1800 Larimer
Denver, CO 80202

December 15, 2016

VIA ELECTRONIC FILING

The Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Re: Public Service Company of Colorado
Xcel Energy Operating Companies Open Access Transmission Tariff
Compliance revisions to Schedules 4 (Energy Imbalance) and 9 (Generator Imbalance)
Docket No. ER16-2514-_____

Dear Secretary Bose:

Pursuant to the Federal Energy Regulatory Commission ("Commission" or "FERC") Order issued in this docket on November 30, 2016,[1] Xcel Energy Services Inc. ("XES"), on behalf of Public Service Company of Colorado ("PSCo")[2] hereby submits this compliance filing to reflect changes to Schedules 4 and 9 of the Xcel Energy Operating Companies FERC Electric Tariff, Second Revised Volume No. 1 ("Xcel Energy OATT").[3] Revised Schedules 4 and 9 are included with this filing in both clean and marked formats, with an effective date of January 1, 2017, the effective date established by the Commission in the Order.

I. DESCRIPTION OF COMPLIANCE RELATED TARIFF REVISIONS

In the Order, the Commission accepted PSCo's proposed tariff changes to Schedules 4 and 9, subject to PSCo modifying the tariff to achieve the following conditions: 1) an effective

[1] *Pub. Serv. Co. of Colorado*, 157 FERC ¶ 61,157 (2016) ("Order").

[2] XES is the service company subsidiary of Xcel Energy Inc., the holding company parent of PSCo and the other Xcel Energy Operating Companies, namely, Northern States Power Company, a Minnesota corporation; Northern States Power Company, a Wisconsin corporation, and Southwestern Public Service Company. As such, XES makes filings with, and appears in proceedings before, the Commission on behalf of the Xcel Energy Operating Companies.

[3] PSCo has been designated as the Xcel Energy operating company responsible for submitting Joint OATT changes pursuant to the Commission's eTariff rules.

date to January 1, 2017; and 2) PSCo's voluntary commitment to remove the non-apportionment provisions.[4] In this compliance filing, PSCo submits these directed changes.

To remove the non-apportionment provisions, a different percentage is applied to each tier of a single deviation so that 0% is applied to the portion of the deviation in the first tier, 10% is applied to the portion of the deviation in the second tier, and 25% is applied to the portion of the deviation in the third tier. To determine the Penalty Charge, the percentages are multiplied by the quantity in the respective tier, which is then multiplied by the absolute value of the rate.

II. CONTENTS OF FILING

In addition to this transmittal letter, this filing includes the following:

- Exhibit I – the revised Schedule 4 and Schedule 9, in clean format; and
- Exhibit II – the revised Schedule 4 and Schedule 9 in marked format, marked against a clean version of the conditionally accepted tariff language.

III. CONCLUSION

PSCo respectfully requests the Commission accept this compliance filing effective January 1, 2017, as directed by the Order. PSCo appreciates the Commission's prompt attention to this matter. Please direct any questions regarding this filing to the undersigned.

Respectfully submitted,

/s/ *Liam D. Noailles*
Liam D. Noailles
Manager, Federal Regulatory Affairs
Xcel Energy Services Inc.
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Denver, CO 80202
Telephone: (303) 571-2794
Email: Liam.D.Noailles@xcelenergy.com

[4] *See* Order at P. 36 and P.28

CERTIFICATE OF SERVICE

I, Tracee J. Holte, hereby certify that I have this day served a notice of the enclosed document filing, electronically, on the Colorado Public Utilities Commission and each party designated on the official service list compiled by the Secretary in this proceeding.

Dated at Minneapolis, Minnesota this 15st day of December 2016.

/s/ *Tracee J. Holte*
Tracee J. Holte
Xcel Energy/Responsible by Nature
Transmission Business Analyst
414 Nicollet Mall, MP08
Minneapolis, MN 55401
(612) 330-6206
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EXHIBIT 1

CLEAN TARIFF PAGES

Proposed Effective Date: 1/1/2017

Approved Effective Date:

SCHEDULE 4

Energy Imbalance Service

Availability: Available on the PSCo system. Schedule 4 Service on the NSP and SPS systems shall be available from the Midcontinent ISO and SPP, respectively.

Energy Imbalance Service is provided when a difference occurs between the scheduled and the actual delivery of energy to a load located within a Control Area over a single hour.

