



# Cheyenne Prairie Generating Station

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## Natural Gas Procurement Plan

**Black Hills Utility Holdings, Inc., Gas Supply Services**

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## **Background**

Cheyenne Prairie Generating Station (CPGS) located near Cheyenne, Wyoming, commenced commercial operations in October 2014. There are currently two units located at the plant – a 95 MW combined cycle unit jointly owned by Black Hills Power (BHP) and Cheyenne Light Fuel and Power (CLFP), and a 37 MW simple cycle unit owned by CLFP. Both units are powered by natural gas.

Because Black Hills Power and Cheyenne Light share a similar coincident peak, weather patterns and load requirements, it is likely that both of these utilities would call on the unit at the same time. The combined need of the two utilities will allow the CC unit to operate at a capacity sufficient to achieve a low heat rate resulting in more economic energy for their customers.

Black Hills Power and Cheyenne Light have agreed to allow each party to use the full output of the CC unit if it is not needed by the other party. This agreement will benefit both Cheyenne Light and Black Hills Power in the event either party needs the full capacity of the CC unit due to maintenance outages or other circumstances that preclude its coal fired baseload generation from operating or being delivered to load.

Black Hills Utility Holdings, Inc., (BHUH) is a wholly-owned subsidiary of Black Hills Corporation (BHC). Gas Supply Services (GSS) is a department within BHUH. GSS is responsible for providing natural gas to regulated utility business units of BHC, including both CLFP and BHP, and therefore, GSS is responsible for arranging and managing the gas supply and pipeline capacity needed by the CPGS facilities. Generation Dispatch and Power Marketing is a department within Black Hills Power, and is responsible for the electric dispatch and marketing functions for CPGS.

### **Physical Supply - Pipeline**

After a thorough process of evaluating gas supply delivery options to CPGS, Southern Star Central Gas Pipeline (Southern Star) was selected to be the interstate pipeline to provide natural gas for CPGS. Southern Star built interconnecting facilities and a four mile lateral from its Rawlins-Hesston line in Colorado to an interconnection point with CLFP's CPGS Pipeline, just north of the Wyoming – Colorado state line. BHP has subscribed to 4,200 Dth per day of firm interstate pipeline capacity on Southern Star. The firm transportation contract runs through April 30, 2022. BHP also has an interruptible transportation contract in effect with Southern Star in the event that BHP's natural gas demand exceeds its firm entitlement.

The CPGS Pipeline is a roughly 10.5 mile, 12 inch diameter line that runs from just inside the Wyoming border to CPGS. It is owned by the CLFP natural gas utility. Both BHP and the CLFP electric utility are transportation customers of the CLFP natural gas utility.

A map depicting the CPGS location in conjunction with Southern Star pipeline is attached as Exhibit A. In addition, a Southern Star system map is included as Exhibit B. The interconnect that serves the CPGS Pipeline is just downstream of the Cheyenne Compressor station, near the PSCO Chalk Bluffs point noted on the Southern Star map.

### **Physical Supply – Commodity**

Natural gas provides many flexible purchase options. It is typically traded on a term, monthly, daily or intraday basis. Term supply is typically any purchase longer than one month. Volumes can be fixed or flexible on a term purchase, and prices can either be fixed or index-based. Monthly supply is a transaction for a one month period. Volumes are normally fixed at the same level for each day of the deal, and prices can either be fixed or index-based. Monthly supply is typically purchased during the final week of the month prior to the deal's start date. Daily supply is purchased on the day prior to flow. Prices can either be fixed or index-based. Intraday supply is purchased within the gas day and is usually at a fixed price. GSS, as agent, will procure supply on a seasonal,

monthly, and daily basis from reputable suppliers as needed for BHP at CPGS to generate power for its electric customers, at market-based regional pricing.

The primary receipt point on the firm transportation agreement with Southern Star is in the Rawlins Hesston pool, a Rockies pool with receipt points upstream of the CPGS interconnection which has historically enjoyed strong liquidity. Please see attached Exhibit C for the average daily throughput at the Southern Star Riner Compressor Station, upstream of the CPGS interconnection, for the past five years.

The connection with Southern Star provides CPGS with additional reliability and price diversity because Southern Star is interconnected with both Rockies and Mid-Continent (Midcon) supply. While Rockies gas has historically traded below Midcon, there are occasions when Midcon is less expensive. GSS will evaluate each purchase requirement and procure the most reliable and cost-effective supply, using regional published index prices and/or market-based fixed prices.

