

**Public Service Company of Colorado**  
**Policy For Resource Management and Cost Assignment**  
**for Short-Term Electric Energy and Renewable Energy Credit Transactions**  
Revised June 10, 2013

The following policy for resource management and cost assignment for short-term electric energy transactions shall provide guidelines for Public Service Company of Colorado (PSCo or the Company) to follow when procuring and selling short-term electric energy under the Stipulation and Agreement dated May 31, 2000, approved by the Colorado Public Utilities Commission in Docket No. 99A-557E (2000 Trading Stipulation), as amended and extended by the Settlement Agreement dated April 4, 2003 and approved by the Commission in Docket No. 02S-315EG (Rate Case Settlement Agreement), as amended and extended by the Settlement Agreement dated September 9, 2004 and approved by the Commission in Docket No. 04A-050E (Trading Investigation Stipulation), as amended and extended by the Settlement Agreement dated October 20, 2006 and approved by the Commission in Docket No. 06S-234EG (which incorporates the settlement agreement approved by the Commission in Docket No. 06A-015E) and as amended by the Company and approved by the Commission in Decision No. C09-1462 in Docket No. 09A-779E. Additionally, the Stipulation and Settlement Agreement dated January 20, 2010 and approved by the Commission in Docket No. 09A-602E (Hybrid REC Settlement), Decision No. R11-0380 in Docket No. 10A-542E and Commission Decision No. C12-0081 in Commission Docket No. 11A-510E (Hybrid REC Decision) address aspects of Renewable Energy Credit (“REC”) transactions. This policy also provides guidelines for cost assignment in connection with the purchase and sale of short-term electric energy. This policy supersedes the previous one and shall take effect when approved by the Commission and shall remain in effect unless modified by the Commission.

**Definitions**

Effective Date means the date that the contract governing the transaction was signed.

Generation Book (Gen Book) means all Gen Purchases System, all Gen Book Purchases for Resale, and all Gen Sales, all Gen REC Sales, all Gen REC Purchases, and all Gen REC Bundled Sales.

Gen Purchase System means a short-term purchase governed by this policy that the Company makes to supply Native Load. Gen Purchase System is also referred to as Short-Term Purchases for Native Load and as Economic Energy Purchases.

Gen Book Purchase for Resale means a purchase that the Company makes to supply a previously committed Gen Sale that is above system avoided costs and is deliverable.

Gen Sale means a wholesale sale that is expected to be supplied from the System Resources not needed to serve Native Load.

Gen REC Sale means the sale of REC from the Generation Book that is attributed to production from System Resources.

Gen REC Bundled Sale means the combination of a Gen REC Sale and a Gen Sale, where a like quantity of RECs and energy are linked and delivered to a customer.

Hybrid Associated Energy means energy that is purchased with the intention of linking to effect the delivery of a Hybrid REC Sale.

Hybrid REC Book means all Hybrid REC Sales.

Hybrid REC sale means the combination of a Gen REC Sale and a sale of Hybrid Associated Energy, where a like quantity of RECs and energy are linked and delivered to a customer.

Native Load means jurisdictional retail and long-term wholesale sale load obligation.

Net Forward Position means the resulting open purchase or sales volume in the Proprietary Book when all existing purchase and sales volumes are netted together.

Notional Exposure means the total calculated value of an energy position at the Effective Date of the contract. For a fixed price energy contract it is the contract price multiplied times the total MWh volume. For a derivative energy product like a fixed price for floating index swap, the calculation is the fixed price component multiplied times the total MWh volume. In this example, the notional amount is never paid or received since it settles against the difference between the fixed and floating index price.

Proprietary Book (Prop Book) means all wholesale purchase and sale transactions that are not assigned to the Generation Book, including the purchase and sale of RECs.

RECs means Renewable Energy Credits.

System Resources means power supply resources owned or long-term power purchases controlled by the Company that are used to serve Native Load.

