Jun 29, 2016	62,497
Dec 31, 2016	(13,835)
Jun 30, 2017	(8,875)
Dec 31, 2017	(4,127)
Jun 30, 2018	(6,395)
Dec 31, 2018	3,888

Like at Nelson 6, these adjustments were factored into the determination of the amount of annual coal nominations by ETI.

VIII. CONCLUSION

Q112. PLEASE SUMMARIZE YOUR CONCLUSIONS REGARDING THE COMPANY'S NATURAL GAS, FUEL OIL, AND COAL EXPENSES DURING THE RECONCILIATION PERIOD.

A. The total eligible expenses were necessary to provide electricity to the Company's customers and were reasonably incurred based upon the mix of monthly and daily gas purchases, the processes used to solicit and evaluate bids for gas supply and

transportation, the comparison to relevant market indices, and in light of the alternatives available to the Company. Further, all coal and oil supply purchases and transportation arrangements made during the Reconciliation Period were competitively bid or obtained through over-the-counter solicitations. During the Reconciliation Period, the Company performed very well in managing its diverse portfolio of fuel sources and pricing arrangements in the evolving fuel markets to produce electricity for customers at a reasonable total cost.

Q113. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.

MISO UNIT PARAMETERS USED FOR COMMITMENT AND ENERGY OFFERS

	Data	Units	Day-Ahead Schedule	Real-Time Schedule
Economic Offer Data Table	Energy O[ff]er Curve	MW, $/MWh	Hour y	Hour y
	No-Load O[ff]er	$/hr	Hour y	Hour y
	Regu.at ng Reserve O[ff]er	$/MW	Hour y	Hour y
	Sp.nn ng Reserve O[ff]er	$/MW	Hour y	Hour y
	On-L ne Supp ementa Reserve O[ff]er	$/MW	Hour y	Hour y
	O[ff]-Line Supp emental Reserve O[ff]er	$/MW	Hour y	Hour y
	Hot Start-Up O[ff]er	$	Daily	Daily
	ntermed.ate Start-Up O[ff]er	$	Daily	Daily
	Co d Start-Up O[ff]er	$	Daily	Daily
	Se [f]-Scheduled Regu.at.on	MW	Hour y	Hour y
	Se [f]-Schedu'ed Sp nn ng Reserve	MW	Hour y	Hour y
	Se [f]-Schedu'ed On-L ne Supp ementa Reserve	MW	Hour y	Hour y
	Se [f]-Schedu ed O[ff]-Line Supp ementa. Reserve	MW	Hour y	Hour y
	Se [f]-Schedu'ed Energy	MW	Hour y	Hour y
Commitment Operating Parameter Offer Data	Hot Not [f] cat on [T] me	hh:mm	Hour y	Hour y
	Hot Start-Up [T] me	hh:mm	Hour y	Hour y
	Hot to ntermed.ate [T] me	hh:mm	Daily	Daily
	ntermed ate Noti[f]cat on [T] me	hh:mm	Hour y	Hour y
	ntermed ate Start-Up [T] me	hh:mm	Hour y	Hour y
	Hot to Co d [T] me	hh:mm	Daily	Daily
	Co d Not [f] cat on T me	hh:mm	Hour y	Hour y
	Co d Start-Up [T] me	hh:mm	Hour y	Hour y
	Max mum Da y Starts	nteger	Daily	Daily
	Max mum Da y Energy	MWh	Daily	Daily
	M.n.mum Run T.me	hh:mm	Daily	Daily
	Max mum Run [T]me	hh:mm	Daily	Daily
	M nimum Down [T] me	hh:mm	Daily	Daily
	Comm tment Status	Se.ect	Hour y	Hour y

Source MISO BPM-002-r11 Energy and Operating Reserve Markets exhibits 4-10 and 4-10a

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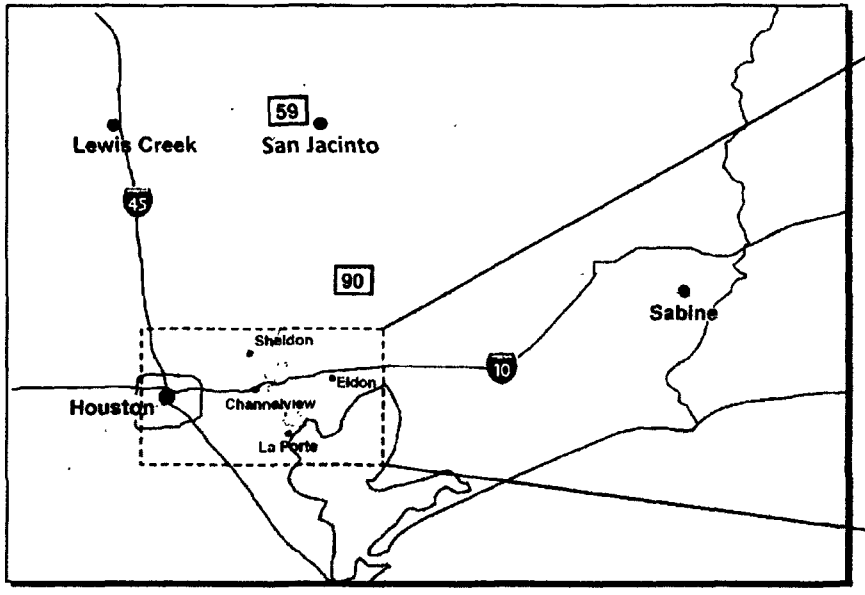
MISO UNIT PARAMETERS USED FOR DISPATCH

	Data	Units	Day-Ahead Schedule	Real-Time Schedule
Dispatch Operating Parameter Offer Data	Hourly Economic Minimum Limit	MW	Hourly	Hourly
	Hourly Economic Maximum Limit	MW	Hourly	Hourly
	Hourly Regulation Minimum Limit	MW	Hourly	Hourly
	Hourly Regulation Maximum Limit	MW	Hourly	Hourly
	Hourly Emergency Minimum Limit	MW	Hourly	Hourly
	Hourly Emergency Maximum Limit	MW	Hourly	Hourly
	Dispatch Band Minimum Limit	MW		Hourly
	Dispatch Band Maximum Limit	MW		Hourly
	Dispatch Band Regulation Minimum Limit	MW		Hourly
	Dispatch Band Regulation Maximum Limit	MW		Hourly
	Dispatch Band Single-Directional-Down Ramp Rate	MW/min		Hourly
	Dispatch Band Single-Directional-Up Ramp Rate	MW/min		Hourly
	Dispatch Band Bi-Directional Ramp Rate	MW/min		Hourly
	Maximum Off-Line Response Limit	MW	Hourly	Hourly
	Energy Dispatch Status	Select	Hourly	Hourly
	Regulating Reserve Dispatch Status	Select	Hourly	Hourly
	Spinning Reserve Dispatch Status	Select	Hourly	Hourly
	On-Line Supplemental Reserve Dispatch Status	Select	Hourly	Hourly
	Off-Line Supplemental Reserve Dispatch Status	Select	Hourly	Hourly
	Hourly Single-Directional-Down Ramp Rate	MW/min		Hourly
	Hourly Single-Directional-Up Ramp Rate	MW/min		Hourly
	Hourly Bi-Directional Ramp Rate	MW/min		Hourly
	Hourly Ramp Rate	MW/min	Hourly	Hourly
	Single-Directional-Down Ramp Rate Curve	MW/min		Hourly
	Single-Directional-Up Ramp Rate Curve	MW/min		Hourly
	Bi-Directional Ramp Rate Curve	MW/min		Hourly
	Combined Cycle Status	Select	Daily	Daily
	Forecast Maximum Limit	MW	Rolling 5-Min	Real-Time

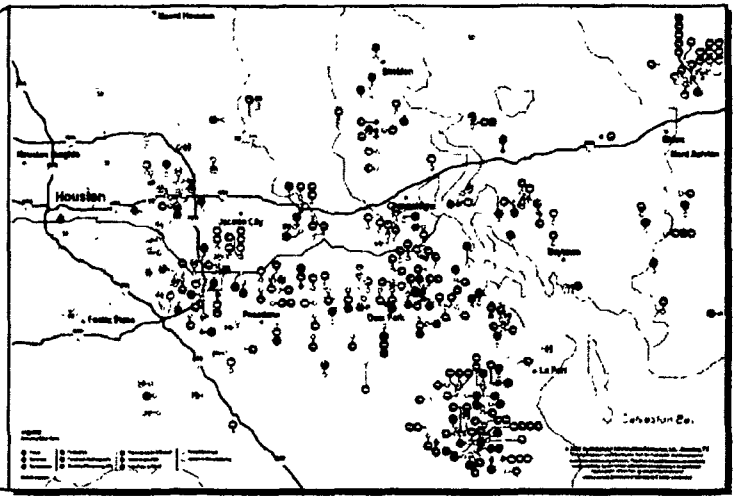
Source: MISO BPM-002-r11 Energy and Operating Reserve Markets exhibits 4-10 and 4-10a

Sabine & Lewis Creek Location vs. Houston Ship Channel Area

Regional Overview



Houston Ship Channel Zoom-in



Houston Ship Channel (daily and monthly survey)

Deliveries to end-users and pipelines that serve them in the Houston Ship Channel region, an industrial area extending from the east side of Houston to Galveston Bay and northeastward to the Port Arthur/Beaumont area. Gas is delivered in this area by numerous pipelines, including Kinder Morgan Texas Pipeline, Kinder Morgan Tejas Pipeline, Houston Pipe Line, and the former EPGT and Channel pipelines.

(Platt's Methodology -- North American Gas Markets; Appendix: Definitions of Trading Locations)

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PLATTS
McGRAW HILL FINANCIAL

[NATURAL GAS]

METHODOLOGY AND SPECIFICATIONS GUIDE

North American Natural Gas

(Latest Update: April 2013)

INTRODUCTION

This statement of methodology for Platts' North American natural gas price indexes and assessments reflects core principles that long have provided the foundation for Platts' price reporting in North American gas markets. It also includes detailed information on the submission of price data from market participants, the formation of indexes and assessments, and the publication of index-related information including volumes and deal counts.

Platts' methodology will continue to evolve as natural gas markets change. This update reflects the addition of two pricing locations in both the daily and the monthly bidweek spot price surveys – Transcontinental Gas Pipe Line, Leidy Line receipts and Tennessee Gas Pipeline, Zone 4 200 leg. Detailed descriptions of all price locations are located in the Appendix, Definition of Trading Locations. A revision history, a cumulative summary of changes beginning with the first of two January 2011 updates, is included at the end of the Appendix. The statement continues to incorporate price reporting standards that went into effect July 1, 2003, and also takes into consideration standards for price reporting stated in the Federal Energy Regulatory Commission's July 24, 2003, policy statement on US natural gas and electricity price indexes (PL03-3).

If you have questions concerning reporting to Platts or our statement of methodology, or would like to discuss any gas price reporting issues, please call or e-mail one of our editors: Brian Jordan, editorial director for North American natural gas and electricity markets, 202-383-2131 (brian_jordan@platts.com); Tom Castleman, daily markets editor, 713-658-3263 (tom_castleman@platts.com); Kelley Doolan, monthly bidweek markets editor, 202-383-2145 (kelley_doolan@platts.com); and Mike Wilczek, forward markets editor, 202-383-2246 (mike_wilczek@platts.com).

Platts has a Quality & Risk Management (QRM) function that is independent of the editorial group. QRM is responsible for ensuring quality and adherence to Platts' policies, standards, processes and procedures. The QRM team conducts regular assessments of editorial operations, including checks for adherence to published methodologies.

Platts discloses publication days of publications of its price assessments and indexes, and the times during each trading day in which Platts considers transactions in determining its assessments and index levels. The dates of publications and the assessment periods are subject to change in the event of outside circumstances that affect Platts' ability to adhere to its normal publication schedule. Such circumstances include network outages, power failures, acts of terrorism, and other situations that result in an interruption in Platts' operations at one or more of its worldwide offices. In the event that any such circumstance occurs, Platts will endeavor, whenever feasible, to communicate publicly any changes to its publication schedule and assessments periods, with as much notice as possible.

HOW THIS METHODOLOGY STATEMENT IS ORGANIZED

This description of methodology for natural gas indexes in North America is divided into five sections (I-V) that parallel the entire process of producing the benchmarks. A separate appendix is a list of definitions of the trading locations for which Platts publishes daily, monthly bidweek and/or forward indexes and assessments.

- Part I describes what data goes into Platts' natural gas indexes and assessments, including details on what market participants are expected to submit, and the process for submitting data as well as the components of published data.
- Part II describes the security and confidentiality practices that Platts uses in handling and treating data.
- Part III is a detailed account of what Platts does with the data to formulate its daily, monthly, bidweek and forward natural gas indexes and assessments, and includes descriptions of the statistical and editorial tools Platts uses to convert raw data into indexes and assessments. This section also describes the process for screening outliers.
- Part IV lays out the verification and correction process for revising published prices and the criteria Platts uses to determine when it publishes a correction.
- Part V explains the process for verifying that published prices comply with Platts' standards.

PART I: DATA QUALITY AND SUBMISSION

Platts' standards for data quality are at the heart of its process to produce reliable indexes and assessments and are designed to ensure that market participants provide complete and accurate information.

To that end, Platts' standards call for formalized reporting relationships with market participants in which data is submitted from a central point in the mid- or back-office (a segment of the reporting entity that does not have a commercial interest in the reported prices). The reporting entity must certify that it is making a good faith effort to report completely and accurately and will have staff assigned to respond to questions concerning data submittals. The entity also is obligated to make reasonable efforts to inform Platts in the case of any errors or omissions.

Daily and monthly bidweek price indexes are based on original reporting and do not incorporate publicly available price surveys. Prices for those indexes are collected firsthand by Platts from actual buyers and sellers.

Data submitted to Platts must be detailed, transaction-level data. Below is a summary of what should be reported. A Platts sample reporting format is available upon request.

Platts strongly encourages companies to surpass minimum reporting requirements and to report transactions in addition to those required to create existing daily and bidweek indexes. As long as companies clearly define transactions by key attributes, including trade date, flow date(s), and whether a transaction is physical or financial, Platts is able to sort transactional data and include the applicable deals in the relevant indexes and assessments.

For example, Platts encourages companies to report on a daily basis all their forward deals, both financial and physical, beginning with balance-of-month transactions and extending out the forward curve. Platts also encourages companies to report daily and monthly bidweek transactions at locations for which Platts does not currently publish indexes or assessments.

Following are the minimum reporting requirements for the day ahead and monthly bidweek indexes, plus information on the data Platts seeks for balance-of-month and forward markets.

WHAT TO REPORT

- For the daily price survey, report each business day, all fixed-price physical deals completed prior to the NAEGB nomination deadline (11:30 am Central Prevailing Time) for next day delivery in North America. Transactions done on Friday, usually are for flow on Saturday, Sunday and Monday inclusive. Trading patterns may vary in the case of holidays or the end of a month that occurs on a weekend.

- For the monthly bidweek price survey, bidweek is defined as the last five business days of each month. For each day of bidweek, report all fixed-price physical deals negotiated that day for delivery throughout the next month. Also report all physical basis deals in which the basis value is negotiated on one of the first three days of bidweek and the price is set by the final closing value of the near-month NYMEX futures contract plus or minus the negotiated basis. Platts' current policy is to use physical basis deals for points east of the Rocky Mountains, except in the Permian Basin region at Waha: El Paso Natural Gas Co., Permian Basin and Transwestern Pipeline Co., Permian Basin.

- For the balance-of-month and forward markets, Platts requests that companies report each business day all financial and physical forward transactions completed that day at all locations. These transactions should be included along with daily transactions in the report sent each day to gasprice_daily@platts.com.

- Platts expects reported data for the daily and monthly bidweek indexes to include all transactions done by the entity at all locations reported by Platts, not a selective subset of those locations.

- Price reports should be for deliveries into the pipeline on a dry basis and should specify the point of delivery. For market center locations, see point descriptions in the appendix. For daily and monthly bidweek transactions, Platts also requests reports for points where it does not currently publish indexes or assessments. For those locations, use either the point's common name or the pipeline and meter designation. If sufficient trading develops at a location and is sustained, Platts would consider adding that pricing point to its list of reported points. In addition, information on deals at those points adds to Platts' understanding of the market.

- All transactions should be listed individually. In addition to the delivery point, specify the price ($/MMBtu or, inside Canada, C$/gigajoule), volume (MMBtu/day or gigajoule/day), source (company name), buy/sell indicator, trade date, start flow date, end flow date, counterparty name and intermediary name (broker or trading platform). For forward transactions, also include whether a transaction is financial or physical. Because the gas industry currently lacks consensus on the issue of counterparties, Platts for now will accept and use data that does not include counterparty information. However, Platts firmly believes that counterparty data is the best single way to verify reported transactions, and Platts encourages market participants that are not already reporting counterparties to initiate changes to agreements that may currently prevent them from doing so. Platts reserves its right to refuse in the future to use data that lacks counterparties.

- For the daily and monthly bidweek price surveys, financial deals should be clearly marked as such.

- For the daily and monthly bidweek surveys, Platts' policy is not to include so-called linked or prearranged spread trades between two parties. These trades are concluded as one leg of a transaction linked to a similar trade in another location. They are excluded because the two counterparties are transacting based on the difference between the two linked transactions rather than on the outright values at the locations. Again, Platts encourages companies to report these transactions, provided they are clearly labeled as one arm of a linked, spread transaction, in order for market editors to better understand market value relationships, as well as to consider new benchmarks for the marketplace.

- Platts requests daily time stamps indicating when a transaction was made because they provide a clearer picture of the movement of prices through the trading period and provide another tool for evaluating data quality. However, Platts understands that many market participants are currently unable to provide time stamps because deals are entered into trading systems in bulk after trading is completed rather than as each transaction occurs.

- In the event that a data provider has no trade information to submit, a notification stating that fact should be sent in.

HOW TO REPORT

- Reports should be compiled and sent to Platts by a noncommercial department of the company. Even in the case of small entities, FERC's standards state that prices should be provided by individuals "separate from trading activities" such as accounting or bookkeeping staff. Platts values the participation in its surveys of smaller market participants that may not have formal back office or risk management groups and will discuss with them ways to meet Platts and FERC standards for assuring the quality of data provided to Platts.

- Platts should be provided at least two contacts (with phone numbers and e-mail addresses for both) who are responsible for submissions and can answer questions about reported transactions.

- Reports should be sent electronically in either Excel or CSV (comma separated values) formats. Platts can provide reporting entities with a sample Excel sheet showing the preferred format and the information needed for each transaction.

- While electronic submission of data is the standard, Platts will accept faxed reports in circumstances where e-mail transmission fails or is unavailable. Reporting entities should be prepared in the rare cases of e-mail malfunctions to fax submissions to Platts. The fax numbers are /13

658 0125 for the daily price survey and 202 383 2709 for the monthly price survey

- Because of the fundamentally different nature of the gas forward daily price assessments, which are market-on-close assessments rather than traditional indexes (*see Part III*), market editors producing Platts forward assessments may collect information on forwards prices and discuss market dynamics with market participants over the telephone
- Reports for the daily price survey should be sent to gasprice_daily@platts.com each day by 3:30 pm Central Prevailing Time. Reports for the monthly price survey should be sent to gasprice_monthly@platts.com by 6:00 pm EPT on each of the first four days of bidweek and by 2 pm EPT on the final day of bidweek
- If reporting entities are unable to compile the needed information by the Platts deadline on a given day, they should notify Platts editors of the delay and the length of the delay by either e-mail or phone. This will help Platts editors decide whether to wait for the submission

PART II: SECURITY AND CONFIDENTIALITY

Platts has a long history of ensuring the security and confidentiality of price data through both its information technology systems and its policies on access to the data. Following is a description of Platts processes:

- Price data is e-mailed to specific Platts e-mail addresses. E-mails to those addresses enter a secure network and are accessible only by market editors and designated administrators. Encryption is available upon request of the reporting company. In the case of faxes, accepted only in unusual circumstances where e-mail fails or is unavailable, documents are stored and saved in compliance with Platts' record retention policies.
- Data is entered into a proprietary software system designed specifically to store and analyze trade data and into customized Excel spreadsheets accessible only by designated market editors.
- Data is stored in a secure network and under internal procedures audited and enforced by the Platts compliance staff, is kept for a period of at least three years.
- Regular compliance examinations check for adherence to the parameters set forth in the Platts Compliance Plan, which seeks to ensure that reporters and editors adhere to published methodologies as well as internal standards that require accurate records are kept in order to document a market reporter's work.
- Price data is used only for constructing indexes and assessments. Platts has a strict internal policy of never using price data from an individual source for news reporting purposes. Platts news reporters do not have access to individual entities' transaction reports. Data aggregated from all reporting sources — *e.g.* changes in prices and trading volumes over time — may be used as the basis for news stories.

PART III: CALCULATING INDEXES AND MAKING ASSESSMENTS

For North American gas, Platts publishes prices in three discrete markets: the day-ahead, monthly bidweek and forward markets. Prices are published in several ways, ranging from a daily data feed to a bi-weekly newsletter. Platts prices are available to any party who subscribes to the publication or news service in which those prices are published. Platts prices are copyrighted and may not be distributed or used for commercial gain by any third party without an explicit agreement with Platts.

For the daily market, Platts publishes three price components: the midpoint (the volume weighted average), the common range and the absolute range. The daily midpoint, commonly called the GDA (*Gas Daily* average), is the volume weighted average of all the deals reported to Platts for each point, excepting any outliers that are not used. The absolute range shows the absolute low and high of deals reported, excluding outliers that are not used. The common range is 50% of the absolute range and is built around the volume weighted average, also known as the midpoint.

Midpoints (volume weighted averages) for points for which no new data is received are not carried over from the previous day; when no data is received, the survey shows only dashes in the columns for midpoint, absolute and common range, volume and deals. The daily survey relies solely on a volume weighted average of reported transactions; no assessments using other factors are included.

Platts for years published electronically the daily volume at each reported point and since May 2003 has published those volumes in the newsletter version of *Gas Daily*. In August 2004 Platts also began publishing daily the number of transactions at each point to increase transparency on the amount of trading activity.

