

**EXH. KCS-8C
DOCKETS UE-22 ___/UG-22 ___
2022 PSE GENERAL RATE CASE
WITNESS: KYLE C. STEWART**

**BEFORE THE
WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION**

**WASHINGTON UTILITIES AND
TRANSPORTATION COMMISSION,**

Complainant,

v.

PUGET SOUND ENERGY,

Respondent.

**Docket UE-22 ___
Docket UG-22 ___**

**SEVENTH EXHIBIT (CONFIDENTIAL) TO THE
PREFILED DIRECT TESTIMONY OF**

KYLE C. STEWART

ON BEHALF OF PUGET SOUND ENERGY

REDACTED VERSION

JANUARY 31, 2022

Puget Sound Energy, Inc.

Energy Supply Transaction and Hedging Procedures Manual

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Table of Abbreviations

ASC	Accounting Standards Codification
CCA	California Carbon Allowance
CRMP	Credit Risk Management Policy
EDA	Energy and Derivative Accounting
EIM	Energy Imbalance Market
EMC	Energy Management Committee
ERC	Energy Risk Control, Analytics and Credit
ESM	Energy Supply Merchant
ETRM	Energy Trading and Risk Management
FASB	Financial Accounting Standards Board
GAAP	Generally Accepted Accounting Principles
ISDA	International Swaps and Derivatives Association
LOC	Letter of Credit
NERC	North American Electric Reliability Corporation
NGR	Natural Gas Resources
NPNS	Normal Purchase Normal Sale
<i>Policy</i>	Energy Risk Policy
<i>Procedures</i>	Energy Supply Transaction and Hedging Procedures Manual
PSE or “the Company”	Puget Sound Energy
PSEE	PSE Electric
PSEG	PSE Gas
RA	Resource Acquisition
RECs	Renewable Energy Credits
RINs	Renewable Identification Numbers
RPS	Renewable Portfolio Standard
SEC	Securities and Exchange Commission
SOX	Sarbanes Oxley Act
VIE	Variable Interest Entity
WREGIS	Western Renewable Energy Generation Information System

I. Introduction

Puget Sound Energy, Inc. (PSE or “the Company”) is a regulated gas and electric utility serving retail electric and natural gas customers, primarily in western Washington State. Under the existing state regulatory framework, the Company is responsible for providing both delivery service and commodity supply to its retail electric and natural gas customers. The Company maintains a Power Portfolio and a Gas Portfolio to meet its customers' energy demand.

The electric supply portfolio ("Power Portfolio") is composed of PSE-owned generating resources and long-term power supply purchase contracts. In addition, power supply purchases and sales are used to balance supply and demand in the Short and Medium-term. The fuel supply for the Power Portfolio (considered part of the Power Portfolio) is composed primarily of purchased gas supply and sales contracts associated with managing fuel for the gas-fired generation, gas transportation agreements and gas storage capacity, supplemented with periodic purchases of fuel oil and long-term coal supply contracts. The Gas Portfolio is comprised of purchased gas supply, sales contracts, gas transportation agreements and gas storage capacity. The Power and Gas Portfolios may be collectively referred to as the Energy Portfolio.

The Company’s risk management philosophy is articulated in a separate document called the *Energy Risk Policy (“Policy”)*. This *Energy Supply Transaction and Hedging Procedures Manual (“Procedures”)* defines the roles and responsibilities, operational controls, and outlines guidelines and processes, for transactions within and the hedging of PSE’s Energy Portfolio consistent with the *Policy*. Pursuant to the *Policy*, these *Procedures* are approved by the Energy Management Committee (EMC). The *Procedures* address activities and employees in the following functional areas:

- Energy Supply Merchant (ESM or FO)
- Energy Risk Control, Analytics and Credit (ERC or MO)
- Energy and Derivative Accounting (EDA or BO)
- Resource Acquisition (RA)
- Natural Gas Resources (NGR)

The *Procedures* contain references to various authority levels. The hierarchy is as follows:

- EMC
- Officers with responsibilities under these *Procedures*
- Director-level employees with responsibilities under these *Procedures*
- Authorized Traders and other employees with responsibilities under these *Procedures*

ERC will review the *Procedures* periodically to evaluate potential revisions, amendments or updates appropriate to adapt to changes in the industry, the Company’s

rate structures, regulatory requirements, Company direction, or other factors. ERC will submit proposed changes to the *Procedures* to the EMC for consideration and approval. Additionally, if during the normal course of business, requests are made to the EMC for approval of new strategies, limits, and/or activities that are governed by the *Procedures*, the request should also include proposed updates to the *Procedures* to facilitate revisions or updates.

Each employee whose activities are covered by these *Procedures* must read these *Procedures* and annually acknowledge receipt and understanding in writing to ERC. Employees will comply with the *Procedures* and all laws, rules, regulations, and policies applicable to the business contemplated hereunder consistent with the Company *Corporate Ethics and Compliance Code* and other corporate policies. Violations of these *Procedures* by any employee may be grounds for disciplinary action up to and including termination.

II. Roles and Responsibilities

A. Energy Management Committee

This *Procedure* is approved by the Energy Management Committee (“EMC” or “Committee”). Changes to this *Procedure* likewise must be approved by the EMC. EMC is comprised of at least five officers and directors as designated by the President and/or CEO from time to time. The EMC meets monthly and is to provide strategic direction for management of the energy supply portfolio, including PSE-owned or controlled resources, and is to review and approve the acquisition or disposition of significant resources and contracts. The EMC receives monthly reports from Energy Operations with respect to the assessment and management of PSE’s energy portfolio risks. The EMC Charter details the membership, roles and responsibilities of the EMC. The EMC retains meeting minutes documenting decisions made. The EMC adopts, amends and oversees the *Procedures*.

EMC responsibilities include:

- Approving these *Procedures* and amendments
- Approves strategies, limits, and standards set within these *Procedures*
- Approve new contracts
- Delegates compliance monitoring to the ERC

B. Energy Supply Merchant (ESM) - Front Office

B1. Overview:

ESM is responsible for managing the Energy Portfolio in accordance with the relevant Schedules in the *Procedures*. ESM with the support of ERC is also responsible for identifying and quantifying the potential exposure within the Energy Portfolio and making

strategy recommendations to the EMC to mitigate exposure and price volatility, and to manage energy supply costs.

This section complements the PSE Energy Risk *Policy*, which provides the overarching framework for managing and governing PSE Power Portfolio and Gas Portfolio. This manual describes several components of this framework (governance structures, operating standards, and control processes) and describes how certain components are implemented.

To mitigate cyber security risk and ensure trading oversight compliance, PSE employees are prohibited from accessing work related content on personal devices (excluding BYOD devices which are PSE managed). To avoid any doubt, logging into third party websites, portals, databases, systems, apps etc. via personal devices are explicitly prohibited.

B2. Organization Structure

The Front Office is organized under the VP of Energy Supply and collaborates directly with the ERC and EDA. ESM is composed of Authorized Traders, Operators, and Schedulers.

The organization is led by a Director of Energy Supply Merchant. The following Managers lead the execution of business strategies.

- Power Portfolio Manager
- Gas Portfolio Manager
- Real-time Trading Manager
- Operations Manager
- Energy Analysis Manager

Book Structure:

ERC is responsible for annually reviewing the trading book structure for the Company's merchant operations to maintain relevancy. PSE tracks performance of business strategies in corresponding books, which contain the current position details and unrealized P&L. At the highest level, the master book structure is associated with the two primary trading functions: PSEE and PSEG. Sub-books further define specific asset and trading classes and evolve in line with various business strategies and associated initiatives.

PSE Electric Book (PSEE):

Power focused trading book containing the activities for PSEE.

The PSEE book is maintained against specific sub-books that are defined by generation type: and associated hedging strategy and further defined based on attributes including pricing type (i.e., Fixed or Index price) or instrument type (i.e., physical or financial):

<u>Sub-book (Portfolio) Name</u>	<u>Definitions</u>	<u>Authorized Models & Transactions</u>
Gas Fired Generation	Contracts and transactions related to PSE owned natural gas fired generation (GFG) assets	GFG assets modeled contracts and associated natural gas and power purchases and sales
Coal Generation	Contracts and transactions related to PSE owned coal generation assets	Coal assets modeled contracts and associated power transactions (e.g. triggered by plant outages etc.)
Hydro Generation	Contracts related to hydro resources (PSE owned or contracted)	Hydro resource modeled contracts and associated transactions.
Wind Generation	Contracts related to wind resources (PSE owned or contracted)	Wind resource modeled contracts and associated transactions.
Open transactions	EMC approved power and gas transactions to meet load, reduce exposures and/or optimize portfolio performance	Physical and financial gas and power transactions.
Operations transactions	EMC approved power and gas transactions for peak season planning or other operational needs	Physical gas and power transactions.
Transport Asset	Modeled contracts for contracted transport assets	Modeled transport contracts (such as Station 2 – Sumas and Aeco - Sumas)
Long Term Contracts	Long term fixed price and fixed volume contracts that don't require modeling	Schedule 91s, PURPA contracts and non-modeled PPAs
PG&E Exchange	Transactions occur under the PG&E Exchange contract	Physical power purchases and sales
Load	Simulated electric loads based on the official forecasts	Modeled Load forecasts

PSE Gas Book (PSEG):

Gas focused trading book containing the activities for PSEG.

The PSEG book is maintained against specific sub-books that are defined by gas strategy type and associated hedging strategy and further defined based on attributes including pricing type (i.e., Fixed or Index price) or instrument type (i.e., physical or financial):

<u>Sub-book (Portfolio) Name</u>	<u>Definitions</u>	<u>Authorized Models & Transactions</u>
Storage Asset	Modeled contracts for owned and contracted gas storage assets	Modeled storage contracts (such as Clay Basin and Jackson Prairie)
Transport Asset	Modeled contracts for contracted transport assets	Modeled transport contracts (such as Station 2 - Sumas, Aeco - Sumas and Rockies - Sumas)
Open transactions	EMC approved natural gas transactions to meet load, reduce exposures and/or optimize portfolio performance	Physical and financial gas transactions
Supply transactions	EMC approved natural gas transactions for peak season planning or other supply needs	Physical gas transactions
Transport transactions	EMC approved natural gas transactions to leverage locational spread and optimize portfolio performance	Physical and financial gas transactions
Storage transactions	EMC approved natural gas transactions to leverage the time spread of the storage assets and optimize portfolio performance	Physical and financial gas transactions
Load	Simulated firm and interruptible loads based on the official forecasts	Modeled load forecasts

B.3 Key Activities

ESM interacts with generating assets, pipelines, grid operators, financial markets and exchanges, and counterparties in order to manage the physical flow of gas and power and to hedge the exposure to PSE.

The ESM key activities have been organized into the following categories:

- Conducting trading activities
- Managing positions
- Physical operations

B3.1 Conducting trading activities

The ESM Director will be responsible for leading transaction and hedging strategies, specifically focusing on issues affecting the Energy Portfolio within time durations authorized by the EMC. The ESM Director will be the commercial liaison with the Directors of Resource Acquisition, Generation and Natural Gas Resources, to take into account any forecasted commercial transaction commitments with plant maintenance and operations. The ESM Director will inform ERC in writing which staff members are Authorized Traders, and of any special limitations on any such person's authority. All Authorized Traders who transact on behalf of PSE must operate within approved limits set forth in or pursuant to these *Procedures*, including any applicable credit or transaction limits. A failure to abide by such limits may subject such persons to disciplinary actions, up to and including termination.

