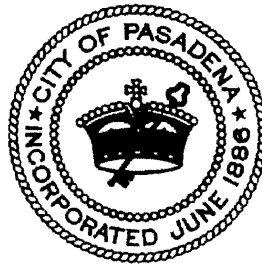


**Attachment A**

**ENERGY AND CREDIT RISK MANAGEMENT POLICY**

*Prepared for:*

**Pasadena Water and Power**



*Prepared by:*

**Henwood Energy Services, Inc.**

**JULY 1999**

## ENERGY & CREDIT RISK MANAGEMENT POLICY

### EXECUTIVE SUMMARY

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This Energy and Credit Risk Management Policy (the “Policy”) provides the governing principles for Pasadena’s risk management program. The policy addresses the goals of risk management, the relationship between this program and Pasadena's existing operations, the allowable portfolio management and marketing activities, and the methods used to identify, measure, manage, and control risks.

#### PURPOSE

The purpose of this Policy is to establish guidelines for the Pasadena Water and Power to plan, execute, and control the management of a variety of risks inherent in energy sales, purchases, and distribution. This Policy is not intended to deal with the mitigation of risk of catastrophic failure, environmental, or regulatory exposures. The Policy mandates that Pasadena will participate in the marketplace only for those commodities and financial markets to which it has a physical market exposure and will trade only within pre-defined limits approved by the General Manager and City Council.

The Policy formalizes the process of and the delegation of authority for energy and credit risk management, capitalizing on existing activities.

#### SUMMARY

This document contains discussions on the challenges facing Pasadena to maintain and improve its cost position among California electric utilities while purchasing and selling power in the newly deregulated electricity market. Challenges include competition for buying *and* selling low cost electricity, understanding and developing the skills and conditions necessary to participate in new markets for physical supply and financial hedges, and risks of participation, including credit risk. The document discusses how risks are measured, mitigated, and reported within the existing organizational structure, and assigns responsibilities to ensure appropriate awareness of risk taking activities. Functions are separated to make operations accountable, minimize risk, and communicate positions.

#### RISK MANAGEMENT PROCESS

The process for managing individual transaction risks and cumulative portfolio risk is called the risk management process. It consists of a structured process by which risks are identified, measured, captured, managed, and reported. Additionally, the results of the risk management process are continuously evaluated relative to the utility’s stated goals and objectives to enable effective performance monitoring and control.

## ENERGY & CREDIT RISK MANAGEMENT POLICY

The Policy is designed to enable Pasadena Water and Power to address the types of risks summarized in the following table:

<b>Risk</b>	<b>Description</b>	<b>Potential Impact</b>
Price	Unbundled energy cost vs. retail price risk <i>or</i> Opportunity risk	Cash flow below budget or negative if energy cost equals or exceeds retail price
Credit	Inability or unwillingness of a counter-party to perform in a bilateral (OTC) transaction	Resale of energy at a lower price resulting in reduced revenue or repurchase of energy at a higher price resulting in increased cost
Organizational	Unclear lines of authority and inadequate staffing, lack of deal "ownership"	Sub-optimum pricing and operational decisions; confusion within and outside the organization
Position (volume long or short)	Size of individual or total positions exceeds authorization for transaction level	Breakdown in trust in individual and/or risk management system
Market Information	Inaccurate, incomplete, or untimely information on market conditions affecting price	Sub-optimum pricing decisions on sales and purchases

### **CORE BUSINESS AND THE POLICY**

Pasadena's core energy business is to deliver low cost electricity to wholesale and retail customers, while maintaining the reliability of the electrical system. Pasadena accomplishes its energy delivery obligations primarily through generation and the purchase and sale of energy and related products and services in the short-term wholesale electricity market. Physical electricity transactions may consist of combinations of physical capacity and/or energy elements with various pricing schemes and delivery constraints. Financial electricity transactions are similar to physical electricity transactions but have a financial or "cash settlement" mechanism in addition to or instead of a physical delivery mechanism. Limits are defined for transactions that can be opened at different levels in

**ENERGY & CREDIT RISK MANAGEMENT POLICY**

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the organization. In addition to defining the authorized transactions, this Policy provides for the approval of any transactions that may bring new risks into Pasadena's portfolio or create new complexities in valuing the portfolio.