(a) In the case of service under Parts II or III of this Tariff, the Transmission Provider must offer this service when the transmission service is used to serve load within its Control Area. The Transmission Customer must either purchase this service from the Transmission Provider or make alternative comparable arrangements, which may include use of non-generation resources capable of providing this service, to satisfy its Energy Imbalance Service obligation. To the extent the Control Area operator performs this service for the Transmission Provider, charges to the Transmission Customer are to reflect only a pass-through of the costs charged to the Transmission Provider by that Control Area operator. The Transmission Provider may charge a Transmission Customer a penalty for either hourly energy imbalances under this Schedule or a penalty for hourly generator imbalances under Schedule 9 for imbalances occurring during the same hour, but not both unless the imbalances aggravate rather than offset each other.

(b) In the case of service under Part IV of this Tariff, the Balancing Authority Operator must offer this service to the Ancillary Service Customer (ASC). The ASC must either purchase this service from the Balancing Authority Operator or make alternative comparable arrangements, which may include use of non-generation resources capable of providing this service, to satisfy the ASC's Energy Imbalance Service obligation. The Balancing Authority Operator may charge an Ancillary Service Customer a penalty for either hourly energy imbalances under this Schedule or a penalty for hourly generator imbalances under Schedule 9 for imbalances occurring during the same hour, but not both unless the imbalances aggravate rather than offset each other.

(c) PSCo is both the Transmission Provider and Balancing Authority (Control Area) Operator for purposes of this Schedule 4.

The Imbalance Charge is calculated for each tariff service purchased by the Transmission Customer or ASC each hour as follows, where an imbalance charge greater than zero represents amounts due to the Transmission Provider from the Transmission Customer or ASC, and an imbalance charge less than zero represents amounts due to the Transmission Customer or ASC from the Transmission Provider, with the resulting hourly charges netted on a monthly basis and settled financially:

Imbalance Charge = Energy Charge + Penalty Charge

Energy Charge = Qty x Rate

Penalty Charge = │Rate│ x (10% x T2Qty + 25% x T3Qty)

Where:

Qty = Imbalance quantity, calculated as Actual Deliveries (the sum of the Transmission Customer's or ASC's measured load, grossed up for real power losses, rounded to the nearest MWh) minus Scheduled Energy (the sum of the Transmission Customer's or ASC's scheduled deliveries to its load, including schedules for real power losses if the Transmission Customer or ASC provides real power losses in kind or an allowance for real power losses if the Transmission Customer or ASC has elected to financially settle real power losses with the Transmission Provider, rounded to the nearest MWh).

T1Qty = Imbalance quantity for the first penalty tier (zero percent), calculated as the portion of the absolute value of Qty that is less than or equal to 2 MW or 1.5% of Scheduled Energy, whichever is greater.

T2Qty = Imbalance quantity for the second penalty tier (10 percent), calculated as the portion of the absolute value of Qty that is greater than T1Qty and less than T3Qty.

T3Qty = Imbalance quantity for the third penalty tier (25 percent), calculated as the portion of the absolute value of Qty that is greater than 10 MW or 7.5% of Scheduled Energy, whichever is greater.

Rate = Energy rate. For purchases of energy from the Transmission Provider (Scheduled Energy < Actual Deliveries), incremental cost applies; for sales of energy to the Transmission Provider (Scheduled Energy > Actual Deliveries), decremental cost applies. Incremental cost and decremental cost are defined below.

│Rate│ = Absolute value of Rate

Components of Incremental/Decremental Cost

For purposes of this Schedule, incremental and decremental cost shall equal Transmission Provider's actual average hourly cost of the last 10 MW dispatched for any purpose; e.g., to supply the Transmission Provider's Native Load Customers, correct imbalances, or make off-system sales, based on the replacement cost of fuel, unit heat rates, start-up costs (including any commitment and redispatch costs), incremental operation and maintenance costs, and purchased and interchange power costs and taxes, as applicable. The components of such cost include:

Fuel Costs

Incremental fuel costs are calculated using the following criteria. For natural gas generation units, the incremental costs are the estimated daily spot gas commodity price plus the transportation costs to move the commodity to the plants. The inputs for coal fired units are

defined as monthly spot coal prices for units that have the ability to take delivery of spot coal, and contract coal prices for plants that have full requirements coal contracts. Oil prices shall be updated when used.

Heat Rate Coefficients

Heat rate coefficients used in determining incremental cost will be consistent with coefficients used in the PSCo 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 are updated as necessary to reflect changes in the operating parameters of plant equipment.

