

Attachment 2

PASADENA WATER AND POWER



ENERGY AND CREDIT RISK MANAGEMENT POLICY

January 2018

Pasadena Water and Power

Energy and Credit Risk Management Policy

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1.0 INTRODUCTION

It is the goal of Pasadena Water and Power (PWP) to provide superior customer service, reliable electricity and quality water at reasonable, competitive and stable rates to its customers in an environmentally sustainable manner.

PWP's electric utility core business is to meet the load requirements of its residential, commercial and industrial and institutional customers and deliver reliable electric service in a safe and environmentally sustainable manner while optimizing the value of its assets. PWP recognizes that certain risks are inherent in the energy business environment.

2.0 PURPOSE and SCOPE

2.1 Purpose

The Energy and Credit Risk Management Policy (Policy) details the key control structures and policies utilized to manage risks associated with PWP's power supply portfolio. It establishes prudent risk management processes based on sound utility risk management principles, while ensuring adherence to financial requirements set forth by City Council as well as all pertinent legal requirements. The controls structures and policies are focused on the following issues:

- Clearly defined segregation of duties and delegation of authority
- Organizational structure for risk management controls
- Policies relating to setting acceptable risk parameters and risk limits
- Policies for risk reporting
- Permitted transaction and product types

2.2 Scope

The Policy applies only to activities related to PWP's power supply portfolio. It prescribes the management, organization, authority, processes, tools, and systems to monitor, measure, and control market and credit risks to which PWP is exposed in its normal course of business, including wholesale and retail operations, capital projects, and participation in the California Independent System Operator (CAISO) market.

The Policy does not cover electric distribution, information systems, customer services, or any aspect of the water system. It does not address the mitigation of risk of catastrophic failure, environmental, or regulatory exposures. Neither does it address general business risks such as fire, accident, and general liability. It is intended solely for mitigation of power supply risk.

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2.3 Effective Date

The Policy is effective immediately upon its adoption by the City Council and replaces the 1999 Policy adopted by the City Council.

3.0 POLICY OBJECTIVES

The objective of the Policy is to limit financial risks associated with procuring and optimizing the power supply portfolio used to meet PWP's retail electric demands in order to provide rate stability to its retail customers and a stable financial return to the City's General Fund. The basic premise underlying PWP's energy and credit risk management philosophy is that no activities related to energy purchase and sales should expose the City and PWP to the possibility of large financial losses in relation to the size of the energy reserve funds, which is currently about two months of energy cost.

The key objectives of this Policy are to:

1. Provide stable retail electric rates to retail customers by managing energy cost and credit risks that are inherent in optimizing the power supply portfolio used to meet forecasted customer loads. This is accomplished by limiting forecast exposure to unexpected costs to within acceptable limits.
2. Provide competitive rates by optimizing the power supply portfolio and ensuring that the best available price is obtained while complying with the requirements of this Policy and City codes, regulations, and policies.

4.0 TRANSACTION POLICY AND LIMITS

All executed transactions shall conform to the Policy as described in this document, as well as in the risk management program procedures, guidelines and controls manuals as developed and adopted by PWP's Energy and Credit Risk Management Committee (RMC), which is further defined in Section 5.4 below.

Authority to execute transactions shall be subject to City Council approved enabling agreements and contracts or contractual forms. In all cases the Pasadena Municipal Code provides the final authorization rules and regulations for energy purchases.

Failure to observe the Transaction Policy and Limits when executing transactions is a violation of Policy and is subject to disciplinary action. The key requirements and limitations for transactions are as follows:

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4.1 Anti-Speculation

Speculative buying and selling of energy products is prohibited. In no event shall transactions be entered into to speculate on market conditions. Speculation is defined as any of the following transaction types:

- Buying energy products that are not needed for meeting forecasted retail load or wholesale obligations;
- Selling energy products that are not owned and excess to forecasted retail load.