A monthly average of the daily midpoints for each location is published in the next month's *Gas Daily Price Guide*, a monthly supplement to *Gas Daily*. The monthly average of the daily midpoints is the simple average of the location's daily midpoint for each day of gas flow during the delivery month.

For the monthly bidweek market, Platts publishes a range of reported prices excluding outliers, and either an index or an assessment, as explained below. Prices are published on the first business day of the month in which the gas will flow.

Platts relies on straightforward quantitative analysis of the data in calculating indexes. For low liquidity points where few or in some cases no transactions are reported, Platts may perform assessments. Those prices are clearly marked with an asterisk (*) to make clear an assessment process has been used. If insufficient market information is available at a point, Platts does not publish a price (N/A).

In July 2003, Platts adopted a three tier system grouping points in its monthly survey by the reported volumes and number of trades. The top tier includes points with volumes of at least 100,000 MMBtu/day and at least 10 trades; the second tier includes points with volumes of 25,000 to 99,999 MMBtu/day and at least five trades; and the third tier includes points with volumes below 25,000 MMBtu/day and/or fewer than five trades.

In August 2004, Platts began publishing volumes and the number of transactions for points in tiers 1 and 2. Because of increased liquidity and data reporting by market participants, effective February 2007 Platts added volumes and transactions for tier 3 points as well.

To provide more transparency on the formation of monthly bidweek indexes, Platts in February 2005 began publishing a table in *Inside FERC's Gas Market Report* that provided physical basis prices for points where physical basis deals were used and reported. Beginning in February 2007, Platts expanded the table to include all points for which physical basis transactions are used (even if none are reported that month) and also began publishing the table in the *Gas Daily Price Guide*, a monthly supplement to *Gas Daily*, as well as on its electronic news service *Natural Gas Alert*. The physical basis price table shows the volume, deal count, low price, high price, average price, and cash equivalent price for each point for which physical basis deals are used.

For the daily forward market, Platts publishes a daily market on close assessment and an associated range. The market on close assessments reflect values in the financial basis swap market at various North American locations at the 2:30 pm EPT close of open outcry trading of the New York Mercantile Exchange Henry Hub gas futures contract, which allows the assessments to line up and be compared with the NYMEX Henry Hub settlement prices.

The daily forward assessments are fundamentally different from the daily and monthly bidweek indexes. They represent a value at the close of the market rather than a mathematically derived price representing market activity over a defined period of time, like the daily and monthly bidweek indexes. The purpose of the daily forward assessments is to increase transparency in forward markets and to provide the market with independently derived values as a tool for mark to market and general valuation purposes.

DAILY MARKET

A formula is used to calculate the common range. In most markets, the formula establishes the common range at 50% of the absolute range and builds the range around the volume-weighted average price (the midpoint). In the case of a point where a single price is reported, and therefore there is no absolute range, a common range is not constructed. A volume-weighted price located more toward either end of the range may move the range further, as explained below.

An example of a common range calculation: On a given day, the lowest price, or absolute low, reported at a point was $5.70 and the high was $5.92. The actual volume-weighted average was $5.813. The calculation follows this sequence:

– The volume-weighted average is rounded to the nearest half cent, so $5.813 becomes $5.815 (the midpoint).

– The width of the absolute range is calculated, so $5.92 - $5.70 = $0.22; that figure is divided by 4, which produces an increment of 0.55.

– That increment is subtracted and added to the rounded volume-weighted average to produce a common low and high, so, $5.815 - $0.055 = $5.79, and $5.815 + $0.055 = $5.90.

This procedure can be further refined by Platts editors to prevent calculations that in rare circumstances might place the common low or high below or above the absolute range.

MONTHLY MARKET

The current format for the monthly survey has been in place since March 1986. Platts has reported monthly index prices since January 1988. The monthly bidweek index is a single benchmark price designed to represent a central or average value for dealmaking during the bidweek period.

A number of data sorts, statistical calculations and tests are performed on the collected transactional data. These typically include an analysis of the quality and completeness of each pricing point's survey sample, the identification and consideration of anomalous or outlying deals, a comparison of volume-weighted average prices for each data submitter and the calculation of a number of overall measures of central tendency, including the volume-weighted average, the median, the simple average, the mode and the midpoint.

Other statistical and analytical tools are also used to examine the reported data, including identification and consideration of the price series' skew, its standard deviation and distribution, the relationship between series data and that of related trading points, and the track record of the survey participants reporting prices at the point.

In limited instances, when points are too thinly traded to permit use of the traditional index method, Platts uses an assessment methodology. In those cases, in the absence of sufficient trade data to calculate a representative monthly index, Platts will examine other market information to determine whether it can publish an assessment. If that is not possible, Platts will publish no index price for the month, designated as "N.A." Except in the case of corrections (*see Part IV*), Platts does not revise prices after the fact – once an N.A. is published for a month, no price will be published even if additional information is subsequently provided.

To derive the index, Platts editors use volume-weighted averages as the foundation. At pricing points with robust dealmaking and a generally normal distribution curve, the index is the simple volume-weighted average. This applies to the large majority of bidweek indexes.

Because survey samples of reported trading at any individual pricing point can vary under different market conditions, the volume-weighted average alone is not always an adequate indicator of average dealmaking over the five-day bidweek period. Survey samples can vary with participation levels, and the completeness of data elements reported. In a thinner and/or very volatile market, a single party with one or two large volume deals reported at an extreme end of the market's price range can significantly move a volume-weighted average away from the average value at which most parties traded. In these situations, Platts editors also consider the median of the price series, which tends to represent the center point of trading better than the volume-weighted average.

At points where trading is robust and the distribution of reported transactions is generally normal, the volume-weighted average and the median are usually aligned with each other. When the two measures significantly diverge, an analysis of the data set typically is performed to determine why. If the analysis finds that the characteristics of the survey sample are creating an unrepresentative skew of the volume-weighted average, either the median is used as the index or the average of

the median and the volume weighted average is used

In the limited instances of thin liquid markets the use of volume weighted indexes may not be possible Platts believes that price assessments using available information other than reported transactions help provide market transparency At such thinly traded or thinly reported points defined as those with volumes below 25 000 MMBtu/day and/or fewer than five trades Platts editors make a determination whether the reported transactions reflect a representative central value for the bidweek time period based on current market conditions at the trading point and a comparison with other related and more deeply traded locations If the reported data for such a point produces an average that substantially correlates with those of other related and more deeply traded points, Platts will establish its index using just the reported data

If however the reported transactions at the illiquid point do not produce an average that substantially correlates with those at more liquid related points then Platts will make an assessment if adequate alternative market information is available on which to base an assessment If insufficient other market information is available, Platts editors may elect to publish no price for that point

Assessments which are clearly designated by asterisks in price tables, may incorporate any transactional data reported or may be based solely on other information including an analysis of bid ask spreads basis relationships to values at related liquid pricing points, implied physical values derived from financial swaps and derivative index deals and daily market trading at the point during bidweek Assessments are based on objective factual information in addition to actual transactions, not on editors subjective judgments of where markets would have traded or industry participants opinions on prices

FORWARDS MARKET

Platts gas forwards prices provide the market with a daily assessment of values in the financial basis market at major pricing points in North America Trading generally is done for the balance of the month, for the prompt month for nearby months and for the season Standard products traded are for two seasons -- summer (April through October) and winter (November through March) Trades also are done for the balance of the current season

Forward markets other than the balance-of-the-month market, are commonly traded as a basis differential to the corresponding NYMEX Henry Hub futures contract -- i e the closing price of that month's futures contract for a specified month or the average of the months that comprise a seasonal strip of futures contracts (The exception is balance of the month, which is typically traded as a fixed price swap rather than a financial basis swap) Depending on the location, the differential price may be a plus or minus to Henry Hub Prices are reported in US cents MMBtu In addition to a market on close assessment expressed as a basis differential Platts also publishes a range and a full value equivalent price (the corresponding NYMEX Henry Hub gas futures contract price plus or minus the basis differential) For balance of the month which trades at a fixed price Platts also publishes both a full value, fixed price and a price expressed as a basis differential to the Platts Henry Hub balance-of-the-month assessment

Editors use forward transactions and bids and offers as well as differentials to other trading locations Bids and offers made and transactions done nearer the close receive greater weight in the assessment process than those from early in the day

Assessments across the curve are in agreement For example the daily assessments for individual months should be consistent with and reflected in the balance-of-season assessment that includes those months

Platts gathers information on the forward market through the non-commercial departments of companies as well as from traders and brokers active in the market In addition Platts incorporates gas forward trading activity from Intercontinental Exchange (ICE), including transactions and bids and offers

The curve is a subjective assessment of market activity and assessments are made even if there is no trading for a given market on that day

OUTLIERS

To identify non applicable outliers transactions greater than two and three standard deviations from the data series' mean are routinely flagged by Platts data analysis systems (Standard deviation is a statistic that describes how tightly all data points are clustered around the mean in a set of data) Transactions that are outside what the editor has otherwise seen as the established range of trading also are flagged for additional examination

Transactions at prices more than two standard deviations from the mean are not necessarily out of market distressed or inaccurately reported deals Platts often works with sets of data that are not normally distributed around the mean This so-called "skew" of the normal distribution can reflect normal market activity in any given market and prices of more than two standard deviations are not automatically discarded When a transaction falls outside of three standard deviations from the price series' mean it receives greater scrutiny When such a deal has a significant impact on the volume weighted average or when it reflects a value significantly outside the range of values seen in related markets (e g trading at nearby points or NYMEX values plus reported basis), Platts editors routinely attempt to contact the reporting party for more specifics on the transaction as described below If a satisfactory answer cannot be obtained editors may elect not to include the price in calculations

Among the tests used by Platts editors to determine whether to use an outlying price when calculating prices to be published are

- The direction and magnitude of the skew for the set of data compared with how far beyond two standard deviations the transaction is
- The completeness of transaction specific information reported for the deal including time stamp buy/sell indicator and counterparty name
- Information from another party that verifies the deal for example the reporting of the transaction by a named counterparty
- An explanation by the data provider of the market fundamentals accounting for the "outlier" nature of the deal The explanation must also hold for transactions other than the potential outlier
- Information or lack of information, demonstrating that the deal was distressed such as credit issues for either counterparty or completion of the deal after the expiration of daily options
- The record of the entity submitting the data The most credible data

providers are those that have contacts designated to answer questions and inquiries on data submissions who are readily accessible and responsive to inquiries by Platts editors report every day or month and on time, and when problems arise that prevent reporting on time notify Platts of the delay in a timely fashion rarely make errors in data submissions and follow up quickly when errors are made and submit reports that include few outliers and provide explanations for the outliers at the time when the outliers are reported

PART IV: VERIFICATION AND CORRECTIONS

Platts editors make their best efforts to verify the accuracy of prices based on information they have in hand when they must meet daily or monthly price reporting deadlines As described in Part III Platts editors routinely contact data providers about transactions that raise questions and may request supporting information such as counterparty to verify the deal

In cases where editors cannot obtain a satisfactory answer to their questions about an individual or series of transactions they may choose to take their concerns to the entity's chief risk officer or comparable senior official If editors cannot resolve their concerns, they may opt to exclude the entity from participating in Platts' price surveys until senior company management provides sufficient reassurance that the entity is responsibly reporting full and accurate data

Platts is committed to promptly correcting any material errors in published prices that result from human or computational mistakes When corrections are made because of such errors, they are limited to corrections to data that was available when the index or assessment was calculated

Because it is extremely important that Platts reported prices provide certainty after the fact revisions are not made for reasons other than human or computational errors In particular Platts cannot revise indexes or assessments in cases where market participants submit new as opposed to corrected information that they want included in the published prices Allowing such revisions could open Platts to a never ending revision process as market participants continually come forward with more data

Errors in data submission discovered within 10 business days following the submission should be brought to the attention of the appropriate Platts editor - listed in the introduction of this methodology - as soon as possible Data providers should have price reporting processes in place that identify errors in data submittals within that 10 day period Data providers are not expected to monitor transactions beyond that 10-day period for purposes of reporting errors in submittals to Platts, with one important exception In cases in which a problem in a data provider's reporting system has caused discrepancies between what it has reported to Platts and what is in its books and records the data provider should notify Platts as soon as possible of the systemic problem, and steps being taken to correct it regardless of the time elapsed

Errors that data providers should report to Platts are limited to inaccuracies in the attributes (price, volume, location etc) that at the time the transaction was done and reported to Platts and do not include operationally driven after-the fact changes in the nature of the transaction For instance if an interruption in transmission service forces two counterparties to alter flows and delivery points Platts does not consider those changes to be corrections so long as the price volume and location information originally reported to Platts accurately reflected those attributes at the time the trade was made and reported to Platts

If Platts is notified of an error in a submission after a price is calculated and published editors will determine the nature of the error whether the erroneous data was used in calculating an index or making an assessment the impact of the erroneous data if it was used and whether Platts had in hand other data corroborating that the data should not have been included The impact of the error also will be considered If the removal of the data fails to make a material change in the index or assessment no correction will be made

In defining what constitutes a material change, in cases of computational and human errors on the part of Platts or data providers Platts will consider three primary factors the percentage change in the index or assessment the number of business days since the price in question was published and the liquidity of the trading point as reflected in the volumes reported to Platts

For example an error resulting in a change of greater than 2% that is discovered within five business days of publication of a price for a high liquidity point would be deemed material, an error resulting in a change of less than 0 5% that is discovered more than 10 days after publication of a price for a low liquidity point would be deemed immaterial

In addition to the three principal factors used to determine materiality Platts also will consider other measures of the magnitude of the error, including the absolute change in the price the change in the range (low trade and high trade), the change in an index as a percentage of the range the number of sources represented by the published price the volume represented by the published price and the volume affected by the error and the number of transactions represented by the published price and the number of transactions affected by the error

PART V: PLATTS EDITORIAL STANDARDS

Platts has in place a Code of Ethics with which all of its employees, including its editorial staff must comply Components of the code specifically address standards for market reporting

In addition all Platts employees must adhere to The McGraw-Hill Companies Code of Business Ethics Editors must re sign each code annually Company policies, among other things prohibit editorial personnel and their spouses from trading in commodities or stocks, bonds or options of companies in the industry covered by their publications and from dealing with outside parties in a manner that creates even an appearance of a conflict of interest The McGraw-Hill Companies' Code of Business Ethics reflects McGraw-Hill's commitment to integrity, honesty and acting in good faith in all its dealings The Platts Code of Ethics is designed to ensure that Platts information is the product of honest fair and open reporting

Platts has an independent compliance staff whose function is to ensure that Platts market editors follow the stated methodology records retention policy and Code of Ethics In addition, The McGraw-Hill Companies' internal auditor an independent group that reports directly to the parent company's board of directors, reviews the Platts compliance program

APPENDIX: DEFINITIONS OF TRADING LOCATIONS

Platts recognizes the need for stability in the description and definition of its pricing point locations. At the same time, market dynamics warrant the periodic addition, deletion or change in pricing points. Platts generally will not delete or change the description of a pricing point with less than 60 days' notice, although it will consider adding or changing a point on shorter notice if market conditions require faster action.

Platts combined the *Gas Daily* and *Inside FERC's Gas Market Report* daily and monthly price surveys in July 2002. The most recent change to the surveys took effect October 1, 2012, when Platts added two locations in both the daily and the monthly/bidweek spot price surveys: Texas Eastern M-2, receipts and Millennium Pipeline East receipts. A revision history, a cumulative summary of changes beginning with the first of two January 2012 updates, is included at the end of the Appendix.

Price points common to both surveys and any differences in daily and monthly pricing methodology are noted in the descriptions.

Points are arranged within three overall geographic regions – East, Central and West – and are alphabetical within each region and subregion.

EAST

NORTHEAST

Algonquin, receipts (daily survey only)

Deliveries into Algonquin Gas Transmission from Texas Eastern Transmission at the Lambertville and Hanover, N.J., interconnects; from Transcontinental Gas Pipe Line at the Centerville, N.J., interconnect; from Columbia Gas Transmission at the Hanover, N.J., and Ramapo, N.Y., interconnects; from Millennium Pipeline at Ramapo, N.Y.; from Tennessee Gas Pipeline at the Mahwah, N.J., Cheshire, Conn. and Mendon, Mass., interconnects; from Iroquois Gas Transmission System at the Brookfield, Conn., interconnect; and from Maritimes & Northeast Pipeline at the Beverly, Mass., interconnect.

Algonquin, city-gates (daily and monthly survey)

Deliveries from Algonquin Gas Transmission to all distribution company city gates in Connecticut, Massachusetts and Rhode Island.

Columbia Gas, Appalachia (daily and monthly survey)

Deliveries into Columbia Gas Transmission in eastern Kentucky, eastern Ohio, West Virginia, Pennsylvania, northern Virginia and western New York. The Appalachian pool for deliveries into Columbia begins downstream of the Leach, Ky., interconnection with Columbia Gulf Transmission; deliveries at Leach are not included. Columbia Gas operates supply pool and market area storage facilities within this northern Appalachia region, which also has local production. Flows include deliveries system-wide at pools, interconnects and on system points.

Columbia Gas, delivered (daily survey only)

Deliveries from Columbia Gas Transmission to Mid-Atlantic city gates in zones 1, 4 and 10, which extend from the southern tip of New York south to the Virginia/North Carolina border and encompass the western half of Pennsylvania, Maryland, New Jersey, and the eastern two-thirds of Virginia. Zone 1 includes the eastern third of Virginia and southern Maryland; zone 4 includes eastern Pennsylvania, New Jersey, Delaware and the southern tip of New York (including New York City); and zone 10 includes central Virginia and northern Maryland. This point was discontinued on Aug. 1, 2004.

Dominion, North Point (daily survey only)

Deliveries into Dominion Transmission starting at the Valley Gate delivery point at the end of Dominion's South Point system, about 40 miles northeast of Pittsburgh in Armstrong County, Pa., and continuing north into New York and eastward across the state, crossing the Hudson River and terminating in Rensselaer County, near Albany, Troy and Schenectady, N.Y. Dominion North Point has major interconnects with Columbia Gas Transmission, National Fuel Gas Supply, Texas Eastern Transmission, Transcontinental Gas Pipe Line and Tennessee Gas Pipeline. Major compressor stations in the North Point system include Punxsutawney, Adrian, Finnefrock, Leidy, Greenlick, Ellisburg and Sabinsville, Pa., and Harrison, Woodhull, Borger and Utica, N.Y.

Dominion, South Point (Dominion, Appalachia in monthly survey)(daily and monthly survey)

Deliveries into two Dominion Transmission main lines. One runs northeast from Warren County, Ohio, midway between Cincinnati and Dayton, and merges with the second line just northeast of Pittsburgh, Pa. The second line runs from Buchanan County, Va., on the Virginia/West Virginia border north to the end of the zone at Valley Gate in Armstrong County, Pa. Major stations in the South Point system include interconnections with ANR Pipeline (Lebanon station), Columbia Gas Transmission (Windbridge and Loudoun stations), Tennessee Gas Pipeline (Cornwell station), Transcontinental Gas Pipe Line (Nokesville station) and Texas Eastern Transmission (Lebanon, Oakford, Chambersburg, Perulack and Windridge stations). Storage pools in the South Point system include South Bend, Murrysville, Oakford, Gamble, Hayden, Webster, Colvin, North Summit, Bridgeport, Lost Creek, Kenned, Finn and Rocket Newbeme.

Dominion, delivered (daily survey only)

Deliveries from Dominion Transmission to Mid-Atlantic city gates located in east central New York (Schenectady, Troy, Albany), southwestern Pennsylvania (Pittsburgh) and the Virginia suburbs outside Washington, D.C. This point was discontinued on Aug. 1, 2004.

Dracut, Mass. (daily survey only)

Deliveries into Tennessee Gas Pipeline at the Dracut interconnect with Maritimes & Northeast Pipeline near Middlesex, Mass. This is the primary delivery point for offshore Nova Scotia gas into the Northeast market area. Dracut also includes gas entering from Portland Natural Gas Transmission System.

Iroquois, receipts (daily and monthly survey)

Deliveries into Iroquois Gas Transmission System at the U.S./Canadian border at

the Waddington interconnect with TransCanada PipeLines. This point was added to the monthly survey effective Sept. 1, 2008.

Iroquois, zone 2 (daily and monthly survey)

Deliveries from Iroquois Gas Transmission System starting at the Athens, N.Y. power plant downstream to the terminus of the pipeline at Hunts Point and South Commack. This point was added to the monthly survey in August 2007.

Lebanon Hub (daily and monthly):

Deliveries to or from Texas Gas Transmission Corp., ANR Pipeline Co., Texas Eastern Transmission Corp., Panhandle Eastern Pipe Line Co., Columbia Gas Transmission Corp., Dominion Gas Transmission Inc. and Rockies Express Pipeline at interconnects in the Lebanon, Ohio, area. This point was added July 1, 2009.

Leidy Hub (daily and monthly survey)

Deliveries into and from Dominion Transmission, National Fuel Gas Supply, Columbia Gas Transmission, Texas Eastern Transmission and Transcontinental Gas Pipe Line in the vicinity of the Leidy storage facility in Clinton County, Pa. This point was added to the monthly survey Aug. 1, 2011.

Millennium Pipeline, East receipts (daily and monthly survey)

Receipts into Millennium Pipeline Co. downstream of the Corning compressor station in Steuben County, New York, and upstream of the Ramapo interconnect with Algonquin Gas Transmission in Rockland County, New York. (This location does not include deliveries out of Millennium.)

Niagara (daily and monthly survey)

Cross-border deliveries to and from TransCanada PipeLines and the Niagara spur and loop lines, a border-crossing point between eastern Canada and the northeastern United States, north of Niagara Falls, N.Y. Niagara Spur Loop line and Niagara Spur line interconnects are with Tennessee Gas Pipeline, National Fuel Gas Supply, Dominion Transmission and Texas Eastern Transmission.

Rockies Express Pipeline, Clarington, Ohio (daily and monthly survey)

Deliveries from REX at Clarington in Monroe County, Ohio, to Dominion Transmission Inc. or Texas Eastern Transmission Corp. Deliveries to the local distributor Dominion East Ohio are not included at this location. This point was added effective Aug. 1, 2010.