## **I. Reliable System Operation**

### **A. PSCo Commitment to Reliability**

The Company avers that the primary goal of its energy trading operations is to ensure the safe and reliable operation of the PSCo system. Accordingly, the Company will not knowingly engage in short-term wholesale sales that would degrade or compromise the reliability of PSCo's system to serve PSCo's Colorado jurisdictional

retail and wholesale load obligations (Native Load). If it is shown that PSCo has imprudently engaged in such activity, an appropriate disallowance will be made to the recoverable energy cost within the Company's annual fuel clause filing. The regulatory test for judging the prudence of the Company's actions is whether the action taken was reasonable based upon the information that was known or should have been known by the Company at the time it took that action.

#### **B. Interruptibility of Short-Term Wholesale Sales**

The Company will curtail all short-term wholesale sales prior to interrupting any firm Native Load customers. In addition, PSCo will not interrupt any Native Load customer (firm or interruptible) in order to make a short-term wholesale sale. PSCo may engage in Generation Book short-term wholesale sales during interruptions of interruptible Native Load customers under the following conditions: (1) PSCo may continue Generation Book short-term wholesale sales that commenced prior to PSCo giving notice of interruption to interruptible Native Load customers, and (2) PSCo may elect to initiate new Generation Book short-term wholesale sales during periods in which interruptible Native Load customers have been interrupted, so long as such sales are consistent with tariff or contract terms and conditions for such interruptions and do not cause additional Native Load customers to be interrupted. In the future, if interruptible customers should be paid based upon the energy interrupted, energy payments made to interruptible customers shall be factored into the margin sharing calculation as appropriate to avoid harming retail customers.

#### **C. Operation of the Cabin Creek Pumped Storage Project**

Cabin Creek serves as a critical source of system operating reserves and provides Black Start capability to the PSCo system. Accordingly, each day PSCo shall plan to operate Cabin Creek to first serve its Native Load obligations before using this resource to serve short-term wholesale sales.

#### **D. Assignment of Reliability Costs**

If the Company's short-term wholesale sale trading activities increase the Company's Rocky Mountain Reserve Group (RMRG) daily operational reserve requirements, the additional reserve costs will be assigned to sales. The Company recognizes that circumstances within the Company's control and beyond its control may lead to situations in which short-term wholesale sales contribute to additional costs imposed by reliability organizations. These costs include, but are not limited to, the cost of energy purchased through the activation of reserves from a reserve sharing group such as the RMRG, or penalties due to Western Electricity Coordinating Council (WECC) reliability policies. Penalties due to WECC reliability policies that are due to short-term wholesale sales will be directly assigned to short-term wholesale sales.

If the loss of a generating unit that is not needed to serve Native Load initiates the activation of reserves from RMRG, the cost of the reserve activation will be assigned to short-term wholesale sales. Correspondingly, if the loss of a generating unit that is needed for Native Load initiates the activation of reserves from RMRG, the cost of the reserve activation will be assigned to Native Load.

The occurrence of such costs and penalties will be documented in PSCo's operating records and flagged for direct cost assignment to either short-term wholesale sales or Native Load in the normal course of PSCo's business.

## **II. Resource Acquisition and Sales**

### **A. Generation Book Priority**

PSCo's Generation Book shall have priority over PSCo's Proprietary Book during the evaluation of all proposed purchases, sales, displacements, REC purchase or sales, and gas hedging for trading transactions. Should a transaction not meet the needs of the Generation Book and the Proprietary Book enters into the transaction, the transaction will be assigned to the Proprietary Book. The criteria for determining whether it is appropriate to assign a transaction to the Generation Book are set forth in this section. PSCo shall retain the decremental and incremental price signals provided to the traders. If an electric purchase or sale meets the decremental/incremental price signal for inclusion in the Generation Book, but does not otherwise meet the needs of the Generation Book and is assigned to the Proprietary Book, PSCo will thoroughly document why the Generation Book did not undertake the opportunity undertaken by the Proprietary Book.