The simultaneous purchase of an energy product and sale of a corresponding energy product shall be permitted provided that the net value (proceeds) from the transaction is derived from the utilization of owned and excess transmission or generation capacity. Credit or contract sleeving transactions are strictly prohibited. Credit sleeving is an arrangement where a more financially reputable entity acts as a middleman for a smaller undercapitalized entity in the execution of a transaction. Contract sleeving is an arrangement where an entity acts as a middleman between two entities to bridge a contract gap that exists between the two entities.

4.2 Counterparty Limitations

Under normal operating conditions, all transactions must be with approved, creditworthy counterparties with available credit. Any transactions with counterparties that do not have approved and executed enabling agreements in place with PWP must be contingent upon the approval of enabling agreements for such transaction.

Regardless of potential credit concerns with the CAISO, PWP may continue to transact with the CAISO to the extent necessary to meet retail loads, wholesale obligations, utilize existing resources, and/or as required by the CAISO Tariff or any statutory or regulatory requirement.

During a system emergency, a limited number of short-term transactions with non-approved counterparties may be required in order to meet retail loads and/or maintain power system stability. A system emergency is defined as a natural disaster, major equipment failure, gas supply curtailment or operational flow order requiring immediate response, or CAISO failure to deliver power for any reason that affects PWP's ability to provide power to retail load or meet obligations. Under such conditions, if the PWP General Manager declares an emergency, the PWP General Manager shall have the authority to obtain resources on a short-term basis (up to 30 days) from non-approved counterparties. In addition, the General Manager shall notify the City Manager within 48 hours of declaring an emergency. As soon as is practically possible or at the next regularly scheduled or special meeting of the Municipal Services Committee ("MSC") and the City Council, the PWP General Manager shall seek approval for such transactions, or such additional transactions as may be necessary to provide resources on a continuing basis to retail customers from the MSC and the City Council.

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Specific details for counterparty credit risk management shall be prescribed in the Counterparty Credit Evaluation and Procedures Manual as developed by the RMC and revised from time to time.

4.3 Transaction Types

All transactions must be Approved Transaction Types, as authorized by the City Council and this Policy.

The City Council must provide authorization for all transactions. In general, the City Council authorizes the City Manager and/or PWP General Manager to enter into contracts for various types of energy-related products (e.g., energy, capacity, transmission, natural gas, environmental and emission credits, etc.) by way of adopting an "Authorizing Resolution". Appendix A, which shall be updated and maintained by the RMC, summarizes applicable Authorizing Resolutions adopted by the City Council. PWP is required to conduct a comprehensive review of the Authorizing Resolutions at least once every three years and make recommendations to update the Authorizing Resolutions as necessary.

This Policy may further limit the use of the Authorizing Resolutions, but cannot expand upon the transaction authority granted by the City Council. For specific transactions that are not covered by an Authorizing Resolution or exceed the scope of this Policy, the City Council may also provide authorization for the contract or transaction by motion pursuant to a staff recommendation.

In addition to trading the various energy related products in their "physical" form, these products may also be traded as financial or derivative products to the extent authorized by City Council resolution. Such transactions are used to only manage (hedge) financial risks associated with PWP's open positions (retail load or wholesale sales commitments) by set price caps and floors. Examples include:

- Over-the-Counter Financial Swaps (fixed/index) for Natural gas and/or Power
- Financial Commodity Options and Swaptions
- Natural Gas or Electric Exchange-Traded Products (Futures and Options)
- Natural gas or Electric Options
- Emission Allowances
- Unit Contingency

Any financially-settled schedules or transactions with the CAISO of otherwise approved physical transaction types (e.g., energy or transmission products including CAISO Auctioned Congestion Revenue Rights) are expressly permitted by this Policy.

The RMC, with the approval of PWP General Manager, will have the responsibility to maintain a list of Approved Transaction Types consistent with City Council authorization.

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4.4 Transaction Authorizations and Limits

The authorized transactions and limits for authorized personnel are shown below.