Start up Costs

If a generating unit is started to support short term off-system sales, all the start up costs associated with that unit will be assigned to incremental cost for the first hour of the unit's operation.

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 an off-system sale or to meet reserve requirements because of such a sale, then the cost of the entire operating range of the resource will be included in incremental cost. If a generation resource is started for Native Load, then only the output above the minimum level is included in incremental cost.

Unit Minimum Run Times

Certain PSCo generating units have minimum run time requirements in place to support reliable unit operation. Such generating units will not be started for off-system sales unless the scheduled and/or contracted duration of the sale is equal to or greater than the minimum run time requirement. Should such off-system 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 incremental cost. 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.

Dispatchable Resources

All dispatchable resources are available for cost assignment to off-system 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 incremental cost.

Variable O&M and Tolling Costs

Variable operation and maintenance (O&M) and tolling costs are assigned to each of the generating units, and when applicable under contract, such costs will be assigned to purchased power resources. These costs will be included in incremental cost.

Intraday Purchases (Not Prescheduled)

All hourly power purchases may be assigned to incremental cost. If an hourly purchase, including all transmission costs, is higher than the incremental cost of a PSCo dispatchable resource, the cost of such purchase will be allocated to incremental cost. If an hourly purchase, including all transmission costs, is lower than the incremental cost of a PSCo dispatchable resource, the cost of the higher priced dispatchable resource will be assigned to incremental cost.

Pumped Storage Costs

The cost of pumped storage energy will 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 off-system sales for such hours. The hour-by-hour energy for pumping and cost assignment will be documented.

Methodology for Calculating Incremental and Decremental Cost

PSCo uses a computer program (Cost Calculator) to assign costs to serve non-native short term wholesale off-system sales. The program determines the cost to serve short-term off-system sales, including fuel associated with generation and applicable economic purchase transaction costs. The general principle is to assign the most expensive resources to short-term off-system sales first, allowing the less expensive resources to be assigned to PSCo's native load. For each hour, the program stacks the resources that supplied energy during the hour based on their costs in one MW increments. After all costs have been assigned and stacked, the simple average will be calculated for the last 10 MWs to determine PSCo's actual average hourly cost of the last 10 MW dispatched for any purpose.

SCHEDULE 9

Generator Imbalance Service

Availability: Available on the PSCo system. Schedule 9 Service on the NSP and SPS systems shall be available from the Midcontinent ISO and SPP, respectively.

Generator Imbalance Service is provided when a difference occurs between the output of a generator located in the Transmission Provider's Control Area and a delivery schedule from that generator to (1) another Control Area or (2) a load within the Transmission Provider's Control Area over a single hour.

(a) In the case of service under Parts II or III of this Tariff, the Transmission Provider must offer this service, to the extent it is physically feasible to do so from its resources or from resources available to it, when Transmission Service is used to deliver energy from a generator located within its Control Area. The Transmission Customer must either purchase this service from the Transmission Provider or make alternative comparable arrangements, which may include use of non-generation resources capable of providing this service, to satisfy its Generator Imbalance Service obligation. To the extent the Control Area operator performs this service for the Transmission Provider, charges to the Transmission Customer are to reflect only a pass-through of the costs charged to the Transmission Provider by that Control Area Operator. The Transmission Provider may charge a Transmission Customer a penalty for either hourly generator imbalances under this Schedule or a penalty for hourly energy imbalances under Schedule 4 for imbalances occurring during the same hour, but not both unless the imbalances aggravate rather than offset each other.

(b) In the case of service under Part IV of this Tariff, the Balancing Authority Operator must offer this service to the Ancillary Service Customer (ASC). The Ancillary Service Customer must either purchase this service from the Balancing Authority Operator or make alternative comparable arrangements, which may include use of non-generation resources capable of providing this service, to satisfy its Generator Imbalance Service obligation. The Balancing Authority Operator may charge an Ancillary Service Customer a penalty for either hourly generator imbalances under this Schedule or a penalty for hourly energy imbalances under Schedule 4 for imbalances occurring during the same hour, but not both unless the imbalances aggravate rather than offset each other.

(c) PSCo is both the Transmission Provider and the Balancing Authority (Control Area) Operator for purposes of this Schedule 9.