**STRUCTURE**

The specific responsibilities of management and staff relative to implementation of the Policy are defined herein, focusing on the Power Supply Business Unit of Pasadena Water and Power, which is responsible for wholesale energy transactions, and Finance and Administration, which will be responsible for risk management and credit. The Policy provides for appropriate risk management with the proper oversight, as well as the ability to act quickly to take advantage of opportunities or to act to protect Pasadena from adverse market moves. Duties required to serve load, optimize the load/resource balance, manage risk, etc. are segregated within the existing organization as follows:

<b>Front Office</b> (dealing)	<b>Middle Office</b> (control)	<b>Back Office</b> (processing)
Responsibility of Power Supply Business Unit	Responsibility of Risk Manager and Credit Manager, or equivalents	Responsibility of Power Supply Business Unit and the Department of Finance
<ul style="list-style-type: none"> <li>➤ Marketing contact</li> <li>➤ Customer contact</li> <li>➤ Deal structure</li> <li>➤ Pricing</li> <li>➤ Transaction booking</li> <li>➤ Positioning</li> <li>➤ Hedging</li> </ul>	<ul style="list-style-type: none"> <li>➤ Independent control</li> <li>➤ Risk monitoring</li> <li>➤ Risk measurement</li> <li>➤ Mark-to-market</li> <li>➤ Risk limits</li> <li>➤ Risk metrics</li> <li>➤ Credit emergency shutdown</li> <li>➤ Management reporting</li> <li>➤ Counter-party credit authorization</li> </ul>	<ul style="list-style-type: none"> <li>➤ Scheduling</li> <li>➤ Nominations</li> <li>➤ Confirmations</li> <li>➤ Reconciliations</li> <li>➤ Account booking</li> <li>➤ Settlement</li> <li>➤ Invoicing</li> </ul>

**LIMITS**

A vital control element in the management of financial risk is the development of and adherence to exposure limits. These limits ensure the organization does not assume greater aggregate risk than approved by the Pasadena City Council. Exposure limits are defined in terms of transaction

## ENERGY & CREDIT RISK MANAGEMENT POLICY

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type, time frame, volume, and counter-party credit, incorporating standard measures of portfolio risk, such as Value-at-Risk, as appropriate. The limits are summarized in the following table:

### Transaction Authorizations and Limits

	<b>Real Time Schedulers</b>	<b>Pre-schedulers</b>	<b>Manager of Wholesale Energy Products</b>	<b>Director of Power Supply</b>	<b>General Manager</b>
<b>Type</b>	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
<b>Term</b>	Hourly to balance of day	Day ahead to balance of week	Week ahead to month ahead	Month ahead to quarter ahead	Up to 1 year
<b>Total Volume</b>	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 110% of estimated requirement or available	Up to 110% of estimated requirement or available
<b>Counter-party credit</b>	From pre-approved credit list	From pre-approved credit list	From pre-approved credit list	From pre-approved credit list	From pre-approved credit list or with credit facility

The table shows that Pasadena's energy sales and purchases are limited to sales from capacity and purchases to meet load (or to replace higher cost resources). In other words, sales and purchases are "covered" and speculation and excessive financial risk are not permitted. Therefore, any potential financial "losses" will be opportunity losses, not outright losses.