Transaction Authorizations and Limits

	Real Time Schedulers	Pre-Schedulers	Energy Trading Manager	Assistant General Manager - PSBU	General Manager	General Manager with City Manager's Approval
Type	Purchases to meet load, covered sales	Purchases to meet load, covered sales	Purchases to meet load, covered sales, hedges	Purchases to meet load, covered sales, hedges	Purchases to meet load, covered sales, hedges	Purchases to meet load, covered sales, hedges
Term	≤ 1 Day	≤ 1 Week	≤ 1 Month	≤ 3 Months	≤ 1 Year	> 1 year ≤ 3 Years
Lead Time	≤ 1 Day Hourly to balance of day Same-day transactions or day-ahead activities performed on weekends and holidays	≤ 1 Week Day ahead to balance of week Transaction can be executed within one-week period prior to the transaction effective date or initial delivery date	≤ 1 Month Week ahead to month ahead Transaction can be executed within one-month period prior to the transaction effective date or initial delivery date	≤ 3 Months Month ahead to quarter ahead Transaction can be executed within the three-month period prior to the transaction effective date or initial delivery date	≤ 1 Year Up to 1 year. Transaction can be executed within the twelve-month period prior to the transaction effective date or initial delivery date	≤ 1.5 Years Up to 1.5 years Transaction can be executed within the eighteen-month period prior to the transaction effective date or initial delivery date
Total Volume	Up to 100% of estimated requirement or available	Up to 100% of estimated requirement or available	Up to 100% of estimated requirement or available	Up to 115% of estimated requirement or available	Up to 115% of estimated requirement or available	Up to 115% of estimated requirement or available
Counter-party Credit	From pre-approved counterparty credit list	From pre-approved counterparty credit list	From pre-approved counterparty credit list	From pre-approved counterparty credit list	From pre-approved counterparty credit list or	From pre-approved counterparty credit list or with credit facility

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					with credit facility	
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* Note: Energy sales and purchases are limited to sales from capacity and purchases to meet load requirements (or to replace higher cost resources or limited energy/hydro).

4.4.1 Maximum Transaction Term

The maximum term of any transaction term for purchases and sales of energy and related products is limited to three years unless otherwise approved by the City Council. Transactions with a term up to three years can be executed within the eighteen-month period prior to the transaction effective date or initial delivery date with the approval/concurrence of the City Manager. The RMC, with the approval of PWP General Manager, will have the responsibility to establish transaction term authority limits of up to six months for various personnel involved in the Front Office functions.

4.5 Trade Execution and Authorized Personnel

All transactions must be committed over recorded phone lines or via electronic media (e.g. counterparty/exchange software application).

Only authorized PWP staff in the Energy Trading Group within the Power Supply Business Unit may conduct energy purchase and sale transactions. The RMC, with the approval of PWP General Manager, will have the responsibility to delegate specific transaction authority to designated Energy Trading Group personnel. Such authorizations are maintained in the Energy Trading, Risk and Settlements Procedures and Controls Manual as developed and adopted by the RMC. Authorized personnel in the Energy Risk and Credit Group of PWP's Finance, Administration and Customer Service Business Unit shall be responsible for informing counterparties of such approved authorizations, including transacting authority and restrictions, along with product types and/or term and dollar limits.

All personnel with designated responsibility for energy risk and credit control functions and settlement and processing functions are strictly prohibited from executing transactions.

5.0 RISK GOVERNANCE STRUCTURE AND RESPONSIBILITIES

This section defines the overall roles and responsibilities for implementation of this Policy. Specific details of the roles and responsibilities of the oversight and operational divisions within the energy and credit risk management program at PWP are outlined in the Energy Trading, Risk, and Settlements Procedures and Controls Manual as developed by the RMC and revised from time to time.