The Transmission Provider shall establish charges for generator imbalance based on the deviation bands as follows:

The Imbalance Charge is calculated on a generator by generator basis for each tariff service purchased by the Transmission Customer or ASC each hour as follows, where an imbalance charge greater than zero represents amounts due to the Transmission Provider from the Transmission Customer or ASC, and an imbalance charge less than zero represents amounts due to the Transmission Customer or ASC from the Transmission Provider, with the resulting hourly charges netted on a monthly basis and settled financially:

Imbalance Charge = Energy Charge + Penalty Charge

Energy Charge = Qty x Rate

Penalty Charge = $|\text{Rate}|$ x (10% x T2Qty + 25% x T3Qty)

Where:

Qty = Imbalance quantity, calculated as Scheduled Energy (the sum of the Transmission Customer's or ASC's delivery schedules from generator for which generator imbalance is being calculated, rounded to the nearest MWh) minus Actual Generation (the actual output of the generator for which generator imbalance is being calculated, rounded to the nearest MWh).

T1Qty = Imbalance quantity for the first penalty tier (zero percent), calculated as the portion of the absolute value of Qty that is less than or equal to 2 MW or 1.5% of Scheduled Energy, whichever is greater.

T2Qty = Imbalance quantity for the second penalty tier (10 percent), calculated as the portion of the absolute value of Qty that is greater than T1Qty and less than T3Qty.

T3Qty = Imbalance quantity for the third penalty tier (25 percent), calculated as the portion of the absolute value of Qty that is greater than 10 MW or 7.5% of Scheduled Energy, whichever is greater.

Rate = Energy rate. For purchases of energy from the Transmission Provider (Scheduled Energy > Actual Generation), incremental cost applies; for sales of energy to the Transmission Provider (Scheduled Energy < Actual Generation), decremental cost applies. Incremental cost and decremental cost are defined below.

$|\text{Rate}|$ = Absolute value of Rate

An intermittent resource will be exempt from the 25% penalty percentage and will pay the 10% penalty percentage for all deviations greater than the larger of 1.5 percent or 2 MW, whichever is greater. An intermittent resource, for the limited purpose of this Schedule 9 is an electric generator that is not dispatchable and cannot store its fuel source and therefore cannot respond to changes in system demand or respond to transmission security constraints.

Notwithstanding the foregoing, deviations from scheduled transactions in order to respond to directives by the Transmission Provider, a balancing authority, or a reliability coordinator shall not be subject to the deviation bands identified above and, instead, shall be settled financially,

at the end of the month, at 100 percent of incremental and decremental cost. Such directives may include instructions to correct frequency decay, respond to a reserve sharing event, or change output to relieve congestion.

Components of Incremental/Decremental Cost

For purposes of this Schedule, incremental and decremental cost shall equal Transmission Provider's actual average hourly cost of the last 10 MW dispatched for any purpose, e.g., to supply the Transmission Provider's Native Load Customers, correct imbalances, or make off-system sales, based on the replacement cost of fuel, unit heat rates, start-up costs (including any commitment and redispatch costs), incremental operation and maintenance costs, and purchased and interchange power costs and taxes, as applicable. The components of such cost include:

Fuel Costs

Incremental fuel costs are calculated using the following criteria. For natural gas generation units, the incremental costs are the estimated daily spot gas commodity price plus the transportation costs to move the commodity to the plants. The inputs for coal fired units are defined as monthly spot coal prices for units that have the ability to take delivery of spot coal, and contract coal prices for plants that have full requirements coal contracts. Oil prices shall be updated when used.

Heat Rate Coefficients

Heat rate coefficients used in determining incremental cost will be consistent with coefficients used in the PSCo 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 are updated as necessary to reflect changes in the operating parameters of plant equipment.

Start up Costs

If a generating unit is started to support short term off-system sales, all the start up costs associated with that unit will be assigned to incremental cost for the first hour of the unit's operation.

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 an off-system sale or to meet reserve requirements because of such a sale, then the cost of the entire operating range of the resource will be included in incremental cost. If a generation resource is started for Native Load, then only the output above the minimum level is included in incremental cost.

Unit Minimum Run Times

Certain PSCo generating units have minimum run time requirements in place to support reliable unit operation. Such generating units will not be started for off-system sales unless the scheduled and/or contracted duration of the sale is equal to or greater than the minimum run time requirement. Should such off-system 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 incremental cost. 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.

Dispatchable Resources

All dispatchable resources are available for cost assignment to off-system 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 incremental cost.

Variable O&M and Tolling Costs

Variable operation and maintenance (O&M) and tolling costs are assigned to each of the generating units, and when applicable under contract, such costs will be assigned to purchased power resources. These costs will be included in incremental cost.