Tennessee Gas Pipeline Co., zone 4-Ohio (daily and monthly survey)

Deliveries to Tennessee from Rockies Express Pipeline in Guernsey and Muskingum counties in East Ohio. This point was added effective Aug. 1, 2010.

Tennessee Gas Pipeline, Zone 4-200 leg (daily and monthly survey)

Deliveries into Tennessee at all points of receipt on the 200 line in the states of Pennsylvania and Ohio as well as transactions at Tennessee's Station 219 pool. This location does not include deliveries from Tennessee to other systems in zone 4. This point was added effective April 1, 2013.

Tennessee, zone 4-300 leg (daily and monthly survey)

Deliveries into Tennessee zone 4-300 leg from, and including, station 315 in Tioga County, Pennsylvania, to, and including, station 321 in Susquehanna County, Pennsylvania. This point was added to the daily survey effective January 17, 2012 and to the monthly survey effective with the late-January bidweek for February 2012 delivery.

Tennessee, zone 5 delivered (daily survey only)

Deliveries from Tennessee Gas Pipeline on the 200 leg in New York state and the 300 leg in New Jersey. This point was discontinued on Aug. 1, 2004.

Tennessee, zone 6 delivered (daily and monthly survey)

Deliveries from Tennessee Gas Pipeline on the 200 and 300 legs in Connecticut, Massachusetts, Rhode Island and New Hampshire.

Texas Eastern M-2, receipts (daily and monthly survey)

Receipts into Texas Eastern Transmission on its 24- and 30-inch lines in the pipeline's Market Zone 2, which extends on the 24-inch line from the Illinois-Indiana state line to the suction side of Bern compressor station in Lewisville, Ohio, and on the 30-inch line from the Tennessee-Kentucky state line to the suction side of Delmont station in Westmoreland County, Pennsylvania, and to the discharge side of Station Site No. 22 in southwestern Pennsylvania. (This location does not include deliveries out of Texas Eastern M-2.)

Texas Eastern, M-3 (daily and monthly survey)

Texas Eastern Transmission deliveries from the Delmont compressor station in Westmoreland County, Pa., east to the Hanover and Linden stations in Morris County, N.J. Included are deals delivered from Texas Eastern anywhere in zone M-3, including at interconnects with New York City distributors' city gates and at interconnects with Algonquin Gas Transmission at Lambertville in Hunterdon County, N.J., and at the Hanover station.

Transcontinental Gas Pipe Line, Leidy Line receipts (daily and monthly surveys)

Deliveries to Transco's Leidy Line downstream of the Leidy Wharton storage facilities in Clinton and Potter counties, Pennsylvania, to Transco's Station 505 in Hunterdon County, New Jersey. This pricing location does not include transactions at the storage related interconnects with Dominion Transmission, National Fuel Gas Supply, UGI Storage or Tennessee Gas Pipeline. This point was added effective April 1, 2013.

Transco, zone 6 non-N.Y. (daily and monthly survey)

Deliveries from Transcontinental Gas Pipe Line from the start of zone 6 at the Virginia/Maryland border to the Linden, N.J., compressor station and on the 24-inch pipeline to the Wharton, Pa., station. The non-New York point does not include deliveries to Public Service Electric and Gas in New Jersey whose supply is taken downstream of Linden.

Transco, zone 6 N.Y. (daily and monthly survey)

Deliveries from Transcontinental Gas Pipe Line at the end of zone 6 into city-gates downstream of Linden, N.J., for New York City area distributors - KeySpan Energy Delivery and Consolidated Edison Co. of New York — as well as Public Service Electric and Gas of New Jersey.

GULF COAST

Columbia Gulf, La. (daily and monthly survey)

Deliveries into Columbia Gulf Transmission on its onshore lateral pipeline system stretching across South Louisiana upstream of Rayne, La. Columbia Gulf's East Lateral extends from Rayne to Venice, La. The West Lateral runs from Rayne to west of Cameron, La. Excluded are deals done in the offshore rate zone, at Rayne or elsewhere in the mainline rate zone.

Columbia Gulf, mainline (daily and monthly survey)

Deliveries into Columbia Gulf Transmission anywhere along its mainline system zone in Louisiana and Mississippi. The mainline system extends northeast from Rayne, La., to Leach, Ky. This point was added to the monthly survey in August 2007.

Florida Gas, zone 1 (daily and monthly survey)

Deliveries into Florida Gas Transmission beginning at compressor station 2 in Nueces County, in South Texas, to station 7 in Acadia Parish, La.

Florida Gas, zone 2 (daily and monthly survey)

Deliveries into Florida Gas Transmission downstream of station 7 in Acadia Parish, La., to station 8 in East Baton Rouge Parish. Included is supply into the mainline from the White Lake Lateral and from the Chacahoula Lateral, both of which extend south from the mainline into production areas.

Florida Gas, zone 3 (daily and monthly survey)

Deliveries into Florida Gas Transmission downstream of compressor station 8 to just upstream of station 12 in Santa Rosa County, Fla., the demarcation point with the market area. Platts' daily and monthly bidweek surveys for zone 3 include deliveries between stations 8 and 12, including Mobile Bay deals into Florida Gas.

Florida Gas, Mobile Bay (daily survey only)

Deliveries into Florida Gas Transmission from Transcontinental Gas Pipe Line's Mobile Bay Lateral at the Citronelle interconnection in northern Mobile County, Ala., just upstream of station 11. This point was discontinued on June 7, 2006.

Florida city-gates (daily survey only)

Deliveries from Florida Gas Transmission into all city gates in the Florida market area, which begins in Santa Rosa County just west of station 12 in the extreme western Florida Panhandle and extends into southern Florida.

Southern Natural, La. (daily and monthly survey)

Deliveries into Southern Natural Gas' mainlines anywhere in Louisiana, including an eastern spur starting in Plaquemines Parish and a western spur starting in St. Mary Parish in South Louisiana, and a line that starts at the Texas-Louisiana border in DeSoto Parish and runs to the Louisiana-Mississippi border in East Carroll Parish in northern Louisiana.

Tennessee, zone 0 (daily and monthly survey)

Deliveries into Tennessee Gas Pipeline's 100 Leg from the Mexico-Texas border to the Texas/Louisiana border.

Tennessee, Louisiana, 500 Leg (daily and monthly survey)

Deliveries into Tennessee Gas Pipeline's 500 Leg in zone L in southeastern Louisiana, including deliveries into the 500 Leg from the offshore Blue Water Header system. The 500 Leg meets the boundary of the market area at station 542 in eastern Mississippi.

Tennessee, Louisiana, 800 Leg (daily and monthly survey)

Deliveries into Tennessee Gas Pipeline's 800 Leg in zone L in southeastern Louisiana, including deliveries from the offshore Blue Water Header system. The leg meets the boundary of the market area at station 834 at Winnsboro in central Louisiana.

Texas Eastern, East Texas (daily and monthly survey)

Deliveries into Texas Eastern Transmission on the 24-inch line from the Huntsville, Texas, compressor station to the Little Rock station in Arkansas, including the segment from Joaquin to Sharon.

Texas Eastern, South Texas (daily and monthly survey)

Deliveries into Texas Eastern Transmission on the 30-inch pipeline from the Mexico-Texas border to just upstream of the Vidor, Texas, compressor station and deliveries into Texas Eastern on the 24-inch pipeline from the Hagist Ranch compressor station to just upstream of the Huntsville, Texas, station.

Texas Eastern, West Louisiana (daily and monthly survey)

Deliveries into Texas Eastern Transmission on the 30-inch line from the Vidor, La., compressor station to just upstream of the Opelousas, La., compressor station. Included are deliveries from Texas Eastern's offshore Cameron Line at the Gillis, La., compressor station.

Texas Eastern, East Louisiana (daily and monthly survey)

Deliveries into Texas Eastern Transmission on the 30-inch line from the Opelousas, La., compressor station to the Kosciusko, Miss., compressor station. Included are deliveries into the 30-inch pipeline from Texas Eastern's Venice Line at the New Roads, La., compressor station.

Texas Eastern, M-1 30-inch (Kosi) (daily and monthly survey)

Deliveries into Texas Eastern Transmission on the 30 inch line at the Kosciusko Miss compressor station which is the demarcation point between Texas Eastern's production and market zones. Deliveries into the 24 inch mainline are not included. This point was added to the monthly survey in August 2007.

Texas Eastern, M-1 24-inch (daily survey only)

Deliveries to Texas Eastern's 24 inch line downstream of the suction side of the Little Rock, Arkansas, compressor station to the Illinois-Indiana state line. This point was added effective Sept. 1, 2008.

Transco, zone 1 (daily and monthly survey)

Deliveries into Transcontinental Gas Pipe Line on two 24 inch lines running from South Texas to compressor station 30 in Wharton County, Texas, which is Transco's pooling point for gas gathered on the Gulf Central Texas Lateral and for onshore coastal South Texas production.

Transco, zone 2 (daily and monthly survey)

Deliveries into Transcontinental Gas Pipe Line on the 30 inch line downstream of station 30 in Wharton County, Texas, to compressor station 45 in Beauregard Parish, La., the only pooling point in the zone.

Transco, zone 3 (daily and monthly survey)

Deliveries into Transcontinental Gas Pipe Line on the 30-inch, 36-inch and 42-inch lines downstream of compressor station 45 in Beauregard Parish, La., to station 65 on the Louisiana-Mississippi border in St. Helena Parish, La. Pooling points in the zone are at stations 50, 62 and 65.

Transco, zone 4 (daily and monthly survey)

Deliveries into Transcontinental Gas Pipe Line on the 30-inch, 36-inch and 42-inch lines downstream of compressor station 65 at the Louisiana-Mississippi border in St. Helena Parish, La., to the Georgia-South Carolina border. Gas enters the Transco mainline from the Mobile Bay Lateral at station 85 in Butler, Ala., the only zone 4 pooling point.

Transco, zone 5 delivered (daily survey only)

Deliveries from Transcontinental Gas Pipe Line on the 30-inch, 36-inch and 42-inch lines from the Georgia-South Carolina border to the Virginia-Maryland border. Deliveries into Transco at the Pleasant Valley receipt point near Fairfax, Va., from Dominion's Cove Point LNG terminal are not included.

CENTRAL

UPPER MIDWEST

Alliance, into interstates (daily survey only)

Deliveries from Alliance Pipeline into Vector Pipeline, Natural Gas Pipeline Co. of America, ANR Pipeline and Midwestern Gas Transmission at the tailgate of the Aux Sable plant in north-central Illinois at the terminus of Alliance. Deliveries into the Northern Indiana Public Service, Peoples Gas Light & Coke and Nicor Gas city-gates in the Chicago area are not included.

ANR, ML 7 (daily and monthly survey)

Deliveries into ANR Pipeline on its southern market zone, starting at the Sandwich, Ill., compressor station at the terminus of the Southwest mainline north through Wisconsin to the Crystal Falls, Mich., interconnection with Great Lakes Gas Transmission. Also, deliveries into ANR east from Sandwich to the Defiance, Ohio, compressor station at the terminus of the Southeast mainline, and north from the Bridgman, Mich., station to the Orient, Mich., station.

Chicago city-gates (daily and monthly survey)

Deliveries into the Nicor Gas, Peoples Gas Light & Coke, North Shore Gas and Northern Indiana Public Service city-gates in the Chicago metropolitan area from Natural Gas Pipeline Co. of America, ANR Pipeline, Alliance Pipeline, Northern Border Pipeline and Midwestern Gas Transmission.

Consumers Energy city-gate (daily and monthly survey)

Deliveries into all city-gates of Consumers Energy, which serves most of central Michigan and the areas around Saginaw Bay.

Dawn, Ontario (daily and monthly survey)

Deliveries from Union Gas' Dawn Hub, a gathering point for 15 adjacent storage pools in Ontario near Port Huron, Mich., on the U.S.-Canadian border. Included are deliveries into TransCanada PipeLines at Kirkwall, Ontario; deliveries into Great Lakes Gas Transmission at St. Clair, Mich.; deliveries into Consumers Energy at Bluewater, Mich.; deliveries into Panhandle Eastern Pipe Line at Optimay, Mich.; and deliveries into Dawn storage. Deliveries from Union into TransCanada at Parkway, Ontario, are not included.

Emerson, Viking GL (daily and monthly survey)

Deliveries into Great Lakes Gas Transmission from TransCanada PipeLines at the Emerson 2 meter station at the U.S.-Canadian border at Emerson, Manitoba, and deliveries into Viking Gas Transmission from TransCanada at the Emerson 1 station. This point was added to the monthly survey Aug. 1, 2011.

MichCon city-gate (daily and monthly survey)

Deliveries into all city-gates of Michigan Consolidated Gas, which serves the Detroit and Grand Rapids areas and much of north and northeast Michigan. The

main MichCon city-gates are located at interconnects with ANR Pipeline at Willow Run and Woodhull, Mich., Panhandle Eastern Pipe Line at River Rouge, Great Lakes Gas Transmission at Belle River, Union Gas at St. Clair Pipeline and Consumers Energy at Northville. MichCon also receives in-state production at Kalkaska.

GULF COAST

Agua Dulce Hub (daily survey only)

Deliveries into Kinder Morgan Texas Pipelines, Houston Pipe Line, Gulf South Pipeline, Natural Gas Pipeline Co. of America, Transcontinental Gas Pipe Line, Tennessee Gas Pipeline, TransTexas Gas and EPGT Texas at the Agua Dulce Hub in Nueces County, Texas, about 20 miles west-southwest of Corpus Christi. Deliveries from the ExxonMobil King Ranch plant are included.

ANR, La. (daily and monthly survey)

Deliveries into ANR Pipeline along the southeastern Louisiana lateral that starts offshore and runs to the Patterson, La., compressor station onshore and on to the Eunice, La., station, where ANR's Southeast mainline begins. Also, deliveries into ANR along a second lateral that runs from the HIOS system downstream of West Cameron 167 offshore to the Grand Chenier, La., station onshore and on to the Eunice station, as well as deals done at the Eunice pool.

Carthage Hub (daily survey only)

Deliveries into Reliant Energy Gas Transmission, Gulf South Pipeline, Lone Star Pipeline, Southern Natural Gas, Kinder Morgan Texas Pipelines, Tennessee Gas Pipeline, Texas Eastern Transmission and Texas Gas Transmission at the tailgate of the Carthage, Texas, processing plant in Panola County, Texas.

EPGT, Texas (daily and monthly survey)

Deliveries into EPGT Texas' gathering system east and south of Bandera County, Texas. Points in the West Texas portion of EPGT Texas, including the Waha header, are not included. In the past, the system was known as PG&E Gas Transmission Texas and Valero Natural Gas. This point was discontinued on Aug. 1, 2004.

Gulf South, S. La./East Side (daily and monthly survey)

Deliveries into Gulf South Pipeline in capacity allocation area 2, which includes Santa Rosa County, Fla., southern Alabama and southeastern Mississippi; area 3, which includes southern Louisiana's Mississippi River Delta region; area 4, which covers the Baton Rouge, La., region; area 5, which includes south central and central Louisiana; and area 6 in southwestern Louisiana. In the past, the system was known as Koch Gateway Pipeline and United Gas Pipe Line. This point was discontinued on Aug. 1, 2004.

Henry Hub (daily and monthly survey)

Deliveries into interstate and intrastate pipelines from the outlet of Henry Hub on Sabine Pipe Line in Vermilion Parish, La. Pipelines include Gulf South Pipeline, Southern Natural Gas, Natural Gas Pipeline Co. of America, Texas Gas Transmission, Sabine Pipe Line, Columbia Gulf Transmission, Transcontinental Gas Pipe Line, Trunkline Gas, Jefferson Island Pipeline and Acadian Gas.

Houston Pipe Line (daily survey only)

Deliveries into Houston Pipe Line's gathering system in South Texas starting at Falfurrias in Brooks County on the 8-inch lateral and at the Thompsonville compressor station in Jim Hogg County. The gathering system is generally demarcated by its Nueces compressor station near the Three Rivers plant in Live Oak County, and by the Refugio station in central Refugio County. This point was discontinued on Aug. 1, 2001.

Houston Ship Channel (daily and monthly survey)

Deliveries to end users and pipelines that serve them in the Houston Ship Channel region, an industrial area extending from the east side of Houston to Galveston Bay and northeastward to the Port Arthur/Beaumont area. Gas is delivered in this area by numerous pipelines, including Kinder Morgan Texas Pipeline, Kinder Morgan Texas Pipeline, Houston Pipe Line, and the former EPGT and Channel pipelines.

Katy (daily and monthly survey)

Deliveries into Gas's Pipeline, Lone Star Pipeline, Houston Pipe Line and Kinder Morgan Texas Pipelines in the Katy, Texas, area, including deliveries and receipts into and out of Katy storage.

Lone Star (daily survey only)

Deliveries into Lone Star Pipeline's S2 Lateral starting in Henderson County, Texas, east to the Carthage plant in Panola County, Texas. This point was discontinued on Aug. 1, 2004.

MRT, mainline (daily and monthly survey)

Deliveries into Mississippi River Transmission's mainline from the Perryville, La., compressor station north through Arkansas and Missouri to the St. Louis area. This point was discontinued on Aug. 1, 2004.

MRT, West Leg (daily and monthly survey)

Deliveries into Mississippi River Transmission's West Leg west of the Perryville, La., station to the terminus of the line at an inter-connection with Natural Gas Pipeline Co. of America in Harrison County, Texas. This point was discontinued on Aug. 1, 2004.

NGPL, South Texas (daily and monthly survey)

Deliveries into Natural Gas Pipeline Co. of America at the beginning of the mainline at the Thompsonville receipt point in Jim Hogg County, Texas, north to compressor station 302 in Montgomery County, Texas.

NGPL, Texok zone (daily and monthly survey)

Deliveries to Natural Gas Pipeline Co. of America in all areas of the Texok zone excluding the portion in Texas and Oklahoma on the A/G line. Applicable to the Texok zone are deliveries to Natural from the Louisiana/Texas border westward to compressor station 302 in Montgomery County, Texas, and northward to the interconnect with the Gulf Coast Mainline receipt zone in Cass County, Texas. The "Texok Gulf Coast Pooling Point" is included in this posting, but the "Texok A/G

Pooling Point is not

NGPL, La. (daily and monthly survey)

Deliveries into Natural Gas Pipeline Co of America from compressor station 344 in Jefferson County, Texas, to the terminus of the line in Vermilion Parish, La., at Erath and Henry Hub. This point was discontinued in the daily and monthly surveys on Jan. 1, 2012.

Stingray Pool (daily survey only)

Receipts into and deliveries from the Stingray Pipeline pooling point located onshore and offshore Louisiana. This point was added effective Sept. 1, 2008. This point was discontinued on Jan. 1, 2012.

Texas Gas, zone 1 (daily and monthly survey)

Deliveries into Texas Gas Transmission starting just south of the Pineville, La., compressor station in Rapides Parish north to Crockett County, Tenn.

Texas Gas, zone SL (daily and monthly survey)

Deliveries into Texas Gas Transmission on two southeastern Louisiana laterals including offshore segments. The southwest spur begins offshore at Grand Chenier and runs through Cameron Parish to the Eunice compressor station. The southeast spur begins offshore and runs through Terrebone Parish to Eunice. Zone SL extends to the vicinity where Texas Gas crosses the Red River in Rapides Parish.

Trunkline, Texas (daily and monthly survey)

Deliveries into Trunkline Gas in the Texas field zone starting at the Beeville compressor station in Bee County, Texas, north to the Longville, La., station in Beauregard Parish, La. This point was discontinued on Aug. 1, 2001.

Trunkline, W. La. (daily survey only)

Deliveries into Trunkline Gas along two laterals starting at an offshore Louisiana lateral leading to the Kaplan, La., station in Vermilion Parish, northwest to the Longville compressor station. Included are deliveries at the Kaplan compressor station, which demarcates the WLA and ELA zones.

Trunkline, E. La. (daily survey only)

Deliveries into Trunkline Gas on an offshore gathering system running from south of Terrebonne Parish, west to the Kaplan station in Vermilion Parish, the boundary with the WLA zone.

Trunkline, La. (monthly survey only)

Deliveries into Trunkline Gas at points upstream of the Longville compressor station on the lines that do not extend to Texas.

Trunkline, zone 1A (daily and monthly survey):

Deliveries to Trunkline Gas Co. in zone 1A from the discharge side of its Longville Louisiana, compressor station north to the suction side of its Dyersburg, Tennessee, station, as well as transactions at Trunkline's zone 1A pool. This point was added July 1, 2009.

MIDCONTINENT

ANR, Okla. (daily and monthly survey)

Deliveries into ANR Pipeline at the start of the Southwest mainline at the Custer, Okla., compressor station into the Texas Panhandle north to the Greensburg, Kan., station.

CenterPoint, East (daily and monthly survey)

Deliveries into CenterPoint Energy Gas Transmission's flex/neutral and north pooling areas in northeastern Arkansas and southeastern Oklahoma. The north pooling area is separated from the south pooling area by a generally northwest to southeast line between La Flore County, Okla., and Bolivar County, Miss. The flex (or neutral) pooling area in Oklahoma comprises all of Pushmataha, Latimer, Haskell and Pittsburg counties and the northeast section of Atoka County. In the past, the system was known as NorAm Gas Transmission, Arkla Energy Resources and, prior to Aug. 1, 2004, Reliant Energy Gas Transmission.

NGPL, Amarillo receipt (daily survey only)

Deliveries into Natural Gas Pipeline Co. of America starting at the Trailblazer Pipeline interconnection in Gage County, Neb., on the Amarillo mainline at compressor station 106 east to NGPL's interconnection with Northern Border Pipeline at station 109 in Keokuk County, Iowa.

NGPL, Midcontinent (daily and monthly survey)

Deliveries into Natural Gas Pipeline Co. of America starting at compressor station 155 in Wise County, Texas, west to the Amarillo mainline at station 117 in Moore County in the Texas Panhandle, and then north to the Trailblazer Pipeline interconnection in Gage County, Neb. Included are deliveries into NGPL at all Oklahoma points west of station 801, as well as those in North Texas north and east of station 170 and in Kansas south of station 103.