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5.1 City Council

The City Council is responsible for adopting high-level broad policy and providing strategic direction as contained in this Policy document. The City Council adopts the Policy based upon its review of the recommendations made by the RMC, as reviewed by the MSC, and delegates the General Manager of PWP to execute it. The City Council will review the Policy annually and approve the enabling agreements under which wholesale energy agreements can be made.

5.2 Municipal Services Committee

The City Council Municipal Services Committee provides direction to PWP on long-term planning and policy matters relating to utility operations. The Municipal Services Committee ("MSC") will receive and review semi-annual management energy and credit risk reports prepared by the RMC, and make recommendations consistent with the Policy to the City Council.

5.3 General Manager

The General Manager reports to the City Manager and has overall responsibility for executing and ensuring compliance with the Policy adopted by the City Council. The General Manager provides regular updates to the City Manager on the energy portfolio risk management activities. In addition, the General Manager provides semi-annual reports to the Municipal Services Committee on the energy portfolio risk management activities and annual reports to the City Council on the adequacy of the Policy, including any necessary changes to the Policy.

5.4 Energy and Credit Risk Management Committee

The Energy and Credit Risk Management Committee ("RMC") is responsible for overseeing compliance with the Policy, and reviewing and recommending changes to the Policy as necessary. The RMC is also responsible for authorizing all products and commodity types as further detailed in the Energy Trading, Risk and Settlements Procedures and Controls Manual as developed and adopted by the RMC. In addition, the RMC is responsible for creating and implementing sound approach to managing risk consistent with the business strategy and risk tolerance of the organization as defined by the City Council. As such, the RMC is critical to overseeing and reviewing the risk management process and infrastructure and managing PWP's risk exposure.

The RMC will consist of the following City staff:

- PWP General Manager (RMC Chairperson);
- PWP Assistant General Manager and Chief Deputy;
- PWP Assistant General Manager - Power Supply;

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- PWP Assistant General Manager - Finance, Administration and Customer Service;
- Wholesale Operations Manager / Energy Trading Manager;
- Wholesale Operations Manager / Energy Settlements Manager;
- Power Resources Planning Manager and,
- Wholesale Operations Manager / Energy Risk and Credit Manager (RMC Secretary).

The City Finance Director (or designee), the Internal Audit Manager and the City Attorney (or designee) will act as advisors to the RMC.

The RMC shall meet regularly, but at a minimum monthly, to discuss risk management, operating processes, trading controls and authorizations. The RMC meetings can be conducted in person, through telephone conference calls, and/or using electronic media. A quorum of at least 5 of committee voting members must be present.

5.5 Management Oversight/Separation of Duties

Risk management oversight at an operational level is accomplished through supervisory review and approval with appropriate separation of duties. PWP's risk management functions shall be segregated into Front Office, Middle Office and Back Office as outlined below to maintain effective system of controls over financial and operational risks.

Front Office (Transactions)	Middle Office (Control)	Back Office (Processing)
Power Supply Business Unit	PWP Finance, Administration and Customer Service Business Unit	PWP Finance, Administration and Customer Service Business Unit and the City Finance Department
Energy Trading Manager	Energy Risk and Credit Manager	Energy Settlements Manager
<ul style="list-style-type: none"> ➤ Demand forecast and portfolio position ➤ Portfolio optimization and hedging strategy ➤ Marketing contact ➤ Customer contact ➤ Transaction structure ➤ Pricing/negotiation ➤ Transaction execution, booking, scheduling, and nominations 	<ul style="list-style-type: none"> ➤ Independent control ➤ Risk identification ➤ Risk measurement ➤ Risk monitoring ➤ Mark-to-market ➤ Risk limits ➤ Risk metrics ➤ Credit emergency shutdown ➤ Management reporting 	<ul style="list-style-type: none"> ➤ Confirmations ➤ Reconciliations ➤ Energy Accounting ➤ Shadow, Initial, Final, True-up, and CAISO Settlement ➤ Contract management and compliance ➤ Approve invoices (accounts payable) ➤ Issue invoices

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	➤ Counter-party credit authorization	➤ Manage Escrow Accounts
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The Middle and Back Offices shall be independent from the Front Office functions, and shall provide oversight of the risks assumed by the Front Office in the course of transacting energy and energy related products and services.