Consistent with guidelines and limitations set forth in these *Procedures* including its Schedules and Appendices and applicable market rules, **Authorized Traders** have the following responsibilities:

- Conduct trading in line with approved strategies:
 - Approved commodities - SCHEDULE A - Authorized Transaction
 - Approved locations - SCHEDULE B - ERC Locations and Indices
 - Approved instruments- SCHEDULE C - Execution of EMC – Approved Hedge Strategies

- Capture external transactions in the system of record on the date of execution with inclusion of – at minimum – following fields:
 - Unique transaction ID
 - Trade date
 - Time stamp
 - Commodity/Product
 - Instrument
 - Location - Specific nodes (for power) and pipeline receipt or delivery locations (for gas)
 - Counterparty legal name
 - Counterparty trader, confirmation and settlement contact information
 - Trader name
 - Buy / Sell
 - Volumes (including min/max obligations)
 - Price or premium / discount
 - Pricing basis and reference for unfixed and formula transactions
 - Pricing quotation periods (pricing windows) for unfixed transactions
 - Book / Portfolio

- Ensure that internal or intra-book transactions follow same requirements for capture and are priced according to fair market value
- Complete verbal transactions on a recorded telephone line
- Initiate new contracts with counterparties under EMC approved guidelines, providing customer on-boarding form and Know-Your-Customer form as required by ERC.
- Purchase energy supply and ancillary products pursuant to the Schedules as necessary for economic benefit and meet obligations in the Energy Portfolio.
- In situations involving transactions requiring amendments, the Front Office is responsible for making these changes in the original system of record and notifying ERC and ESM manager and/or Compliance Consultant on material changes.
- May sell energy supply and ancillary products pursuant to the Schedules (when permitted by a filed tariff) from PSE's Energy Portfolio that are surplus to obligations, when available and economical.
- With EDA oversight, enter alternative fuel purchases in trading systems for deals originating outside of ESM operations, including:
 - o Distillates used as backup fuel for generation facilities
 - o LNG truck deliveries used for system pressuring at Gig Harbor facility
 - o Other alternative fuel purchases that originate outside of ESM operations that are supplied through standard procurement channels
- Ensure that each counterparty transacting with is approved by ERC, including that each counterparty has available credit, and that appropriate contractual terms have been agreed to between PSE and the counterparty.
- Liaising with representatives of other PSE business units outside of ESM and entering deals in trading systems on behalf of other deal-making business units, such as Resource Acquisitions and Natural Gas Resources etc.
- Maintain Authorized Trader List
- For any planned joiner/leaver/movers, notify ERC in writing 5 business days in advance; for any unplanned terminations, notify ERC in writing within 24 hours of incident occurring.

PSE may conduct business through authorized exchanges and with authorized brokers only. The ERC Manager must approve any additions or modifications to the authorized broker list in advance of any transactions with new brokers.

All new products, new structured transactions, or other activities involving a commodity, instrument, or trading product that are not yet authorized for PSE, must be processed through the new transactions type approval process (refer to Transaction Control – Section 3).

B3.2 Managing positions

Daily, ESM will evaluate open trades and asset positions against daily risk and credit exposure reports. Activities for position management include:

- Review exposure and P&L by category (strategy, location, commodity, asset, geography, and others)

- Review risk metrics by categories including but not limited to limits, positions, and price exposure
- Review hedge effectiveness as compared to plan
- Take action to correct limit violation or request variance exceptions
- Review positions daily against documented risk limits
- Monitor real time positions. Traders are also accountable for knowing the details of their books at any given time and for being market aware
- The ESM will conduct a daily strategy meeting to share market information, review positions and assess strategic direction
- ESM leadership will conduct monthly P&L and budget to actual reviews to assess monthly and year-to-date performance and assess the need for any tactical shifts where necessary

B 3.3 Physical operations

Physical operations at PSE include scheduling activities for physical power and gas, storage of natural gas, and managing the fuel supply mix in line with regulatory requirements for renewable energy

Scheduling:

For power scheduling, ESM activities include:

- Scheduling power 24 hours and beyond (or refer to WECC pre-schedule calendar)
- Communicating the physical flow of electricity across transmission assets and at power nodes
- Actualization of quantities (when viable)
- Maintaining Process and Controls (including flowchart and reporting activities)
- Power Schedulers are not authorized to enter trades in the power trading system.

Separately, the real-time power desk maintains responsibility for buying quantities of power in the real-time markets to cover shortages and/or selling excess capacity on the spot market.

For Gas scheduling ESM activities may include:

- Planning the physical flow of natural gas to pipeline operators
- Interact with interstate and intrastate pipeline Electronic Bulletin Boards (EBBs) to submit nominations.
- Procuring gas for short term and balance of month requirements
- Reconciling storage inputs for injections and withdrawals from monthly pipeline reports to the trading system of record

Storage:

PSE engages in the storage of Natural Gas in periods of lower demand and for use in periods of higher demand or reduced supply. In order to meet these requirements, PSE is

an owner, operator, and has contracted storage capacity of the Jackson Prairie Underground Natural Gas Storage Facility as well as partial owner of Tacoma LNG plant, and has contracted storage capacity Clay Basin underground storage facility. PSE Power Portfolio has storage contracted from Northwest Pipeline LLC of the Plymouth LNG storage facility. Key activities include:

- Nominate natural gas in and out of storage facilities.

Environmental portfolio operations:

The Environmental Portfolio operations team is responsible for managing Renewable Energy Certificates (RECs) and California Carbon Allowances (CCAs). The former are tradable units that represent the commodity formed by unbundling the environmental attributes of a unit of renewable energy from the underlying electricity; the latter is an instrument that aims to reduce greenhouse gas (GHG) emissions via setting emission limits and trading such instruments for limit compliance of the California Cap-and-Trade Program.

PSE utilizes RECs and CCAs to meet operational requirements for utilization of green power in support of the state UTC requirements, sales into California EIM market and PSE's voluntary Green Power programs. Key activities include:

- Procuring and selling RECs and CCAs on the open market
- Provide market prices to EDA upon request.

C. Energy Risk Control (ERC) - Middle Office

C1. Overview:

The ERC forms an essential control function for both the market activities and operations of PSE. It functions as risk control and is responsible for market and credit exposure monitoring, trade validation and confirmation, position/ limit reporting, value at risk calculation, and compliance reporting. ERC monitors the risk and credit limits, and other boundaries of the trading operation defined and approved by EMC and perform the measurement and reporting of exposures against them.

The ERC is responsible for maintaining the *Procedures* and will review the *Procedures* at least once per year or more frequently as needed.

To mitigate cyber security risk and ensure trading oversight compliance, PSE employees are prohibited from accessing work related content on personal devices (excluding BYOD devices which are PSE managed). To avoid any doubt, logging into third party websites, portals, databases, systems, apps etc. via personal devices are explicitly prohibited.

C2. Organization Structure:

ERC is organized under the Chief Financial Officer's organization and operates independent from Front Office and Back Office.

ERC is composed of a Director of Enterprise Risk Management, a Manager of Energy Risk Control, Analytics and Credit, and supporting staff.

C3. Key Activities:

The key activities have been organized into the following sections:

- C3.1 Transaction Control
- C3.2 Confirmations
- C3.3 Risk Measuring and Reporting
- C3.4 Know Your Customer (KYC) and Credit
- C3.5 Market Data and Curves
- C3.6 Systems and Data Management
- C3.7 Controls and Limits Monitoring
- C3.8 Position and risk capture for obligations initiated outside of wholesale supply
- C3.9 Model Risk Management

C3.1 Transaction Control

ERC's transaction control responsibilities include a.) transaction verification and b.) contract management.

Transaction Verification activities include:

- Conduct end of day system review for deal entry completeness and accuracy.
- If a transaction record is incomplete, ERC must notify the Authorized Traders who committed PSE to the transaction and oversee the completion of the record in the subsequent business day.
- Confirm that all executed transactions are captured into the appropriate ETRM Systems (Webtrader and Endur) in a timely manner where the trade execution date matches the record creation date.
- Routine trades have a requirement for deals to be entered on the day of execution (same day)
- Longer term resource acquisition deals may not always be entered on the day of execution but are required prior to any actual flows or settlements
- Verify that transactions and counterparties are authorized. If unauthorized, ERC must notify the ESM Director for resolution, up to and including transaction cancelation.
- On an as-needed basis, ERC is authorized to enter or modify certain data in the trading systems, such as entering counterparty and enabling agreement information, miscellaneous fees, pipeline and storage contracts etc. When unsure, consult ERC manager.

Contract management:

ERC is responsible for providing Contract Support for trading enabling agreements, collateral agreements and certain stand-alone contracts. New contracts are initiated by ESM and ERC approves the commercial terms and conditions for a new agreement. ERC activities include:

- Review terms and conditions of new enabling agreements (such as ISDAs, NAESBs and WSPPs) and provide commentary
- Communicate the commentary to PSE legal and stakeholders and ensure the contract gets signed and stored in the appropriate ETRM systems

C3.2 Confirmations

A confirmation is a document sent by one party to the other so both parties agree on the terms of the agreements. PSE requires that counterparties submit confirmations when appropriate. There are no confirmations for day-ahead, balance of the month or real time markets. For all other markets, ERC responsibilities include:

- Review the incoming confirmations and check them against the trading systems
- If any discrepancies, ERC to work with the executing Authorized Trader and the counterparty to resolve the issue
- If ERC cannot resolve the discrepancy, the original Authorized Traders will assist until a resolution is accomplished with the counterparty
- If no confirmation has been received from the counterparty within 2 business days, ERC to follow up with the counterparty; If no confirmation is received within 5 business days, ERC prepares a confirmation using a predefined word document and gets the counterparty approval in a timely fashion

C3.3 Risk Measuring and Reporting

ERC measures and reports on the Company's risk profiles (inherent/ residual) and portfolios on the daily, weekly and monthly basis. The primary purpose of risk reporting is to report on market and credit risk positions for *Policy* compliance relative to the Company's risk limits. The Management produced reports will be considered the report of record and will be reviewed by the EMC.

Activities:

- Report the market and credit risks stemming from the physical and financial positions of the Energy Portfolio
- Generate daily Position Reports and Exposure Reports for each portfolio and distribute reports to the ESM group and other parties as required by the EMC.
- Quantify risk levels utilizing risk analysis models and techniques. Risk analysis includes, but is not limited to, portfolio value analysis, exposure analysis, stress testing, and scenario analysis.
- Monitor and report on counterparty exposure daily.
- Notify the ESM to take appropriate actions if any credit or market risk limits are exceeded

- Track and confirm that hedges have been placed in accordance with EMC approved hedging program for the gas and power portfolios

Key reports used to manage the business include:

Report Name / Type	Trading Segment	Source System	Recipients
Daily MtM & P/L Summary	Commodity	Lacima	ESM, ERC, EDA
Position Summary	Commodity	Endur WebTrader	ESM, ERC
Position Detail	Book Pricing basis (e.g., curve)	Endur WebTrader	ERC, ESM
Trading Limit Status Report	Book, Strategy Trader (as applicable)	Lacima	ESM, ERC
Monthly VaR Limits Report	Commodity Book	Generated in Excel using data from ETRMs and Lacima	ESM, ERC, EMC
Counterparty Credit Exposure Report	Counterparty	Lacima	ESM, ERC, EMC
Risk Dashboard	Commodity Book Price and Volatility	Lacima	ESM, ERC, EMC
Market Data Detail	Curve	Lacima	ESM, ERC

Table B3.3-A ERC Periodic Risk Reports

C3.4 Know Your Customer (KYC) and Credit

Trading counterparties for PSE are primarily investment grade companies within the S&P rating of BBB or the Moody's rating of Baa3 or greater. This primarily includes regional utilities, banks, and large commercial gas and power producers and marketers.

Credit is assigned for each counterparty at the time of on-boarding. Bilateral counterparty credit risk is managed by selecting highly rated entities, on-going credit reviews, and collateral requirements. Available credit is impacted by the aggregate exposure with a counterparty and can be revised at any point due to changes in credit standing, risk profile changes and business needs.

Key activities include:

- Review customer on-boarding form and Know-Your-Customer (KYC) form that are submitted by ESM
- ERC will examine new customer forms and conduct additional counterparty due diligence as necessary prior to new customer onboarding.

- Ensure the customer due diligence is followed and utilizes PSE's KYC form and policy.
- Provide input into the initial provisioning of credit to new counterparties
- Determine appropriate credit mitigants including collateral postings, for bilateral trades
- Conduct credit reviews. Establish and routinely maintain credit limits for approved counterparties.
- Estimate credit utilization of open credit
- Update the EMC on significant credit events

C3.5 Market Data and Curves

ERC is responsible for the market data required to value the transactions committed to PSE's Wholesale Supply books. In addition to being responsible for market data taken from data providers, ERC is responsible for validating any curves provided by ESM.

Market data is categorized into three groups: Forward Price Curve, Settlement Prices, and Volatilities.

Forward Price Curves:

- Outright commodity prices including Fixed, Basis, and Index
- Interest rates
- Currency rates

Settlement Prices:

- This category consists of the final published price against which invoices are issued or paid.

Volatilities:

- The forward expectation of price variance between today and settlement. Volatility data can be provided by exchanges, over the counter (OTC) counterparties, brokerage houses, and market data providers. In the absence of market data, the ESM may calculate its own estimates of forward volatilities based on market observations.