## ENERGY & CREDIT RISK MANAGEMENT POLICY

### TABLE OF CONTENTS

---

<b>SECTION</b>	<b>PAGE</b>
<b>1. POLICY OVERVIEW</b>	<b>1</b>
1.1 OBJECTIVE	1
1.2 ENERGY PORTFOLIO	1
1.3 ENERGY PORTFOLIO MANAGEMENT ACTIVITIES	3
1.4 DEREGULATED MARKET	4
1.5 PROGRAM SCOPE	4
1.6 POLICY AND PROGRAM GOALS	4
1.7 ENERGY MARKETS	5
1.8 PROGRAM IMPLEMENTATION	5
<b>2 RISK</b>	<b>2-1</b>
2.1 TYPES OF RISK	2-1
2.2 PRICE RISK	2-2
2.3 CREDIT RISK	2-2
2.3.1 Counter-Party Credit Measurement	2-3
2.3.2 Establishing Credit Responsibilities	2-3
2.3.3 Extension of Credit	2-4
2.3.4 Credit Exposure Reporting	2-4
2.4 ORGANIZATIONAL RISK	2-4
2.5 POSITION RISK	2-4
2.6 MARKET INFORMATION	2-4
2.7 PASADENA TOLERANCE FOR RISK	2-4
2.8 RISK EXPOSURE AND RISK MANAGEMENT	2-5
2.8.1 Risk Measurement	2-5
2.8.2 Market Exposure Sensitivity	2-5
2.8.3 Stress Testing	2-6
<b>3 ORGANIZATIONAL STRUCTURE, RESPONSIBILITIES, AND PROCEDURES</b>	<b>3-1</b>
3.1 STRUCTURE	3-1
3.2 RESPONSIBILITIES	3-1
3.3 TRANSACTION PROCESS	3-3
3.4 ASSIGNMENT OF RESPONSIBILITIES	3-5
3.4.1 City Council	3-5
3.4.2 General Manager	3-5
3.4.3 Power Supply Business Unit	3-6
3.4.4 Risk Manager	3-8
3.5 RESPONSIBILITIES OF OTHER FUNCTIONAL AREAS	3-9
3.5.1 Credit	3-9
3.5.2 Accounting	3-9
3.5.3 Audit	3-10
3.5.4 Legal	3-11
3.5.5 Information Technology	3-11
<b>4 CONTROLS</b>	<b>4-1</b>
4.1 GENERAL MANAGER AND DIRECTOR OF FINANCE AND ADMINISTRATION	4-1

## ENERGY & CREDIT RISK MANAGEMENT POLICY

---

4.2	POSITION REPORT	4-1
4.3	AUTHORIZATIONS	4-2
4.4	AUTHORIZED TRANSACTIONS	4-2
4.5	TRANSACTION LIMITS	4-3
4.5.1	Type and Volume	4-4
4.5.2	Market Positioning	4-6
4.5.3	Counter-party Credit	4-6
4.6	CHANGING LIMITS	4-6
4.7	INCENTIVE SYSTEM	4-6
5	MANAGEMENT REPORTING	5-1
5.1	OBJECTIVE	5-1
5.2	REPORTING REQUIREMENTS	5-1
5.3	STRESS TEST REPORTING	5-2
5.3.1	Simulation of Market Disaster Conditions	5-2
5.3.2	Scenario Analysis/Stress Testing	5-3
5.3.3	Statistical Analysis	5-3
6	NEW PRODUCT PROCESS	6-1
6.1	NEW PRODUCTS	6-1
6.2	NEW TRANSACTIONS	6-1
7	CONFLICT OF INTEREST	7-1
8	POLICY REVIEW	8-1

### LIST OF TABLES

Table 2-1	Types of Risk	2-1
Table 3-1	Front, Middle, and Back-Office Functions	3-2
Table 4-1	Transaction Authorizations and Limits	4-4
Table 5-1	Reports	5-2

### LIST OF FIGURES

TRANSACTION AUTHORIZATIONS AND LIMITS	4
TABLE 2-1 TYPES OF RISK	2-1
TABLE 3-1 FRONT, MIDDLE, AND BACK-OFFICE FUNCTIONS	3-2
TABLE 4-1 TRANSACTION AUTHORIZATIONS AND LIMITS	4-4
TABLE 5-1 REPORTS	5-2

**LIST OF APPENDICES**

- A.1 AUTHORIZED SIGNATORIES**
- B.1 COUNTER-PARTIES**
- B.2 PROPOSED COUNTER-PARTY CREDIT CRITERIA**
- B.3 POTENTIAL OUTSOURCED SERVICES**
- C.1 TERMINOLOGY**
- D.1 AUTHORIZED PRODUCTS AND MARKETS**
- E.1 SAMPLE POSITION REPORT**



## ENERGY & CREDIT RISK MANAGEMENT POLICY

### 1. POLICY OVERVIEW

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#### 1.1 OBJECTIVE

This Energy and Credit Risk Management Policy (the “Policy”) is designed for the specific requirements and constraints of the Power Supply Business Unit (“PSBU”) of Pasadena Water and Power (“Pasadena”). The focus is on minimizing the cost of energy and associated risk while maximizing the value of resources, including transmission. This will help Pasadena realize the goal of providing low electric rates to its customers while minimizing risk.