Some of the front, middle and back office functions may be contracted to a third party vendor. PWP has currently engaged Alliance for Cooperative Energy Services Power Marketing LLC ("ACES") to perform its real-time trading activities, along with limited Middle and Back Office functions. Additional support functions such as Legal, Treasury/Finance/Audit, and Information Technology will be drawn upon as needed to support the segregated structure.

5.5.1 Front Office

The Front Office is primarily responsible for resource planning and procuring resources to meet the physical, financial and contractual requirements. The Front Office shall maintain an integrated and balanced portfolio of resources to cover retail forecasted load requirements, and shall establish minimum coverage requirements for capacity and energy.

The Front Office is responsible to ensure that the procedures and processes needed to transact business within the Policy are in place and shall perform all duties related to actual transacting in the wholesale natural gas and energy markets. PWP Assistant General Manager - Power Supply is responsible for managing the Front Office. The Front Office is the primary interface with potential wholesale transacting counterparties. Detailed responsibilities of the Front Office are outlined in the Energy Trading, Risk and Settlements Procedures and Controls Manual.

5.5.2 Middle Office

The Middle Office is primarily responsible for providing risk oversight and controls. The Middle Office will monitor, verify and report on the compliance with the Policy and risk management program, review all risk management activities, determine portfolio and credit exposure, transaction compliance and on-going approval of counterparties. The Middle Office will be responsible for reporting to the RMC on risk management issues, and recommending to the RMC when changes in policy or operating procedures are required. These recommendations may relate to the temporary or permanent halting of transactions with one or more counterparties, exceptions to rules and procedures, other operational exceptions, and any other topic the Middle Office believes represents an unacceptable risk exposure. The Energy Risk and Credit Manager will be responsible for managing the middle-office functions and will report to PWP Assistant General Manager - Finance, Administration and Customer Service.

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The Middle Office adopts and updates as necessary the Policy and related procedures and controls manuals so that portfolio management functions occur in compliance with the City Council-adopted Policy and RMC adopted procedures, guidelines and controls. The functions of the Middle Office can be broadly defined as Quantitative Analysis, Compliance Review, Credit Administration, and Management Reporting.

Quantitative Analysis

The Middle Office performs rigorous risk analysis to evaluate the risk exposure on a transactional and portfolio basis.

Compliance Review

The Middle Office monitors all transactions to ensure compliance of transactions with the RMC procedures, guidelines and controls.

Credit Administration

The Middle Office monitors counterparty creditworthiness. The Middle Office objectively measures and monitors credit limits and credit histories, and may temporarily halt trading or permanently halt trading with the concurrence of the RMC, with an approved counterparty because of credit exposure or credit condition.

Management Reporting

The Middle Office administers reports to the RMC related to risk management, and performance in alignment with the Policy and related procedures, guidelines and controls and the requests of the RMC.

5.5.3 Back Office

The Back Office is primarily responsible for energy accounting and settlements, settlement of bills, recording transactions, contract management and compliance. The Back Office is also responsible for accurate transactions records and settlements, independently monitoring and recording transactions into a tracking database, and verifying and reporting on compliance with procedures as reflected in deal tracking documentation. The Back Office functions are detailed in the Energy Trading, Risk and Settlements Procedures and Controls Manual. The Back Office is managed by the Wholesale Operations Manager/Energy Settlements Manager who reports to PWP Assistant General Manager - Finance, Administration and Customer Service.