Activities for market data and curves include:

- Ensure complete, relevant and accurate forward curve market data sets are captured for all business days
- Validate the power and natural gas price marks
- Source complete and accurate settlement prices for fixing the final price of floating transactions
- Investigate data gaps and errors and deliver findings to appropriate functions (typically ESM, EDA, or IT)
- Determine any course of action to delay or amend market data-dependent processes such as end-of-day (EOD) valuations and risk reporting

- Ensure that valid price curve exists before a transaction is entered into the system
- Validate market data prior to EOD. Run a price reasonableness check which highlights any data that may be out-of-range or erroneous. The specialist must, where technically feasible, run this check before the EOD batch valuation and risk reporting process commence
- Test these automated upload feed processes prior to live implementation. Additionally, exception-based alerts also must be put in place to enable efficient, ongoing monitoring and validation.
- Maintain historical market data in an archive.
- ERC is responsible for approving the process for storage and retention of all market data.
- ERC will enlist design and implementation abilities of the IT function to facilitate the effective retention of all market data
- ERC must archive all market data
- ERC defines the back-up and retention strategy for data as defined by regulatory requirements (e.g., FERC price index reporting requires 5 years)

Consider the source of the required market data as, in some cases, there is considerable overlap and duplication between sources. The sourcing must be based upon:

- Time
- Accuracy
- Completeness (i.e., there must be full price sets and no ‘holes’)
- Format (for efficiency and controls around capture)

C3.6 Systems and Data Management

ERC is responsible to ensure appropriate systems are always updated and data integrity is maintained to ensure compliance with risk management and financial reporting requirements.

Activities to manage systems and data include:

- ERC and/or IT is responsible for executing the user access change requests for specific technologies that support wholesale supply and hedging activities. In this capacity, Managers from ERC, EDA or ESM will submit IT requests for new, changed, or terminated users. ERC will review the requests and authorized traders list, prior to ERC and/or IT granting access.
- Upon receipt of notification that trading personnel movement has occurred, ERC will review the circumstances of the personnel movement and determine the timing and disposition of the user’s system access points. ERC is responsible to track activity pertaining to personnel movement including changes in roles or separation from the Company, confirming that the necessary revocations are executed by ERC

and initiated by IT personnel, as applicable and document in the access tracker accordingly.

- Deliver reports that include the capture and input of data other functional groups are responsible for and make them available on agreed upon schedules. Some of the key responsibilities for ERC include:
 - Trade book set-up
 - Market data
 - Stress parameters
 - Counterparty data
- Maintain the trading and risk management systems that process end of day simulations
- Manage the daily input of market data management
- Application user access is reviewed on a quarterly basis for appropriateness.
- Report recipients must exercise due diligence when investigating and resolving discrepancies by engaging the appropriate functional area within PSE (e.g. incorrect market data from forward curves)
- Develop, implement, update, and maintain appropriate systems and maintain the data integrity within the ETRM systems.
- Maintain the approved counterparty list (with respect to contract and credit) and communicate the list to ESM and EDA.
- Email transactions done within the same business day to the pertinent traders and request confirmation of the data accuracy from traders.

Following table represents a list of core systems that support day-to-day operations:

Application	Vendor	Functionality	Nature
Endur	Ion Trading (formerly Openlink)	Gas trading, physical operations for gas deal life cycle, Derivatives, Risk management, Financial reporting	Physical gas, Financial gas, Exchange-traded products, Derivatives, Structured contracts, Pipeline contracts, Storage contracts
Web Trader	Open Access Technology International, Inc. (OATI)	Power trading, Physical operations for power deal life cycle, Derivatives, Risk management, Financial reporting, power scheduling and tagging	Physical power, Financial power, Exchange-traded products, Derivatives, Structured contracts, Transmission
Lacima	Lacima Group	Risk System	Risk management, limits monitoring, P&L reporting
PCI	Power Costs, Inc.	EIM base schedule, bids, settlements, CCAs tracking and performance optimization	Physical power planning, bidding, and market communication
SAP	SAP Global	General ledger and non-markets facing business activity	General ledger, Purchasing and payables, Fixed assets
Futrak	Futrak	Back-office; for evaluating the physical and financial trades	Financial trades

Table B3.6-A Systems and Applications

C3.7 Controls and Limits Monitoring

ERC is responsible to ensure all activities fall within PSE’s *Policy*, the *Procedures*, and SOX control guidelines, limits, and requirements. Activities to perform controls and limits monitoring include:

- Monitor and determine compliance with these *Procedures* and established limits, including but not limited to volumetric limits, transactions authorized to trade, exposure limits and approval authority limits.
- If violations of limits exceed the Authorized Trader’s authority, ERC will notify the EMC. If the violation is not corrected, or if there is not a valid reason for the exception to the limit, the EMC will determine the management and disposition of the position.
- Monitor transaction exposures within the limits provided in the attached Schedules.
- Monitor transaction activity in relation to EMC approved hedges.
- Maintain relevant Sarbanes Oxley (SOX) Section 404 documentation.

- Notify the appropriate party of any known or suspected violation of these Procedures and established limits. Refer to Appendix 8 for Violation Procedures.

With respect to Trading Risk Limit Monitoring, ERC will monitor portfolios' daily exposures against market and credit exposure limit. The ERC Manager will oversee and monitor the activities of the ERC and ensure that adequate structure and processes exist to monitor and control Authorized Traders' activities. The specific limits are identified in Schedules E and F. Other activities include:

Position limits define the highest tolerable level of trading price risk exposure. For the purpose of measuring price risk exposure against the volumetric limits, use certain types of price risk exposure including:

- Outright fixed price exposure
- Premium exposure on floating price trades
- Basis risk exposure
- Time spread risk exposure

ERC will sum the risk adjusted volumetric exposures to obtain an overall volumetric exposure in order to measure compliance against the overall limit on a single, consistent basis (equivalent flat type exposure).

C3.8 Position and risk capture for obligations initiated outside of wholesale supply

The ERC team oversees the deal capture of contracts and obligations that originate outside of the ESM (e.g., PPAs and Biogas contracts). ERC ensures the originating department and/or personnel or deal approver (e.g., EMC) are available within trading systems. If tracking of actualized quantities (MWh) and settlements are required through the ETRM systems, the deal must be captured in trading systems by ESM traders. If settlements are not required via the ETRMs trading systems, the deal is captured only in the risk management system, Lacima for modelling.

For PPAs, if the contract requires settlement and actualization within the power trading system, the deal is entered in TERM/Market-Term book so that it will flow into Lacima and Futrak. For deals that do not need to flow to Lacima, traders can enter in TERM/Non-Standard Contract-Term book within Webtrader.

For these contracts, the following fields are required:

- a. Deal Type
- b. Type (financial or physical)
- c. Book (understand the impact to Lacima)
- d. Contract (use appropriate contract to match the transaction)
- e. Trader* (enter deal maker's name)

- f. Executing Trader* (referring to the trader who is entering the deal on behalf of the deal maker)
- g. FAS Transaction Type (check with EDA for accounting treatment that has been determined after review of the agreement.) “Other” typically for balance of month (BOM) transactions.
- h. Approved By (RMC will be the selection for PPAs)
- i. Portfolio Name (Most PPAs will be under PSEE.LT Contracts)
- j. RMC Hedge No. – obtain correct hedge tracking number for the deal

*The person entering the deal is tracked in WebTrader and can be found in the Deal View under the Creator field.

PPAs are entered in WebTrader only when the following conditions are met:

- PPAs that are under the WSPP Agreement (which don’t require modeling, will flow through to Lacima)
- PPAs that are outside our BAA (for scheduling and billing purpose, will not flow through to Lacima as it is under non-standard term book)

PPAs are entered in Lacima when the following conditions are met:

- Long term contracts that are within our BAA (such as Schedule 91 and certain other PPAs), excluding WSPP contracts. These are entered based on internal/external forecasts.
- Projects that require modeling, which could be within our BAA or outside our BAA (such as wind, hydro, thermal etc.)

Deals are entered in both WebTrader and Lacima when the non-WSPP PPAs are outside of BAA.

C3.9 Model Risk Management

ERC is responsible to help mitigate enterprise risk attributable to the use of key models. PSE’s model risk framework and principles are listed in the *Model Risk Management Policy*. Primary responsibilities for ERC include:

- Model oversight activities for models developed outside of the ERC
- Determine best course of action for validation of models used by ERC
- Annual report to the Board of Directors on model risk management status

D. Energy & Derivative Accounting (EDA) – Back Office

D1. Overview

The Back Office is comprised of staff from EDA and is responsible for the monthly closing processes to ensure accuracy and completeness in gas, power (including EIM)

and derivative transactions and their recording in the PSE financial reports.

To mitigate cyber security risk and ensure trading oversight compliance, PSE employees are prohibited from accessing work related content on personal devices (excluding BYOD devices which are PSE managed). To avoid any doubt, logging into third party websites, portals, databases, systems, apps etc. via personal devices are explicitly prohibited.

D2. Organization Structure

The EDA function reports through the CFO organization. The Director Controller & Principal Accounting Officer reports to the CFO and has a Manager, Energy and Derivatives Accounting who leads the day-to-day financial accounting for the activities of wholesale supply and trading.

D3. Key Activities

Key activities for EDA staff include:

- Perform reconciliation with counterparties for power and natural gas accounts to ensure accuracy and completeness of transactions for the month.
- Prepare invoices and vouchers for services rendered and ensure payments and receipts are made within contractual periods for gas and power transactions.
- Develop, implement and maintain procedures for documenting trades/contracts that impact derivative accounting. Maintains documentation of derivative and VIE evaluations.
- Actualizes quantities for gas and power in ETRM Systems.
- Monitor and confirm the accuracy of alternative fuel purchases deal entry.
- Determine the fair value related to energy derivative contracts.
- Determine the impact of new trading strategies on derivative accounting and assists in the research and preparation of proposals for complex accounting and reporting issues.
- Maintain documentation of all journal entries.
- Reviews contracts on a monthly basis to determine the applicability of ASC 842 Leases and review derivative implication ASC 815.
- Research and communicate changes in derivative accounting and/or Variable Interest Entities (VIE) accounting to management and ensures compliance with Generally Accepted Accounting Principles (GAAP) standards
- Adhere to the settlement and payment schedules according to the CAISO for relevant transactions.
- Monitor internal controls and actively update and perform SOX 404 procedures.
- Resolve counterparty disputes in accordance with the defined Power and Gas Settlement Dispute Resolution Process.

E. Strategy Development, Approval, Implementation, and Trading Strategy

ESM develops hedging and transaction strategies and with the assistance of ERC provides the EMC information about the Company's Power and Gas Portfolios, such as physical and financial risk exposures, and mark-to-market (MTM) hedge value changes. Additionally, ESM provides market updates and any information pertinent to exceptions of the Energy Portfolio limits.

E1. Strategy Development

- ESM will develop hedging strategy options. These will be developed with a view toward the potential impact over the entire Energy Portfolio.
- ESM will, with the assistance of ERC, perform risk analysis testing of the Energy Portfolios, incorporating various hedging strategies.
- ESM will evaluate various hedging strategy alternatives, and understand financial reporting implications, in order to report the anticipated effect on earnings.
- ESM will meet with ERC and EDA to assess the operational impact of proposed Energy Portfolio activity prior to presentation of recommendation to EMC.
- ESM is normally expected to present information about strategy options to the EMC one meeting prior to the meeting where action is proposed to be taken.

E2. Strategy Approval

- ESM staff will present hedging strategy alternatives to the EMC for consideration and approval.
- ESM staff will present benefits/risks of each hedging strategy and provide recommended hedging parameters (e.g., volume, price, and/or notional dollar amount) along with each recommended strategy.
- EMC will approve strategies for hedging and transaction that EMC deems appropriate, consistent with the Company's *Policy*.
- EMC minutes will include contemporaneous documentation of decisions.
- EMC may delegate one or more of its members to act as a sub-committee to approve certain types of strategies or receive notices in accordance with the attached Schedules. Delegation will be recorded in EMC documentation (including minutes, memos or email) and notice will be provided to ERC.
- Transactions in commodities or interests or services and/or using instruments not already listed as approved in Schedule A and B require approval of the EMC.

E3. Strategy Implementation

- Authorized Traders are to execute the EMC approved strategies within the approved timeframe.
- ERC will monitor actual hedges against approved hedge plans. ERC will report any substantive deviation of the execution plans to the EMC.
- ESM and/or ERC will report back on a timely basis to the EMC if the hedging strategies cannot be successfully executed within the parameters previously approved by the EMC.
- If ESM and/or ERC determines that hedges are not being executed in accordance with the EMC approved strategy, then ERC must notify the EMC.

E4. Trading Strategy

Portfolio Hedging

Portfolio Hedging transacts in the forward markets (beyond balance of current calendar month) to implement approved portfolio hedging strategies intended to implement risk management strategies for the Energy Portfolio.

Day-ahead and Balance of Month Power Operations

Day-ahead and Balance of Month Power Operations transacts in short-term markets to manage power costs and balance the Power Portfolio (next day up to end of the current calendar month).