Specific authorizations and approvals are required for transactions that will enable energy purchases and sales in different markets at different levels of risk.

#### 1.2 ENERGY PORTFOLIO

As shown in Figure 1-1, Pasadena has generation and transmission resources located throughout the west for a peak capability of 370 MW. The 202 MW local gas-fired generation includes three steam units and two gas combustion turbines rated at 26 MW each. These units are supplied by contractual and spot fuel purchases using the City’s 8,000 mmbtu/day firm gas transmission capacity into California. Pasadena also has 168 MW of remote resources including Intermountain Generating Station in Utah, Palo Verde Generating Station in Arizona, Hoover Dam, and contracts with Bonneville Power Authority. Pasadena owns entitlement shares of sufficient transmission to deliver these resources and additional spot market purchases from major trading hubs such as the Mead 230kV and 500kV stations, NOB on the Pacific DC Intertie, Westwing 500 kV, and Sylmar.

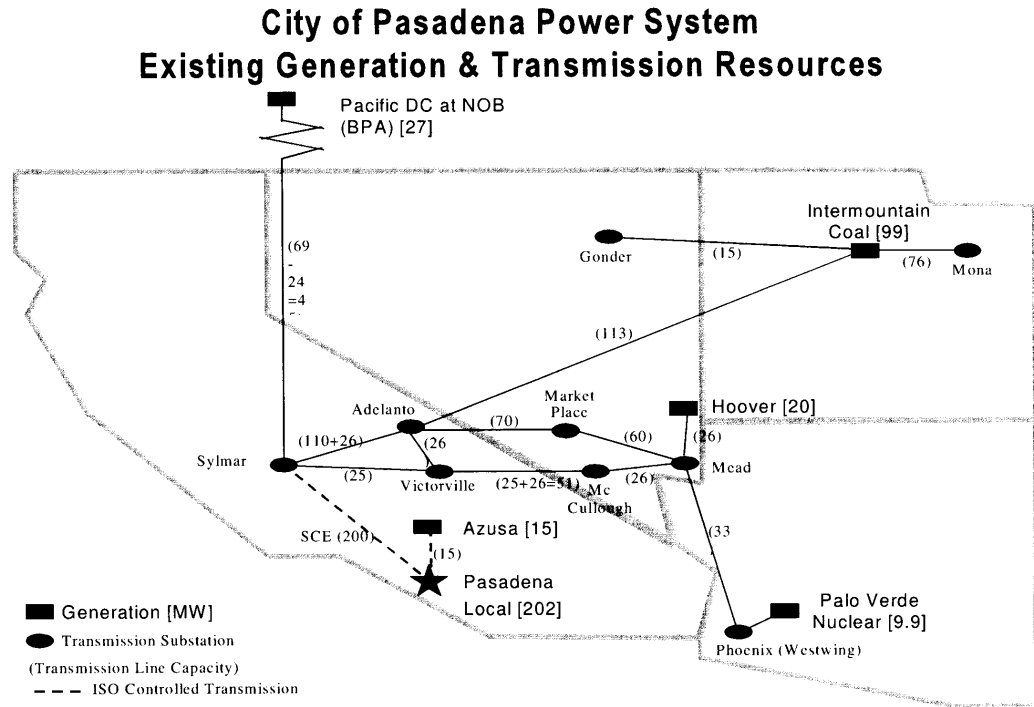


Figure 1-1: Power System Portfolio Diagram

Approximately 70 to 80% of Pasadena’s energy requirement is met with imports from remote resources and spot power markets in the Northwest and Southeast, with the remainder supplied by the Broadway steam generators and peaking gas turbines. By actively monitoring and participating in forward, day-ahead, and same-day wholesale electric energy markets on a continuous basis, PSBU is able to take advantage of economic energy purchase and sales opportunities throughout the Western Systems Coordinating Council (WSCC) region to reduce power supply costs and increase revenues from available excess capacity. In addition, PSBU regularly sells excess energy into the PX and capacity into the ISO ancillary services market as an adjacent control area.

Pasadena is currently developing a number of portfolio books to manage and optimize various portions of its energy portfolio. Under consideration are separate books to manage native load requirements and long-term obligations, remote resources, local generation, and transmission as independent profit centers. Pasadena may also need to develop separate

## ENERGY & CREDIT RISK MANAGEMENT POLICY

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“first-party” books to handle other energy service providers that may operate within the City after direct access is initiated.