NGPL, Iowa-Ill. receipt (daily survey only)

Deliveries into Natural Gas Pipeline Co. of America on the Amarillo mainline from the interconnection with Northern Border Pipeline at station 109 in Keokuk County, Iowa, east to the interconnection with Wisconsin Gas in Lake County, Ill. Also, deliveries into NGPL on the Gulf Coast mainline from the Missouri/Illinois border to compressor station 113 in Will County, Ill. This point was discontinued on Aug. 1, 2001.

Northern Border, Ventura Transfer Point (daily and monthly survey):

Deliveries on Northern Border Pipeline Co. at its Ventura Transfer point (DRN# 125771). This location is designed to capture gas traded on Northern Border at Ventura that is *not* traded for delivery to Northern Natural Gas Co. at the Northern Natural/Northern Border Ventura interconnect (DRN#46801). This point was added July 1, 2009.

Northern, MIDS 1-6 (daily survey only)

Deliveries into Northern Natural Gas' mileage indicator districts on the southern end of the system in the Permian Basin from the El Dorado compressor station in MID 1 in Schleicher County, Texas, north to the Brownfield station in MID 6 in Terry County, Texas. This point was discontinued on Aug. 1, 2004.

Northern, Tx.-Okla.-Kan. (daily and monthly survey)

Deliveries into Northern Natural Gas' mileage indicator districts 7 through 16 from the Plainview compressor station in MID 7 in Hale County, Texas, north to the demarcation point between Northern Natural's production and market zones at the Clifton station in Clay County, Kan. Deliveries at the demarcation point are not included. This point was discontinued on Aug. 1, 2004.

Northern, demarcation (daily and monthly survey)

Deliveries into Northern Natural Gas at the demarcation point between its production (field) and market zones at the Clifton station in Clay County, Kan.

Northern, Ventura (daily and monthly survey)

Deliveries to Northern Natural Gas at Ventura in Hancock County, Iowa.

Oneok, Okla. (daily and monthly survey)

Deliveries into Oneok Gas Transportation's mainline systems from several gathering systems, all of which are located in Oklahoma. One of the two largest is near the east central part of the state in Pittsburg and Haskell counties. The second, in the west central part of the state, extends from Blaine and Canadian counties south east to Grady County. Oneok operates a single price pool for all gas coming into the system. In the past, Oneok was known as ONG Transmission.

Panhandle, Tx.-Okla. (daily and monthly survey)

Deliveries into Panhandle Eastern Pipe Line on two laterals running from the Texas and Oklahoma panhandles, southwestern Kansas and northwestern Oklahoma upstream of the Haven, Kan., compressor station. Deliveries to Panhandle at the Haven pooling point -- the demarcation between Panhandle's field and market zones -- are not included.

Reliant, West (daily and monthly survey)

Deliveries into Reliant Energy Gas Transmission's West pooling areas 1 and 2 from just east of the Chiles Dome storage facility, west to the Texas Panhandle and north from the Custer, Okla., compressor station to Cowley County, Kan. Reliant is now named CenterPoint Energy Gas Transmission. In the past, the system was known as NorAm Gas Transmission and Arkla Energy Resources. This point was discontinued on Aug. 1, 2004.

Southern Star, Tx.-Okla.-Kan. (daily and monthly survey)

Deliveries into Southern Star Central Gas Pipeline's system from Hemphill County in the Texas Panhandle eastward, from Carter County in south-central Oklahoma northward and from Grant County in southwestern Kansas eastward. In the past, the system was known as Williams Natural Gas and, prior to Aug. 1, 2004, Williams Gas Pipelines Central.

WEST

CALIFORNIA

PG&E, Malin (daily and monthly survey)

Deliveries into Pacific Gas and Electric's lines 400 and 401 at the Oregon/California border at Malin, Ore. This location includes deliveries from Gas Transmission Northwest and Ruby Pipeline.

PG&E, South (daily and monthly survey)

Deliveries into Pacific Gas and Electric in Southern California from El Paso Natural Gas and Transwestern Pipeline at Topock, Calif.; from Kern River Gas Transmission at Daggett, Calif.; and the High Desert Lateral from Southern California Gas at the Kern River station, and from Questar Southern Trails Pipeline at Essex, Calif.

PG&E, city-gate (daily and monthly survey)

Deliveries from Pacific Gas and Electric's intrastate transmission system to city gates on PG&E's local distribution system in Northern California.

SoCal Gas (daily and monthly survey)

Deliveries into Southern California Gas from El Paso Natural Gas at Topock, Calif. and Blythe, Calif. (Ehrenberg, Ariz.); from Transwestern Pipeline at Topock/Needles, Calif.; from Kern River Gas Transmission at Wheeler Ridge and Kramer Junction, Calif.; and from Questar Southern Trails Pipeline at Needles. The point also includes deliveries from Pacific Gas and Electric at several points, including Kern River station and Pisgah, Daggett and in state production.

SoCal Gas, city-gate (daily and monthly survey)

Deliveries at Southern California Gas Co.'s city gate pool. The SoCal Gas city-gate pool is a "virtual" trading location on SoCal Gas' system for deliveries to and from holders of the distributor's city gate pool contracts. This point includes storage transactions delivered to and from the city-gate pool. The SoCal city-gate point was added effective Oct. 1, 2008.

ROCKIES/NORTHWEST/CANADA

Cheyenne Hub (daily and monthly survey)

Deliveries into Trailblazer Pipeline, Public Service Co. of Colorado and Colorado Interstate Gas in the vicinity of the Cheyenne Hub in northeast Colorado.

CIG, Rocky Mountains (daily and monthly survey)

Deliveries into Colorado Interstate Gas' 20-inch, 22-inch and 24-inch mainlines in Wyoming and Colorado. Also included are deliveries into the Parachute to Natural Buttes segment in Uintah County, Utah, and deliveries into CIG's 16-inch lateral running from the Rawlins station in Carbon County, Wyo., to the Elk Basin station in Park County, Wyo. Not included are deliveries into CIG's system at points south of Cheyenne, Wyo.

El Paso, Bondad (daily survey only)

Deliveries into El Paso Natural Gas at the Bondad compressor station in the San Juan Basin. Bondad is located in the northern part of the San Juan Basin in La Plata County, Colo., south of the Ignacio plant on Northwest Pipeline and north of the Blanco plant on El Paso.

El Paso, South Mainline (daily survey only)

Deliveries on El Paso's south mainline at points between Cornudas station in West Texas to but not including Ehrenberg, Arizona. This point was added effective Sept. 1, 2008.

El Paso, San Juan Basin (daily and monthly survey)

Deliveries into El Paso Natural Gas south of the Bondad compressor station in the San Juan Basin, including gas from the Blanco, Chaco, Rio Vista, Milagro and Valverde plants in New Mexico.

GTN, Kingsgate (daily survey only)

Deliveries into Gas Transmission Northwest from Foothills Pipeline at the Kingsgate interconnection at the U.S.-Canadian border in Boundary County, Idaho. Prior to Aug. 1, 2001, the system was known as PG&E Gas Transmission, Northwest.

Kern River, delivered (daily survey only)

Deliveries from Kern River Gas Transmission upstream of the Southern California Gas system in the Las Vegas, Nevada area; excluded are deliveries at Wheeler Ridge, Kramer Junction and Daggett. This point was added to the daily survey on June 5, 2006.

Kern River/Opal plant (daily survey only)

Deliveries into Kern River Gas Transmission at the Opal, Wyo., processing plant and Muddy Creek compression station in southwestern Wyoming where Kern River interconnects with Northwest Pipeline, Questar Pipeline and Colorado Interstate Gas. Gas traded at the Opal plant that isn't nominated into a specific pipeline is included in the daily Kern River/Opal plant pricing point.

Kern River, Wyoming (monthly survey only)

Deliveries into Kern River Gas Transmission anywhere in Wyoming. Transactions done at Opal, Wyo., and the Muddy Creek compressor station — where Kern River interconnects with Northwest Pipeline, Questar Pipeline and Colorado Interstate Gas — are used at both the Kern River, Wyoming, and Northwest Pipeline, Rocky Mountain, monthly postings because gas traded at those points often isn't for nomination into a specific pipeline.

Northwest, Wyoming pool (daily survey only)

Deliveries into Northwest Pipeline from the Green River, Wyo., compressor station to the Kemmerer, Wyo., station. Included are deliveries at the Opal, Wyo., plant as well as at the Painter, Anschutz, Muddy Creek, Granger, Shute Creek and Whitney stations.

Northwest, S. of Green River (daily survey only)

Deliveries into Northwest Pipeline from the Green River, Wyo., compressor station south to the La Plata interconnection with El Paso Natural Gas in the San Juan Basin in La Plata County, Colo. Included are deliveries from Clay Basin storage, the Piceance Basin and the Ignacio plant.

Northwest, Rocky Mountains (monthly survey only)

Deliveries into Northwest Pipeline's mainline in Wyoming, Utah and Colorado between the Kemmerer and Moab stations. Deliveries at Ignacio, Colo., and elsewhere in zone M0 are excluded. Transactions done at Opal, Wyo., and the Muddy Creek compressor station — where Northwest interconnects with Kern River Gas Transmission, Questar Pipeline and Colorado Interstate Gas — are used in both the Kern River, Wyoming, and Northwest Pipeline, Rocky Mountain, monthly postings because gas traded at those points often isn't for nomination into a specific pipeline.

Northwest, Canadian border (Sumas) (daily and monthly survey)

Deliveries into Northwest Pipeline from Westcoast Energy at the Sumas, Wash., Huntington, British Columbia, interconnection at the U.S./Canadian border.

Northwest, all city-gates (daily survey only)

Deliveries from Northwest Pipeline into city gates northwest of the Kemmerer, Wyo., compressor station in Idaho, Nevada, Oregon and Washington. This point was discontinued on Aug. 1, 2004.

Nova, same-day (daily survey only)

Deliveries for same-day flow into Nova Gas Transmission at the AECO-C NIT hub in southeastern Alberta. AECO-C is the principal storage facility and hub on Nova paying the rate for NIT service. Or Nova Inventory Transfer will cover transmission for delivery of gas to AECO-C and most other points. The price is reported in Canadian dollars per gigajoule. This point was discontinued on Aug. 1, 2004.

PSCo city-gate (daily survey only)

Deliveries in to Public Service Co. of Colorado from Front Range points, primarily from Denver-Julesburg Basin production. Excluded is gas entering the system from the Chalk Bluffs Hub, which is priced at Cheyenne Hub, and gas entering the system at Fort Lupton, where gas competes with long-haul supply on Colorado Interstate Gas. This point was discontinued on Aug. 1, 2004.

Questar, Rocky Mountains (daily and monthly survey)

Deliveries into Questar Pipeline on its North system, which runs from northwestern Colorado through southern Wyoming to Salt Lake City, and on its South system, which runs from western Colorado to Payson, Utah, east of the Fidlar compressor station. A 20-inch line running parallel to the Utah/Colorado border connects the two systems.

Stanfield, Ore. (daily and monthly survey)

Deliveries into Northwest Pipeline from PG&E Gas Transmission, Northwest (now

named Gas Transmission Northwest) at the Stanfield compressor station in Umatilla County, Ore., on the Oregon/Washington border. This point was discontinued in the monthly survey on Jan. 1, 2012. It continues to be published in the daily survey.

TCPL Alberta, AECO-C (daily and monthly survey)

Deliveries into TransCanada's Alberta System at the AECO-C NIT Hub in southeastern Alberta. AECO-C is the principal storage facility and hub on TCPL Alberta; paying the rate for NIT service or Nova Inventory Transfer, will cover transmission for delivery of gas to AECO-C and most other points. The monthly bidweek posting is composed of fixed price deals only. The price is reported in Canadian dollars per gigajoule. Prior to Aug. 1, 2004, the system was known as Nova.

TCPL Alberta, AECO-C Physical Basis (monthly survey only)

Deliveries on TransCanada's Alberta System at the AECO-C NIT Hub in southeastern Alberta. Posting is composed of physical basis deals in which the basis value is negotiated on one of the first three days of bidweek and the price is set by the final closing value of the near month NYMEX futures contract plus or minus the negotiated basis. AECO-C is the principal storage facility and hub on TCPL Alberta; paying the rate for NIT service or Nova Inventory Transfer, will cover transmission for delivery of gas to AECO-C and most other points. The price is reported in US dollars per MMBtu. This point was added effective Sept. 1, 2008.

Transwestern Pipeline Co., San Juan Basin (daily and monthly survey)

Deliveries to Transwestern at points included in Transwestern's Blanco Hub in San Juan County, New Mexico. This point was added effective Aug. 1, 2010.

White River Hub (daily survey only)

Deliveries to or from pools or interconnects that make up the White River Hub in Rio Blanco County, Colorado. This point was added to the daily survey Aug. 1, 2011.

Westcoast, station 2 (daily survey only)

Deliveries into Westcoast Energy at compressor station 2 in north central British Columbia, where much of northern British Columbia and Alberta production is pooled for shipment south and east. The price is reported in Canadian dollars per gigajoule.

WEST TEXAS

El Paso, Permian Basin (daily and monthly survey)

Deliveries into El Paso Natural Gas in the Permian Basin from three pools: the Waha plant south (Waha pool), the Keystone station south to Waha (Keystone pool) and the Plains station south to Keystone (Plains pool).

Transwestern, Permian Basin (daily and monthly survey)

Deliveries into Transwestern Pipeline from the West Texas zone located southeast and southwest of the WT-1 compressor station in Lea County, N.M., and the Central zone bordered by station 8 in Lincoln County, N.M., to the northwest, station P-1 in Roosevelt County, N.M., to the east and station WT-1 in Eddy County, N.M., to the south.

Waha (daily and monthly survey)

Deliveries into interstate and intrastate pipelines at the outlet of the Waha header system and in the Waha vicinity in the Permian Basin in West Texas. Pipelines include El Paso Natural Gas, Transwestern Pipeline, Natural Gas Pipeline Co. of America, Northern Natural Gas, Delhi Pipeline, Oasis Pipeline, EPGT Texas and Lone Star Pipeline.

REVISION HISTORY

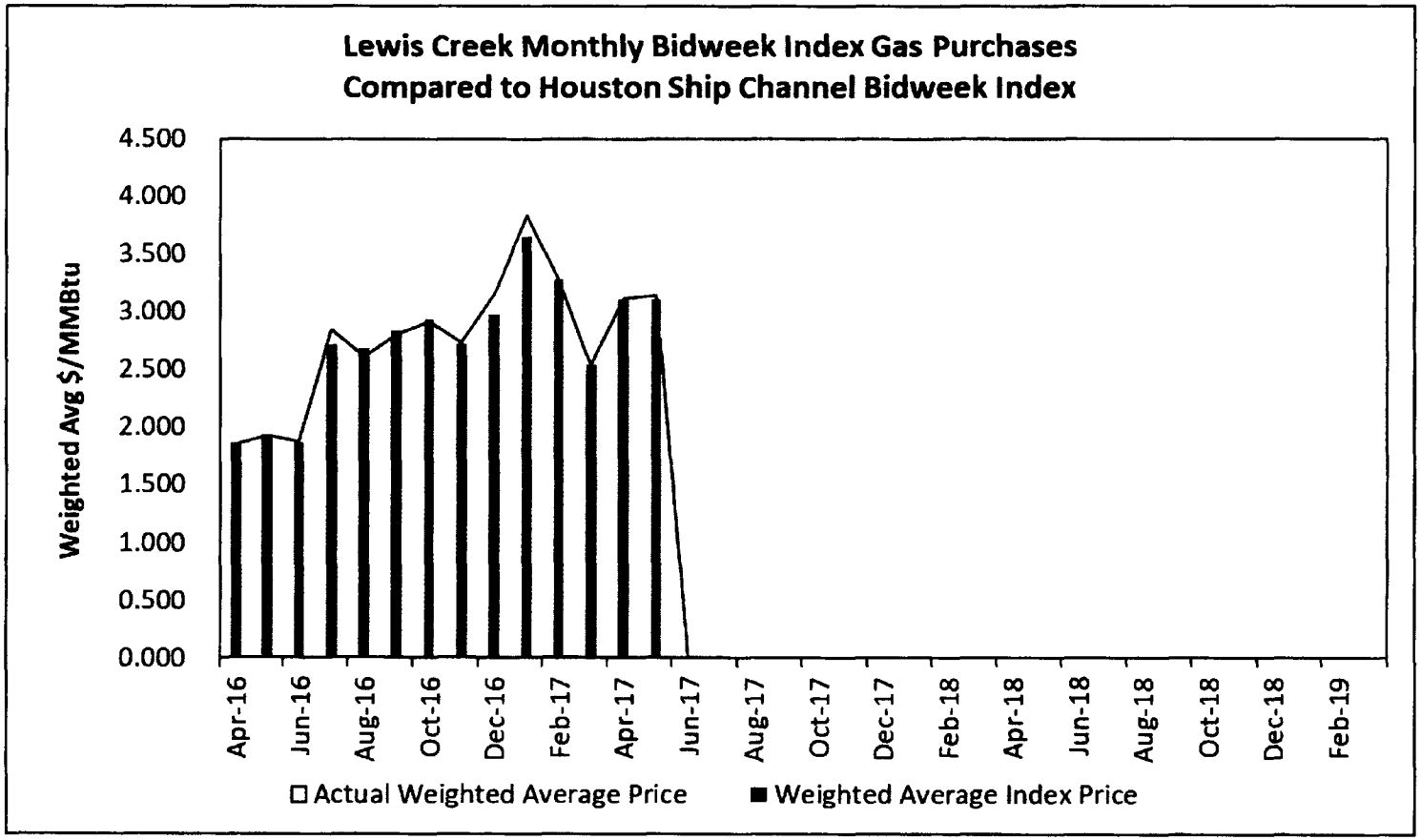
January 2012 version: Discontinuation of three pricing locations: Natural Gas Pipeline Co. of America, Louisiana, in the daily and monthly bidweek surveys; Stanglay Pool in the daily survey; and Stanfield, Ore., in the monthly bidweek survey only. (The Stanfield, Ore., location continues in the daily survey.) The changes became effective January 1, 2012. Additionally, language was added to the PG&E Malin location description to make explicit that the location includes deliveries from Gas Transmission Northwest and Ruby Pipeline.

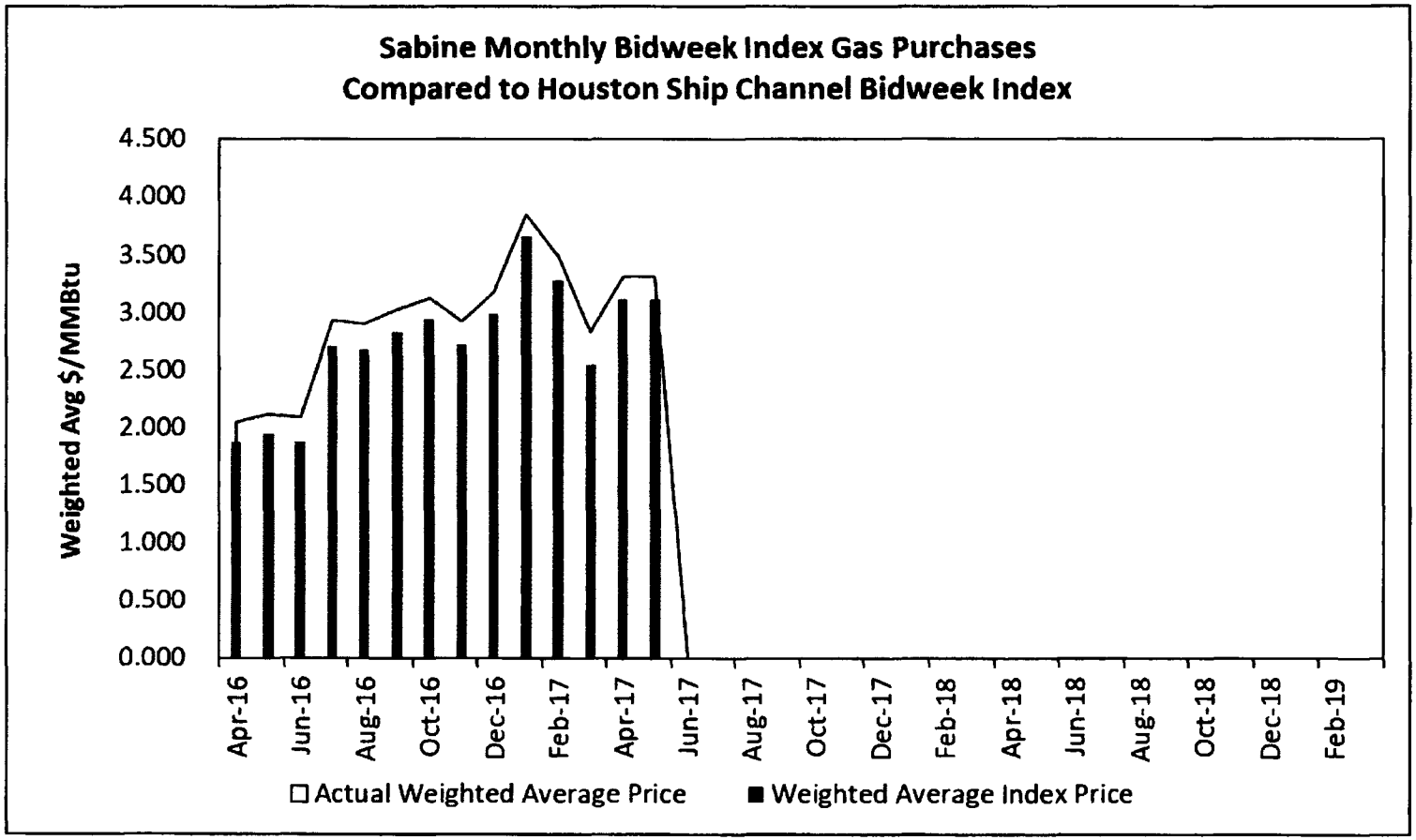
January 2012 version (second update in January 2012): Addition of Tennessee zone 4 300 leg to the daily survey and the monthly bidweek survey.

October 2012 version: Additions of Texas Eastern M-2 receipts and Millennium Pipeline, East receipts to the daily and monthly bidweek surveys.

January 2013 version: Modification of description for Niagara pricing location to reflect US exports to Canada as well as US imports from Canada.