Real-time Power Operations

Real-time Power Operations forecasts load and economically balances the hour-to-hour customer loads and resources, 24 hours per day, 365 days per year. In evaluating a transaction, Authorized Traders must assess Company resources to ensure reliability and economic dispatch. Authorized Traders prepare, update and submit necessary power schedules and required NERC tags to appropriate parties for all Real-time transactions. Real-time Power Operations participates in the intra hour CAISO EIM market and is responsible for submitting bids and base schedules.

Power Scheduling Operations

Power Scheduling Operations coordinates the scheduling of power transactions between PSE and counterparties. Power Schedulers:

- Set up scheduled power receipts and deliveries for the next pre-schedule day(s), based on the market transactions executed by the Company.
- Balance power deliveries and receipts at all transaction points, including the identification of and/or resolution of potential Bookout transactions.
- Generate and transmit the required NERC tags.

Daily and Monthly Gas Operations

Daily and Monthly Gas Supply Operations develops and executes the plan to economically meet the gas requirements for the Energy Portfolio, including, but not limited to, the procurement and sale of gas supplies in the day-ahead, intraday, prior day, and balance of the month markets. Authorized Traders shall:

- Balance and re-align storage and city-gate transactions.

- Procure, balance (sell as necessary) and schedule gas in accordance with the NAESB scheduling deadlines and pipeline scheduling deadlines.
- Procure gas (sell as necessary) for the next day and balance of the month

Gas Scheduling

Gas Scheduling coordinates the scheduling of gas transactions between the Company and counterparties. Gas Schedulers:

- Schedule gas receipts and deliveries based upon market transactions as executed by Authorized Traders for the PSE portfolios.
- Balance gas deliveries and receipts at all transaction points, including the identification of and/or resolution of potential Bookout transactions and ensures city-gate load is balanced.
- Balance gas receipts and deliveries for fuel supplies for gas fired generation portfolio, including the identification of and/or resolution of potential Bookout transactions.
- Schedule gas receipts and deliveries for transactions with third parties, in addition to scheduling supply for delivery to storage facilities in the Company's Portfolio.

Environmental Portfolio Operations

Authorized Traders in ESM manage certain of PSE's environmental asset portfolios, including RECs and CCAs, and execute transactions to manage these assets consistent with EMC approved strategies and these *Procedures*. Further details regarding the management of RECs are found in Appendix VI and CCAs found in Appendix VII.

Authorized Traders in ESM:

- Develop and originate portfolio hedging strategies for environmental assets to manage wholesale environmental asset commodity portfolios within the context of market fundamentals, supply, and regional policies.
- Negotiate and originate commercial transactions for environmental assets.

Natural Gas Resources

NGR manages and implements strategy regarding natural gas resource activities for PSE, including Canadian and US pipeline rates and tariffs proceedings, resource planning and additions to PSE's Energy Portfolio. Staff in NGR is responsible for

- Coordinate and communicate transactions and acquisitions with ERC and ESM via email. ESM will assign traders to facilitate transaction capture within the ETRM Systems.
- Consult with EDA if considering a transaction that gives PSE the right to use, operate, and direct others to operate, or control access to property plant and equipment. The transaction may meet the criteria for a lease under ASC 842 Leases.

III. Transaction Control

A. Authorized Transactions

Prior to entering into any transaction, Authorized Traders and other employees covered by these *Procedures* must determine if the transaction is an Authorized Transaction (listed in Schedule A) and is in compliance with the limits and hedging strategies outlined in the *Procedures*¹. If it is in compliance, the transaction can be entered into. Personnel seeking to enter into Proposed Transactions that are not yet authorized must follow the Transaction Authorization Process to obtain EMC approval prior to entering into the transaction.

B. Transaction Authorization Process

Business Case Evaluation

Prior to committing PSE to Proposed Transactions or requesting EMC authorization, Authorized Traders and other employees covered by these Procedures must first document the Proposed Transaction considerations and associated risks in consultation with the following PSE stakeholders, as applicable:

- Director, Energy Supply Merchant
- Legal Counsel
- Manager, Energy and Derivative Accounting
- Manager, Energy Risk Control, Analytics and Credit

If the Proposed Transaction requires specific regulatory or tax review, personnel proposing the transaction must also document considerations and risks by consulting the following PSE stakeholders:

- Manager, State and Regional Government Affairs
- Manager, Federal and Regional Policy
- Director, Tax
- EMC Authorization

After documenting considerations and risks associated with the transaction, personnel proposing the transaction must present a Proposed Transaction Business Case to the EMC including demonstrating the consultations described above, and request authorization for the Proposed Transaction(s) and/or amendment of Schedule A. Proposed Transactions and/or amendments to Schedule A must be authorized by EMC before a Proposed Transaction contract is signed or Proposed Transaction is executed.

¹ Authorized Traders must also follow the Energy Supply Merchant Compliance Process and Procedures.

Approval Documentation

All EMC transaction authorizations and approvals to amend Schedule A must be documented via email and/or recorded via EMC meeting minutes. EMC approval of a single or series of transactions does not automatically classify those transaction types as Authorized Transactions for future transactions with similar terms. The EMC must specifically approve any revision to Schedule A. The EMC Secretary will keep a record of all transaction authorizations and amendments to Schedule A and will provide an updated copy to ESM, ERC, and EDA after each such change.

Transaction Process

Power and natural gas and environmental attribute Authorized Transactions will be executed and processed in accordance with flowcharts established as part of the SOX Section 404 reporting requirements adopted by the Company. Transactions entered into by Authorized Traders or ESM management are limited to services, commodities and documentation (instruments, contracts or forms) that are listed as approved on Schedule A and B, unless expressly authorized in advance by the EMC.

All PSE transactions that are entered into orally will be confirmed on a recorded telephone line during PSE business operating hours (for Real-time activity, this means twenty-four hours per day). Exceptions to this rule during regular business operating hours may occur for unusual circumstances (e.g., malfunction of the recording equipment, facility closure), but the ESM Director must be advised as soon as possible. The transaction will be subsequently confirmed on a recorded line. In the event such transactions must be entered into outside of PSE business operating hours for purposes of balancing PSE's Power or Gas Portfolios, the transactions must be confirmed again with the counterparty on a recorded line the following business day. During extreme events (e.g., extended facility closure due to pandemic or other acts of God), other recording method may be deployed with Director ESM permission for employees working remotely, such as ICE chats, Cloud 9 (broker calls), emails and/or other means deemed acceptable by ESM compliance team in the future.

All PSE transactions that are entered into over or via an electronic exchange such as ICE, Web Exchange, or Cloud 9 shall be documented by uploading the transaction record information into the PSE ETRM system.

Any PSE transaction (including any Bookout) that is entered into using an Instant Messaging (IM) or text system shall be performed only on an IM or text system expressly approved by the Company for that purpose. Such transactions shall be documented and captured by the IM company as well as any other PSE contracted IM

archive service company.

Authorized Traders will clearly and completely document transactions at the time of entry, into the ETRM systems including purpose of the transaction.

C. Invoicing

Incoming Invoices

For incoming invoices from counterparties, EDA will review, validate, and prepare the payment labels/invoices for approval and signature by the designated approvers. Any discrepancies on payments will be reviewed by EDA, which will work with ESM and ERC for resolution. The ESM designated approvers will approve and sign the payment labels/invoices (within signature authority limits consistent with corporate policy) for Non-Purchase Order (Non-PO) payments. However, for counterparties that are paid via the PO process, transactions are approved by the ESM designated approvers on Purchase Requisitions in advance. Other energy payments paid via the PO process, the transactions are approved by authorized approvers through the PR. The payments are recorded on the Company's SAP system, which will be routed to AP (Accounts Payable) for disbursement in time to allow timely payments.

Issuing Gas and Power Invoices and Voucher Process

EDA generates invoices and vouchers and transmits invoices to the appropriate counterparties for payment. EDA pushes data from ETRM systems with the invoices and vouchers information, reviews all invoices, and matches to corresponding vouchers. Any discrepancies are researched; counterparties may be contacted to resolve the discrepancies.

D. Derivative Accounting Analysis

Prior to the presentation of hedging strategies to the EMC or the execution of hedging transactions, Authorized Traders will seek the guidance of EDA to determine the accounting treatment and implications. In connection with ASC rules, EDA will perform the on-going analyses of PSE's Energy Portfolio necessary to meet the ASC 815 requirements in Appendix IV for hedge accounting consideration. EDA will keep ESM apprised of any new accounting rules which might change the way PSE accounts for certain assets or contracts in its Energy Portfolio. EDA will ensure transactions are reported in accordance with GAAP. Procedures around accounting rules that impact the management of the wholesale portfolio will be incorporated into these *Procedures* as appropriate.

E. Intracompany Transactions between PSEE and PSEG

- Transactions between the Gas and Power Portfolios will be entered at prevailing market prices and will include transportation or storage fees, as applicable. If there is not a transparent market price for the delivery location, then the transaction will be performed at a price that is beneficial to both PSEG and PSEE customers and will be representative of current prevailing market

- prices at comparable locations.
- Transactions may be for a partial day, a full day, several days, month ahead, or term periods, depending upon the requirements and capabilities of the Gas and Power Portfolios.
 - PSEE is under no obligation to contract with PSEG, and PSEG is under no obligation to contract with PSEE, but each may elect to do so if beneficial for its respective Portfolio.

F. Accounting of Transactions

The appropriate accounting for a transaction must be approved by EDA and ERC will monitor on-going transactions.

To record a PSE sale of energy, the following elements should be present:

- At the inception of the contract, PSE must anticipate that the buyer will be billed by PSE for the energy delivered and that PSE will be paid. It is understood that at a later date the sale may be subject to net settlement or Bookout which may result in no cash payment to PSE.
- At the inception of the contract, PSE must anticipate that the delivery of energy will take place on a schedule fixed in the contract or through verbal or written confirmation.
- At the inception of the contract, PSE must anticipate that the risk of ownership will pass to the buyer of the energy, the buyer has a commitment to purchase energy or capacity, and that there is an agreement or confirmation to evidence the sale.
- PSE must not retain any specific performance obligations after the date of delivery.
- PSE must not be obligated to repurchase from the buyer the entire amount or any portion of the energy or capacity just sold by PSE; however, the PSE delivery portion of exchanges may be recorded as a sale in PSE's accounting records.

To record a PSE purchase of energy, the following elements should be present:

- At the inception of the contract, PSE anticipates that PSE will be billed by the seller and that PSE will be required to pay for energy delivered. It is understood that at a later date the purchase may be subject to net settlement or Bookout, which may result in no cash payment by PSE.
- At the inception of the contract, PSE anticipates that the receipt of energy will take place on a schedule fixed in the contract or through verbal or written confirmation.
- At the inception of the contract, PSE anticipates that the risk of ownership will pass to PSE upon delivery of the energy.
- PSE has a commitment to purchase energy or capacity and there is an agreement or verbal or written confirmation to evidence the purchase. The

seller must not retain any specific performance obligations after the date of delivery.

- PSE must not be obligated to re-sell to the seller the entire amount or any portion of the energy or capacity just purchased by PSE; however, the PSE receipt portion of exchanges may be recorded as a purchase in PSE's accounting records.

If purchase or sales transactions entered into PSE's ETRM Systems do not meet the criteria for recording a purchase or sale for financial reporting, ERC and EDA must be notified by ESM and will uniquely identify the transactions such that the non-compliant transactions are not recorded as a purchase or sale by PSE in its general ledger or financial reports.

G. Transaction Reporting to Third Parties

PSE has certain reporting obligations for its energy purchases and sales to federal, state, and provincial regulators, and other third parties. For example, ERC submits transaction reports to index publishers on a current basis and submits periodic reports to US and Canadian governmental agencies about natural gas imports and exports. PSE's regulatory team files reports of PSE wholesale transactions with federal, state, and provincial regulatory agencies. ERC will collect trade transaction data, generate reports of such data and coordinate with other PSE departments or requesting parties to facilitate transmission of requested data. For reports to be submitted by other departments, ERC will assist other PSE departments in meeting energy purchase and sale reporting obligations.²

H. Valid Business Purpose

PSE personnel will only enter into transactions with a valid business purpose and which are consistent with the principles and limits provided in these *Procedures*. PSE will transact in accordance with prevailing tariffs, laws, and regulations. More specifically:

- PSE will not enter into "wash" or "round trip" trades or transactions. These are offsetting purchase and sale transactions entered into simultaneously with the same counterparty, at the same location for the same delivery period which serve no business purpose.
 - PSE will not submit any false or misleading nominations or schedules to any pipelines, transmission providers or other third parties effecting the transmission of energy.
-
- PSE will not enter into pre-arranged transactions that assist other companies in transacting with each other, to the degree that direct transactions between those parties would be prohibited by law or regulation. PSE may not act as a Credit Sleeve provider.