### **B. Short-Term Wholesale Sales**

Short-term wholesale sales include electric transactions, as defined in the 2000 Trading Stipulation, Docket No. 99-557E, and include transactions in the Generation Book and Proprietary Book. Short-term wholesale sales do not include sales to wholesale requirements customers. Generation Book sales are limited to a duration not to exceed two years. Proprietary Book sales are limited to a duration not to exceed five years. Concerning the two and five year limitations on durations, the start time for measuring duration is the first day of the physical transaction. The last physical delivery from a Generation Book Sale shall take place no later than 36 months after the Effective Date of the contract. The last physical delivery of a Proprietary Book Sale shall take place no later than 72 months after the Effective Date of the contract. All Generation Book and Proprietary Book sales transactions must follow the policies and procedures established in PSCo's Commodity Trading Function Credit and Performance Risk Management Policy and Commodity Risk Management and Compliance Policy.



Short-Term Wholesale Sales also include Gen REC Sales, Gen REC Bundled Sales, and Hybrid REC Sales, which are subject to the duration limits and policies cited in the above paragraph.

### **C. Purchase/Sale Criteria**

#### **1. Electric transactions of duration of one month or longer**

- Generation Book purchase and sales transactions are guided by production cost modeling techniques, which provide projections of system decremental and incremental costs. Such modeling techniques shall include all of PSCo's operating reserve obligations. The production cost model will produce projections of system costs twice per month, or more often as changing market conditions dictate. The Generation Book will only enter into purchase transactions at prices below the projected decremental cost of production and make sales at prices above the projected incremental cost of production.
- The Director, Energy Trading must approve all forward purchases, sales, and displacement transactions assigned to the Generation Book. In making such assignments, the Director will evaluate the transaction to ensure that it meets the requirements of the Generation Book.
- An Electric Hedging Committee shall meet monthly, or more often as needed, to review the forward hedging activities of the Generation Book. The Committee shall include a representative of the senior Commercial Operations management team.
- Traders shall be guided by the Director, Energy Trading and by the Electric Hedging Committee as to the level of risk to be assumed by PSCo in entering into purchase, sale, and displacement transactions. Accordingly, there shall be no obligation for the Generation Book to purchase energy that is available below the projected decremental cost of the PSCo system or to sell energy that is above the projected incremental cost of the PSCo system.

#### **2. Electric transactions of less than one month duration**

- Daily transactions through the balance-of-the-month in the Generation Book will be guided by a unit commit and economic dispatch model which will include PSCo's operating reserve obligations in its determination of Native Load requirements. In certain situations involving transactions of one week or longer, sales/purchase decisions may be guided by other production cost models rather than the unit commit and economic dispatch model. The Generation Book may only purchase when the market price is below the projected decremental cost of production. The Generation Book may only make sales when the market price is above the projected incremental cost of

the system. While these models provide buy and sell price signals, PSCo may modify these signals when the trading analyst believes that the model output is not accurately reflecting system conditions. All modifications to these price signals shall be documented, including the rationale for such modifications and documentation supporting such rationale. In addition, if PSCo traders believe that the intra-day hourly market may be more favorable to the Generation Book than pre-scheduled purchases, PSCo may choose to meet its Native Load requirements in the hourly market.

- Traders shall be guided by the Director, Energy Trading and by the Electric Hedging Committee as to the level of risk to be assumed by PSCo in entering into purchase, sale and displacement transactions. Accordingly, there shall be no obligation for the Generation Book to purchase energy that is available below the projected decremental cost of the PSCo system or to sell energy that is above the projected incremental cost of the PSCo system.
- Real-time Generation Book activities are guided by the immediate needs of Native Load customers, unit availability, and hourly market prices. PSCo shall retain the decremental and incremental hourly price signals available to the traders. If a purchase or sale meets the decremental/incremental price signal for inclusion in the Generation Book, but does not otherwise meet the needs of the Generation Book and is assigned to the Proprietary Book, PSCo will thoroughly document why the Generation Book did not undertake the opportunity undertaken by the Proprietary Book.

