Power Hedging and Intra-company Transactions Collaborative
Docket UE-200980

Data Request Responses
January 25, 2022

Questions were copied from a December 20, 2021 email from Commission staff to PSE.

Q1: "**PSE acquires all of its gas (both PSEE and PSEG) from the AECO and Western BC Supply Basins"**

A1: PSE's power book (PSEE) has natural gas pipeline capacity that allows it to source gas supply from the Station 2 hub in northwestern British Columbia and the AECO hub in Alberta. PSE's gas book (PSEG) also has pipeline capacity that allows it to source gas supply from the Rockies region of the United States.

Q2: "Is it incorrect to characterize PSE's optimization of the capacity value of its energy supply assets as two separate trading groups (PSEG and PSEE), each working to optimize their individual systems and balance in the hour at the lowest total possible cost not correct and instead a single group (Energy Management Committee) which works to optimize PSE's combined gas and electric system (for the benefit of the entire Company) and draws on a single gas supply portfolio which takes into account both gas for power and gas LDC requirements (as embodied in the diagram below)? Confirm if this understanding is correct or explain if not."

A2: This understanding is not correct. PSE manages the energy supply assets and natural gas demand of PSEE and PSEG separately. Each entity maintains its own distinct portfolio of natural gas transportation and supply contracts to meet the respective gas-for-power demands of PSEE and the retail natural gas load of PSEG. PSE's Energy Management Committee oversees the activities of both PSEE and PSEG, but there is no co-optimization or sharing of assets between the two separate entities. PSEE and PSEG can and do transact with each other when it is mutually beneficial for both buyer and seller to do so at prevailing market prices, just as they would with any other non-PSE market participant.

The diagram presented in slide 11 of the workshop materials depicts the components of the Lacima model as applied to a power utility.

Q3: "Explain how, in practice, PSE applies the concept of; "incremental supply with flexible take provision" when evaluating whether or not to use that price instead of the market price in a particular intra-company transaction. "

A3: PSE does not apply the concept of "incremental supply with flexible take provisions" in the pricing of any intra-company transactions because such provisions are no longer included in any of PSE's (or the industry's) natural gas supply agreements. Flexible take provisions were used prior to the development of liquid daily gas markets when the market price of natural gas was derived from agreements that delivered only a fixed quantity for at least a full month at a time. A natural gas purchaser seeking quantities that varied by day would have paid a premium relative to a monthly index price in exchange for the added flexibility of a non-standard product. As the gas market

evolved to include liquid daily markets and daily index prices, flexible take provisions ceased to be necessary or relevant as daily variations in gas demand can be balanced with transactions in the daily gas market. This market evolution was already underway at the time of the Puget Power/Washington Natural Gas merger. All of PSE's intra-company natural gas transactions are now priced at market prices for standard products corresponding to the term of each transaction (daily, monthly, etc.).

Q4: "What percentage of PSE's intra-company transactions in the 2019 test year data provided which were priced at the 'cost of incremental supply with flexible take provision'?"

A4: None of PSE's intra-company transactions in the 2019 test year data were priced at cost of incremental supply with flexible take provisions.

Q5: "The Energy Trading & Risk Management (ETRM) system records both the intra-company price and volume. Does the ETRM System employ logic or some other means by which it knows to price the intra-company transaction at the higher of market or the cost of incremental supplies with flexible take provisions? …. or does that happen through the interface with the SAP accounting system? …. or does it happen at all?"

A5: The ETRM system records the price and volume of all PSEE and PSEG transactions based on deal information entered by PSE's energy traders. As described above, the price for all intra-company transactions is the market price as gas supply agreements no longer include flexible take provisions.

Q6: "What percentage of the intra-company transactions provided in the 2019 test year data provided were the result of a bilateral trade between PSEE and PSEG versus on the Intercontinental Exchange (ICE) trading platform? Would it then be accurate to say that intra-company transactions are not recorded on the ICE platform but instead the ETRM System?"