²For more specific details on transaction reporting to index publishers please refer to PSE's Code of Conduct for Voluntarily Submitting Energy Data to Index Developers posted on PSE's

website: https://www.pse.com/-/media/PDFs/001-Energy-Supply/003-Acquiring-Energy/6117_CofC_Energy_Data_Submission.pdf

- PSE will not enter into transactions to receive compensation for services it does not have the ability to provide. For example, PSE will not enter into transactions for spinning reserves or congestion relief unless it has the appropriate tariff on file, has adequate energy capacity or services as appropriate for the transaction, at the time it entered into the transaction. PSE will provide services pursuant to having relevant tariffs in place.
- Authorized Traders will not enter into simultaneous exchanges or circular schedules without the prior approval of the ESM Director and prior review and approval of the PSE legal and compliance groups.
- Authorized Traders will conduct business and represent PSE in a manner consistent with PSE's Corporate Ethics and Compliance Program.

I. Records Retention

PSE will maintain records and documentation related to the Energy Portfolio, in conformance with all laws and regulations and as follows:

- EMC Meetings - Official hard copies, including all presentations made at the EMC meetings, will be kept in EMC binders located on-site at PSE offices. Official hard copies of materials will be stored in a secure, limited access location and parties wishing to review the binders must sign them out for review. Materials in the EMC binders are confidential and may not be shared outside the Company without approval of the EMC Chairperson. Additionally, copies of materials available in electronic format will be maintained in designated folders on the Company's network. A member of the staff will act as EMC Secretary ("Secretary"). The Secretary will be responsible for the maintenance of electronic and hard copy files. EMC records will be retained in accordance with applicable retention policies. Minutes of EMC meetings will be taken by the Secretary and forwarded to all meeting participants. The EMC Chairperson will accept the meeting minutes upon approval by the EMC members. Minutes will be maintained for all EMC meetings.
- Strategy or Transaction Approvals - ERC will be provided documentation of strategies approved by the EMC. If the EMC approves strategies or transactions outside of regularly scheduled EMC meetings, the Secretary will retain records of such approvals in the EMC binders and electronic files. Approvals must be written or in email format and forwarded to ERC.
- Hedging Transaction Documentation - ERC will maintain documentation tying transactions to EMC-approved hedges as appropriate. Contemporaneous documentation will be provided to ERC by Authorized Traders who enter into transactions on behalf of the Company. At a minimum, documentation will reference the strategy behind the hedge and the reasons for execution of the hedge.
- ERC will maintain the Company's official Forward Price Curves. Third party

Forward Price Curves will be used and validated by ERC. Forward Price Curves will be maintained for all market locations in which the Company actively engages in physical and financial energy transactions. Additionally, Forward Price Curves will be archived for future reference.

- Fundamental Market Analysis - ESM will retain copies of fundamental market analysis that the Company subscribes to or develops internally and uses for decision- making purposes.
- Records of communications with a counterparty that relate to a transaction will be maintained consistent with FERC or other applicable regulatory or legal requirements. For example, oral transaction records on recorded lines, or instant messaging transaction records over systems approved for use by Authorized Traders, will be preserved as required by regulatory agencies. Such records must include complete transaction documentation but may also include negotiation documentation if appropriate and available.
- Documentation related to PSE transactions that are entered into through bilateral negotiations with a counterparty and that extend for a term exceeding three years shall be maintained by the group that negotiated them, such as ESM, NGR, or RA and/or placed into the energy supply records.

IV. Operational and Financial Controls

The business has developed a combination of operational and financial controls to maintain compliance with this *Procedure*, regulatory requirements, SOX controls over financial reporting, and other guidance. These controls are owned, conducted, and maintained by LOD1 and LOD2.

LOD3, Internal Audit, is responsible for testing the controls and in the case that deficiencies are identified, requiring LOD1 and LOD2 to implement or amend existing control activities.

LOD 1 controls (Front Office Controls):

- Develop risk mitigation strategies
- Utilize authorized commodities, instruments, locations, and tenors
- Utilize approved counterparties
- Initiate transactions in compliance with Delegation of Authority (DOA) and risk and credit limits
- Ensure all transactions are recorded accurately, timely, and completely in the ETRM system
- Utilize appropriate price curves in the systems of record
- Ensure compliance with all regulatory and legal obligations
- Reconcile storage inputs for injections and withdrawals from monthly pipeline reports to the trading system of record. Maintain evidence of execution for defined SOX controls

LOD 2 controls (Middle Office and Back Office Controls):

Middle Office:

- Produce risk measurement and reporting reports by book for operations and leadership review
- Perform deal review ensuring completeness and timeliness of deal entry
- Independently measure positions, current and potential risk exposure
- Measure and report on credit risk metrics and credit utilization
- Track and manage the confirmation process, escalate unconfirmed deals
- Monitor compliance to risk management Policies and Procedures and report exceptions
- Manage counterparty vetting, onboarding, and credit monitoring
- Validate price and volatility curves in the ETRM system
- Perform user access reviews for appropriateness of existing personnel based on job duties and responsibilities. Maintain evidence of execution for defined SOX controls

Back Office:

- Comparison of invoices and vouchers systems of record to third party documentation
- Review of underlying schedules and third-party statements to prepare key balance sheet inventory accounts (purchased gas and coal) and WACOG (Weighted Average Cost of Gas) calculation
- Manage the invoicing, cash receipts and payments, and application of funds to counterparty accounts
- Obtain and review relevant Service Organization Control (SOC) reports where PSE has outsourced elements of their Internal Controls over Financial Reporting (ICFR)
- Preparation of key notes for financial reporting in 10Q / 10K
- Reconciliation of volumes used in actualization process against third party schedules
- Review contracts to ensure completeness and accuracy in the source system
- Ensure compliance with accounting standards including ASC 815, ASC 810, ASC 842, and ASC 360
- Maintain evidence of execution for defined SOX controls

LOD 3 controls – Internal Audit (IA)

The third line of defense, IA, is not an owner or operator of any operational or financial control activities. The IA function is independent of the influence of the 1st and 2nd LOD but play a key role in overseeing the functions and evaluating the control design and operating effectiveness of key controls.

Internal Audit is responsible for conducting required regulatory audits. This includes evaluating the process and controls related to power and natural gas price index reporting

in line with FERC's Policy Statement on Natural Gas and Electric Price Indices on an annual basis.

V. Notice of Violation of Procedures

ERC will notify the appropriate party consistent with the escalation protocol outlined in Appendix VIII herein for any non-compliance with these *Procedures* and/or established limits.

- In the event of non-compliance with these *Procedures*, ERC will notify the supervisor of the person(s) violating these *Procedures* within the same business day upon discovery.

VI. Glossary

Aggregate Net Open Position - The aggregate net short and long positions for a given asset or portfolio (in aMW or MMBtu/day average) in a given time period. This is calculated using load, generation, purchases and sales.

Authorized Traders - Staff member(s) who are authorized to transact on behalf of the Company (defined by time-frame, commodity type, and any other distinguishing factors as determined by the applicable director or officer).

Authorized Transactions - Transactions which are listed and defined in Schedule A and B or are approved on an ad hoc basis by the EMC. Authorized Transactions may not have a Term which exceeds 36 months unless specified otherwise in Schedule A or approved by the EMC. Any changes to Schedule A require approval from the EMC.

Balance of the Month (BOM) - A type of Short-Term power or gas transaction that enables market participants to enter into a physical or financial trade for delivery or settlement on each day of the present month in which the transaction has taken place.

Bookout - An agreement entered into by PSE (usually by schedulers) and one or more counterparties whereby all parties, with respect to offsetting transactions, agree to perform only the net financial component of the associated transactions, obviating the reciprocal associated physical deliveries of the commodity.

Bring Your Own Device (BYOD) – PSE's "bring your own device" program.

Credit Exposure - Includes, but may not be limited to, the net sum of accounts receivable, accrued receivables (delivered, but not invoiced) and the unrealized value of Forward Contracts (MTM). With proper documentation, PSE's accounts payable and accrued payables (received, but not invoiced) are also considered in the calculation for credit exposure.

Credit Risk - In transactions and other commercial resource acquisition activities, refers to the potential loss due to counterparty's non-performance under an agreement.

Credit Sleeve - A party acts as a "Credit Sleeve" (CS) when it agrees to become an intermediary between two other parties (A & B), one of which (A) has inadequate credit with the other (B) to enter into a proposed transaction between the two (A & B). Thus, if CS has sufficient credit with B to enter into the transaction with B directly, and is willing to become a "sleeve" for A, the transaction can be implemented. Sometimes the "sleeving" transaction might be structured as two buy-sells, one between A and CS; the next between CS and B. Sometimes the "sleeving" transaction might be structured as a three-party arrangement. Most often, a party acting as CS receives a fee or other compensation from A. Most often, a party acting as CS will only act as such for specific transactions, for specific counterparties. Most often, the intended effect of the "sleeve" structure is for CS to become directly obligated to B, in addition to A being directly obligated to B. The structure thus is often similar to a guaranty, though not all legal rules or obligations are the same as would be the case in a guaranty. PSE is not allowed to do Credit sleeves.

Day-Ahead - A type of transaction that enables market participants to trade power or gas for physical delivery on the next power or gas day(s) (as defined in the WECC Preschedule Calendar for power and the next day or weekend standard trading for gas days). For power, also referred to as "Preschedule."

Energy Portfolio - The Power and Gas Portfolios may be collectively referred to as the "Energy Portfolio."

Energy Trade Risk Management (ETRM) Systems - The "end-to-end" trading and risk management systems used to capture transactions through settlement and reporting.

Expiration or Termination Date - The last day a contract is valid to require or permit performance.

Exposure Reports - A report providing information regarding the Company's counterparty or Spot Market Exposure.

Forward - A type of transaction which enables market participants to enter into a physical or financial trade with a term, for power transaction greater than that BOM and for gas transactions, greater than that of Short-Term transactions.

Forward Contract - Refers to over-the-counter transactions/contracts for power and gas for delivery beyond the Prompt month.

Forward Price Curve - A data set of monthly market prices for future gas and power transactions listed by date.

Gas Portfolio - The Gas Portfolio is comprised of purchased gas supply, sales contracts, gas transportation agreements and gas storage capacity, along with hedges to manage volatility, intended to meet the needs of PSE's retail natural gas customers. The Gas Portfolio is also referred to as PSEG.

Index Swap - A float-float index swap that references one daily or monthly index against another daily or monthly index.

Letter of Credit (LOC) - A contractual obligation on the part of a bank to pay a "beneficiary" in the event that the debtor fails to pay as stipulated in the LOC. A LOC effectively transfers the creditworthiness of the issuing bank to the debtor. LOCs usually limit the amount of liability, the term of agreement, and the products covered.

Locational Exchanges - A physical transaction between PSE and a counterparty in which PSE buys power from a counterparty for a specified time period in exchange for selling power to the same counterparty during the same time period but at a different location.

Long-term - Refers to transactions/contracts for energy supply for delivery beyond 12 months following the transaction date.

Medium-term - Refers to transactions/contracts for energy supply for delivery within the period after the Transaction Date calendar month and a time period up to 12 months beyond the Transaction Date.

Netting Agreement - An agreement that specifically enables the netting of payments for transactions under a contract or collection of contracts.

Notional amount - Notional Amount is defined as:

- For fixed price transactions: total volume of the transaction multiplied by the price (market or contract) per unit.
- For indexed transactions: total volume multiplied by the index premium.

Gas Index Notional amount = MMBtu/d x number of days x absolute value (premium)

Power Index Notional amount = MW x total hours x absolute value (premium)

Position Report - Reports which illustrate volumetric amounts/values associated with a portfolio of native generation asset forecasts, internal, and external physical and financial transactions. Often the positions are segmented by particular business units, markets, instruments, or trading portfolios.

Prompt Month - Refers to the next month beyond the month of the current date.

Power Portfolio - The electric supply portfolio, composed of owned generating resources, short-term and long-term power purchase agreements, and is intended to meet the needs of PSE's retail electric customers. The fuel supply for the Power Portfolio is composed of natural gas, fuel oil and coal, along with hedges to manage volatility. The Power Portfolio is also referred to as PSEE.

Proposed Transactions - A proposed single transaction, multiple specified non-Authorized transactions or, the addition/modification of an Authorized Transaction to Schedule A, which has not been approved by the EMC, either as an addition to Schedule A or separately.