April 2013 version: Additions of Transcontinental Gas Pipe Line, Leidy Line receipts and Tennessee Gas Pipeline, Zone 4 200 leg pricing locations to the daily and monthly bidweek surveys.


Lewis Creek Monthly Bidweek Index Gas Purchases
Compared to Houston Ship Channel Bidweek Index
Weighted Avg $/MMBtu
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
Apr-16
Jun-16
Aug-16
Oct-16
Dec-16
Feb-17
Apr-17
Jun-17
Aug-17
Oct-17
Dec-17
Feb-18
Apr-18
Jun-18
Aug-18
Oct-18
Dec-18
Feb-19
Actual Weighted Average Price
Weighted Average Index Price


Sabine Monthly Bidweek Index Gas Purchases
Compared to Houston Ship Channel Bidweek Index
Weighted Avg $/MMBtu
4.500
4.000
3.500
3.000
2.500
2.000
1.500
1.000
0.500
0.000
Apr-16
Jun-16
Aug-16
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Dec-16
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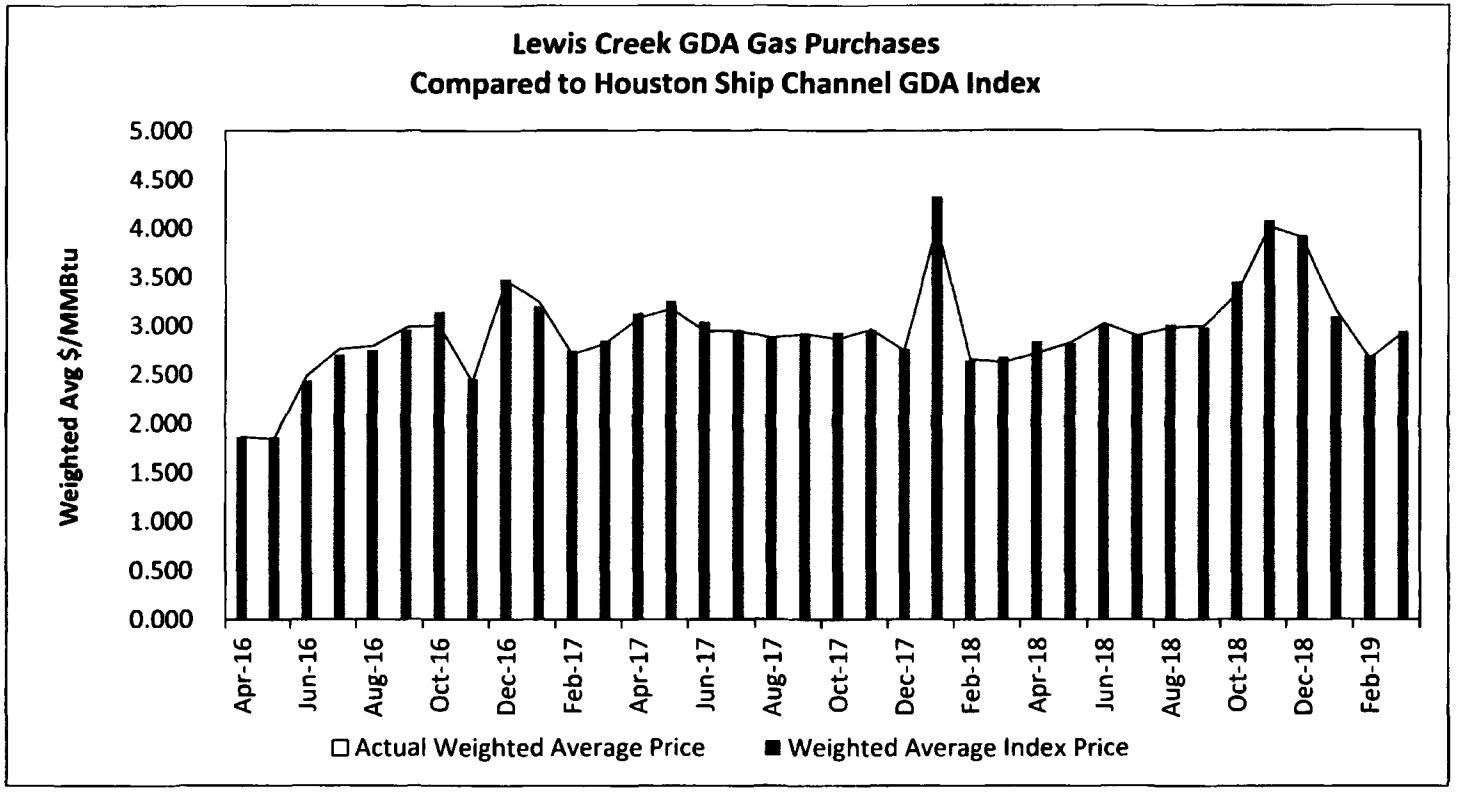
Aug-18
Oct-18
Dec-18
Feb-19
Actual Weighted Average Price
Weighted Average Index Price


Lewis Creek GDA Gas Purchases
Compared to Houston Ship Channel GDA Index
Weighted Avg $/MMBtu
5.000
4.500
4.000
3.500
3.000
2.500
2.000
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Apr-16
Jun-16
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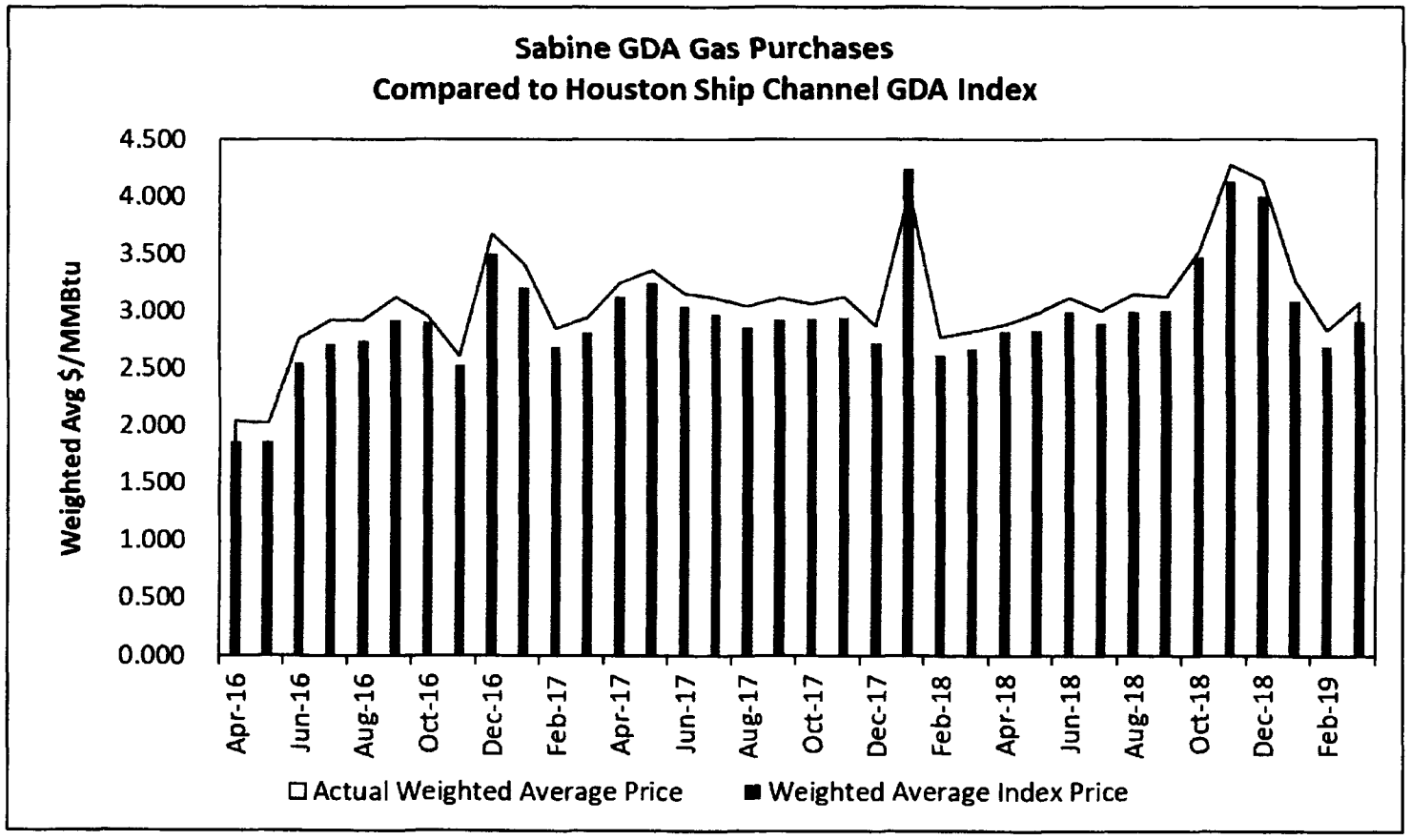
Oct-18
Dec-18
Feb-19
Actual Weighted Average Price
Weighted Average Index Price


Sabine GDA Gas Purchases
Compared to Houston Ship Channel GDA Index
Weighted Avg $/MMBtu
4.500
4.000
3.500
3.000
2.500
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Apr-16
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Dec-18
Feb-19
Actual Weighted Average Price
Weighted Average Index Price

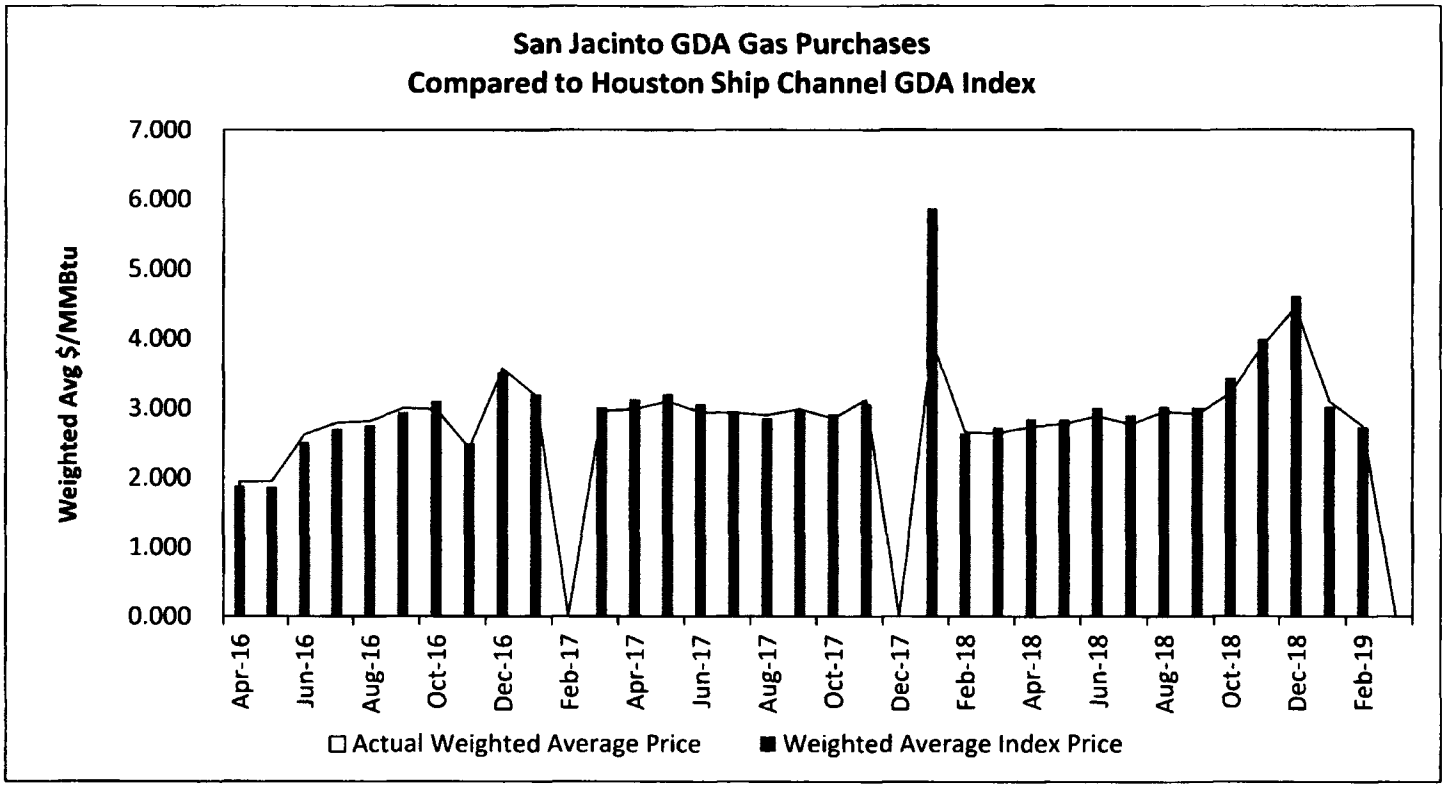
San Jacinto GDA Gas Purchases
Compared to Houston Ship Channel GDA Index
Weighted Avg $/MMBtu
7.000
6.000
5.000
4.000
3.000
2.000
1.000
0.000
Apr-16
Jun-16
Aug-16
Oct-16
Dec-16
Feb-17
Apr-17
Jun-17
Aug-17
Oct-17
Dec-17
Feb-18
Apr-18
Jun-18
Aug-18
Oct-18
Dec-18
Feb-19
Actual Weighted Average Price
Weighted Average Index Price

Exhibit DSJ-10
Docket No. 49916
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Exhibit DSJ-10

Volumes of Gas Purchased and Transported by the Company

	Lewis Creek	Sabine	San Jac Unit 2	Total
4/1/2016	965,000	940,000	73,500	1,978,500
5/1/2016	965,000	930,000	215,000	2,110,000
6/1/2016	900,000	592,858	241,987	1,734,845
7/1/2016	930,000	927,556	193,693	2,051,249
8/1/2016	935,000	879,562	252,000	2,066,562
9/1/2016	900,000	900,000	203,000	2,003,000
10/1/2016	1,055,000	220,000	73,400	1,348,400
11/1/2016	900,000	240,000	32,500	1,172,500
12/1/2016	840,000	354,931	33,500	1,228,431
1/1/2017	650,000	265,000	10,500	925,500
2/1/2017	625,000	310,000	0	935,000
3/1/2017	939,291	90,000	180,499	1,209,790
4/1/2017	924,513	829,974	155,499	1,909,986
5/1/2017	820,226	928,409	157,200	1,905,835
6/1/2017	844,509	898,101	133,500	1,876,110
7/1/2017	864,610	929,998	149,983	1,944,591
8/1/2017	919,699	929,741	83,900	1,933,340
9/1/2017	769,218	733,917	234,070	1,737,205
10/1/2017	798,246	917,048	186,643	1,901,937
11/1/2017	813,465	896,504	108,297	1,818,266
12/1/2017	929,999	810,000	0	1,739,999
1/1/2018	930,000	926,214	204,942	2,061,156
2/1/2018	837,995	839,002	28,828	1,705,825
3/1/2018	929,268	930,000	34,000	1,893,268
4/1/2018	895,689	898,431	52,478	1,846,598
5/1/2018	927,602	929,700	179,307	2,036,609
6/1/2018	894,871	888,531	150,999	1,934,401
7/1/2018	929,987	922,900	196,000	2,048,887
8/1/2018	925,892	0	135,000	1,060,892
9/1/2018	0	0	109,000	109,000
10/1/2018	0	0	77,000	77,000
11/1/2018	0	0	77,000	77,000
12/1/2018	0	0	21,000	21,000
1/1/2019	0	0	81,500	81,500
2/1/2019	0	0	46,000	46,000
3/1/2019	0	0	1,000	1,000
Total Period	25,560,080	20,858,377	4,112,725	50,531,182
Total Purchases (a)	67,532,715	144,975,744	4,116,725	216,625,184
Percent Transported	38%	14%	100%	23%

(a) From Schedule FR-16.2, "Fossil Fuel Mix (Purchased)"

CALCULATED STORAGE CAVERN CAPACITY
SEPTEMBER 1, 1992-PRESENT
(all volumes Bcf)

	CAVERN #1			CAVERN #2			TOTAL			
DATE	GROSS	PAD GAS	WORKING	GROSS	PAD GAS	WORKING	GROSS	PAD GAS	WORKING	REMARKS
9/1/1992	1.170	0.534	0.636	0 000	0.000	0.000	1 170	0.534	0 636	Completion of small Cavern #1
7/13/1994	0.000	0 000	0.000	5 082	2.319	2 763	5.082	2.319	2 763	Completion of Cavern #2, Cavern #1 out of service for expansion
11/21/1996	6 410	2 916	3 494	5 082	2.319	2 763	11 492	5 235	6 257	Expansion of Cavern #1
10/13/1997	5.935	3 074	2 861	4 663	2.415	2 248	10.598	5 489	5.109	Adjustment following installation of pressure / temperature probes
10/15/1997	6 423	2.932	3.491	5.047	2.303	2.744	11.470	5 235	6 235	Adjustments following commingling of caverns
4/1/1998	6.037	2 755	3 282	4.555	2 079	2 476	10 592	4 834	5.758	Adjustments for closure
4/3/1998	6.037	2.119	3.918	4 555	1.599	2.956	10.592	3.718	6 874	Adjustments made resulting from Rock Mechanics Study
12/1/2017	6 746	3 061	3 685	4.897	2 210	2.687	11 643	5 271	6.372	Caverns rewatered and inspected Volumes recalculated based on pressure / temperature.

- It should be noted that cavern capacity is a dynamic number and varies over time based on cavern closure rates, temperature of the cavern, and an assumed minimum operating pressure.
- Pad gas (also referred to as cushion gas or base gas) is the gas in the cavern that is unavailable for use by the Company It is required in order to maintain structural integrity of the cavern and prevent a catastrophic collapse of the cavern walls. The pad gas is also used as the force that causes gas to be pushed from the cavern during withdrawals. Pad gas can be compared to the product that remains in an aerosol can when you empty the can, product still remains, but is unusable. Likewise, pad gas is in the cavern, but is not available for plant burn or sale
- Working capacity is the capacity of the caverns that can be used to store natural gas for plant burn or sale It should be noted that this capacity is not always fully utilized To the extent that operations permit, some capacity should be reserved for injections during unexpected plant outages or other emergencies. If the cavern is completely full, working capacity is the approximate maximum volume that can be withdrawn 6.372 Bcf is the approximate maximum volume that could be withdrawn if the cavern is completely full.
- Gross capacity is the sum of pad gas and working capacity and represents the approximate volume that can be injected 11.643 Bcf is the approximate maximum volume that can be injected

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Exhibit DSJ-11

SPINDLETOP STORAGE
ESTIMATED INJECTION / WITHDRAWAL CAPACITY
(AT SELECTED CAVERN PRESSURES)

INJECTION CAPACITY

CAVERN PRESSURE (psig)	COMPRESSORS (MMBtu/ day)			
	1	2	3	4
1800	80,000	150,000	180,000	220,000
2400	65,000	120,000	160,000	190,000
2900	50,000	100,000	140,000	170,000

WITHDRAWAL CAPACITY

CAVERN PRESSURE (psig)	MAXIMUM DELIVERY (MMBtu/day)
800	150,000
900	175,000
1,000	200,000
1,100	225,000
1,200	250,000
1,300	275,000
1,400	300,000
1,500	325,000
1,600	350,000
1,700	375,000
1,800	400,000
1,900	425,000
2,000	450,000
2,100	475,000
2,200	500,000
2,300	525,000
2,400	550,000
2,500	575,000
2,600	600,000
2,700	625,000
2,800	650,000

Exhibit DSJ-11

SPINDLETOP HEADER SYSTEM
INTERCONNECTIONS & CAPACITY

PIPELINE	IN (MMBTU/day)		OUT (MMBTU/day)	
	MIN*	MAX	MIN*	MAX
CENTANA #1	5,000	178,000		
CENTANA #3	5,000	141,000		
ENBRIDGE	5,000	206,000		
KINDER MORGAN TEXAS	5,000	263,000		
KINDER MORGAN TEJAS #2	5,000	168,000	5,000	178,040
TEXAS EASTERN	5,000	206,000		
TEXOMA	5,000	221,450	5,000	103,000
CENTANA (AT STORAGE)			5,000	103,000
MIDCON (AT STORAGE)			5,000	103,000

* Minimum volumes do not represent obligations, but are physical limits at the station if any quantity is taken at that station.
* Calculated using a BTU Average of 1.030

Exhibit DSJ-11

OPERATIONS CONSTRAINTS
SABINE GAS SPINDLETOP STORAGE FACILITY

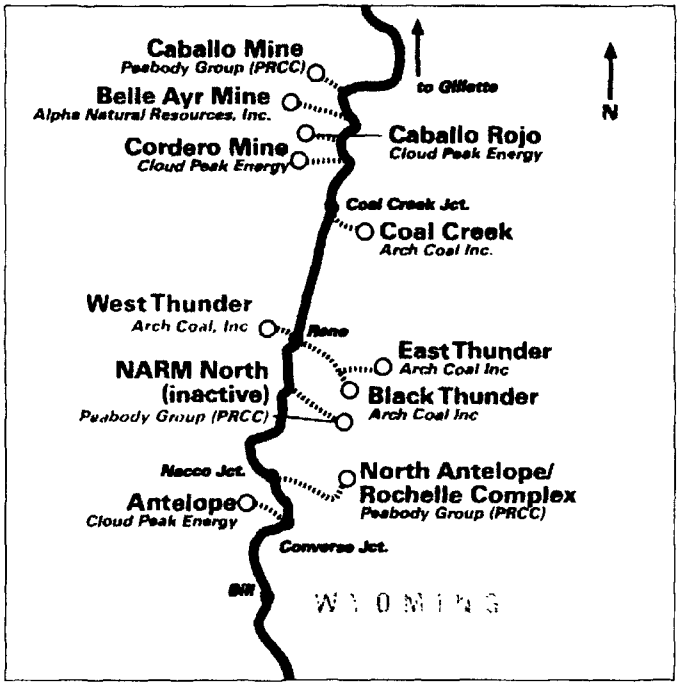
1. Withdrawal rates are not fixed. They are affected by the pressure in the caverns. The cavern operator is required to provide 480 MMCF/day (MMCFPD) at 2500 psig cavern pressure. Higher cavern pressure generally results in higher withdrawal rates. Lower cavern pressure generally results in lower withdrawal rates.
2. Injection rates are affected by both suction and discharge pressure available to the compressors, as well as rod load developed by the compressor frames while in operation. The compressors cannot operate at suction pressures below 200 psig or above 400 psig. The compressors cannot operate at discharge pressures above 3000 psig. The rate of injection available depends on a combination of suction and discharge pressures available at the time, as well as compressor rod load, unloading pocket position, and temperature of the gas being moved. Practically speaking, the compressors can provide up to 320 MMCFPD total capacity under some conditions, and as little as 180 MMCFPD under other combinations of conditions.
3. The 150 psig regulator station at Sabine Plant cannot be safely operated at pressures exceeding 400 psig. This tends to dictate compressor performance.
4. Compression and withdrawal cannot be instantly started and stopped. It requires the cavern operator to plan ahead between 1 hour and 8 hours, on a continuous basis, depending on the anticipated operations.
5. The operator of the facilities must assure that there is adequate gas available to the power plant at all times. All maintenance and repair functions must be scheduled such that the risk of a fuel outage to the power plant is minimized.
6. All fuel burn targets must be met each day, regardless of actual load requirements. This requires hour-by-hour revision of rates injected to and withdrawn from storage.
7. Cavern capacity, as well as the split between working gas and cushion gas, has been found to be affected by such things as salt "creep" or closure, temperature of the cavern, and method of operation of the cavern system. This situation requires a frequent reassessment of inventory and inventory accuracy for prediction of maximum and minimum usable volume in each cavern. Prudent operation dictates that these estimates be realistic, but conservative.
8. To deliver gas to Lewis Creek via Tejas, the 14-mile system pressure must be raised to in excess of 800 psig. This limits the ability to inject and withdraw under certain specific situations.
9. The compressors are powered by electric drive motors. The electric supply contract is interruptible. Therefore there are times when compression needed for injection is not available.
10. Off-system deliveries are limited by the demand for gas by Sabine Plant and Lewis Creek Plant.
11. Each compressor at the facility undergoes an annual planned maintenance outage and is not available during these maintenance periods.
12. Cavern pressure at the casing shoe (the bottom of the production casing string which is the weakest point of a salt dome storage cavern) should be maintained at or above 1,100 psig.
13. The time spent at operating pressures below 2,000 psig should be minimized in order to keep cavern closure rates to acceptable levels.