Intraday Purchases (Not Prescheduled)

All hourly power purchases may be assigned to incremental cost. If an hourly purchase, including all transmission costs, is higher than the incremental cost of a PSCo dispatchable resource, the cost of such purchase will be allocated to incremental cost. If an hourly purchase, including all transmission costs, is lower than the incremental cost of a PSCo dispatchable resource, the cost of the higher priced dispatchable resource will be assigned to incremental cost.

Pumped Storage Costs

The cost of pumped storage energy will 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 off-system sales for such hours. The hour-by-hour energy for pumping and cost assignment will be documented.

Methodology for Calculating Incremental and Decremental Cost

PSCo uses a computer program (Cost Calculator) to assign costs to serve non-native short term wholesale off-system sales. The program determines the cost to serve short-term off-system sales, including fuel associated with generation and applicable economic purchase transaction costs. The general principle is to assign the most expensive resources to short-term off-system sales first, allowing the less expensive resources to be assigned to PSCo's native load. For each hour, the program stacks the resources that supplied energy during the hour based on

their costs in one MW increments. After all costs have been assigned and stacked, the simple average will be calculated for the last 10 MWs to determine PSCo's actual average hourly cost of the last 10 MW dispatched for any purpose.

EXHIBIT 2

MARKED TARIFF PAGES

SCHEDULE 4

Energy Imbalance Service

Availability: Available on the PSCo system. Schedule 4 Service on the NSP and SPS systems shall be available from the Midcontinent ISO and SPP, respectively.

Energy Imbalance Service is provided when a difference occurs between the scheduled and the actual delivery of energy to a load located within a Control Area over a single hour.

(a) In the case of service under Parts II or III of this Tariff, the Transmission Provider must offer this service when the transmission service is used to serve load within its Control Area. The Transmission Customer must either purchase this service from the Transmission Provider or make alternative comparable arrangements, which may include use of non-generation resources capable of providing this service, to satisfy its Energy Imbalance Service obligation. To the extent the Control Area operator performs this service for the Transmission Provider, charges to the Transmission Customer are to reflect only a pass-through of the costs charged to the Transmission Provider by that Control Area operator. The Transmission Provider may charge a Transmission Customer a penalty for either hourly energy imbalances under this Schedule or a penalty for hourly generator imbalances under Schedule 9 for imbalances occurring during the same hour, but not both unless the imbalances aggravate rather than offset each other.

(b) In the case of service under Part IV of this Tariff, the Balancing Authority Operator must offer this service to the Ancillary Service Customer (ASC). The ASC must either purchase this service from the Balancing Authority Operator or make alternative comparable arrangements, which may include use of non-generation resources capable of providing this service, to satisfy the ASC's Energy Imbalance Service obligation. The Balancing Authority Operator may charge an Ancillary Service Customer a penalty for either hourly energy imbalances under this Schedule or a penalty for hourly generator imbalances under Schedule 9 for imbalances occurring during the same hour, but not both unless the imbalances aggravate rather than offset each other.

(c) PSCo is both the Transmission Provider and Balancing Authority (Control Area) Operator for purposes of this Schedule 4.

The Imbalance Charge is calculated for each tariff service purchased by the Transmission Customer or ASC each hour as follows, where an imbalance charge greater than zero represents amounts due to the Transmission Provider from the Transmission Customer or ASC, and an imbalance charge less than zero represents amounts due to the Transmission Customer or ASC from the Transmission Provider, with the resulting hourly charges netted on a monthly basis and settled financially:

Imbalance Charge = Energy Charge + Penalty Charge

Energy Charge = Qty x Rate

Penalty Charge = | ~~Energy Charge~~Rate | x (10% x T2Qty + 25% x T3Qty)~~P%~~

Where:

Qty = Imbalance quantity, calculated as Actual Deliveries (the sum of the Transmission Customer's or ASC's measured load, grossed up for real power losses, rounded to the nearest MWh) minus Scheduled Energy (the sum of the Transmission Customer's or ASC's scheduled deliveries to its load, including schedules for real power losses if the Transmission Customer or ASC provides real power losses in kind or an allowance for real power losses if the Transmission Customer or ASC has elected to financially settle real power losses with the Transmission Provider, rounded to the nearest MWh).

T1Qty = Imbalance quantity for the first penalty tier (zero percent), calculated as the portion of the absolute value of Qty that is less than or equal to 2 MW or 1.5% of Scheduled Energy, whichever is greater.