6.0 POLICY MONITORING AND COMPLIANCE

6.1 Monitoring and Reporting

PWP shall prepare risk management reports containing an analysis of physical and financial positions of all energy resources in its energy portfolio and any potential risks associated with its energy portfolio. Such reports shall be prepared by the Middle and Back Office staff, and reviewed by RMC. The frequency and content of the risk management reports

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for each oversight body shall be prescribed in the Energy Trading, Risk and Settlements Procedures and Controls Manual.

6.2 Compliance Exceptions

Compliance exceptions are actions which violate the authority limits or directives set forth herein or in the risk management program procedures and controls manuals as developed and adopted by the RMC.

6.3 Reporting of Exceptions

Exceptions to mandated policies, procedures and regulations shall be reported to the RMC within 48 hours after they are identified as provided in the risk management program procedures and controls manuals as developed and adopted by the RMC.

6.4 Assessment

Compliance with the Policy and with the specific procedures, guidelines and controls as developed and adopted by the RMC shall be subject to a three year review by an independent consulting firm that the RMC, with concurrence of the City Finance Director, may appoint to evaluate the effectiveness of mandated controls. The hired firm will also verify that stated objectives are being carried out, and that internal controls are in place for processes to comply with the Policy. The firm will also identify any recent changes in industry best practices that may warrant program revisions. Upon completion of the assessment, the report shall be provided to the RMC, City Manager and City Finance Director. The RMC will review any recommended changes or enhancements to the Energy and Credit Risk Management program and update the risk management procedures and controls manuals as required. The RMC will also recommend updates to the Policy and make a recommendation to the City Council on the adequacy of the Policy and necessary changes.

7.0 CONFLICT OF INTEREST

In accordance with the Pasadena Municipal Code and California law, personnel involved in transacting and oversight of PWP's supply resource acquisition programs may not engage in financial conflict of interest, unless the City is duly informed and it elects to waive such conflicts. **All such personnel are: (1) strictly forbidden from directly investing in any business entity that could potentially enter into energy transactions with PWP; and, (2) required to complete, on an annual basis, the Employee Qualifications and Code of Conduct and Form 700 Disclosures forms and submit these forms to the City Clerk; and, (3) required to provide written acknowledgement of compliance with this Policy by completing the Energy Risk Management Policy Acknowledgement and Employee Compliance Form at least once each year.**

The PWP Energy Risk and Credit Manager is responsible for routinely reviewing the Form 700 of each personnel engaged in the supply resource decision-making process for the purpose of

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identifying potential financial conflicts of interest. The City Attorney's Office will assist the PWP Energy Risk and Credit Manager in reviewing these forms and providing legal advice in connection with such reviews.

The Energy Trading, Risk and Settlements Procedures and Controls Manual, which is developed and adopted by the RMC, contains additional detailed requirements for personnel conflict of interest disclosure and prohibitions as to acquiring or maintain financial interest in energy trading counterparties.

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Appendix A

Transaction Type Authority: City Council Resolutions

This table summarizes City Council resolutions authorizing various transaction types. A list of Authorized Transaction Types shall be updated and maintained by the RMC, consistent with the Energy and Credit Risk Management Policy and approved City Council Resolutions.

Resolution (Dated)	To Contract for Energy Products ¹
4184-2 (10-22-2007)	<ul style="list-style-type: none"> • Electrical energy • Electrical capacity • The transmission of electrical energy or capacity or both • Electric generation and transmission capacity for planning purposes (e.g., RA)
7452 (12-16-1996)	<ul style="list-style-type: none"> • Air emissions credits (NOx and SOx)
8243 (5-12-2003)	<ul style="list-style-type: none"> • Natural gas commodity • Petroleum products • Gas transaction master enabling agreements (e.g., NAESB, bilateral)
8965 (8-3-2009)	<ul style="list-style-type: none"> • Congestion revenue rights (CRR's) for use in CAISO operated transmission markets
9063 (10-4-2010)	<ul style="list-style-type: none"> • Environmental attributes such as RECs, green tags, carbon credits, and any other environmental attributes as may be defined in the future • Carbon-related permits, credits, allowances, certificates, offsets and similar instruments
9216 (7-9-2012)	<ul style="list-style-type: none"> • Designates the General Manager as the City's "Authorized Account Representative" and the Assistant General Manager as "Alternative Authorized Account Representative" to conduct transactions related to the California Cap and Trade
7549 ² (10-20-1997)	<ul style="list-style-type: none"> • Contracts for products <\$25,000 may be authorized by the General Manager • Products <\$75,000 may be authorized by the City Manager