Exhibit DSJ-12

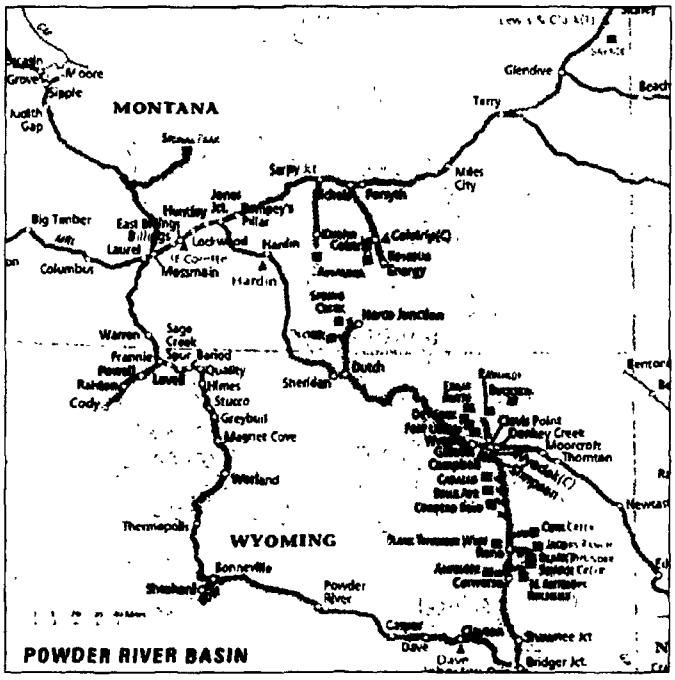
ENTERGY TEXAS, INC.
SUMMARY OF COST TO OPERATE THE SPINDLETOP STORAGE FACILITY
APRIL 2016 - MARCH 2019

	Payments to Storage Operator	Cost Allocation to Inventory: Injections	Cost Allocation to Inventory: W/Drawals	Eligible Fuel Cost
Apr-16	968,372	0	283,158	1,251,529
May-16	320,325	(7,524)	0	312,801
Jun-16	1,135,333	(29,192)	0	1,106,140
Jul-16	135,890	(36,868)	0	99,022
Aug-16	399,269	(124,582)	0	274,687
Sep-16	2,200,510	(506,723)	0	1,693,787
Oct-16	1,797,110	0	308,542	2,105,652
Nov-16	572,220	0	7,197	579,417
Dec-16	640,995	0	118,442	759,437
Jan-17	130,872	0	80,419	211,291
Feb-17	1,277,363	0	18,743	1,296,106
Mar-17	585,672	0	127,815	713,487
Apr-17	484,789	(17,847)	0	466,942
May-17	819,475	(285,724)	0	533,751
Jun-17	572,592	(165,632)	0	406,960
Jul-17	1,193,743	(185,263)	0	1,008,479
Aug-17	650,445	(7,083)	0	643,363
Sep-17	6,488	583	0	7,071
Oct-17	2,025,288	(62,189)	0	1,963,100
Nov-17	274,481	(15,947)	0	258,534
Dec-17	893,386	0	24,244	917,630
Jan-18	(172,919)	5,317	0	(167,602)
Feb-18	1,140,360	0	58,903	1,199,263
Mar-18	536,817	(44,107)	0	492,710
Apr-18	543,892	(27,619)	0	516,273
May-18	424,525	0	48,876	473,401
Jun-18	653,074	(37,523)	0	615,551
Jul-18	566,340	0	415	566,755
Aug-18	414,689	(15,289)	0	399,401
Sep-18	352,943	(6,760)	0	346,183
Oct-18	940,266	(4,585)	0	935,681
Nov-18	386,196	0	5,575	391,771
Dec-18	411,480	(571)	0	410,910
Jan-19	825,200	0	6,087	831,286
Feb-19	0	(3)	0	(3)
Mar-19	323,808	0	26,357	350,166
	24,431,291	(1,575,130)	1,114,771	23,970,932

Exhibit DSJ-13



Source: *www uprr.com*



Source: *www.bnsf.com*

WP/DSJ Testimony/2

	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Apr-16	4/1/2016	1.870	1.995
Apr-16	4/2/2016	1 870	1.820
Apr-16	4/3/2016	1.870	1.820
Apr-16	4/4/2016	1.870	1.820
Apr-16	4/5/2016	1.870	1.870
Apr-16	4/6/2016	1.870	1 865
Apr-16	4/7/2016	1.870	1.825
Apr-16	4/8/2016	1.870	1.900
Apr-16	4/9/2016	1.870	1 850
Apr-16	4/10/2016	1.870	1.850
Apr-16	4/11/2016	1.870	1.850
Apr-16	4/12/2016	1.870	1.795
Apr-16	4/13/2016	1.870	1.840
Apr-16	4/14/2016	1.870	1.900
Apr-16	4/15/2016	1.870	1.805
Apr-16	4/16/2016	1.870	1.740
Apr-16	4/17/2016	1.870	1.740
Apr-16	4/18/2016	1.870	1.740
Apr-16	4/19/2016	1.870	1.790
Apr-16	4/20/2016	1.870	1.880
Apr-16	4/21/2016	1.870	2.010
Apr-16	4/22/2016	1.870	1.950
Apr-16	4/23/2016	1.870	1.940
Apr-16	4/24/2016	1.870	1.940
Apr-16	4/25/2016	1 870	1.940
Apr-16	4/26/2016	1.870	1.940
Apr-16	4/27/2016	1.870	1.890
Apr-16	4/28/2016	1.870	1.850
Apr-16	4/29/2016	1.870	1.845
Apr-16	4/30/2016	1.870	1.845
May-16	5/1/2016	1.940	1.820
May-16	5/2/2016	1.940	1.820
May-16	5/3/2016	1.940	1.850
May-16	5/4/2016	1.940	1.905
May-16	5/5/2016	1.940	1.970
May-16	5/6/2016	1.940	1.905
May-16	5/7/2016	1.940	1.800
May-16	5/8/2016	1.940	1.800
May-16	5/9/2016	1.940	1.800
May-16	5/10/2016	1.940	1.920
May-16	5/11/2016	1 940	1.980
May-16	5/12/2016	1.940	1.930
May-16	5/13/2016	1.940	1.980
May-16	5/14/2016	1.940	1.920
May-16	5/15/2016	1.940	1.920
May-16	5/16/2016	1.940	1.920
May-16	5/17/2016	1.940	1.850
May-16	5/18/2016	1.940	1.910
May-16	5/19/2016	1.940	1.840
May-16	5/20/2016	1 940	1.730
May-16	5/21/2016	1.940	1.745
May-16	5/22/2016	1.940	1.745

WP/DSJ Testimony/2

	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
May-16	5/23/2016	1.940	1.745
May-16	5/24/2016	1.940	1.925
May-16	5/25/2016	1.940	1.850
May-16	5/26/2016	1.940	1.770
May-16	5/27/2016	1.940	1.750
May-16	5/28/2016	1.940	1 850
May-16	5/29/2016	1 940	1.850
May-16	5/30/2016	1.940	1.850
May-16	5/31/2016	1.940	1.850
Jun-16	6/1/2016	1.870	1 975
Jun-16	6/2/2016	1.870	2.185
Jun-16	6/3/2016	1 870	2.205
Jun-16	6/4/2016	1.870	2.225
Jun-16	6/5/2016	1.870	2.225
Jun-16	6/6/2016	1.870	2.225
Jun-16	6/7/2016	1.870	2.260
Jun-16	6/8/2016	1.870	2.230
Jun-16	6/9/2016	1.870	2.270
Jun-16	6/10/2016	1.870	2 295
Jun-16	6/11/2016	1.870	2.360
Jun-16	6/12/2016	1.870	2.360
Jun-16	6/13/2016	1.870	2 360
Jun-16	6/14/2016	1.870	2.480
Jun-16	6/15/2016	1.870	2.460
Jun-16	6/16/2016	1.870	2.510
Jun-16	6/17/2016	1.870	2.500
Jun-16	6/18/2016	1.870	2 560
Jun-16	6/19/2016	1.870	2.560
Jun-16	6/20/2016	1.870	2.560
Jun-16	6/21/2016	1.870	2 620
Jun-16	6/22/2016	1.870	2 710
Jun-16	6/23/2016	1.870	2.730
Jun-16	6/24/2016	1.870	2 630
Jun-16	6/25/2016	1.870	2.620
Jun-16	6/26/2016	1.870	2 620
Jun-16	6/27/2016	1.870	2.620
Jun-16	6/28/2016	1.870	2.695
Jun-16	6/29/2016	1.870	2 750
Jun-16	6/30/2016	1.870	2.850
Jul-16	7/1/2016	2.710	2.785
Jul-16	7/2/2016	2.710	2.800
Jul-16	7/3/2016	2.710	2.800
Jul-16	7/4/2016	2.710	2.800
Jul-16	7/5/2016	2.710	2.800
Jul-16	7/6/2016	2.710	2.710
Jul-16	7/7/2016	2.710	2.650
Jul-16	7/8/2016	2.710	2.750
Jul-16	7/9/2016	2.710	2.680
Jul-16	7/10/2016	2.710	2.680
Jul-16	7/11/2016	2.710	2.680
Jul-16	7/12/2016	2.710	2.735
Jul-16	7/13/2016	2.710	2.650

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Jul-16	7/14/2016	2.710	2.710
Jul-16	7/15/2016	2.710	2.695
Jul-16	7/16/2016	2 710	2.605
Jul-16	7/17/2016	2.710	2 605
Jul-16	7/18/2016	2 710	2.605
Jul-16	7/19/2016	2.710	2.730
Jul-16	7/20/2016	2.710	2.730
Jul-16	7/21/2016	2.710	2.655
Jul-16	7/22/2016	2.710	2.650
Jul-16	7/23/2016	2.710	2.745
Jul-16	7/24/2016	2.710	2.745
Jul-16	7/25/2016	2.710	2.745
Jul-16	7/26/2016	2.710	2.750
Jul-16	7/27/2016	2.710	2.700
Jul-16	7/28/2016	2.710	2.670
Jul-16	7/29/2016	2.710	2.690
Jul-16	7/30/2016	2.710	2.690
Jul-16	7/31/2016	2.710	2.690
Aug-16	8/1/2016	2.680	2.950
Aug-16	8/2/2016	2 680	2.865
Aug-16	8/3/2016	2.680	2.755
Aug-16	8/4/2016	2.680	2.810
Aug-16	8/5/2016	2.680	2.875
Aug-16	8/6/2016	2.680	2.800
Aug-16	8/7/2016	2 680	2.800
Aug-16	8/8/2016	2.680	2.800
Aug-16	8/9/2016	2.680	2 755
Aug-16	8/10/2016	2.680	2.710
Aug-16	8/11/2016	2.680	2.670
Aug-16	8/12/2016	2 680	2.620
Aug-16	8/13/2016	2.680	2.620
Aug-16	8/14/2016	2 680	2.620
Aug-16	8/15/2016	2.680	2.620
Aug-16	8/16/2016	2.680	2.650
Aug-16	8/17/2016	2.680	2.655
Aug-16	8/18/2016	2.680	2.605
Aug-16	8/19/2016	2.680	2.620
Aug-16	8/20/2016	2 680	2 605
Aug-16	8/21/2016	2.680	2.605
Aug-16	8/22/2016	2.680	2.605
Aug-16	8/23/2016	2.680	2.680
Aug-16	8/24/2016	2 680	2.675
Aug-16	8/25/2016	2.680	2.740
Aug-16	8/26/2016	2.680	2.795
Aug-16	8/27/2016	2.680	2.850
Aug-16	8/28/2016	2.680	2.850
Aug-16	8/29/2016	2.680	2.850
Aug-16	8/30/2016	2.680	2.820
Aug-16	8/31/2016	2.680	2.900
Sep-16	9/1/2016	2.830	2.810
Sep-16	9/2/2016	2.830	2.885
Sep-16	9/3/2016	2.830	2.800

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Sep-16	9/4/2016	2.830	2 800
Sep-16	9/5/2016	2.830	2.800
Sep-16	9/6/2016	2.830	2.800
Sep-16	9/7/2016	2.830	2.750
Sep-16	9/8/2016	2.830	2.750
Sep-16	9/9/2016	2.830	2.795
Sep-16	9/10/2016	2.830	2.870
Sep-16	9/11/2016	2.830	2.870
Sep-16	9/12/2016	2.830	2.870
Sep-16	9/13/2016	2.830	2.985
Sep-16	9/14/2016	2 830	2.960
Sep-16	9/15/2016	2.830	2 960
Sep-16	9/16/2016	2.830	2.890
Sep-16	9/17/2016	2.830	2.870
Sep-16	9/18/2016	2 830	2.870
Sep-16	9/19/2016	2.830	2 870
Sep-16	9/20/2016	2.830	2.980
Sep-16	9/21/2016	2.830	3.060
Sep-16	9/22/2016	2.830	3.175
Sep-16	9/23/2016	2.830	3.150
Sep-16	9/24/2016	2.830	3.090
Sep-16	9/25/2016	2.830	3.090
Sep-16	9/26/2016	2.830	3.090
Sep-16	9/27/2016	2.830	3.040
Sep-16	9/28/2016	2.830	3.005
Sep-16	9/29/2016	2.830	2.990
Sep-16	9/30/2016	2.830	2.970
Oct-16	10/1/2016	2.940	2.930
Oct-16	10/2/2016	2.940	2.930
Oct-16	10/3/2016	2.940	2.930
Oct-16	10/4/2016	2.940	2.880
Oct-16	10/5/2016	2.940	2.870
Oct-16	10/6/2016	2 940	3.000
Oct-16	10/7/2016	2.940	3.130
Oct-16	10/8/2016	2.940	3.120
Oct-16	10/9/2016	2.940	3.120
Oct-16	10/10/2016	2.940	3 120
Oct-16	10/11/2016	2.940	3.165
Oct-16	10/12/2016	2.940	3.295
Oct-16	10/13/2016	2.940	3.350
Oct-16	10/14/2016	2.940	3.330
Oct-16	10/15/2016	2.940	3.395
Oct-16	10/16/2016	2.940	3.395
Oct-16	10/17/2016	2.940	3.395
Oct-16	10/18/2016	2.940	3.330
Oct-16	10/19/2016	2.940	3.440
Oct-16	10/20/2016	2.940	3.300
Oct-16	10/21/2016	2.940	3.180
Oct-16	10/22/2016	2.940	3.035
Oct-16	10/23/2016	2.940	3.035
Oct-16	10/24/2016	2.940	3.035
Oct-16	10/25/2016	2 940	2.985

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Oct-16	10/26/2016	2.940	2.900
Oct-16	10/27/2016	2.940	2 845
Oct-16	10/28/2016	2.940	2.760
Oct-16	10/29/2016	2.940	2.750
Oct-16	10/30/2016	2.940	2 750
Oct-16	10/31/2016	2 940	2.750
Nov-16	11/1/2016	2.720	2 730
Nov-16	11/2/2016	2 720	2.405
Nov-16	11/3/2016	2 720	2.500
Nov-16	11/4/2016	2.720	2.465
Nov-16	11/5/2016	2.720	2.280
Nov-16	11/6/2016	2.720	2 280
Nov-16	11/7/2016	2.720	2 280
Nov-16	11/8/2016	2.720	2.445
Nov-16	11/9/2016	2.720	2.320
Nov-16	11/10/2016	2.720	2 185
Nov-16	11/11/2016	2.720	2.060
Nov-16	11/12/2016	2.720	1.990
Nov-16	11/13/2016	2.720	1.990
Nov-16	11/14/2016	2.720	1.990
Nov-16	11/15/2016	2.720	2.265
Nov-16	11/16/2016	2 720	2.450
Nov-16	11/17/2016	2.720	2.340
Nov-16	11/18/2016	2.720	2.230
Nov-16	11/19/2016	2.720	2.540
Nov-16	11/20/2016	2.720	2.540
Nov-16	11/21/2016	2.720	2.540
Nov-16	11/22/2016	2.720	2.820
Nov-16	11/23/2016	2.720	2.745
Nov-16	11/24/2016	2.720	2 670
Nov-16	11/25/2016	2.720	2.670
Nov-16	11/26/2016	2.720	2.670
Nov-16	11/27/2016	2.720	2.670
Nov-16	11/28/2016	2.720	2.670
Nov-16	11/29/2016	2.720	3.095
Nov-16	11/30/2016	2.720	3.150
Dec-16	12/1/2016	2.980	3.275
Dec-16	12/2/2016	2.980	3.320
Dec-16	12/3/2016	2.980	3.255
Dec-16	12/4/2016	2.980	3.255
Dec-16	12/5/2016	2 980	3.255
Dec-16	12/6/2016	2.980	3 530
Dec-16	12/7/2016	2.980	3.630
Dec-16	12/8/2016	2.980	3.685
Dec-16	12/9/2016	2.980	3.590
Dec-16	12/10/2016	2.980	3.630
Dec-16	12/11/2016	2.980	3.630
Dec-16	12/12/2016	2 980	3.630
Dec-16	12/13/2016	2.980	3.445
Dec-16	12/14/2016	2.980	3 455
Dec-16	12/15/2016	2.980	3.425
Dec-16	12/16/2016	2 980	3.395

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Dec-16	12/17/2016	2.980	3.500
Dec-16	12/18/2016	2 980	3.500
Dec-16	12/19/2016	2.980	3.500
Dec-16	12/20/2016	2.980	3.530
Dec-16	12/21/2016	2.980	3.270
Dec-16	12/22/2016	2.980	3.335
Dec-16	12/23/2016	2.980	3.500
Dec-16	12/24/2016	2.980	3.490
Dec-16	12/25/2016	2.980	3 490
Dec-16	12/26/2016	2.980	3.490
Dec-16	12/27/2016	2.980	3.490
Dec-16	12/28/2016	2.980	3.490
Dec-16	12/29/2016	2.980	3.500
Dec-16	12/30/2016	2.980	3.600
Dec-16	12/31/2016	2.980	3.600
Jan-17	1/1/2017	3.650	3.510
Jan-17	1/2/2017	3 650	3.510
Jan-17	1/3/2017	3.650	3.510
Jan-17	1/4/2017	3.650	3 260
Jan-17	1/5/2017	3.650	3.235
Jan-17	1/6/2017	3.650	3.220
Jan-17	1/7/2017	3.650	3.220
Jan-17	1/8/2017	3.650	3.220
Jan-17	1/9/2017	3.650	3.220
Jan-17	1/10/2017	3 650	3.185
Jan-17	1/11/2017	3 650	3.150
Jan-17	1/12/2017	3 650	3.190
Jan-17	1/13/2017	3.650	3.195
Jan-17	1/14/2017	3.650	3.240
Jan-17	1/15/2017	3 650	3.240
Jan-17	1/16/2017	3.650	3.240
Jan-17	1/17/2017	3.650	3.240
Jan-17	1/18/2017	3.650	3.195
Jan-17	1/19/2017	3.650	3.150
Jan-17	1/20/2017	3 650	3 110
Jan-17	1/21/2017	3.650	3.135
Jan-17	1/22/2017	3.650	3.135
Jan-17	1/23/2017	3.650	3.135
Jan-17	1/24/2017	3.650	3.035
Jan-17	1/25/2017	3.650	3.145
Jan-17	1/26/2017	3.650	3 205
Jan-17	1/27/2017	3.650	3.370
Jan-17	1/28/2017	3.650	3.195
Jan-17	1/29/2017	3.650	3.195
Jan-17	1/30/2017	3.650	3.195
Jan-17	1/31/2017	3.650	3.095
Feb-17	2/1/2017	3.280	2.985
Feb-17	2/2/2017	3.280	3.035
Feb-17	2/3/2017	3.280	3.010
Feb-17	2/4/2017	3.280	2.915
Feb-17	2/5/2017	3.280	2.915
Feb-17	2/6/2017	3 280	2.915