T2Qty = Imbalance quantity for the second penalty tier (10 percent), calculated as the portion of the absolute value of Qty that is greater than T1Qty and less than T3Qty.

T3Qty = Imbalance quantity for the third penalty tier (25 percent), calculated as the portion of the absolute value of Qty that is greater than 10 MW or 7.5% of Scheduled Energy, whichever is greater.

Rate = Energy rate. For purchases of energy from the Transmission Provider (Scheduled Energy < Actual Deliveries), incremental cost applies; for sales of energy to the Transmission Provider (Scheduled Energy > Actual Deliveries), decremental cost applies. Incremental cost and decremental cost are defined below.

~~P% = Penalty percentage, determined as follows:~~

~~If the absolute value of Qty is~~	~~Then P% is~~
~~Less than or equal to 1.5% of Scheduled Deliveries, or 2 MW, whichever is greater~~	~~0%~~
~~Greater than 1.5% of Scheduled Deliveries, or 2 MW, whichever is greater~~ ~~and~~ ~~Less than or equal to 7.5% of Scheduled Deliveries, or 10 MW, whichever is greater~~	~~10%~~
~~Greater than 7.5% of Scheduled Deliveries, or 10 MW, whichever is greater~~	~~25%~~

| ~~*Energy Charge*~~*Rate* | = *Absolute value of* ~~*Energy Charge*~~*Rate*

Components of Incremental/Decremental Cost

For purposes of this Schedule, incremental and decremental cost shall equal Transmission Provider's actual average hourly cost of the last 10 MW dispatched for any purpose; e.g., to supply the Transmission Provider's Native Load Customers, correct imbalances, or make off-system sales, based on the replacement cost of fuel, unit heat rates, start-up costs (including any commitment and redispatch costs), incremental operation and maintenance costs, and purchased and interchange power costs and taxes, as applicable. The components of such cost include:

Fuel Costs

Incremental fuel costs are calculated using the following criteria. For natural gas generation units, the incremental costs are the estimated daily spot gas commodity price plus the transportation costs to move the commodity to the plants. The inputs for coal fired units are defined as monthly spot coal prices for units that have the ability to take delivery of spot coal, and contract coal prices for plants that have full requirements coal contracts. Oil prices shall be updated when used.

Heat Rate Coefficients

Heat rate coefficients used in determining incremental cost will be consistent with coefficients used in the PSCo 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 are updated as necessary to reflect changes in the operating parameters of plant equipment.

Start up Costs

If a generating unit is started to support short term off-system sales, all the start up costs associated with that unit will be assigned to incremental cost for the first hour of the unit's operation.

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 an off-system sale or to meet reserve requirements because of such a sale, then the cost of the entire operating range of the resource will be included in incremental cost. If a generation resource is started for Native Load, then only the output above the minimum level is included in incremental cost.

Unit Minimum Run Times

Certain PSCo generating units have minimum run time requirements in place to support reliable unit operation. Such generating units will not be started for off-system sales unless the scheduled and/or contracted duration of the sale is equal to or greater than the minimum run time requirement. Should such off-system 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 incremental cost. 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.

Dispatchable Resources

All dispatchable resources are available for cost assignment to off-system 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 incremental cost.

Variable O&M and Tolling Costs

Variable operation and maintenance (O&M) and tolling costs are assigned to each of the generating units, and when applicable under contract, such costs will be assigned to purchased power resources. These costs will be included in incremental cost.

Intraday Purchases (Not Prescheduled)

All hourly power purchases may be assigned to incremental cost. If an hourly purchase, including all transmission costs, is higher than the incremental cost of a PSCo dispatchable resource, the cost of such purchase will be allocated to incremental cost. If an hourly purchase, including all transmission costs, is lower than the incremental cost of a PSCo dispatchable resource, the cost of the higher priced dispatchable resource will be assigned to incremental cost.

Pumped Storage Costs

The cost of pumped storage energy will 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 off-system sales for such hours. The hour-by-hour energy for pumping and cost assignment will be documented.

Methodology for Calculating Incremental and Decremental Cost

PSCo uses a computer program (Cost Calculator) to assign costs to serve non-native short term wholesale off-system sales. The program determines the cost to serve short-term off-system sales, including fuel associated with generation and applicable economic purchase transaction costs. The general principle is to assign the most expensive resources to short-term off-system sales first, allowing the less expensive resources to be assigned to PSCo's native load. For each hour, the program stacks the resources that supplied energy during the hour based on their costs in one MW increments. After all costs have been assigned and stacked, the simple average will be calculated for the last 10 MWs to determine PSCo's actual average hourly cost of the last 10 MW dispatched for any purpose.