While there are currently no long-term gas supply purchase transactions in effect for gas supply to fuel CPGS, GSS has entered into industry-standard natural gas supply agreements with various natural gas suppliers (e.g., North American Energy Standards Board Agreement or NAESB agreements). The NAESB contains standardized language in a number of areas including transaction confirmations, credit, performance obligations,

transportation, nomination and imbalances, quality and measurement, and billing. In order to execute a NAESB with a counterparty, GSS and the counterparty will come to agreement on NAESB provisions as well as any Special Provisions and Credit requirements. GSS consults with and obtains review and approval from internal legal counsel as well as our Director, Chief Risk Officer. By having the NAESB agreements in place, GSS is able to procure gas supply from these approved suppliers, as needed by BHP or CLFP. Approved suppliers include producers such as Anadarko and BP Energy and marketers such as Mico and Tenaska Marketing Ventures. GSS evaluates suppliers on several criteria including reliability, credit worthiness and flexibility.

BHP's Generation Dispatch and Power Marketing department (GDPM), will determine when a package of gas is needed to provide fuel to CPGS, and will contact the GSS, Sr. Manager of Daily Operations to procure supply on Southern Star at an agreed-upon point from one of the suppliers with which an executed NAESB is in place. Notification may be month-ahead, day-ahead and even within the gas day, conforming with the NAESB gas scheduling standards for intraday gas nominations.

GDPM uses the following process to determine if a unit will be dispatched for the next business day:

The day-ahead marketer takes the price quote for natural gas from the selected fuel source and assigns the fuel to each generating unit, accounting for the differences in fuel

prices between units related to transportation differentials, sales tax impacts, and other factors. Using these prices, a per unit fuel cost is determined accounting for the various heat rates on the units. The result is the incremental fuel cost expected for each generating unit that burns natural gas. These incremental fuel costs by generating unit are compared with market price quotes to determine if and in which hours to burn natural gas at a specific generating unit for the following day. If natural gas is to be used the following day, the day-ahead marketer calculates the quantity of natural gas required for each generating unit. With the known natural gas quantities, specific generating units at which the natural gas is to be consumed, and the types of natural gas (imbalance, daily and forward purchases) in hand, the day-ahead marketer informs Gas Supply Services of these amounts.

If the GDPM real-time desk determines that a unit may be needed for an unscheduled run within a gas day, they contact GSS and request information on supply cost and availability.

### **Physical Supply – Storage**

Natural gas storage can provide multiple benefits including both operational flexibility and price mitigation. Gas can be injected into storage during times of low usage and then withdrawn during times of high demand. Storage withdrawals can also be used to avoid

intraday purchases which are usually at above-market prices. From a longer-term perspective, storage can be used for price mitigation because supply can be injected ratably over a period of months ahead of the withdrawal season.

At this time, storage has not been purchased for CPGS as Southern Star currently has virtually no open storage capacity. However, unlike many other pipelines, Southern Star does not currently charge daily out-of-balance fees so storage is not needed to avoid daily balancing penalties. Also, as noted earlier, the primary receipt pool on the Firm Transportation contract has historically been liquid and supply has been easy to acquire. Customers benefit from both a pipeline and a supply location that offer liquidity, reliability and operational flexibility while currently mitigating the need to procure storage services.

## **Hedging**

Generating units for the electric utility industry are generally categorized as baseload, intermediate, peaking, or super peaking. Baseload generating units generally operate seven days per week, 24 hours per day to meet the demand that is always present. Intermediate capacity “stacks” above baseload capacity and meets demand that occurs for 10-12 hours per day. Peaking capacity operates for brief periods of time to meet high



demand hours. Super peaking operates for those very few hours when loads are at their highest levels. A resource mix that consists of each of these types of capacity generally provides the most operating flexibility for utilities

Because of the intermediate and peaking nature of the CPGS load, there are currently no hedges in place. However, GSS administers and executes natural gas hedge plans in other states for regulated gas and power operations, including BHC's electric utility in Colorado. The plans include both fixed-price futures contracts and call options, which are used to hedge against a base-load portion of the forecasted gas usage, helping to stabilize gas prices for customers. If the load profile at CPGS becomes more base-load in nature, BHP will reconsider the implementation of a hedging program.

To address price risk mitigation, BHP is proactively evaluating multiple options for both short-term and long-term hedging, which include:

1. Financial hedging by using tools such as futures contracts and/or call options, similar to what is in effect for BHC's electric utility in Colorado.
2. Cost-of-service gas- Black Hills is evaluating opportunities to add owned natural gas reserves and production at appropriate price levels into its supply portfolio as a long-term, physical hedge. Long-term hedging (generally from five to 30 years) serves to protect against increasing prices and trends. Black Hills has noted that ownership of natural gas reserves and production has

proven successful in a number of states. Black Hills will continue to analyze potential ownership opportunities in 2015 and 2016.

3. Physical hedging by purchasing fixed-price packages of natural gas.