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Month	Date	HOUSTON SHIP CHANNEL INDICES HSC Bid Week	HSC GDA
Feb-17	2/7/2017	3.280	2.835
Feb-17	2/8/2017	3.280	2.950
Feb-17	2/9/2017	3 280	2.955
Feb-17	2/10/2017	3.280	3.000
Feb-17	2/11/2017	3.280	2.880
Feb-17	2/12/2017	3 280	2.880
Feb-17	2/13/2017	3.280	2.880
Feb-17	2/14/2017	3 280	2 860
Feb-17	2/15/2017	3 280	2.830
Feb-17	2/16/2017	3 280	2.850
Feb-17	2/17/2017	3.280	2.755
Feb-17	2/18/2017	3.280	2 725
Feb-17	2/19/2017	3 280	2 725
Feb-17	2/20/2017	3.280	2.725
Feb-17	2/21/2017	3.280	2 725
Feb-17	2/22/2017	3.280	2.470
Feb-17	2/23/2017	3 280	2.470
Feb-17	2/24/2017	3 280	2.530
Feb-17	2/25/2017	3.280	2.520
Feb-17	2/26/2017	3.280	2 520
Feb-17	2/27/2017	3.280	2.520
Feb-17	2/28/2017	3.280	2.513
Mar-17	3/1/2017	2.540	2.505
Mar-17	3/2/2017	2.540	2.565
Mar-17	3/3/2017	2.540	2.545
Mar-17	3/4/2017	2.540	2.615
Mar-17	3/5/2017	2.540	2.615
Mar-17	3/6/2017	2.540	2.615
Mar-17	3/7/2017	2.540	2.735
Mar-17	3/8/2017	2.540	2 700
Mar-17	3/9/2017	2.540	2.900
Mar-17	3/10/2017	2.540	2.855
Mar-17	3/11/2017	2.540	2.930
Mar-17	3/12/2017	2.540	2.930
Mar-17	3/13/2017	2.540	2.930
Mar-17	3/14/2017	2 540	2.960
Mar-17	3/15/2017	2.540	2.970
Mar-17	3/16/2017	2.540	2.930
Mar-17	3/17/2017	2.540	2.850
Mar-17	3/18/2017	2 540	2.945
Mar-17	3/19/2017	2.540	2.945
Mar-17	3/20/2017	2.540	2.945
Mar-17	3/21/2017	2.540	3.020
Mar-17	3/22/2017	2.540	3.040
Mar-17	3/23/2017	2.540	3.030
Mar-17	3/24/2017	2.540	2.930
Mar-17	3/25/2017	2.540	3.020
Mar-17	3/26/2017	2.540	3.020
Mar-17	3/27/2017	2.540	3.020
Mar-17	3/28/2017	2.540	3.060
Mar-17	3/29/2017	2.540	3.005
Mar-17	3/30/2017	2.540	3.060

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Mar-17	3/31/2017	2.540	3.050
Apr-17	4/1/2017	3.110	3.105
Apr-17	4/2/2017	3.110	3.105
Apr-17	4/3/2017	3 110	3.105
Apr-17	4/4/2017	3.110	3.030
Apr-17	4/5/2017	3 110	3.055
Apr-17	4/6/2017	3.110	3.200
Apr-17	4/7/2017	3.110	3.290
Apr-17	4/8/2017	3.110	3.260
Apr-17	4/9/2017	3.110	3.260
Apr-17	4/10/2017	3.110	3.260
Apr-17	4/11/2017	3 110	3.190
Apr-17	4/12/2017	3.110	3.065
Apr-17	4/13/2017	3.110	3 015
Apr-17	4/14/2017	3.110	2.940
Apr-17	4/15/2017	3 110	2.940
Apr-17	4/16/2017	3 110	2.940
Apr-17	4/17/2017	3 110	2.940
Apr-17	4/18/2017	3.110	3.240
Apr-17	4/19/2017	3.110	3.225
Apr-17	4/20/2017	3.110	3.220
Apr-17	4/21/2017	3.110	3 210
Apr-17	4/22/2017	3.110	3.160
Apr-17	4/23/2017	3.110	3.160
Apr-17	4/24/2017	3.110	3.160
Apr-17	4/25/2017	3.110	3 000
Apr-17	4/26/2017	3.110	3 050
Apr-17	4/27/2017	3.110	3.080
Apr-17	4/28/2017	3.110	3.100
Apr-17	4/29/2017	3 110	3.100
Apr-17	4/30/2017	3.110	3.100
May-17	5/1/2017	3.110	3.215
May-17	5/2/2017	3.110	3.260
May-17	5/3/2017	3.110	3.235
May-17	5/4/2017	3.110	3.165
May-17	5/5/2017	3.110	3.145
May-17	5/6/2017	3.110	3 115
May-17	5/7/2017	3.110	3 115
May-17	5/8/2017	3 110	3.115
May-17	5/9/2017	3 110	3.075
May-17	5/10/2017	3 110	3 060
May-17	5/11/2017	3.110	3.200
May-17	5/12/2017	3 110	3.310
May-17	5/13/2017	3.110	3.350
May-17	5/14/2017	3.110	3.350
May-17	5/15/2017	3.110	3.350
May-17	5/16/2017	3 110	3 330
May-17	5/17/2017	3.110	3.280
May-17	5/18/2017	3.110	3.140
May-17	5/19/2017	3 110	3.220
May-17	5/20/2017	3.110	3.245
May-17	5/21/2017	3.110	3.245

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
May-17	5/22/2017	3.110	3.245
May-17	5/23/2017	3.110	3.298
May-17	5/24/2017	3.110	3.350
May-17	5/25/2017	3.110	3.250
May-17	5/26/2017	3.110	3.300
May-17	5/27/2017	3.110	3.340
May-17	5/28/2017	3.110	3 340
May-17	5/29/2017	3.110	3.340
May-17	5/30/2017	3.110	3.340
May-17	5/31/2017	3.110	3.200
Jun-17	6/1/2017	3.330	3.150
Jun-17	6/2/2017	3 330	3.080
Jun-17	6/3/2017	3 330	2.990
Jun-17	6/4/2017	3.330	2.990
Jun-17	6/5/2017	3.330	2.990
Jun-17	6/6/2017	3 330	3.100
Jun-17	6/7/2017	3.330	3.095
Jun-17	6/8/2017	3.330	3.073
Jun-17	6/9/2017	3.330	3.050
Jun-17	6/10/2017	3.330	3 050
Jun-17	6/11/2017	3 330	3.050
Jun-17	6/12/2017	3.330	3.050
Jun-17	6/13/2017	3 330	3.035
Jun-17	6/14/2017	3.330	3.045
Jun-17	6/15/2017	3.330	2 980
Jun-17	6/16/2017	3.330	3.035
Jun-17	6/17/2017	3.330	3.023
Jun-17	6/18/2017	3.330	3 023
Jun-17	6/19/2017	3.330	3 023
Jun-17	6/20/2017	3.330	3.010
Jun-17	6/21/2017	3.330	3.035
Jun-17	6/22/2017	3.330	3.050
Jun-17	6/23/2017	3.330	3.045
Jun-17	6/24/2017	3.330	3.035
Jun-17	6/25/2017	3.330	3.035
Jun-17	6/26/2017	3.330	3.035
Jun-17	6/27/2017	3.330	3.100
Jun-17	6/28/2017	3.330	3.130
Jun-17	6/29/2017	3.330	3.120
Jun-17	6/30/2017	3.330	3.130
Jul-17	7/1/2017	3.180	3.055
Jul-17	7/2/2017	3.180	3.055
Jul-17	7/3/2017	3.180	3 055
Jul-17	7/4/2017	3.180	3.055
Jul-17	7/5/2017	3.180	3.055
Jul-17	7/6/2017	3.180	2.975
Jul-17	7/7/2017	3.180	2.850
Jul-17	7/8/2017	3.180	2 960
Jul-17	7/9/2017	3.180	2.960
Jul-17	7/10/2017	3.180	2.960
Jul-17	7/11/2017	3.180	2.950
Jul-17	7/12/2017	3.180	2 955

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Jul-17	7/13/2017	3.180	2.935
Jul-17	7/14/2017	3.180	2.930
Jul-17	7/15/2017	3.180	2.960
Jul-17	7/16/2017	3.180	2 960
Jul-17	7/17/2017	3.180	2.960
Jul-17	7/18/2017	3.180	2.955
Jul-17	7/19/2017	3.180	3.030
Jul-17	7/20/2017	3.180	3.060
Jul-17	7/21/2017	3.180	3.050
Jul-17	7/22/2017	3.180	2.995
Jul-17	7/23/2017	3.180	2.995
Jul-17	7/24/2017	3.180	2.995
Jul-17	7/25/2017	3.180	2.880
Jul-17	7/26/2017	3.180	2.880
Jul-17	7/27/2017	3 180	2 875
Jul-17	7/28/2017	3.180	2.905
Jul-17	7/29/2017	3.180	2.900
Jul-17	7/30/2017	3 180	2 900
Jul-17	7/31/2017	3.180	2.900
Aug-17	8/1/2017	2.920	2.785
Aug-17	8/2/2017	2.920	2.740
Aug-17	8/3/2017	2.920	2.790
Aug-17	8/4/2017	2.920	2.775
Aug-17	8/5/2017	2.920	2.765
Aug-17	8/6/2017	2.920	2.765
Aug-17	8/7/2017	2.920	2.765
Aug-17	8/8/2017	2.920	2.750
Aug-17	8/9/2017	2.920	2.760
Aug-17	8/10/2017	2.920	2.815
Aug-17	8/11/2017	2.920	2.845
Aug-17	8/12/2017	2 920	2.925
Aug-17	8/13/2017	2.920	2.925
Aug-17	8/14/2017	2 920	2.925
Aug-17	8/15/2017	2.920	2.940
Aug-17	8/16/2017	2.920	2.900
Aug-17	8/17/2017	2.920	2.870
Aug-17	8/18/2017	2.920	2.870
Aug-17	8/19/2017	2.920	2.925
Aug-17	8/20/2017	2.920	2.925
Aug-17	8/21/2017	2.920	2.925
Aug-17	8/22/2017	2.920	2.860
Aug-17	8/23/2017	2.920	2.965
Aug-17	8/24/2017	2.920	2.880
Aug-17	8/25/2017	2.920	2.880
Aug-17	8/26/2017	2 920	2.960
Aug-17	8/27/2017	2.920	2 960
Aug-17	8/28/2017	2.920	2.960
Aug-17	8/29/2017	2.920	2.900
Aug-17	8/30/2017	2.920	2.845
Aug-17	8/31/2017	2.920	2.865
Sep-17	9/1/2017	2.920	2.925
Sep-17	9/2/2017	2 920	3.035

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Sep-17	9/3/2017	2 920	3.035
Sep-17	9/4/2017	2.920	3 035
Sep-17	9/5/2017	2.920	3.035
Sep-17	9/6/2017	2.920	2.965
Sep-17	9/7/2017	2.920	2.970
Sep-17	9/8/2017	2.920	2 905
Sep-17	9/9/2017	2.920	2.810
Sep-17	9/10/2017	2.920	2.810
Sep-17	9/11/2017	2.920	2.810
Sep-17	9/12/2017	2.920	2 855
Sep-17	9/13/2017	2.920	2 930
Sep-17	9/14/2017	2.920	2.970
Sep-17	9/15/2017	2.920	2.960
Sep-17	9/16/2017	2.920	2.910
Sep-17	9/17/2017	2.920	2.910
Sep-17	9/18/2017	2.920	2.910
Sep-17	9/19/2017	2.920	3.035
Sep-17	9/20/2017	2.920	3.035
Sep-17	9/21/2017	2.920	3.025
Sep-17	9/22/2017	2.920	2.970
Sep-17	9/23/2017	2.920	2.895
Sep-17	9/24/2017	2.920	2.895
Sep-17	9/25/2017	2.920	2.895
Sep-17	9/26/2017	2 920	2.895
Sep-17	9/27/2017	2.920	2.885
Sep-17	9/28/2017	2.920	2.950
Sep-17	9/29/2017	2.920	2.900
Sep-17	9/30/2017	2.920	2.900
Oct-17	10/1/2017	2.880	2.915
Oct-17	10/2/2017	2.880	2.915
Oct-17	10/3/2017	2.880	2.820
Oct-17	10/4/2017	2.880	2.875
Oct-17	10/5/2017	2.880	2.990
Oct-17	10/6/2017	2.880	2.960
Oct-17	10/7/2017	2.880	2.910
Oct-17	10/8/2017	2.880	2.910
Oct-17	10/9/2017	2.880	2.910
Oct-17	10/10/2017	2.880	2.895
Oct-17	10/11/2017	2 880	2.935
Oct-17	10/12/2017	2 880	2.953
Oct-17	10/13/2017	2.880	2.970
Oct-17	10/14/2017	2.880	3.025
Oct-17	10/15/2017	2.880	3.025
Oct-17	10/16/2017	2.880	3.025
Oct-17	10/17/2017	2.880	2.940
Oct-17	10/18/2017	2.880	3.000
Oct-17	10/19/2017	2.880	2.890
Oct-17	10/20/2017	2 880	2.845
Oct-17	10/21/2017	2 880	2.895
Oct-17	10/22/2017	2.880	2.895
Oct-17	10/23/2017	2.880	2.895
Oct-17	10/24/2017	2.880	3.010

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	HOUSTON SHIP CHANNEL INDICES		
		HSC	HSC
Month	Date	Bid Week	GDA
Oct-17	10/25/2017	2.880	3.020
Oct-17	10/26/2017	2.880	2.975
Oct-17	10/27/2017	2.880	2.930
Oct-17	10/28/2017	2.880	2.820
Oct-17	10/29/2017	2 880	2 820
Oct-17	10/30/2017	2.880	2.820
Oct-17	10/31/2017	2.880	2.905
Nov-17	11/1/2017	2.760	2.760
Nov-17	11/2/2017	2.760	2 690
Nov-17	11/3/2017	2 760	2.750
Nov-17	11/4/2017	2 760	2.790
Nov-17	11/5/2017	2 760	2.790
Nov-17	11/6/2017	2 760	2.790
Nov-17	11/7/2017	2.760	2.940
Nov-17	11/8/2017	2.760	3.000
Nov-17	11/9/2017	2.760	3.075
Nov-17	11/10/2017	2.760	3.110
Nov-17	11/11/2017	2.760	3.070
Nov-17	11/12/2017	2.760	3.070
Nov-17	11/13/2017	2.760	3.070
Nov-17	11/14/2017	2.760	3.070
Nov-17	11/15/2017	2.760	2.985
Nov-17	11/16/2017	2.760	3 030
Nov-17	11/17/2017	2.760	2.970
Nov-17	11/18/2017	2.760	3.000
Nov-17	11/19/2017	2.760	3.000
Nov-17	11/20/2017	2.760	3 000
Nov-17	11/21/2017	2.760	2.995
Nov-17	11/22/2017	2.760	2 980
Nov-17	11/23/2017	2.760	2.890
Nov-17	11/24/2017	2.760	2.890
Nov-17	11/25/2017	2.760	2.890
Nov-17	11/26/2017	2.760	2.890
Nov-17	11/27/2017	2.760	2.890
Nov-17	11/28/2017	2.760	2 810
Nov-17	11/29/2017	2.760	2.875
Nov-17	11/30/2017	2 760	3.055
Dec-17	12/1/2017	3.000	2.900
Dec-17	12/2/2017	3.000	2.835
Dec-17	12/3/2017	3.000	2.835
Dec-17	12/4/2017	3.000	2.835
Dec-17	12/5/2017	3.000	2.860
Dec-17	12/6/2017	3.000	2.875
Dec-17	12/7/2017	3.000	2.920
Dec-17	12/8/2017	3.000	2.795
Dec-17	12/9/2017	3.000	2.715
Dec-17	12/10/2017	3.000	2.715
Dec-17	12/11/2017	3.000	2 715
Dec-17	12/12/2017	3.000	2.785
Dec-17	12/13/2017	3.000	2.765
Dec-17	12/14/2017	3.000	2.655
Dec-17	12/15/2017	3.000	2.650

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Dec-17	12/16/2017	3.000	2.605
Dec-17	12/17/2017	3.000	2.605
Dec-17	12/18/2017	3.000	2.605
Dec-17	12/19/2017	3.000	2.745
Dec-17	12/20/2017	3.000	2.710
Dec-17	12/21/2017	3.000	2.615
Dec-17	12/22/2017	3.000	2.615
Dec-17	12/23/2017	3.000	2.620
Dec-17	12/24/2017	3.000	2.620
Dec-17	12/25/2017	3 000	2.620
Dec-17	12/26/2017	3.000	2.620
Dec-17	12/27/2017	3.000	2 725
Dec-17	12/28/2017	3.000	2.750
Dec-17	12/29/2017	3.000	3.050
Dec-17	12/30/2017	3 000	3.050
Dec-17	12/31/2017	3.000	3.050
Jan-18	1/1/2018	2.660	4.400
Jan-18	1/2/2018	2 660	4.400
Jan-18	1/3/2018	2.660	7.795
Jan-18	1/4/2018	2.660	7.245
Jan-18	1/5/2018	2.660	4.230
Jan-18	1/6/2018	2.660	2.860
Jan-18	1/7/2018	2.660	2.860
Jan-18	1/8/2018	2.660	2.860
Jan-18	1/9/2018	2.660	2.855
Jan-18	1/10/2018	2.660	2.900
Jan-18	1/11/2018	2.660	3.085
Jan-18	1/12/2018	2.660	3.300
Jan-18	1/13/2018	2.660	4.085
Jan-18	1/14/2018	2.660	4.085
Jan-18	1/15/2018	2.660	4.085
Jan-18	1/16/2018	2.660	4.085
Jan-18	1/17/2018	2.660	8.430
Jan-18	1/18/2018	2.660	8.235
Jan-18	1/19/2018	2.660	3 295
Jan-18	1/20/2018	2.660	3.160
Jan-18	1/21/2018	2.660	3.160
Jan-18	1/22/2018	2 660	3.160
Jan-18	1/23/2018	2.660	3.160
Jan-18	1/24/2018	2.660	3.365
Jan-18	1/25/2018	2.660	3.615
Jan-18	1/26/2018	2.660	3.580
Jan-18	1/27/2018	2 660	3.510
Jan-18	1/28/2018	2.660	3.510
Jan-18	1/29/2018	2 660	3.510
Jan-18	1/30/2018	2.660	3.505
Jan-18	1/31/2018	2.660	3.540
Feb-18	2/1/2018	3.730	3.090
Feb-18	2/2/2018	3.730	3.050
Feb-18	2/3/2018	3 730	2 765
Feb-18	2/4/2018	3.730	2.765
Feb-18	2/5/2018	3.730	2.765

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Feb-18	2/6/2018	3.730	2.700
Feb-18	2/7/2018	3.730	2.735
Feb-18	2/8/2018	3.730	2.745
Feb-18	2/9/2018	3.730	2 680
Feb-18	2/10/2018	3 730	2.570
Feb-18	2/11/2018	3.730	2.570
Feb-18	2/12/2018	3.730	2.570
Feb-18	2/13/2018	3.730	2.560
Feb-18	2/14/2018	3.730	2.550
Feb-18	2/15/2018	3 730	2.510
Feb-18	2/16/2018	3.730	2.515
Feb-18	2/17/2018	3.730	2 490
Feb-18	2/18/2018	3.730	2 490
Feb-18	2/19/2018	3.730	2.490
Feb-18	2/20/2018	3.730	2.490
Feb-18	2/21/2018	3.730	2.625
Feb-18	2/22/2018	3.730	2.640
Feb-18	2/23/2018	3.730	2.605
Feb-18	2/24/2018	3.730	2.515
Feb-18	2/25/2018	3.730	2.515
Feb-18	2/26/2018	3.730	2.515
Feb-18	2/27/2018	3.730	2.560
Feb-18	2/28/2018	3.730	2.545
Mar-18	3/1/2018	2.610	2 550
Mar-18	3/2/2018	2.610	2.590
Mar-18	3/3/2018	2.610	2.610
Mar-18	3/4/2018	2.610	2.610
Mar-18	3/5/2018	2.610	2.610
Mar-18	3/6/2018	2.610	2.660
Mar-18	3/7/2018	2.610	2.745
Mar-18	3/8/2018	2.610	2.750
Mar-18	3/9/2018	2.610	2.720
Mar-18	3/10/2018	2.610	2.690
Mar-18	3/11/2018	2.610	2.690
Mar-18	3/12/2018	2.610	2.690
Mar-18	3/13/2018	2.610	2.830
Mar-18	3/14/2018	2.610	2.840
Mar-18	3/15/2018	2.610	2.695
Mar-18	3/16/2018	2.610	2.720
Mar-18	3/17/2018	2.610	2.670
Mar-18	3/18/2018	2.610	2.670
Mar-18	3/19/2018	2.610	2.670
Mar-18	3/20/2018	2 610	2.730
Mar-18	3/21/2018	2.610	2.725
Mar-18	3/22/2018	2.610	2.710
Mar-18	3/23/2018	2 610	2.645
Mar-18	3/24/2018	2.610	2.625
Mar-18	3/25/2018	2.610	2.625
Mar-18	3/26/2018	2.610	2.625
Mar-18	3/27/2018	2.610	2 645
Mar-18	3/28/2018	2.610	2.640
Mar-18	3/29/2018	2.610	2.640