SCHEDULE 9

Generator Imbalance Service

Availability: Available on the PSCo system. Schedule 9 Service on the NSP and SPS systems shall be available from the Midcontinent ISO and SPP, respectively.

Generator Imbalance Service is provided when a difference occurs between the output of a generator located in the Transmission Provider's Control Area and a delivery schedule from that generator to (1) another Control Area or (2) a load within the Transmission Provider's Control Area over a single hour.

(a) In the case of service under Parts II or III of this Tariff, the Transmission Provider must offer this service, to the extent it is physically feasible to do so from its resources or from resources available to it, when Transmission Service is used to deliver energy from a generator located within its Control Area. The Transmission Customer must either purchase this service from the Transmission Provider or make alternative comparable arrangements, which may include use of non-generation resources capable of providing this service, to satisfy its Generator Imbalance Service obligation. To the extent the Control Area operator performs this service for the Transmission Provider, charges to the Transmission Customer are to reflect only a pass-through of the costs charged to the Transmission Provider by that Control Area Operator. The Transmission Provider may charge a Transmission Customer a penalty for either hourly generator imbalances under this Schedule or a penalty for hourly energy imbalances under Schedule 4 for imbalances occurring during the same hour, but not both unless the imbalances aggravate rather than offset each other.

(b) In the case of service under Part IV of this Tariff, the Balancing Authority Operator must offer this service to the Ancillary Service Customer (ASC). The Ancillary Service Customer must either purchase this service from the Balancing Authority Operator or make alternative comparable arrangements, which may include use of non-generation resources capable of providing this service, to satisfy its Generator Imbalance Service obligation. The Balancing Authority Operator may charge an Ancillary Service Customer a penalty for either hourly generator imbalances under this Schedule or a penalty for hourly energy imbalances under Schedule 4 for imbalances occurring during the same hour, but not both unless the imbalances aggravate rather than offset each other.

(c) PSCo is both the Transmission Provider and the Balancing Authority (Control Area) Operator for purposes of this Schedule 9.

The Transmission Provider shall establish charges for generator imbalance based on the deviation bands as follows:

The Imbalance Charge is calculated on a generator by generator basis for each tariff service purchased by the Transmission Customer or ASC each hour as follows, where an imbalance charge greater than zero represents amounts due to the Transmission Provider from the Transmission Customer or ASC, and an imbalance charge less than zero represents amounts due to the Transmission Customer or ASC from the Transmission Provider, with the resulting hourly charges netted on a monthly basis and settled financially:

Imbalance Charge = Energy Charge + Penalty Charge

Energy Charge = Qty x Rate

Penalty Charge = | ~~Energy Charge~~Rate | x (10% x T2Qty + 25% x T3Qty)~~P%~~

Where:

Qty = Imbalance quantity, calculated as Scheduled Energy (the sum of the Transmission Customer's or ASC's delivery schedules from generator for which generator imbalance is being calculated, rounded to the nearest MWh) minus Actual Generation (the actual output of the generator for which generator imbalance is being calculated, rounded to the nearest MWh).

T1Qty = Imbalance quantity for the first penalty tier (zero percent), calculated as the portion of the absolute value of Qty that is less than or equal to 2 MW or 1.5% of Scheduled Energy, whichever is greater.

T2Qty = Imbalance quantity for the second penalty tier (10 percent), calculated as the portion of the absolute value of Qty that is greater than T1Qty and less than T3Qty.

T3Qty = Imbalance quantity for the third penalty tier (25 percent), calculated as the portion of the absolute value of Qty that is greater than 10 MW or 7.5% of Scheduled Energy, whichever is greater.

Rate = Energy rate. For purchases of energy from the Transmission Provider (Scheduled Energy > Actual Generation), incremental cost applies; for sales of energy to the Transmission Provider (Scheduled Energy < Actual Generation), decremental cost applies. Incremental cost and decremental cost are defined below.