A6: PSE does not utilize the ICE platform to specifically confirm or clear intra-company natural gas transactions. Intra-company transactions are arranged bi-laterally via telephone, computer chat, or in-person communications. PSEE and PSEG traders both utilize ICE to post and view bids and offers, so the platform can serve as a means for identifying mutually beneficial intra-company transactions. In these cases, traders for the respective books would arrange and confirm such transactions outside of the ICE platform. Close communications and physical proximity of traders for the separate books facilitate these direct transactions which allow PSE to avoid fees charged by the ICE operator. All PSE natural gas and power transactions, intra-company or otherwise, are recorded in the ETRM system regardless of whether a transaction was confirmed over the ICE platform.

Q7: "If all or most of the intra-company transactions provided in the 2019 test year data provided were bilateral trades between PSEE and PSEG, do the Company's traders then only rely on ICE platform for price discovery?"

A7: PSE traders utilize a variety of tools and sources for price discovery including real-time information from ICE's Data and Analytics service, live ICE price data via the trading platform, S&P Platts Gas Daily indices, quotes from brokers, and industry publications. The actual settlement price of most intra-company transactions is based on an index price which is determined and published after-the-fact by a third party. Index prices were used for settlement of 685 out of the 689 (99.4%) intra-company transactions during the 2019 test year.

Q8: "Would it be accurate to say that PSE secures all of its gas supply (both gas and electric requirements) at the supply basins in British Columbia and the Canadian Rockies and executes all of its intra-company transactions based on the Sumas and/ or Stanfield price?"

A8: As described above, PSEE secures all of its gas supply from the northwestern British Columbia and Alberta regions of Canada while PSEG has access to the United States Rockies region in addition to the Canadian supply hubs. Intra-company transactions can be executed anywhere that both books have gas transportation capacity and supply and find it mutually beneficial to transact. The price of such transactions is the market price for the location where the transaction takes place. While the majority of intra-company transactions occur at Sumas and/or Stanfield, PSEE also regularly transacts with PSEG at Station 2 and AECO.

Q9: "**It is not clear how exposure is calculated, what levels of risk would trigger a hedging transaction, and how PSE's Lacima model measures tolerance to risk, or if a particular category of risk is given preference over others.**"

A9: The primary purpose of the Lacima model is to measure market risk. The model also aids in the measurement of asset operation risk by statistically modeling unit outage rates, and is used for reporting and measuring counterparty credit risk. Exposure in the Lacima model is calculated as the stochastically derived mean dollar value of the energy portfolio's long or short positions against load.

This output informs hedging transactions within the programmatic and actively managed hedging programs based on financial tolerance thresholds established in each strategy respectively. The mid office reports on the position of these hedging programs daily and monthly. An exceedance within the actively managed program would be triggered on the same day of the position exceedance and result in a hedging transaction. Exceedances within the programmatic hedging position are measured on a monthly basis and ratably reduced as the position rolls into the actively managed hedge program.

The calculation of asset operations risk is reflected in the Lacima model dispatch of PSE assets and as such is factored into the measurement of market risk. Market risk takes precedence over other risks such as counterparty credit risk, which is managed through credit and counterparty concentration limits.

Q10: "**How are PSEE portfolio strategies effectively mitigating risk?"**

A10: PSE's portfolio management strategies mitigate risk by taking a balanced approach to hedging and position management. Over the longer-term time horizon, the programmatic hedging strategy limits exposure to market fluctuations and ratably reduces risk within the portfolio. In the near-term, the actively managed hedging strategy more dynamically responds to changing market conditions and provides reasonable thresholds within which the traders can leverage fundamental analysis to respond to, and manage risk in the energy portfolio.

Q11: "How is the decision to execute an electric vs gas hedge made?"

A11: The decision to execute an electric vs gas-for-power hedge is informed by the commodity exposure output from Lacima. Power and gas prices are updated in Lacima at the end of each day, and Lacima

then re-dispatches generation creating a new volumetric exposure calculation by commodity. This Lacima output is produced each morning, which is the start-of-day position informing the trade desk of the volumetric exposure to both power and gas for power.

Q12: "**It is also unclear how the PSEE and PSEG co-optimization process happens, or how the hedging transaction fits in to the co-optimization process."**

A12: There is no co-optimization between the assets or natural gas demands of PSEE and PSEG. Hedging transactions by either entity are driven by independently-determined measures of the demand, supply, and market exposure of each separate entity.