### **3. Electric displacement transactions**

- The Generation and Proprietary Books may enter into displacement transactions in which energy is delivered [sale transaction] to one delivery point and an equivalent quantity of energy is received [purchase transaction] at a different delivery point. Often, these transactions achieve the same result as the purchase of physical transmission between the two delivery points, without the associated cost of transmission losses and risk of transmission curtailment.
- Displacement transactions shall be clearly identified and their purpose documented on trade tickets until such time as they are replaced by electronic means of deal entry. In addition, each trade ticket shall reference the ticket numbers of the off-setting purchases or sales. Generally, the displacement will be recorded as separate transactions: purchase transaction(s) and sale transaction(s). However, these displacement transactions shall be marked in a manner that will allow them to be readily identified as being related to one another.
- The cost of a displacement transaction is defined as the difference between the purchase and sale price of the displacement transaction.

- If the displacement transaction is made to support a Short-Term Energy Purchase for Native Load, such transaction shall be recorded in PSCo's deal entry and accounting database as a cost to serve Native Load and recovered through the fuel clause. If the displacement transaction is made to support a Generation Book Purchase for Resale, then the displacement cost shall be recorded in PSCo's deal entry and accounting database as a displacement energy cost associated with the sale and shall be included in the calculation of net margin available for sharing with customers from the Generation Book.
- The displacement transactions for the Proprietary Book will be recorded as Proprietary Book purchases or Proprietary Book sales and included in the calculation of net margin available for sharing with customers from the Proprietary Book.
- Displacement transactions are subject to the priorities stated in Resource Acquisition and Sales, Section II (A) of this Policy. In addition, PSCo's Native Load shall have priority over PSCo's Generation Book sales activities when evaluating displacement transactions.

#### **4. Natural gas hedging transactions**

- Natural gas hedging transactions will be used solely to reduce the risk of the electric transactions in the Proprietary and Generation Books. The Company may enter into natural gas transactions to hedge Short-Term Purchases for Native Load, Gen Sales and Gen Book Purchases for Resale, Proprietary Book purchases, and Proprietary Book sales.
- The Generation Book may enter into natural gas transactions to hedge specific, associated forward electric transactions to support Short-Term Purchases for Native Load at prices below the projected system decremental cost, or to support Gen Book Purchases for Resale and Generation Book sales at prices above the projected system incremental cost. Such transactions will be recorded and cross-referenced in the Company's books and records with the purpose of the associated transaction identified.
- The Proprietary Book may enter into natural gas transactions to hedge Net Forward Positions. Such transactions will be recorded and cross-referenced in PSCo's accounting processes and documented in the Company's books and records.
- All natural gas transactions will be assigned to the appropriate book at the time of the transaction to ensure the hedging costs are assigned to the appropriate Book.

- Natural gas hedging transactions will be limited to the authorized instruments described in the Company's Commodity Risk Management and Compliance Policy as amended from time to time.
- The magnitude and term of natural gas hedging transactions will be consistent with the specific, associated forward electric transactions in the Generation Book and/or the Proprietary Book. PSCo cannot enter into a gas transaction that is larger, on an energy equivalent basis, than the associated electric transaction in the Generation Book or the Proprietary Book.
- In evaluating the opportunity to engage in specific gas hedging transactions, the following PSCo operations shall have priority: first, PSCo's Local Gas Distribution Company (LDC); second, Short-Term Purchases for Native Load; third, PSCo's Gen Sales and Gen Book Purchases for Resale; and fourth, PSCo's Proprietary Book.
- Upon closing of a Generation Book electric transaction, including a Short-Term Purchase for Native Load, a natural gas transaction used to hedge the electric transaction shall either be closed or assigned to another specific forward transaction within seven (7) business days. Upon alteration of the Net Forward Position of the Proprietary Book, the net forward gas position shall be adjusted within seven (7) business days to ensure that the net forward gas position does not exceed, on an energy equivalent basis, the net forward electric position.
- The Company shall ensure that natural gas transactions used to hedge electric transactions, or initially associated with forward electric transactions, are accounted for separately from natural gas transactions used to hedge the cost of generation to serve Native Load customers or to provide service to PSCo's LDC customers. In addition, the transactions shall be recorded in PSCo's cost accounting databases and thoroughly documented in PSCo's books and records.
- When the gains or losses of the natural gas hedging transaction are associated with Short-Term Purchases for Native Load, the gains or losses from the natural gas hedging transactions shall be aggregated and recovered as a purchased energy cost through the Company's fuel clause. When the gains or losses of the natural gas hedging transaction are associated with the Gen Book, including Gen Book Purchases for Resale, the gains or losses from the natural gas hedging transactions shall be aggregated with the gains or losses from the electric transactions to determine the net margin available for sharing with customers from the Generation Book. When the gains or losses of the natural gas hedging transaction are associated with Proprietary Book transactions, the gains or losses from the natural gas hedging transactions shall be aggregated with the gains or losses from the electric transactions to determine the net