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Mar-18	3/30/2018	2.610	2.640
Mar-18	3/31/2018	2.610	2.640
Apr-18	4/1/2018	2.770	2.850
Apr-18	4/2/2018	2.770	2.850
Apr-18	4/3/2018	2.770	2.780
Apr-18	4/4/2018	2.770	2.770
Apr-18	4/5/2018	2.770	2.830
Apr-18	4/6/2018	2 770	2 840
Apr-18	4/7/2018	2.770	2.850
Apr-18	4/8/2018	2.770	2.850
Apr-18	4/9/2018	2.770	2.850
Apr-18	4/10/2018	2.770	2.890
Apr-18	4/11/2018	2.770	2.880
Apr-18	4/12/2018	2 770	2.880
Apr-18	4/13/2018	2.770	2.750
Apr-18	4/14/2018	2.770	2.775
Apr-18	4/15/2018	2.770	2.775
Apr-18	4/16/2018	2 770	2.775
Apr-18	4/17/2018	2.770	2.850
Apr-18	4/18/2018	2.770	2.950
Apr-18	4/19/2018	2.770	2.910
Apr-18	4/20/2018	2.770	2.800
Apr-18	4/21/2018	2.770	2.750
Apr-18	4/22/2018	2.770	2.750
Apr-18	4/23/2018	2.770	2.750
Apr-18	4/24/2018	2.770	2 900
Apr-18	4/25/2018	2.770	2.875
Apr-18	4/26/2018	2.770	2.880
Apr-18	4/27/2018	2.770	2.955
Apr-18	4/28/2018	2.770	2.785
Apr-18	4/29/2018	2.770	2.785
Apr-18	4/30/2018	2.770	2.785
May-18	5/1/2018	2.910	2.680
May-18	5/2/2018	2.910	2.710
May-18	5/3/2018	2.910	2.730
May-18	5/4/2018	2 910	2 685
May-18	5/5/2018	2.910	2.680
May-18	5/6/2018	2.910	2.680
May-18	5/7/2018	2.910	2.680
May-18	5/8/2018	2 910	2 710
May-18	5/9/2018	2 910	2 715
May-18	5/10/2018	2.910	2.710
May-18	5/11/2018	2.910	2.745
May-18	5/12/2018	2.910	2.725
May-18	5/13/2018	2.910	2.725
May-18	5/14/2018	2.910	2.725
May-18	5/15/2018	2.910	2.830
May-18	5/16/2018	2.910	2.885
May-18	5/17/2018	2 910	2.820
May-18	5/18/2018	2.910	2.760
May-18	5/19/2018	2.910	2.825
May-18	5/20/2018	2 910	2.825

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
May-18	5/21/2018	2.910	2.825
May-18	5/22/2018	2.910	2.880
May-18	5/23/2018	2.910	2.925
May-18	5/24/2018	2.910	2.950
May-18	5/25/2018	2.910	3.000
May-18	5/26/2018	2.910	2.985
May-18	5/27/2018	2.910	2.985
May-18	5/28/2018	2.910	2.985
May-18	5/29/2018	2.910	2.985
May-18	5/30/2018	2.910	2.950
May-18	5/31/2018	2.910	2.915
Jun-18	6/1/2018	3 030	2.935
Jun-18	6/2/2018	3.030	3.020
Jun-18	6/3/2018	3.030	3.020
Jun-18	6/4/2018	3 030	3.020
Jun-18	6/5/2018	3.030	2.995
Jun-18	6/6/2018	3.030	2.980
Jun-18	6/7/2018	3.030	2.950
Jun-18	6/8/2018	3.030	3.035
Jun-18	6/9/2018	3.030	2.950
Jun-18	6/10/2018	3.030	2.950
Jun-18	6/11/2018	3 030	2.950
Jun-18	6/12/2018	3.030	3.000
Jun-18	6/13/2018	3.030	3.030
Jun-18	6/14/2018	3.030	2.995
Jun-18	6/15/2018	3.030	2.975
Jun-18	6/16/2018	3.030	3.015
Jun-18	6/17/2018	3.030	3.015
Jun-18	6/18/2018	3 030	3.015
Jun-18	6/19/2018	3.030	3.020
Jun-18	6/20/2018	3.030	2.965
Jun-18	6/21/2018	3.030	3.025
Jun-18	6/22/2018	3.030	3.070
Jun-18	6/23/2018	3.030	3.020
Jun-18	6/24/2018	3.030	3.020
Jun-18	6/25/2018	3.030	3.020
Jun-18	6/26/2018	3.030	2.990
Jun-18	6/27/2018	3.030	2.960
Jun-18	6/28/2018	3.030	2.990
Jun-18	6/29/2018	3.030	3.000
Jun-18	6/30/2018	3.030	3.000
Jul-18	7/1/2018	3.010	3.020
Jul-18	7/2/2018	3.010	3.020
Jul-18	7/3/2018	3.010	2.990
Jul-18	7/4/2018	3.010	2.980
Jul-18	7/5/2018	3.010	2.980
Jul-18	7/6/2018	3.010	2.910
Jul-18	7/7/2018	3.010	2.920
Jul-18	7/8/2018	3.010	2.920
Jul-18	7/9/2018	3.010	2.920
Jul-18	7/10/2018	3.010	2.920
Jul-18	7/11/2018	3 010	2.860

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Jul-18	7/12/2018	3.010	2 900
Jul-18	7/13/2018	3.010	2.895
Jul-18	7/14/2018	3.010	2.875
Jul-18	7/15/2018	3.010	2.875
Jul-18	7/16/2018	3 010	2.875
Jul-18	7/17/2018	3 010	2.880
Jul-18	7/18/2018	3.010	2.930
Jul-18	7/19/2018	3.010	2.890
Jul-18	7/20/2018	3.010	2.840
Jul-18	7/21/2018	3.010	2.890
Jul-18	7/22/2018	3.010	2.890
Jul-18	7/23/2018	3.010	2.890
Jul-18	7/24/2018	3.010	2.840
Jul-18	7/25/2018	3.010	2.850
Jul-18	7/26/2018	3.010	2.850
Jul-18	7/27/2018	3.010	2.850
Jul-18	7/28/2018	3.010	2.840
Jul-18	7/29/2018	3.010	2.840
Jul-18	7/30/2018	3.010	2.840
Jul-18	7/31/2018	3 010	2.820
Aug-18	8/1/2018	2.850	2.860
Aug-18	8/2/2018	2.850	2.850
Aug-18	8/3/2018	2.850	2.840
Aug-18	8/4/2018	2.850	2.890
Aug-18	8/5/2018	2.850	2.890
Aug-18	8/6/2018	2 850	2.890
Aug-18	8/7/2018	2.850	2.900
Aug-18	8/8/2018	2.850	2.975
Aug-18	8/9/2018	2.850	3.045
Aug-18	8/10/2018	2.850	3 050
Aug-18	8/11/2018	2.850	3.050
Aug-18	8/12/2018	2.850	3.050
Aug-18	8/13/2018	2.850	3 050
Aug-18	8/14/2018	2.850	3.030
Aug-18	8/15/2018	2.850	3.100
Aug-18	8/16/2018	2 850	3.075
Aug-18	8/17/2018	2.850	3.050
Aug-18	8/18/2018	2.850	3.060
Aug-18	8/19/2018	2.850	3.060
Aug-18	8/20/2018	2.850	3 060
Aug-18	8/21/2018	2.850	3.070
Aug-18	8/22/2018	2.850	3.110
Aug-18	8/23/2018	2.850	3.070
Aug-18	8/24/2018	2.850	3.035
Aug-18	8/25/2018	2.850	3.040
Aug-18	8/26/2018	2.850	3.040
Aug-18	8/27/2018	2.850	3.040
Aug-18	8/28/2018	2.850	3.060
Aug-18	8/29/2018	2.850	3.000
Aug-18	8/30/2018	2.850	2 980
Aug-18	8/31/2018	2 850	2.975
Sep-18	9/1/2018	2 950	3.025

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Sep-18	9/2/2018	2.950	3.025
Sep-18	9/3/2018	2.950	3.025
Sep-18	9/4/2018	2.950	3.025
Sep-18	9/5/2018	2 950	2.995
Sep-18	9/6/2018	2 950	2.945
Sep-18	9/7/2018	2 950	2.875
Sep-18	9/8/2018	2.950	2.850
Sep-18	9/9/2018	2.950	2.850
Sep-18	9/10/2018	2.950	2.850
Sep-18	9/11/2018	2.950	2 830
Sep-18	9/12/2018	2.950	2.850
Sep-18	9/13/2018	2 950	2.885
Sep-18	9/14/2018	2.950	2.860
Sep-18	9/15/2018	2.950	2.845
Sep-18	9/16/2018	2.950	2.845
Sep-18	9/17/2018	2.950	2.845
Sep-18	9/18/2018	2.950	2.980
Sep-18	9/19/2018	2.950	2.990
Sep-18	9/20/2018	2.950	3.080
Sep-18	9/21/2018	2.950	3.030
Sep-18	9/22/2018	2.950	3.085
Sep-18	9/23/2018	2.950	3.085
Sep-18	9/24/2018	2.950	3.085
Sep-18	9/25/2018	2.950	3.150
Sep-18	9/26/2018	2.950	3.200
Sep-18	9/27/2018	2.950	3.220
Sep-18	9/28/2018	2.950	3.160
Sep-18	9/29/2018	2.950	3.160
Sep-18	9/30/2018	2.950	3.160
Oct-18	10/1/2018	3.170	3.200
Oct-18	10/2/2018	3 170	3.265
Oct-18	10/3/2018	3.170	3.360
Oct-18	10/4/2018	3.170	3.500
Oct-18	10/5/2018	3.170	3.395
Oct-18	10/6/2018	3 170	3.350
Oct-18	10/7/2018	3 170	3.350
Oct-18	10/8/2018	3 170	3.350
Oct-18	10/9/2018	3.170	3.455
Oct-18	10/10/2018	3.170	3 430
Oct-18	10/11/2018	3.170	3 480
Oct-18	10/12/2018	3.170	3.400
Oct-18	10/13/2018	3.170	3.430
Oct-18	10/14/2018	3.170	3.430
Oct-18	10/15/2018	3.170	3.430
Oct-18	10/16/2018	3.170	3.590
Oct-18	10/17/2018	3.170	3.600
Oct-18	10/18/2018	3.170	3 580
Oct-18	10/19/2018	3 170	3.600
Oct-18	10/20/2018	3 170	3.570
Oct-18	10/21/2018	3.170	3.570
Oct-18	10/22/2018	3 170	3.570
Oct-18	10/23/2018	3.170	3 550

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Oct-18	10/24/2018	3.170	3.550
Oct-18	10/25/2018	3.170	3.650
Oct-18	10/26/2018	3.170	3.625
Oct-18	10/27/2018	3 170	3.550
Oct-18	10/28/2018	3.170	3.550
Oct-18	10/29/2018	3.170	3.550
Oct-18	10/30/2018	3.170	3.500
Oct-18	10/31/2018	3.170	3.550
Nov-18	11/1/2018	3.350	3.420
Nov-18	11/2/2018	3.350	3.380
Nov-18	11/3/2018	3.350	3.300
Nov-18	11/4/2018	3.350	3.300
Nov-18	11/5/2018	3.350	3.300
Nov-18	11/6/2018	3.350	3 540
Nov-18	11/7/2018	3.350	3.670
Nov-18	11/8/2018	3 350	3.690
Nov-18	11/9/2018	3.350	3 800
Nov-18	11/10/2018	3.350	3.885
Nov-18	11/11/2018	3.350	3.885
Nov-18	11/12/2018	3.350	3.885
Nov-18	11/13/2018	3.350	4.200
Nov-18	11/14/2018	3.350	4.085
Nov-18	11/15/2018	3.350	4.550
Nov-18	11/16/2018	3.350	4 650
Nov-18	11/17/2018	3.350	4 220
Nov-18	11/18/2018	3.350	4.220
Nov-18	11/19/2018	3.350	4.220
Nov-18	11/20/2018	3.350	4.600
Nov-18	11/21/2018	3.350	4.600
Nov-18	11/22/2018	3 350	4 670
Nov-18	11/23/2018	3 350	4.670
Nov-18	11/24/2018	3.350	4.670
Nov-18	11/25/2018	3.350	4.670
Nov-18	11/26/2018	3 350	4.670
Nov-18	11/27/2018	3.350	4.250
Nov-18	11/28/2018	3.350	4.320
Nov-18	11/29/2018	3.350	4.440
Nov-18	11/30/2018	3.350	4.615
Dec-18	12/1/2018	4.730	4.590
Dec-18	12/2/2018	4.730	4.590
Dec-18	12/3/2018	4.730	4.590
Dec-18	12/4/2018	4.730	4 555
Dec-18	12/5/2018	4.730	4.700
Dec-18	12/6/2018	4.730	4 650
Dec-18	12/7/2018	4.730	4.410
Dec-18	12/8/2018	4.730	4.535
Dec-18	12/9/2018	4.730	4 535
Dec-18	12/10/2018	4.730	4.535
Dec-18	12/11/2018	4.730	4 500
Dec-18	12/12/2018	4.730	4.460
Dec-18	12/13/2018	4.730	4.120
Dec-18	12/14/2018	4.730	4.160

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Dec-18	12/15/2018	4.730	3.905
Dec-18	12/16/2018	4.730	3.905
Dec-18	12/17/2018	4.730	3.905
Dec-18	12/18/2018	4.730	3.630
Dec-18	12/19/2018	4.730	3.735
Dec-18	12/20/2018	4.730	3.665
Dec-18	12/21/2018	4.730	3.750
Dec-18	12/22/2018	4.730	3.500
Dec-18	12/23/2018	4 730	3.500
Dec-18	12/24/2018	4.730	3.500
Dec-18	12/25/2018	4.730	3.500
Dec-18	12/26/2018	4 730	3.500
Dec-18	12/27/2018	4.730	2.850
Dec-18	12/28/2018	4.730	2.960
Dec-18	12/29/2018	4.730	2.960
Dec-18	12/30/2018	4.730	2.960
Dec-18	12/31/2018	4.730	2.960
Jan-19	1/1/2019	3.750	3 185
Jan-19	1/2/2019	3.750	3.185
Jan-19	1/3/2019	3.750	2.735
Jan-19	1/4/2019	3.750	2.695
Jan-19	1/5/2019	3.750	2.680
Jan-19	1/6/2019	3.750	2.680
Jan-19	1/7/2019	3.750	2.680
Jan-19	1/8/2019	3.750	2.690
Jan-19	1/9/2019	3.750	2.820
Jan-19	1/10/2019	3.750	2.820
Jan-19	1/11/2019	3 750	2.815
Jan-19	1/12/2019	3.750	2.915
Jan-19	1/13/2019	3.750	2 915
Jan-19	1/14/2019	3.750	2.915
Jan-19	1/15/2019	3.750	3.285
Jan-19	1/16/2019	3.750	3.460
Jan-19	1/17/2019	3.750	3.590
Jan-19	1/18/2019	3 750	3.530
Jan-19	1/19/2019	3.750	3.335
Jan-19	1/20/2019	3.750	3.335
Jan-19	1/21/2019	3.750	3.335
Jan-19	1/22/2019	3.750	3.335
Jan-19	1/23/2019	3 750	3.095
Jan-19	1/24/2019	3.750	3 025
Jan-19	1/25/2019	3.750	3.000
Jan-19	1/26/2019	3.750	2.945
Jan-19	1/27/2019	3 750	2.945
Jan-19	1/28/2019	3.750	2 945
Jan-19	1/29/2019	3 750	2.925
Jan-19	1/30/2019	3.750	2.880
Jan-19	1/31/2019	3.750	2.835
Feb-19	2/1/2019	3.100	2.800
Feb-19	2/2/2019	3.100	2.670
Feb-19	2/3/2019	3.100	2.670
Feb-19	2/4/2019	3 100	2.670

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	HOUSTON SHIP CHANNEL INDICES		
Month	Date	HSC Bid Week	HSC GDA
Feb-19	2/5/2019	3.100	2.720
Feb-19	2/6/2019	3.100	2.685
Feb-19	2/7/2019	3 100	2.735
Feb-19	2/8/2019	3.100	2.745
Feb-19	2/9/2019	3.100	2.675
Feb-19	2/10/2019	3.100	2.675
Feb-19	2/11/2019	3.100	2.675
Feb-19	2/12/2019	3 100	2 705
Feb-19	2/13/2019	3 100	2.585
Feb-19	2/14/2019	3.100	2.580
Feb-19	2/15/2019	3.100	2.560
Feb-19	2/16/2019	3.100	2.550
Feb-19	2/17/2019	3.100	2.550
Feb-19	2/18/2019	3.100	2.550
Feb-19	2/19/2019	3.100	2.550
Feb-19	2/20/2019	3.100	2.700
Feb-19	2/21/2019	3.100	2.695
Feb-19	2/22/2019	3.100	2.700
Feb-19	2/23/2019	3 100	2.665
Feb-19	2/24/2019	3.100	2.665
Feb-19	2/25/2019	3.100	2.665
Feb-19	2/26/2019	3.100	2 760
Feb-19	2/27/2019	3.100	2.840
Feb-19	2/28/2019	3.100	2.765
Mar-19	3/1/2019	2 740	2.850
Mar-19	3/2/2019	2.740	3.355
Mar-19	3/3/2019	2 740	3.355
Mar-19	3/4/2019	2 740	3.355
Mar-19	3/5/2019	2.740	4.365
Mar-19	3/6/2019	2.740	2 960
Mar-19	3/7/2019	2 740	2.895
Mar-19	3/8/2019	2 740	2.850
Mar-19	3/9/2019	2.740	2.825
Mar-19	3/10/2019	2.740	2 825
Mar-19	3/11/2019	2.740	2.825
Mar-19	3/12/2019	2.740	2.715
Mar-19	3/13/2019	2 740	2 710
Mar-19	3/14/2019	2.740	2.730
Mar-19	3/15/2019	2.740	2.860
Mar-19	3/16/2019	2.740	2 765
Mar-19	3/17/2019	2.740	2.765
Mar-19	3/18/2019	2.740	2.765
Mar-19	3/19/2019	2.740	2 865
Mar-19	3/20/2019	2.740	2.945
Mar-19	3/21/2019	2.740	2.870
Mar-19	3/22/2019	2.740	2.800
Mar-19	3/23/2019	2.740	2.720
Mar-19	3/24/2019	2 740	2.720
Mar-19	3/25/2019	2 740	2.720
Mar-19	3/26/2019	2.740	2.710
Mar-19	3/27/2019	2 740	2.740
Mar-19	3/28/2019	2.740	2.635

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HOUSTON SHIP CHANNEL INDICES			
Month	Date	HSC Bid Week	HSC GDA
Mar-19	3/29/2019	2.740	2.640
Mar-19	3/30/2019	2.740	2.640
Mar-19	3/31/2019	2.740	2.640

SOAH Docket No. 473-20-0259
PUC Docket No. 49916
ETI Exhibit No. 8

DOCKET NO. 49916

APPLICATION OF ENTERGY TEXAS, INC. FOR AUTHORITY TO RECONCILE FUEL AND PURCHASED POWER COSTS	§ § § §	PUBLIC UTILITY COMMISSION OF TEXAS

DIRECT TESTIMONY

OF

SCOTT M. CELINO

ON BEHALF OF

ENTERGY TEXAS, INC.

SEPTEMBER 2019

ENTERGY TEXAS, INC.
DIRECT TESTIMONY OF SCOTT M CELINO
DOCKET NO. 49916

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EXHIBITS

I. NAME AND QUALIFICATIONS

Q1. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND OCCUPATION.

A. My name is Scott M. Celino. My business address is 639 Loyola Avenue, New Orleans, Louisiana 70113. I am employed by Entergy Services, LLC ("ESL"), the service company affiliate of Entergy Texas, Inc. ("ETI" or the "Company"), as Manager in the Fuel & Special Riders Department.

Q2. ON WHOSE BEHALF ARE YOU SUBMITTING THIS DIRECT TESTIMONY?

A. I am submitting this Direct Testimony on behalf of ETI.

Q3. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL BACKGROUND.

A. I have a Bachelor of Science degree in Accounting from Louisiana State University. I have been employed by ESL for approximately 22 years and have been in my current role since April 2015. Prior to my current position, I have held various positions in the Accounting and Finance organizations including most recently as the manager of the Fuel Accounting department for eight years.

Q4. PLEASE DESCRIBE YOUR JOB RESPONSIBILITIES.

A. I am responsible for the preparation and submission of the fuel recovery clause filings and certain special riders for the Entergy Operating Companies. This

includes the preparation and filing of the Company's monthly Cost Reports with the Public Utility Commission of Texas (the "Commission"), including the calculation of the monthly over/(under)-recovery of fuel expenses. In addition, I am responsible for gathering, preparing, and analyzing fuel accounting data for ETI for use in preparing rate filings. This includes the preparation and coordination of fuel accounting-related schedules and testimony filed with the Commission.

Q5. WHAT IS THE PURPOSE OF THE TESTIMONY YOU ARE PRESENTING IN THIS PROCEEDING?

A. The purpose of my testimony and exhibits is to: (1) explain and summarize the Company's accounting procedures with respect to fuel and purchased power expense; (2) sponsor or co-sponsor the Company's fuel and purchased power expense schedules that were compiled using the accounting records of the Company including the identification as reflected in Exhibit SMC-1 of those costs eligible for recovery through the Company's fixed fuel factor in accordance with 16 TAC § 25.236(a); (3) support the Company's fuel factor under-recovery amount of $25,825,261 (including interest) for the months April 2016 through March 2019 (the "Reconciliation Period"); and (4) sponsor the related Schedule FR-21.

Q6. ARE YOU THE SPONSOR OF ANY SCHEDULES IN THIS CASE?

A. Yes. I sponsor or co-sponsor the fuel amounts taken from the books and records of the Company set forth in various schedules. These schedules are listed in the List of Sponsorship attached to the Company's application.

Q7. ARE THERE ANY EXHIBITS TO YOUR TESTIMONY?

A. Yes. My exhibits are listed in the Table of Contents to this testimony.

II. GENERAL OVERVIEW OF ACCOUNTING RECORDS

Q8. ON WHAT BASIS ARE THE ACCOUNTING RECORDS OF THE COMPANY MAINTAINED?

A. The accounting records of the Company are maintained in compliance with the Uniform System of Accounts as prescribed by the Federal Energy Regulatory Commission ("FERC") for major electric utilities, which method has also been adopted by the Commission (16 TAC § 25.72(c)). These records are maintained primarily for financial management purposes, by state, on what is generally a situs basis (*i.e.*, where the transaction occurs). Within the parameters of the Uniform System of Accounts, transactions are recorded in accordance with Generally Accepted Accounting Principles ("GAAP") as applied to an operating public utility company.