### 1.3 ENERGY PORTFOLIO MANAGEMENT ACTIVITIES

In general, energy portfolio management involves customer supply and asset optimization activities. Customer supply activities are transactions executed to meet obligations to end-users, including wholesale supply to third parties. The primary objective is to meet these physical requirements at a cost that is less than the unbundled energy revenue generated by the supply contract. Customer supply activities include:

- Execution of supply contracts resulting in an obligation to deliver electricity to an end-user or other wholesale customer, including retail rate-based load growth.
- The generation and/or purchase of electric capacity and energy to meet native retail load obligations and delivery obligations for wholesale customers.
- The purchase of fuel for Pasadena owned/controlled generating units.

Asset optimization activities are transactions executed to take advantage of current prices or price relationships within the market or between the market and generation assets or purchases. Transactions can be physical or financial (e.g. a capacity contract with a financial settlement option). The primary objective of asset optimization is to take advantage of current prices or anticipated favorable movements in prices to generate revenue from excess resources and/or protect (hedge) the anticipated revenue from load-serving resources. For a utility, the ensuing revenues are typically used to reduce net power costs. Asset optimization activities involve the purchase and sale of transmission, capacity, and energy in the wholesale electricity market.

*This Policy limits Pasadena’s customer supply and asset optimization activities to sales from capacity and purchases to meet load (or to replace higher cost resources). In other words, sales and purchases are “covered” and speculation and excessive financial risk are not permitted. This means potential financial “losses” will be opportunity losses, not outright losses.*

#### **1.4 DEREGULATED MARKET**

Pasadena has excess resources and transmission for its system load. This long position has enabled Pasadena to manage its load/resource balance and transmission requirements without undue cost or risk taking. In fact, the utility has a successful history of providing reliable, low cost energy to its customers.

In the deregulated market, Pasadena must compete with multiple buyers and sellers of energy and transmission, such as other utilities, power marketers, and traders. Low price competition from sellers may make it difficult for Pasadena to retain its customer base or attract new customers as its service area is opened to direct access. Due to these competitive pressures, Pasadena must participate directly or indirectly in different markets with different transactions and associated risks to optimize its portfolio and deliver low cost, reliable energy. Direct participation involves developing and utilizing trading and risk management skills in-house. Indirect participation involves accessing (via a business alliance) existing trading and risk management skills in a power marketing/trading organization. In either case, trading and risk management skills are required to compete effectively in the deregulated market that were not required before.

#### **1.5 PROGRAM SCOPE**

This Policy shall govern all of Pasadena's energy sales and purchases, transmission, and risk management activities. The document provides the framework from which Pasadena management and personnel will identify, capture, measure, manage, control, monitor, and report financial risks and results of power generation, procurement, and distribution activities. The program specifically addresses management of the financial risks of these business functions and provides a framework to maintain proper controls over these functions as they change over time.

#### **1.6 POLICY AND PROGRAM GOALS**

The overall goal of this Policy is to strengthen the City of Pasadena's ability to provide reliable, low cost, bundled energy to its retail customers while managing risk. This goal is best achieved by enabling PSBU to transact business, directly or indirectly, in different energy markets while simultaneously monitoring and minimizing associated risk.

The goals of the risk management program are to:

## ENERGY & CREDIT RISK MANAGEMENT POLICY

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- Plan and manage a portfolio of physical and financial positions
- Identify and quantify market risks
- Maintain control over the market and credit risk taking activities of the organization such that limits established by this program are not exceeded
- Modify or work within the existing organizational structure to manage risks that Pasadena assumes in these activities
- Remain flexible to accommodate the changing policy needs of the organization while maintaining control of the overall risk position
- Operate a disciplined program to manage cash flows and transaction execution.

### 1.7 ENERGY MARKETS

In order to optimize energy and energy-related transactions, and increase the likelihood of Pasadena providing low cost, reliable energy to its customers, PSBU must be authorized to transact business in all markets appropriate to the business needs of the utility. These include markets where PSBU has direct experience (the WSPP and bilateral or OTC market), indirect experience (Cal PX and ISO), and little experience (NYMEX futures and APX). In the markets that are new to PSBU, the transactions are similar to transactions in the markets where PSBU has more experience; so PSBU can capitalize on its existing experience to capture opportunities in these new markets that may not be available elsewhere. PSBU may also call on outside expertise in these new markets until a comfort level is attained in the organization. Regardless of which market PSBU participates in, the risks of participation will be well defined and managed by adhering to the transaction authorizations and limits defined herein.