margin available for sharing with customers from the Proprietary Book. Gains and/or losses resulting from natural gas hedging transactions closed separately from forward electric transactions shall be assigned to the Book for which the hedge was engaged.

- Electric transactions with associated natural gas hedging transactions cannot be transferred between the Generation Book and Proprietary Book.
- The Electric Hedging Committee, as referred to in Section II(C)(1) of this policy, shall periodically review all the natural gas hedging transactions of both the Generation Book and Proprietary Book.

#### **5. Gen Book REC transactions**

- Gen REC Purchases and Sales are guided by the compliance needs of PSCo. Gen REC Sales may be made if PSCo forecasts that such RECs are not required for compliance purposes. Gen REC Purchases may be made if PSCo forecasts such RECs are required for compliance purposes or the RECs can be purchased below a price for which RECs are being sold.
- The Director, Energy Trading must approve all Gen REC Purchases and Sales. In making such decisions, the Director will evaluate the transaction to ensure that it meets the requirements of the Generation Book. The Renewable Energy Portfolio Manager must approve all Gen REC purchases and sales based on the REC surplus or deficiency.
- Traders shall be guided by the Director, Energy Trading as to the level of risk to be assumed by PSCo in entering into REC transactions. Accordingly, there shall be no obligation for the Generation Book to purchase RECs not needed for compliance, nor to sell RECs that are not needed for compliance.
- Costs and revenues associated with the Hybrid REC Book will be documented and accounted for separately from either the Gen Book or the Prop Book.

#### **D. Role of Proprietary Book**

After the requirements of the Generation Book are met, any remaining purchase, sale, displacement, purchased REC, or gas hedging for trading opportunities may be assigned to the Proprietary Book. If an electric purchase or sale meets the decremental/incremental price signal for inclusion in the Generation Book, but does not otherwise meet the needs of the Generation Book and is assigned to the Proprietary Book, PSCo will thoroughly document why the Generation Book did not undertake the opportunity undertaken by the Proprietary Book.

All open Proprietary Book sales that are longer than two years shall be limited to a total of \$100 million of Notional Exposure for physical deliveries in years 3-5 of the contract.

#### **E. Electric transfers between Generation and Proprietary Books**

There shall be no transfer transaction from or to the Generation Book unless such transaction meet the needs of the Generation Book. Transfers between books may occur, subject to the purchase (decremental) and sale (incremental) price signals. Such transfers shall occur at prices reflective of current market conditions. At certain times and locations the electric market is illiquid. There are times in which there are few, if any, buyers and sellers. Accordingly, the method for establishing the appropriate transfer price between books is different for actively traded delivery points and delivery points that have few buyers and sellers. At all times, PSCo shall commit to use the best available market information to determine the appropriate transfer price. The methods the Company may use to determine the transfer price, in order of priority, are outlined below:

- When available, a published third party index, such as the IntercontinentalExchange (ICE) indices, shall be used to determine the market rate transfer price.
- If no published third party index is available, comparable PSCo sales or purchases shall be used to establish the market rate transfer price.
- If no comparable sales or purchase prices are available, third party quotes from power brokers or other electric trading counterparties shall be used to establish the market rate transfer price.
- If no third party quotes from power brokers or other electric trading counterparties are available, the market price shall be determined by the delivery point price relationship to a delivery point in which one of the above prices can be established. As an example, it is not uncommon to make a sale at the Wyodak delivery point, in Wyoming, during the same hour energy is transferred from the Generation Book to the Proprietary Book at the Craig delivery point in Northern Colorado. If there are no other sales being made at Craig during this hour, the trader may use the sales price at Wyodak as the basis for the transfer price at Craig.