~~P% = Penalty percentage, determined as follows:~~

~~If the absolute value of Qty is~~	~~Then P% is~~
~~Less than or equal to 1.5% of Scheduled Deliveries, or 2 MW, whichever is greater~~	~~0%~~
~~Greater than 1.5% of Scheduled Deliveries, or 2 MW, whichever is greater~~ ~~and~~ ~~Less than or equal to 7.5% of Scheduled Deliveries, or 10 MW, whichever is greater~~	~~10%~~
~~Greater than 7.5% of Scheduled Deliveries, or 10~~	~~25%~~

~~MW, whichever is greater~~	

Energy Charge~~Energy Charge~~Rate	= Absolute value of ~~Energy Charge~~Energy Charge~~Rate~~

An intermittent resource will be exempt from the 25% penalty percentage and will pay the 10% penalty percentage for all deviations greater than the larger of 1.5 percent or 2 MW, whichever is greater. An intermittent resource, for the limited purpose of this Schedule 9 is an electric generator that is not dispatchable and cannot store its fuel source and therefore cannot respond to changes in system demand or respond to transmission security constraints.

Notwithstanding the foregoing, deviations from scheduled transactions in order to respond to directives by the Transmission Provider, a balancing authority, or a reliability coordinator shall not be subject to the deviation bands identified above and, instead, shall be settled financially, at the end of the month, at 100 percent of incremental and decremental cost. Such directives may include instructions to correct frequency decay, respond to a reserve sharing event, or change output to relieve congestion.

Components of Incremental/Decremental Cost

For purposes of this Schedule, incremental and decremental cost shall equal Transmission Provider's actual average hourly cost of the last 10 MW dispatched for any purpose, e.g., to supply the Transmission Provider's Native Load Customers, correct imbalances, or make off-system sales, based on the replacement cost of fuel, unit heat rates, start-up costs (including any commitment and redispatch costs), incremental operation and maintenance costs, and purchased and interchange power costs and taxes, as applicable. The components of such cost include:

Fuel Costs

Incremental fuel costs are calculated using the following criteria. For natural gas generation units, the incremental costs are the estimated daily spot gas commodity price plus the transportation costs to move the commodity to the plants. The inputs for coal fired units are defined as monthly spot coal prices for units that have the ability to take delivery of spot coal, and contract coal prices for plants that have full requirements coal contracts. Oil prices shall be updated when used.

Heat Rate Coefficients

Heat rate coefficients used in determining incremental cost will be consistent with coefficients used in the PSCo 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 are updated as necessary to reflect changes in the operating parameters of plant equipment.

Start up Costs

If a generating unit is started to support short term off-system sales, all the start up costs

associated with that unit will be assigned to incremental cost for the first hour of the unit's operation.

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 an off-system sale or to meet reserve requirements because of such a sale, then the cost of the entire operating range of the resource will be included in incremental cost. If a generation resource is started for Native Load, then only the output above the minimum level is included in incremental cost.

Unit Minimum Run Times

Certain PSCo generating units have minimum run time requirements in place to support reliable unit operation. Such generating units will not be started for off-system sales unless the scheduled and/or contracted duration of the sale is equal to or greater than the minimum run time requirement. Should such off-system 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 incremental cost. 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.

Dispatchable Resources

All dispatchable resources are available for cost assignment to off-system 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 incremental cost.

Variable O&M and Tolling Costs

Variable operation and maintenance (O&M) and tolling costs are assigned to each of the generating units, and when applicable under contract, such costs will be assigned to purchased power resources. These costs will be included in incremental cost.

Intraday Purchases (Not Prescheduled)

All hourly power purchases may be assigned to incremental cost. If an hourly purchase, including all transmission costs, is higher than the incremental cost of a PSCo dispatchable resource, the cost of such purchase will be allocated to incremental cost. If an hourly purchase, including all transmission costs, is lower than the incremental cost of a PSCo dispatchable resource, the cost of the higher priced dispatchable resource will be assigned to incremental cost.

Pumped Storage Costs

The cost of pumped storage energy will 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 off-system sales for such hours. The hour-by-hour energy for pumping and cost assignment will be documented.

Methodology for Calculating Incremental and Decremental Cost

PSCo uses a computer program (Cost Calculator) to assign costs to serve non-native short term wholesale off-system sales. The program determines the cost to serve short-term off-system sales, including fuel associated with generation and applicable economic purchase transaction costs. The general principle is to assign the most expensive resources to short-term off-system sales first, allowing the less expensive resources to be assigned to PSCo's native load. For each hour, the program stacks the resources that supplied energy during the hour based on their costs in one MW increments. After all costs have been assigned and stacked, the simple average will be calculated for the last 10 MWs to determine PSCo's actual average hourly cost of the last 10 MW dispatched for any purpose.