Proposed Transaction Business Case - Proposed Transaction Business Case presentations requesting transaction(s) authorization and/or amendments to Schedule A should include a (n):

1. Recommendation for the transaction;
2. Description of how the transaction is consistent with PSE's Integrated Resource Plan, 5-Year Plan, Clean Energy Transformation Act, corporate goals, and PSE's Energy Risk Policy;
3. Quantitative analysis which illustrates the costs (including operational, internal processing and overhead costs) and benefits of the transaction;
4. Alternatives analysis as applicable;
5. Evaluation of additional operational requirements necessary to initiate as well as support the transaction through its specified terms;
6. Documentation of the considerations and risks associated with the transaction and mitigation strategies.

PSEE - PSE Electric. See also **Power Portfolio**.

PSEG - PSE Gas. See also **Gas Portfolio**.

Real-time - Refers to transactions/contracts for same day energy supply, including hourly or sub-hourly markets.

Short-term (also **Balance-of-Month**) - Refers to transactions/contracts for next-day up to end of the calendar month energy supply.

Spot Market Exposure - An ERC approved modeled dollar summary measured by utilizing portfolio net open position and the Forward Price Curve. It represents the net dollar amount that the Company has not hedged during a given timeframe, given forecasted volumes and current market prices.

Swap - Most often, a fixed-for-floating gas or power transaction between two counterparties where one pays a fixed price and another pays a monthly floating or daily floating index price.

Tariff - Terms and conditions under which a provider or seller offers service to all counterparties. That is, tariffs normally only govern a party's sales, not purchases. Tariffs are often comprehensive and usually non-negotiable. For regulated parties (including PSE), tariffs must be filed with the applicable regulatory body before they are effective. For some parties that operate a market (e.g., the CAISO), tariffs adopted by the market operator govern both purchase and sales in that market.

Temporal Exchanges - Are physical transactions between PSE and a counterparty in which PSE buys power from a counterparty at a specified location in exchange for selling to the same counterparty power at the same location during a different time period. These transactions can be entered into to balance net position deficit and surpluses in different time periods or to optimize a flexible resource such as hydro or a contract with flexible-take provisions.

Term - For transactions refers to the length of time measured starting on the Transaction Date and ending on the delivery end date or contract end/termination date.

Transaction Date - The Transaction also referred to as ("**Trade Date**") is the date which a transaction or trade is executed.

VII. Schedules

SCHEDULE A - Authorized Transactions

Portfolio	Commodity	Instrument	Locations	Price	Purchase	Sale	Type	Term ³
Gas and Power	Gas	Physical Contract	Supply locations on pipelines or at storage locations where PSE holds capacity (see Schedule B for Gas Pipeline and Gas Storage Capacity Locations).	Fixed price or Index Price approximating the supply location of the transaction and based on a specified index in Schedule B.	Yes	Yes	Short-Term, Forward	36 Months
Gas and Power	Gas Pipeline Transportation Capacity	Firm, Interruptible, & Capacity Release ⁴	See Schedule B.	Fixed price consistent with FERC and Canada Energy Regulator (CER) rules for the pipeline path at the location of the transaction or Index Price approximating the supply location of the transaction and based on a specified index listed in Schedule B.	Yes	Yes	Short-Term, Forward	36 Months

³ Unless specifically authorized for transactions within an EMC approved strategy.

⁴ Excludes Asset Management Agreements which are not authorized.

Portfolio	Commodity	Instrument	Locations	Price	Purchase	Sale	Type	Term ⁵
Gas and Power	Gas Storage Capacity	Firm, Interruptible, & Capacity Release ⁵	See Schedule B.	Fixed price consistent with FERC and CER rules for pipeline storage or Index Price approximating the supply location of the transaction and based on a specified index listed in Schedule B.	Yes	Yes	Short-Term, Forward	≤12 Months
Gas and Power	Gas	Swap	Supply location referencing and closely approximating locations on pipeline paths where PSE holds takeaway capacity and which are listed in Schedule B.	Fixed price or Index Price approximating the supply location of the transaction and based on a specified index listed in Schedule B.	Yes	Yes	BOM, Forward	36 Months

⁵ Excludes Asset Management Agreements which are not authorized.

Portfolio	Commodity	Instrument	Locations	Price	Purchase	Sale	Type	Term ⁶
Gas and Power	Gas	Call and Put Options	Supply location referencing and closely approximating locations on pipeline paths where PSE holds takeaway capacity and which are listed in Schedule B.	Fixed price or Index Price approximating the supply location of the transaction and based on a specified index listed in Schedule B.	Yes	Yes	BOM, Forward	36 Months
Power	Power	Physical Contract ⁶	All locations within WECC which are interconnected to the bulk electric system with transmission to serve PSE.	Fixed price or Index Price approximating the supply location of the transaction and based on a specified index listed in Schedule B.	Yes	Yes	Real-Time, Day-Ahead, BOM, Forward	36 Months
Power	Power	Ancillary Services	Locations within WECC which are interconnected to the bulk electric system with transmission to serve PSE.	Fixed price or Index Price approximating the supply location of the transaction and based on a specified index in Schedule B.	Yes	No	Real-Time, Day-Ahead, BOM, Forward	36 Months

⁶ Includes Temporal Exchanges which are authorized. Excludes Locational Exchanges, which are not authorized.

Portfolio	Commodity	Instrument	Locations	Price	Purchase	Sale	Type	Term ⁷
Power	Power	Swap	Locations within WECC which are interconnected to the bulk electric system with transmission to serve and are listed in Schedule B.	Fixed price or Index Price approximating the supply location of the transaction and based on a specified index in Schedule B.	Yes	Yes	BOM, Forward	36 Months
Power	Renewable Energy Credits (RECs) (Green-e certifiable) ⁷	Physical Firm Contract	RECs generated from PSE owned facilities which are not required to meet PSE RPS requirements.	Fixed price	Yes	Yes	Forward	36 Months
Power	California Carbon Allowances (CCAs)	Physical Firm Contract	See Schedule B	Fixed price	Yes	See Appendix VII	See Appendix VII	See Appendix VII

⁷RECs purchased for PSE's retail customer "Green Power Program" are not governed by the Procedures.

SCHEDULE B - ERC Locations and Indices⁸

- Last updated 11/17/2017

Portfolio	Commodity	Instrument	Locations	Indices
Gas and Power	Gas	Physical Contract	Supply locations on pipelines or at storage locations where PSE holds capacity (see Gas Pipeline Transportation and Gas Storage Capacity Locations below).	Platt's-Inside FERC (IFERC) – Monthly, Platt's Gas Daily, ICE and Natural Gas Exchange (NGX).
Gas and Power	Gas Pipeline Transportation Capacity	Firm, Interruptible, & Capacity Release	Nova Gas Transmission Ltd., Foothills Pipe Lines Ltd., Gas Transmission Northwest LLC, Westcoast Energy Inc., Cascade Natural Gas, & Northwest Pipeline LLC	Platt's-Inside FERC (IFERC) – Monthly, Platt's Gas Daily, ICE and Natural Gas Exchange (NGX).
Gas and Power	Gas Storage Capacity	Firm, Interruptible, & Capacity Release	Jackson Prairie (Northwest Pipeline LLC), Clay Basin (Dominion Energy Questar Pipeline) & Plymouth (Northwest Pipeline LLC)	Platt's-Inside FERC (IFERC) – Monthly, Platt's Gas Daily, (ICE), and Natural Gas Exchange (NGX).
Gas and Power	Gas	Swap	Sumas, AECO, Rockies	Platt's-Inside FERC (IFERC) – Monthly, Platt's Gas Daily, and ICE.
Gas and Power	Gas	Call and Put Options	Supply locations on pipelines or at storage locations where PSE holds capacity (see Gas Pipeline Transportation and Gas Storage Capacity Locations above).	Platt's-Inside FERC (IFERC) – Monthly, Platt's Gas Daily
Power	Power	Physical Contract	Approved regions: WECC and CAISO	ICE MID-C Daily and COB-ICE Daily

⁸ Changes require approval from the Manager, Energy Risk Control, Analytics, and Credit, but do not require EMC approval.

Portfolio	Commodity	Instrument	Locations	Indices
Power	Power	Ancillary Services	Approved regions: WECC and CAISO	ICE MID-C Daily and COB-ICE Daily
Power	Power	Swap	MID-C and COB	ICE MID-C Daily and COB-ICE Daily
Power	Environmental Attributes: RECs and CCAs	Physical Contract	Approved regions: WECC and CAISO	n/a

SCHEDULE C - Execution of EMC – Approved Hedge Strategies

In the execution of EMC-Approved Hedges, in the event the executed hedges deviate from the parameters of an approved hedge strategy (inclusive of any EMC-approved updates or amendments made to those hedges), the following schedule advises the levels of authority for exceptions.

ESM Director has authority to transact up to the DESM level. Transactions above the ESM Director level require EMC approval.

Percent Aggregate Volume or Dollar Variance from Approved Hedge Strategy (tolerance)

ESM Director	+/-	10%
EMC	>	10%

SCHEDULE D – Margin and Collateral Posting

Energy Risk Control is responsible to report daily on margin and collateral requirements associated with the Company's exchange traded accounts to Treasury and ESM operations. ERC also has primary responsibility for initiating wire requests and to ensure collateral balance requirements and applicable deadlines are satisfied for the Company's trading accounts. Manager of ERC and Manager of Treasury operations have authority to post collateral to established thresholds that support routine operations. Collateral and margin postings in excess of these thresholds require VP Energy Supply or Senior VP & CFO authorization and notification to the EMC.

Manager Treasury and ERC Authority

Intercontinental Exchange (ICE)	< \$25M
Natural Gas Exchange (NGX)	< \$25M

VP Energy Supply and Senior VP & CFO

Intercontinental Exchange (ICE)	> \$25M
Natural Gas Exchange (NGX)	> \$25M

SCHEDULE E - Gas and Power Portfolios Aggregate Net Open Position Limits

Most restrictive limit applies and Aggregate Net Open Position must be within the Spot Market Exposure limit (Schedule F). Note: If there is an exceedance in Power Portfolio in either the Power Fixed Price Net Position or the Gas for Power Fixed Price Net Position, and if the combined Spot Market Exposure risk of both the combined Power and Gas for Power is within limits outlined in the Spot Market Exposure limit (Schedule F), then the net position exceedance will not be deemed to be an exceedance.

Other than the Gas Prompt Month limits, limits for both the Gas and Electric portfolios published on the first business day of each month are not applicable, exceedance does not require mitigation.

Aggregate Net Open Positions

Power (Rolling 12 – Avg. Fixed Price Position)

[REDACTED]

Power (Two Month – Avg. Physical Position)

[REDACTED]

Power (Rolling 6 – Avg. Physical Position)

[REDACTED]

Gas for Power (Rolling 12 – Avg. Fixed Price Position)

[REDACTED]

Gas for Power (Two Month – Avg. Physical Position)

[REDACTED]

Gas for Power (Rolling 6 – Avg. Physical Position)

[REDACTED]

Gas – (Rolling 6 – Avg. Physical Position)

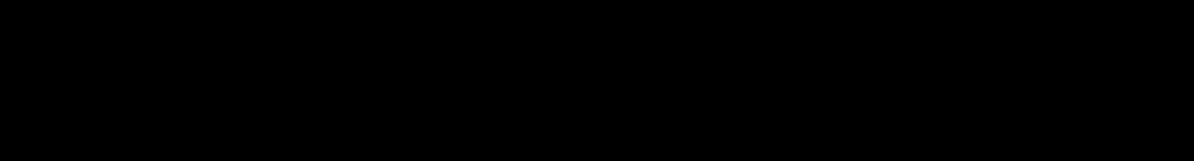
[REDACTED]

Aggregate Net Open Positions

Gas (Rolling 12 – Avg. Fixed Price Position)



Gas (Prompt Month – Avg. Physical Position)



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REDACTED VERSION

SCHEDULE F - Spot Market Exposure for Gas and Power Portfolios

Spot Market Exposure is measured monthly and aggregated in a rolling 12 Month total that includes 12 full months following the current month.

Authorized Traders have exposure authority up to the Authorized Traders level. Exposure above the Authorized Traders level requires notification to the EMC if not mitigated within two business days.

Power Spot Market Exposure (Combined on & off Peak Power and Gas for Power)

Authorized Traders

[REDACTED]

EMC

[REDACTED]

Gas Spot Market Exposure Total Portfolio (Including EMC Approved Hedging Plan)

Authorized Traders

[REDACTED]

EMC

[REDACTED]

Exposure is calculated by month in the Gas Portfolio by taking the Aggregate Net Open Position and subtracting assumed storage withdrawal for any given month.