At delivery points on the PSCo system, should none of the above pricing mechanisms be available, the transfer price of Proprietary Book purchases transferred to the Generation Book may be established by the calculated decremental cost of the PSCo system, minus \$1 per megawatt hour (MWh), as calculated by Cost Calculator. The decremental cost is defined as a like quantity of the most expensive MWhs assigned to Native Load during the transfer period, subject to the Cost Calculator business rules.



In no case shall the transfer price of Proprietary Book energy to the Generation Book be higher than the estimated avoided cost of producing the energy transferred to the Generation Book, minus \$1/MWh, as calculated after the fact by Cost Calculator. The transfer price of Generation Book energy to the Proprietary Book shall in no case be lower than the estimated incremental cost of producing the energy transferred to the Proprietary Book, plus \$1/MWh, as calculated after the fact by Cost Calculator.

Transfers of all pre-scheduled transactions between Books must meet the requirements outlined above and must be approved by the Director, Energy Trading. Transfers between Books of transactions of one month duration or longer must be approved by the Vice President, Commercial Operations and the Vice President, Risk Management.

### **III. Book Assignment**

All electric, REC, displacement and gas hedging transactions are assigned to either the Generation Book, Hybrid REC Book or Proprietary Book on the basis of the buy or sell decision made at the Effective Date of the contract. Once an assignment is made, it cannot be reassigned absent a formal transfer between Books in a manner consistent with these business rules concerning transfers between Books. If the initial assignment of a transaction was in error, the transaction may be reassigned with management approval and such correction shall be documented. It is expected that such assignment errors will be rare.

### **IV. Transmission Costs**

As with energy transactions, the Generation Book is given the first opportunity to make transmission purchases that improve its ability to make economic purchases and sales. Should a transmission purchase not meet the needs of the Generation Book, the transmission path may be assigned to the Proprietary Book. For Proprietary Book transmission purchases of one week or longer, documentation will be maintained to explain why such transmission was not needed by or assigned to the Generation Book. A single transmission purchase may be split into two separate purchases, one for the Generation Book and one for the Proprietary Book, if the Generation Book does not need all of the transmission capacity offered. Each transmission purchase must be assigned to a book at the time the transmission is purchased. Generation Book transmission purchases are further segregated into purchases for Gen Purchase System and Gen Book Purchase for Resale. The fixed costs of each transmission purchase are initially assigned to a specific book in accordance with the above rules.

For transmission purchases of one month or longer, documentation will be retained to support the decision to assign the transmission purchase to a certain Book. At a minimum, the documentation will include the following:

- Reference to a production cost model incremental/decremental cost report that contains projected Generation Book costs for the term of the transmission purchase.

- A written description of any other factors that entered into the decision to assign the transmission to a respective Book.

There are periods of time in which each book may temporarily have unused transmission. In the event that a book has transmission that it is temporarily unable to use, the other book may use the transmission. For the purposes of this cost transfer practice, the Gen Purchase System and Gen Book Purchase for Resale are considered to be separate books. When such use occurs, the other book will be assigned (1) all variable costs (including ancillary costs and losses) associated with the transmission path during the usage, and (2) a pro-rata portion of the fixed costs of the transmission path. The share of the fixed costs will be calculated by the following formula:

$$(\text{Total Fixed Transmission Costs} / \text{Number of MWs}) / \text{Reservation Hours} = \text{Fixed Cost per MWh of Use}$$
$$\text{Fixed Cost transferred} = (\text{Fixed Cost per MWh of Use})(\text{Number of MWs Used})$$

#### **V. Commitment to Documentation**

The prudence of resource decisions is based upon whether the action taken was reasonable based upon the information that was known or should have been known by the Company at the time the decision was made. PSCo shall retain information needed to verify compliance with this Policy for a period of three years. Such information shall include:

1. Production cost and unit commit/economic dispatch model information:
  - Monthly, intra-month, daily, intra-day and hourly inc/dec price signals including any trading analyst updates thereto
  - The model cases used to develop pre-scheduled price signals
  - Output from the models used to develop price signals
  - Spreadsheets or other tools used to change model output to produce a more accurate set of price signals
  - Documentation describing subjective alterations to the model output, based upon analyst experience and judgment and associated rationale
  - REC compliance position reports showing a forecasted surplus or deficiency of RECs needed for compliance purposes as part of its Renewable Energy Standard Compliance Plans.
2. Trade Tickets (until such time as they are replaced by electronic means of deal entry).