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Appendix A (Continued)

- * Notes:
1. *Council resolutions authorize the General Manager to enter into agreements for the purchase, sale, exchange, storage, transportation, transfer, and/or participation in auctions, as may be applicable for the authorized energy products.*
 2. *The use of Resolution 7549 excludes financial derivatives.*

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Appendix B
Acknowledgement and Employee Compliance Form

The purpose of this form is for the individual PWP employee involved with energy risk and credit management activities, including but not limited to, Front Office, Middle Office or Back Office activities associated with transactions, energy trading, risk management and other related activities to acknowledge in writing that they have received, read and understood the Energy and Credit Risk Management Policy (Policy) and related procedural documents. And for the employee to acknowledge the confidential and proprietary nature of the information used in energy risk management activities, and agree to maintain such information as confidential.

The employee recognizes that violating the Policy and related policies and procedural documents can lead to disciplinary actions or constitute grounds for progressive disciplinary action, which may include termination of employment.

The undersigned hereby certifies that he/she has received, read and understood the Policy and related procedural documents.

Employee Name _____

Title _____

Department _____

Manager/Supervisor _____

Control Office Front Office
 Middle Office
 Back Office
 Other

Signature

Date

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Appendix C
Glossary of Energy and Credit Risk Management Terms

The following are definitions of terms used in energy and credit risk management:

Authorized Counterparty List: A list that indicates the approved counterparties and their specific credit limit and current credit rating.

California Independent System Operator (CAISO): A state chartered, California non-profit public benefit corporation that is responsible for ensuring the efficient use and reliable operation of the electric transmission grid (system) in the state of California.

Collateral: An obligation or security linked to another obligation or security to secure its performance.

Congestion: Physical constraints at certain points on electricity transmission networks.

Congestion Revenue Rights (CRRs): CRRs are financial instruments made available through the CAISO's allocation process where a certain amount of CRRs are provided at no cost to load serving entities (such as PWP), the CAISO's auction process and a secondary market that enable CRR holders to manage the variability in congestion cost based on Locational Marginal Pricing.

Counterparty: A participant in a physical or financial contract.

Counterparty Risk: This is the risk that a counterparty to a transaction or contract will default or fail to perform) on its obligation under the contract.

Credit Limit: Pre-established dollar valued trade limit set for each counterparty based upon their financial strength, trading and payment history.

Day-Ahead Market: The market trading for the day before the operating day.

Derivative: Any financial instrument, such as a futures contract, Swap or Option, which derives its value from the value of an underlying security or physical commodity.

Energy Portfolio: The collective term for PWP's generation assets, short and long term power supply contracts for natural gas and power, transmission assets, transactions or trades, and retail load obligation.

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Energy Portfolio Open Position – The amount or percent of the load obligation that is not covered by available resources (power and/or natural gas). A negative or short portfolio position implies that available resources are less than the load obligation and a positive or long portfolio position implies that available resources exceed load obligation.

Energy Risk Management: The identification and management of PWP's energy portfolio risks to support achievement of its business objectives.

Estimated Available: The estimated available for a given period is equal to excess resources above the forecasted load and/or compliance/reliability obligation.

Estimated Requirement: The estimated requirement for a given period is the forecasted load and/or compliance/reliability obligation less available resources.

Federal Energy Regulatory Commission (FERC): The U.S. government body that regulates interstate energy markets.

Hedge: A transaction that reduces price risk relative to a position that an organization has or intends to take in the physical or financial market.