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CONFIDENTIAL PER WAC 480-07-160**

REDACTED VERSION

SCHEDULE G - Officers and Department Oversight (Relevant to the Procedures)

<u>Officer</u>	<u>Department Oversight</u>
VP Energy Supply	Energy Supply Merchant Resource Acquisitions Natural Gas Resources
Senior VP & CFO	Energy Risk Control, Analytics, and Credit Energy and Derivative Accounting

VIII. Appendices

Appendix I - Credit Risk Management Policy

1.0 Overview

1.1 Definition

To transact business, it is necessary to accept Credit Risk. However, the amount of Credit Risk in a wholesale energy portfolio can be measured, monitored, and mitigated to maintain a level of Credit Risk acceptable to the Company. Because of this, ERC is an integral part of the risk management process.

The role of ERC is to maintain the optimal amount of Credit Risk in the portfolio, to maximize hedging and optimization opportunities for the Company, while protecting the Company from unacceptable Credit Risk.

ERC conducts control and oversight activity. It must remain independent from ESM but work closely with them to ensure that credit policies are implemented and maintained.

1.2 Credit Risk Management within PSE

This Credit Risk Management Policy (CRMP) outlines the critical credit risk management policies and procedures to be followed by PSE employees involved in energy supply and hedging transactions. All PSE employees entering into wholesale energy contracts must observe the CRMP. Non-adherence to the CRMP, or any related limits or practices enacted as a result of the CRMP, may be considered cause for termination of employment.

2.0 Credit Risk Management Organizational Structure

2.1 Policy Creation and Oversight

The EMC adopts and polices the implementation of the credit risk management policies and procedures contained in this document.

2.2 Role of the Energy Risk Control, Analytics, and Credit Manager

The ERC Manager approves and enforces all aspects of credit, as outlined in Section 3.0 and reports directly to the Director of Enterprise Risk Management. The ERC Manager is responsible for developing processes for the measurement of Credit Risk, using the ETRM Systems selected by the Company.

3.0 Credit Management Responsibilities of Energy Risk Control

3.1 Counterparty Analysis

The creditworthiness of each counterparty must be determined through an analysis of the counterparty's financial and operational condition. Based on this analysis, each counterparty is assigned an internal risk rating corresponding to the Credit Risk inherent to this counterparty. A credit limit is established as a result of this rating in accordance with section 3.0 of the CRMP.

3.1.1 Developing Counterparty Information Files

ERC will maintain files of all counterparties, which may include, but are not limited to, financial statements, rating agency reports, and documentation of conversations with credit and risk personnel.

3.1.2 Counterparty Risk Analysis

Generally counterparty creditworthiness is analyzed by focusing on a number of qualitative and quantitative factors including, but not limited to, capital structure, cash flows, profitability, competitive position, and liquidity and financial flexibility. A counterparty's financial profile can be compared with that of peer group companies, using benchmarks published by ratings agencies or developed through internal research.

3.1.3 Risk Rating

Each counterparty is assigned a PSE Risk Rating, based on Standard & Poor's ("S&P") published ratings. If S&P published rating is not available, Moody's published rating can be considered in its place. If both the published ratings are not available, a probability of default based analysis will be performed to derive the PSE internal rating. The PSE Risk Rating corresponds to a widely recognized system using rating standards similar to those of Standard & Poor's, which range between AAA and CCC.

PSE risk ratings that exceed published ratings agency ratings must be approved by the EMC. The EMC may review PSE Risk Ratings and override the decision of ERC.

Exchanges where transactions occur such as NGX or ICE are exempted from the regular PSE Risk Rating assignment and the annual review. Instead a credit limit is based on the evaluation and monitoring of the robustness of the Exchange's risk/credit mitigation policies.

3.1.4 Credit Limit

A credit limit represents the maximum acceptable credit exposure, expressed in dollars, approved for a counterparty. Each counterparty has an overall credit limit, which is generally allocated into limits for each contract type.

3.1.5 Credit Limit Authority Levels

The credit limit for each counterparty is based on the PSE risk rating and other supporting documentation resulting from the analysis of that counterparty. The chart of credit limit authorities is in Appendix II. Appendix II contains the credit limit authorities for transactions with terms of 3 years or less. ERC must assign credit limits consistent with Appendix II. The EMC must approve any Credit Limits that exceed those established in Appendix II.

Concentration Limit: The EMC must approve any credit limits that are both a) greater than \$50,000,000 US Dollars, and b) equal to or larger than 7.5% of PSE's total counterparty portfolio exposure.

Percent of Equity: The credit limit of a utility company may not exceed 3% or 4% of its equity if it has a quick ratio of less than 1 or a quick ratio of greater than 1, respectively. The credit limit of a non-utility company may not exceed 2% or 3% of its equity if it has a quick ratio of less than 2 or a quick ratio of greater than 2, respectively.

The EMC must approve the credit terms for all transactions with terms greater than 3 years.

3.1.6 Periodic Review

All active counterparties with MTM are reviewed at least annually to ensure that risk ratings and credit limits are appropriate. Annual reviews of each counterparty are completed as soon as reasonably practicable once financial statements are available. Additional ad-hoc reviews are performed when counterparty credit status or credit support has changes. ERC review updates will use the most recent financial statements available. ERC review updates succinctly refresh annual reviews and need not be as comprehensive as annual reviews. Between periodic reviews, ERC will monitor all counterparties in real time, as industry trends and events could impact the credit worthiness of PSE's counterparties.

3.1.7 Approved Counterparties

ERC provides Authorized Traders with a listing of approved counterparties. The listing includes the commodities for which PSE may transact with each counterparty. The listing clearly defines the credit limit for each counterparty and any limitations imposed by ERC. ERC publishes daily credit report to advise ESM of the status of counterparties with whom PSE's credit exposure is approaching or exceeding the established limits.

3.2 Credit Exposure Measurement & Reporting

3.2.1 Daily Monitoring of Credit Exposures

Credit exposure is monitored daily for all transactions, meaning that reports for transactions on one day are reviewed by ERC during the following day. This monitoring

consists of reports that calculate, summarize and display the credit exposure for each counterparty and each enabling agreement. These exposures are compared to approved credit limits to determine if exposures exceed approved limits.

3.2.2 Mitigating Credit Line Exceptions

In the event that a credit exposure exceeds a credit limit, ERC will take appropriate action which may include, but is not limited to, a request to the counterparty to mitigate the exposure by providing collateral acceptable to PSE. ERC may request collateral in the form of a prepayment, Letter of Credit (“LOC”), or additional guaranty amount (to be determined at the discretion of the ERC Manager). If a counterparty fails to comply with the request promptly, ERC will review the applicable contracts with internal legal counsel. Appropriate action will be taken as established in the contract(s), up to and including early termination of the contract(s).

Additionally, if PSE has a netting agreement with a counterparty, ERC may advise commercial personnel of the credit exposure with the counterparty and together, ERC and commercial personnel may determine that an off-setting purchase or sale is an acceptable means of mitigating credit exposure for PSE.

In the event that a credit exposure materially exceeds a credit limit for three business days, ERC will immediately prepare and distribute a report to the Senior VP & CFO. The status of this exception will be communicated to the Senior VP & CFO until the counterparty’s exposure no longer exceeds its credit limit.

3.3 Financial Reporting Notification

If at any time, after considering the impact of any credit mitigation documents described in Section 4.0 of the CRMP, the likelihood that a counterparty will default is highly probable, the ERC Manager will promptly notify the Manager, Energy & Derivatives Accounting.

4.0 Credit Mitigation Document

Contractual documents may be used to mitigate credit exposure or enhance the credit worthiness of a counterparty. Prior to execution, these documents are to be reviewed and approved by ERC and, if required, legal counsel. Guaranties, letters of credit and surety bonds are kept in the possession of ERC. All other documents are administered by ESM, RA and NGR and are stored in PSE’s regular contract document collections.

4.1 Contract Language

Creditworthiness language may grant PSE and its counterparty the right to require collateral if there is reasonable concern about the financial stability of either company. The inability to produce collateral when requested may be an event of default under the contract, which may lead to an early termination and liquidation of the contracts.

4.2 Netting Agreement

PSE recommends netting agreements with all counterparties. This agreement lowers credit risk in two ways. First, it reduces the risk of settlement default, because only one net payment is made. Second, it improves PSE's position in a bankruptcy scenario by establishing a consistent procedure for offsetting exposures between PSE and the counterparty. Based on the merits of netting agreements, ERC will attempt to execute netting agreements with all counterparties.

A netting agreement can generally be established in two forms: embedded in a standard contract or in a stand-alone document. Netting language is standard in all of PSE's physical contracts and is the preferred form. However, some counterparties prefer to execute stand-alone netting agreements that establish the netting relationship in more detail. PSE will accept a stand-alone netting agreement that passes legal review.

4.3 Guaranty

A guaranty is a contractual obligation on the part of the guarantor to pay the beneficiary in the event that the debtor fails to pay as agreed. A guaranty improves the Credit Risk position of the beneficiary and may improve the risk rating for a counterparty.

Guaranties may limit the amount of liability, the term of agreement, and the products covered. It is the responsibility of ERC to ensure that the limitations in each guaranty are observed when setting transaction limits.

4.4 Letter of Credit

ERC must analyze, risk rate, and assign a credit limit to any bank issued LOC. The aggregate exposure of all LOC drawn on each bank must be monitored and mitigated, as with any other counterparty. It is the responsibility of ERC to ensure that the limitations in each LOC are observed when setting transaction limits and monitoring exposures.

4.5 Deposit or Cash Margin Agreements

Cash may be used as a prepayment deposit or margin to mitigate credit exposure. It is the responsibility of ERC to maintain the correct amount of cash margin and to coordinate cash management with Treasury.

4.6 Margining Agreement

A margining agreement or margining language within the base contract can assist in mitigating credit exposure by establishing a formal process for the exchange of collateral, should either party exceed their contractual limit. In general, PSE does not encourage adequate assurance or credit support type of negotiations to protect PSE customers from undue costs. From time to time PSE will agree to stand-alone margining agreements or margining agreements embedded in contracts under special circumstances (such as exchanges or slice auctions etc.). These limits are negotiated in advance and explicitly

stated in the agreement.

4.7 Performance Assurance

There are instances in which PSE must provide performance assurance to support credit limits with counterparties. If performance assurance must be provided, it will be in the form of a limited guarantee issued by a parent company of PSE, a LOC issued by a bank, a cash deposit, or a prepay. PSE will monitor all performance assurances provided to counterparties. PSE may receive performance assurance from a counterparty to secure its obligations under its agreement with PSE. The amount of performance assurance and the remaining contractual obligations of the counterparty under its agreements will be monitored by ERC.

5.0 Credit Approvals before Transacting with Counterparties

There will be no transactions agreed to with counterparties until ERC has authorized a counterparty.

5.1 Responsibilities of Authorized Traders

Authorized Traders are responsible for complying with the limitations published in the Counterparty List. Transacting with counterparties which are not approved, or transacting beyond limitations stated on the Counterparty list are a violation of the CRMP. ERC will notify the Senior VP & CFO of any material violations by PSE personnel.

Additionally, ESM, RA and NGR personnel will report to ERC any company-specific or industry- related information that might be important for managing PSE's credit exposure with its counterparties.

Appendix II - Credit Limit Authority

PSE Risk Rating	Credit Limit
AAA	\$500,000,000
AA+	\$200,000,000
AA	\$150,000,000
AA-	\$90,000,000
A+	\$65,000,000
A	\$60,000,000
A-	\$45,000,000
BBB+	\$17,000,000
BBB	\$15,000,000
BBB-	\$7,500,000
BB+	\$5,000,000
BB	\$3,500,000
BB-	\$2,000,000
B+	\$1,250,000
B	\$1,000,000
B-	\$700,000
CCC+	\$0

Appendix III - Reserved

Appendix IV - Analysis Requirements for ASC 815 Derivatives and Hedging

Definition of a Derivative

Accounting Standard Codification (ASC) 815 (formerly SFAS 133) defines a derivative as a financial instrument or contract that contains all of the following characteristics:

- Contains an underlying price (e.g. fixed or index).
- Contains a notional (quantity) and/or payment provisions.
- Its terms require or permit net settlement (can be readily settled by means outside the contract or it provides for delivery of an asset).
- No initial (or smaller) investment is required.

ASC 815 establishes accounting and reporting standards for derivative instruments. It requires that all derivatives be recognized as either assets or liabilities in the statement of financial position and measured at fair value. However, under paragraph ASC 815-10-15-22, certain contracts that may qualify for exemption as Normal Purchase Normal Sale (NPNS) contracts.