3. Changes to Cost Calculator
4. Electric Hedging Committee Minutes
5. Transmission fixed-cost allocations
6. Unit start-ups for wholesale sales
7. Changes in reserve requirements
8. Pumping records for Cabin Creek
9. A list of the minimum run times on generation units dispatched by the Company

## **VI. Cost Calculator**

The Cost Calculator estimates the incremental costs associated with the increase in actual load in a given hour resulting from short-term wholesale Gen Sales and Gen REC Bundled Sales by assigning the most expensive dispatchable resource to such sales. After assignments are made to such sales, the residual production costs are assigned to Native Load. Depending upon the applicable average system heat rate curve during the hour for which the sale is made, the average per unit production cost assigned to Native Load may be less than, greater than, or equal to the average per unit production cost assigned to sales for that hour. On an hourly basis, the Cost Calculator estimates Generation Book sales costs, which include Gen Sales and Gen REC Bundled Sales based upon the following set of business rules. For the purposes of this cost assignment, the electric energy component of a Gen REC Bundled Sale is treated the same as a Gen Sale.

### **A. Net position determination**

The net sales position is transferred to the Cost Calculator. The net sales position is determined by subtracting all pre-scheduled Generation Book Purchases for Resale from Generation Book sales. A prescheduled Purchase for Resale is a purchase made to hedge or supply a previously-made Generation Book sale or a purchase made for displacement purposes (as described above). All Generation Book purchases other than Gen Book Purchases for Resale are considered to be purchases for Native Load.

### **B. Fuel Costs**

The inputs for the Cost Calculator reflect incremental fuel costs. For gas units, the incremental costs are defined as the estimated daily spot gas commodity price plus the costs to move the commodity to the plants. The commodity cost inputs for coal units are defined as spot coal prices or, where applicable, contract coal prices for units

where executed contracts fully satisfy fuel planning and inventory limits. The coal prices shall be updated at least monthly and will be a delivered price that includes costs to move the commodity to the plants. The coal commodity and transportation costs may reflect potential liquidated damages. Oil prices shall be based on replacement costs and updated when used.

### **C. Heat Rate Coefficients**

The heat rate coefficients used in the Cost Calculator shall be consistent with coefficients used in the Energy Management System (EMS) to dispatch PSCo's actual generating system and consistent with coefficients used in the production and unit commit/economic dispatch models. These heat rate coefficients shall be updated annually or more frequently as necessary due to changes in the operating parameters of plant equipment. Changes in heat rate coefficients shall be recorded and retained. PSCo shall develop and use a centralized database that warehouses the inputs into Cost Calculator, production cost models, and unit commit/economic dispatch models, including heat rate coefficients.

### **D. System Penalty Factors**

PSCo uses system penalty factors to optimize the regional dispatch of its generation facilities. Cost Calculator shall include such system penalty factors to assign incremental costs to sales. System penalty factors shall be updated whenever the Company upgrades or adds new transmission facilities of 230 kV or higher voltage or more frequently as necessary due to material changes in system characteristics and operations.

### **E. Dispatchable Resources**

PSCo's Cost Calculator allows all dispatchable resources to be available for cost assignment to sales. Dispatchable resources are defined as those generating units or long-term purchases whose output can be raised or lowered intra-day to respond to changes in loads. If a dispatchable resource is started to provide energy for Native Load, only the cost of output above the resource's operational or contractual minimum load is available to be assigned to short-term wholesale sales.