Hedging: This is the use of energy-related transactions to limit or reduce the likelihood of financial loss due to fluctuations in market conditions. For example, buying or selling physical or financial energy-related products to offset short or long inventory positions.

Liquid Market: A market in which buying and selling can be performed with ease, due to the presence of a large number of buyers and sellers prepared to trade substantial quantities at small price differences. (The opposite is an illiquid market.)

Locational Marginal Pricing (LMP): A method of pricing the cost of congestion into electricity prices.

Long: A position in which an asset or right is owned or a position that appreciates in value if the value of the underlying instrument or market price increases.

Market (Price) Risk: Risk due to changes in the market prices of energy commodities which can have an adverse impact on energy cost

Marking-to-Market (MTM): The process of valuing a position or portfolio against a market clearing-price.

North American Energy Standards Board (NAESB): NAESB serves as an industry forum for the development and promotion of standards which will lead to a seamless marketplace for

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wholesale and retail natural gas and electricity, as recognized by its customers, business community, participants, and regulatory entities.

North American Electric Reliability Corporation (NERC): A not-for-profit entity whose mission is to ensure the reliability of the bulk power system in North America.

Netting Agreement - A contingency agreement in which debit and credit positions are allowed to offset each other in the event of either counterparty defaulting.

Operational and Organizational Risk: The risk that deficiencies in internal control or information systems or failure to effectively execute business activities will result in unexpected economic loss.

Physical Hedge - an energy input purchase or retail/wholesale sale transacted to meet physical requirements.

Real-Time - To schedule for delivery of physical power on an hourly basis.

Regulatory and Legal Risks: The risk that contracts are not legally enforceable or documented correctly or that regulatory agencies or courts may take actions or adopt measures which may potentially impact the portfolio value

Risk: Refers to uncertainty about future cash flows and asset values, and it consist of an event that could potentially cause actual outcomes to differ from expected outcomes, either negatively or positively

Short: A position in which an asset or right is not owned or a position that increases in value if the value of the underlying instrument or market price decreases.

Sleeving: A transaction whereby two counterparties which do not have credit with each other, ask a third party that has credit with both to be a middleman to facilitate a trade.

Speculative Trading: Taking positions in any commodity price with the expectation that prices will move in a particular direction, including buying power that is not needed with the intent to resell at a profit or selling power that is needed with the intent to repurchase it at a later date and make a profit.

System Emergency:

- (i) A condition that exists when extraordinary events outside normal operating conditions occur that threatens system stability, such as the unplanned loss of a resource; or
- (ii) A natural disaster, major equipment failure, gas supply curtailment or operational flow order requiring immediate response; or

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- (iii) CAISO failure to deliver power for any reason that affects PWP's ability to provide power to retail load or meet obligations.

Transaction: All of the approved Transaction types defined in the Policy, including physical or financial obligations of PWP and one or more counterparties related to energy, capacity, ancillary services, transmission service, natural gas, renewable energy credits and greenhouse gasses.

Transaction Activities: The activities involved in the energy supply decision process involving Transactions as defined in the Policy.

Transaction Limits (or Authorized Transaction Limits) - Predefined parameters that restrict transactions. These can include limits on volume, duration, dollar amounts and approval authorities.

Volatility: A measure of the variability of a market factor, most often the price of the underlying instrument.

Volumetric Risk: The risk that fluctuations in load or resources will adversely affect net revenues

Western Electricity Coordinating Council (WECC): A North American Electric Reliability Council for the Western Interconnection.

Western System Power Pool (WSPP): WSPP is an agreement and an organization that creates power trading opportunities and allows WSPP members to manage power delivery and price risk. The Current WSPP Agreement effective May 9, 2013, updated June 6, 2013, is the most commonly used standardized power sales contract in the electric industry. It is approved by the FERC and used by jurisdictional and non-jurisdictional entities. Once signed, the Agreement allows instant access to power trading within the membership.