Normal Purchase Normal Sale (NPNS)

If the criteria for applying the NPNS exception are met and the election to use the exception is appropriately made, contracts effectively revert to an accrual accounting model with recognition of revenues and related expenses occurring upon delivery or settlement. A Forward Contract may be eligible for the NPNS exception to ASC 815 if it meets all of the following criteria:

- The contract is expected to result in physical delivery.
- The delivery location is within PSE's operating area.
- The period of time between the contract date and delivery is reasonable.
- Quantities purchased are expected to be within PSE's energy needs (supported by Position Reports or Gas Portfolio customer requirements).
- The contract is executed for system balancing purposes (e.g. to flatten a short position).
- The counterparty has sufficient credit quality.
- Purchases must not be with an ASC 815 marketer (lacking generation or tolling contract capacity within WECC area).

In addition to the criteria listed above, EDA will review Position Reports from ERC and the deal information necessary to perform the NPNS analysis. The report will indicate the forecasted monthly limits for purchases and sales that may be executed and designated as NPNS. The report will take into account forecasted retail load, existing physical purchases and physical generation as modeled in the risk system, and other

requirements as identified by EDA. If the deal does not fall within the requirements for NPNS, it will be MTM and recorded in current earnings.

In July, 2009, PSE elected to de-designate all energy related derivative contracts previously recorded as cash flow hedges. Since then physical/financial natural gas and financial power contracts have been designated as MTM, and physical power contracts may be designated as NPNS or MTM depending on the position report.

Effective January 1, 2016, physical power contracts with a term of 12 months or less will not be considered for NPNS scope exception. The Company will designate these deals as MTM, and any mark-to-market gain/loss will be recorded to income. Physical power contracts with a term greater than 12 months will be considered for NPNS scope exception. Counterparties or transactions will be reviewed for capacity only as necessary (i.e. upon execution of a contract greater than 12 months.)

Should FASB accounting rules or interpretations of those rules change, EDA will advise ESM of the changes. Together, ESM, ERC and EDA will revise the strategy development and hedge implementation steps in the *Procedures* to reflect those changes.

Appendix V - ASC 815 Reference Guide

Note: This reference guide provides general guidelines for standard deal types only and can vary based on special situations. Any questions concerning a specific deal should be directed to EDA.

Portfolio	Deal Type	ASC 815 Flag	Reason
Gas	Financial/Physical Contract	MTM	Financial/Physical deals are derivatives, designated as MTM on the balance sheet due to fixing the price of gas. These contracts are recorded under ASC 980 (formerly SFAS 71) due to the PGA Mechanism.
Power	Financial/Physical Contract for Gas	MTM to the Income Statement	Financial/physical deals for gas used for power generation are derivatives. These contracts are designated as MTM and marked to the income statement. Subject to the PCA Mechanism.
Power	Physical Contract (Purchase/Sale)	MTM to Income Statement unless NPNS exception is met	<p>In general if PSE is purchasing (selling), while in a short (long) position with a counterparty that has generation within the WECC area, then NPNS treatment. If not, then MTM to the income statement, subject to the PCA Mechanism.</p> <p>Effective January 1, 2016:</p> <ul style="list-style-type: none"> Physical power contracts with a term of 12 months or less will not be considered for NPNS scope exception. The Company will designate these deals as MTM, and any mark-to-market gain/loss will be recorded to income. Physical power contracts with a term greater than 12 months will be considered for NPNS scope exception.

Power	Financial Contract (Purchase/Sale)	MTM to the Income Statement	Financial deals for electricity are derivatives. These contracts are designated as MTM and marked to the income statement and subject to the PCA Mechanism.
Power	Options (Exchange-traded) (Purchase/Sale)	MTM to the Income Statement	Options typically meet the definition of a derivative, and will be MTM to the income statement and subject to the PCA Mechanism.
Weather	Derivative – Non-exchange-traded forward-based	Accrual	Weather derivatives are exempted from ASC 815-10 accounting. However under ASC 815-45 (formerly EITF 99-2) the contract will be accounted for using the intrinsic value method.
Weather	Derivative – Non-exchange-traded option-based	Accrual	Weather options are exempted from ASC 815-10 accounting. However under ASC 815-45 the premium paid will be recorded as an asset and amortized to expense. The intrinsic value method will be applied.

Appendix VI - Transactions Involving Renewable Energy Credits (RECs)

Definition:

A REC represents the environmental attributes of 1 MWh renewable energy generation in the form of a marketable commodity. Resources that qualify as "renewable" under Washington's Renewable Portfolio Standard (RPS) include, for example, wind, solar, biomass, geothermal and incremental hydro. For purposes of this appendix, RECs are assumed to consist only of the environmental attributes of renewable energy generation and do not include the underlying energy (MWh) value.

Authorization to transact:

All purchase and sale transactions involving RECs must be executed by a REC Authorized Trader and in accordance with any EMC-approved strategy.² Transactions will be documented by the executing trader and communicated to the WREGIS Administrator by the close of business on the day of deal execution.

For sales involving RECs previously generated:

- REC sales will not exceed the aggregate volume of actual RECs generated for the specific time period. RECs generated in a period includes both earned RECs through PSE business activities and net purchases from counterparties.
- Transactions will be for "firm" sales of RECs.
- EDA shall notify ESM and the WREGIS Administrator promptly upon receipt of payment for RECs sold. Once the transactions are executed with approved completed contracts and relevant contractual terms are met, RECs can be transferred to third-parties via the Western Renewable Energy Generation Information System (WREGIS) and/or via attestation. Unless specifically approved by the EMC, the WREGIS Administrator shall transfer RECs to the buying party only upon receipt of full payment.
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For sales involving RECs yet to be generated:

- Sales of RECs yet to be generated should follow the same standards as stated for previously generated RECs and are not to exceed the anticipated generation volumes approved by the EMC.

For purchases of RECs:

- Purchases REC volumes must be consistent with EMC-approved strategies.
- Transactions will be for Washington RPS-eligible Washington CETA-eligible or Green-e-eligible RECs.
- The purchase of RECs can be executed with bilateral counterparties either directly

² RECs purchased for PSE's retail customer "Green Power Program" are not governed by the *Procedures*.

or via a voice broker.

Once the transactions are executed with approved completed contracts and payment (if applicable), REC delivery and Title transfer will be verified via an approved external tracking system such as WREGIS by the WREGIS Administrator.

REC Counterparty Credit Standard:

Due to pre-payment provisions in certain RECs purchase contracts, there could be a 10 business day window during which PSE is exposed to delivery default risk. In the event that PSE is required to pre-pay for the purchase of RECs, ERC will perform a full credit review for any new counterparty transactions with a contract value of [REDACTED]

[REDACTED] For purchase agreements that [REDACTED] ERC will perform a short-term risk analysis prior to approving transactions with the new counterparty.

Tracking and Reporting:

- ERC will maintain a current report of RECs generated and sold.
- ESM and ERC will assist Regulatory and Compliance as needed to file reports with the Department of Commerce, Department of Ecology and other governmental entities regarding:
 - Its progress in meeting RPS targets for the current year;
 - Finalization of RPS compliance and subsequent retirements for the relevant preceding year; and
 - CETA compliance (as determined by Regulatory and Compliance at a later date.)
- ESM and ERC will maintain records that document each specific REC transaction including volume, price, counterparty and any other relevant transaction features.
- EDA will prepare and forward invoices and/or vouchers to the counterparties for REC transactions, with copies to ERC.

For Surrender and Retirement of RECs:

- RECs will be retired periodically to satisfy the company’s annual RPS obligation and future CETA obligations.

The WREGIS Administrator will transfer and retire RECs to the Company’s WREGIS Annual Compliance Sub-Account per directions from Regulatory and Compliance.

**SHADED INFORMATION IS DESIGNATED AS
CONFIDENTIAL PER WAC 480-07-160**

REDACTED VERSION

Appendix VII - Transactions Involving California Carbon Allowances (CCA)

Definition:

A California Carbon Allowance (CCA) is a limited tradable authorization to emit up to one metric ton of carbon dioxide equivalent (MtCO₂e) during the generation of power sold into the state of California. Following the passage of the Global Warming Solutions Act of 2006, the California Air Resources Board (CARB) adopted a variety of programs focused on reducing greenhouse gas (GHG) emissions, including the Cap-and-Trade program which places an economy/statewide limit on the major sources of emissions. CARB is responsible for the oversight and compliance of the Cap-and-Trade program and Mandatory Greenhouse Gas Emission Reporting Regulations (MRR).

Authorization to transact:

All transactions involving CCAs must be executed by a CCA Authorized Trader and in accordance with any EMC-approved strategy.

For sales of CCAs:

- Sales of CCAs must be approved and documented by ERC and the DESM and executed for the purpose of credit and/or risk mitigation.
- Transactions will be documented in the approved system of record by the executing authorized trader no later than the close of business the date of deal execution.
- Once the transactions are executed with approved completed contracts, transfer confirmations will be entered into approved tracking systems such as CITSS and PCI.

For purchases of CCAs:

- CCAs will be purchased for the purpose of offsetting the Company's CARB GHG obligations.
- The purchase of CCAs can be executed bilaterally or through ICE cleared transactions in accordance with EMC approved limits.
- Participation and purchase of CCAs via the CARB auction is not permitted without EMC approval.
- Transactions will be documented in the approved system of record by the executing authorized trader no later than the close of business the date of deal execution.
- Once the transactions are executed with approved completed contracts, transfer confirmations will be entered into approved tracking systems such as CITSS and PCI.
- CCAs will be retired periodically in accordance with CARB requirements to satisfy the company's annual GHG obligation.

CCA Position Limits:

- The Company's position cannot be longer or shorter 250,000 CCAs of PSE's current obligation.

For Surrender and Retirement of CCAs:

- A (CITSS) Primary or Alternate Account representative will transfer CCAs to the Company's CITSS Compliance Account prior to October 30th of each year that the Company has a reporting obligation for the previous year.

Note: CCA retirement takes place at 5pm PST on Nov 1st each calendar year.

Appendix VIII - Escalation Policy

It is the responsibility of the individuals covered by these *Procedures* to report suspected or observed non-compliance of the *Policy* or *Procedures*. Reports of non-compliance should be raised upon discovery to a supervisor, the manager of Energy Risk Control, and/or the Trade Floor Compliance team for further disposition.

In any instance where *Policy*, *Procedure*, trade authorization or credit limits are breached and not mitigated within three business days, the incident is reported to the EMC.

Under some circumstances, disciplinary action in the event of a violation of the *Policy* or *Procedures* may be necessary. Depending on the nature and the extent of the violation, different forms of disciplinary action may be administered, up to and including terminations.

- Once a breach of *Policy* or *Procedures* has been reported, a full investigation of the breach may be ordered by the EMC, or the Board of Directors.
- The EMC may utilize any personnel that are deemed best suited for the investigation and, as such, has the authority to utilize both internal personnel and/or external consultants.
- The investigating team will report back to the EMC.
- The EMC will determine any appropriate sanctions to apply in the disposition of the matter of non-compliance.

	Primary Escalation		Secondary Escalation	
	Who	When	Who	When
Policy or Procedure Role & Responsibility Violation	Direct and skip level supervisor	Within same business day of identification	EMC (Discretionary escalation)	Upon disposition of violation and conditional to ERC assessment of materiality
Authorized Transactions Violation - Sch A & B	Direct and skip level supervisor	Within same business day of identification	EMC	Within 3 business days of identification and following the disposition of the violation
Approved Hedging Strategies - Sch C	EMC	No later than next scheduled EMC meeting for variance of +/- 10% at ESM Director discretion	EMC	Within 3 business days for any variance greater than 10%

Margin and Collateral Posting - Sch D	CFO and VP of Energy Supply Operations	Within same business day of identification	EMC	Within 3 business days of identification and following the disposition of the violation
Position and Market Exposure Limits - Sch E & F	Direct and skip level supervisor	Within same business day of identification	EMC	Within 3 business days of identification and following the disposition of the violation
Unauthorized Counterparty Transaction	Direct and skip level supervisor	Within same business day of identification	EMC (Discretionary escalation)	Upon disposition of violation and conditional to ERC assessment of materiality
Credit Limit Violation	Direct and skip level supervisor	Within same business day of identification	EMC	Within 3 business days of identification and following the disposition of the violation
Credit Limit Exceedance (Market Move)	EMC	Within same business day for exceedance lasting longer than 3 business days	EMC	Periodic updates based on ERC assessment of materiality until disposition of credit limit exceedance

Any violation or exceedance assessed to have a notional financial impact in excess of \$25M must be escalated to the EMC and BOD within 1 business day of identification