### **F. Intraday Purchases (Not Prescheduled)**

All Hourly Gen Purchases are included in the Cost Calculator and may be assigned to sales. The Cost Calculator assigns to the net sales made in each hour the highest incremental costs of dispatchable resources which are owned by PSCo, controlled by PSCo through a power purchase arrangement, or acquired through the spot market. As an example, if an hourly purchase, including transmission and displacement costs, is **higher** than the incremental cost of a PSCo dispatchable resource, the cost of such purchase is allocated to short-term wholesale sales. If an hourly purchase, including

transmission and displacement costs, is **lower** than the incremental cost of a PSCo dispatchable resource, the cost of the higher priced dispatchable resource would be assigned to the sale and the hourly purchase would pass through the fuel clause.

#### **G. Start-up Costs**

If a unit is started to support short-term sales, all the start-up costs associated with that unit shall be assigned to short-term sales for the first hour of the unit's operation. If a unit is started to meet Native Load requirements, including Native Load reliability obligations, the unit start-up costs are not charged to the short-term sales. The real-time trader on duty during the start up of the unit is responsible for determining whether a unit is started for sales, rather than started to serve Native Load requirements or to meet reliability obligations [commitment for Native Load, voltage support, system security, unit testing, etc.]. The number of total start-ups, start-ups for sales, and costs associated with each start-up shall be documented.

#### **H. Unit Minimums and Contract Minimums**

All of PSCo's generating units have minimum levels of operation, and all of the purchased power agreements have minimum scheduling requirements. If a generation resource is started specifically to make a sale or to meet reserve requirements because of a sale, then the cost of the entire operating range of the resource shall be available for inclusion in the costing of the sales. If a generation resource is started for Native Load, then only the output above these minimum levels is used in the cost assignment to sales.

#### **I. Unit Minimum Run Times**

Several of PSCo's generating units have minimum run time requirements in place to support reliable unit operation. Such generating units will not be started for sales unless the scheduled and/or contracted duration of the sale is equal or greater than the minimum run time requirement. Should such sale be curtailed prior to the completion of the generating unit's minimum run time, any uneconomic costs associated with the remaining unit run time will be assigned to the sale. Uneconomic costs are defined as the difference in cost between the cost of energy produced by the unit started for the sale and the cost of the energy displaced by the output of such unit, plus any other additional expenses created by the generating unit started for the sale.

#### **J. Variable O&M and Tolling Costs**

Variable O&M and tolling costs are assigned to each of the generating units, and when applicable under contract, such costs shall be assigned to purchased power resources. These costs shall be included in the Cost Calculator and shall be included in the

incremental costs used to determine cost assignment to sales. These costs shall be updated annually or more frequently as necessary.

#### **K. Cabin Creek Pumped Storage Costs**

The cost of pumped storage energy shall be deemed to be the hourly cost of the highest dispatchable resource cost available during the hours of the previous pumping cycle after the highest dispatchable resource cost has been assigned to short-term wholesale sales for such hours in the Cost Calculator. The hour-by-hour energy for pumping and cost assignment shall be documented.

#### **L. Transmission Costs**

The costs of fixed, variable (ancillary and losses) and displacement costs shall be included in Cost Calculator.

#### **M. REC Costs**

The costs of Generation Book RECs associated with Gen Book REC Sales, Gen Book Bundled Sales, and Gen Book Hybrid Sales shall be zero if the REC was attributed to System Resources. If the REC is purchased for the Gen Book, the purchased price shall apply.

### **VII. Risk Management**

The Risk Management department shall monitor compliance with the Company's Commodity Risk Management and Compliance Policy. All violations will be reported to management. Documentation of violations will be maintained for a period of time consistent with section V of this policy.

### **VIII. The Energy Exchange Agreement between Public Service and PacifiCorp**

As approved by the Commission in Docket No. 06A-015E, all power purchases made under the Energy Exchange Agreement between PSCo and PacifiCorp are exempt from this Policy.

### **IX. Exceptions**

From time to time, there may be exceptions to the business rules defined above. Should an exception be identified in which a deviation from the above rules provides a benefit to PSCo customers, PSCo may engage in a transaction that does not fit within the guidelines described in this document. Such exceptions must be documented and approved by the Vice President, Commercial Operations. Any exceptions will be reported to Staff of the Colorado Public Utilities Commission on a monthly basis.