### 1.8 PROGRAM IMPLEMENTATION

Related to risk management program goals are these implementation goals:

- Assure that all necessary information is communicated to personnel engaged directly or indirectly in energy sale, purchase, and transmission activities to keep them informed of the position of the organization at all times

## ENERGY & CREDIT RISK MANAGEMENT POLICY

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- Assure integrity of the program through an effective control, audit, and reporting framework
- Provide a set of procedures for the management of operational risks (e.g., separation of duties, maintenance of oversight, etc.) without placing undue restrictions on the operations of PSBU.

## ENERGY & CREDIT RISK MANAGEMENT POLICY

### 2 RISK

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#### 2.1 TYPES OF RISK

A risk management program is necessary for energy sale, purchase, and transmission activities because unnecessary risks could be created without proper monitoring and control of existing and proposed transactions. The types of risk relevant to Pasadena are shown in Table 2-1.

**Table 2-1  
Types of Risk**

<b>Risk</b>	<b>Description</b>	<b>Potential Impact</b>
Price	Unbundled energy cost vs. retail price risk <i>or</i> Opportunity risk	Cash flow below budget or negative if energy cost equals or exceeds retail price
Credit	Inability or unwillingness of a counter-party to perform in a bilateral (OTC) transaction	Resale of energy at a lower price resulting in reduced revenue or repurchase of energy at a higher price resulting in increased cost
Organizational	Unclear lines of authority and inadequate staffing, lack of deal "ownership"	Sub-optimum pricing and operational decisions; confusion within and outside the organization
Position (volume long or short)	Size of individual or total positions exceeds authorization for transaction level	Breakdown in trust in individual and/or risk management system
Market Information	Inaccurate, incomplete, or untimely information on market conditions affecting price	Sub-optimum pricing decisions on sales and purchases

Since this Policy does not allow PBSU to engage in speculation (see the limits on the types of transactions that PSBU may open in Table 4-1), speculative trading is not listed in Table 2-1 as a risk relevant to Pasadena. Furthermore, operational risks of extreme load conditions and resource or

## ENERGY & CREDIT RISK MANAGEMENT POLICY

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transmission outages are not specifically addressed in this Policy because Pasadena is well experienced and accustomed to dealing with these risks. The importance of an accurate load/resource balance forecast and the ability to react to contingencies are well understood in PSBU.

### 2.2 PRICE RISK

In general, energy price risk or market exposure can be defined as the uncertainty in the value of a portfolio due to changes in the business environment. These changes are related to changes in the pricing of the underlying commodities and markets in which Pasadena is engaged. Market exposure is often expressed quantitatively as Value-at-Risk, a measure based on the observation that an instrument in a portfolio will deviate from its existing marked-to-market value within some statistical measure of volatility and within a defined certainty.

Specific to Pasadena, price risk pertains to opportunity risk and the difference between energy costs and retail rates (margin risk). Speculative price risk is disallowed. Opportunity risk will always be present but it is may be minimized through access to accurate and timely market information (*see Section 2.6*). Margin risk is mitigated with an active program of forward transactions, including hedges, in the markets described in Section 1.6.

### 2.3 CREDIT RISK

Credit exposure is the risk that a counter-party to a transaction will be unable or unwilling to fulfill its present and future financial obligations; i.e. perform on a sale or purchase agreement. Substantial unrealized gains or losses may accrue in physical contracts before any delivery obligation. The value of outstanding contracts can escalate substantially over time without the counter-party having to post or deposit any security in the form of collateral. These credit exposures are a primary concern for over-the-counter (OTC) transactions, not for PX and futures transactions.

The creditworthiness of counter-parties is a function of different factors affecting the credit rating assigned to a counter-party by major credit rating services or an internal evaluation of the counter-party's financial strength. Factors include future market values and credit variables (i.e. price level, price differentials, volatility, correlation, default rates, etc.) that affect earnings, cash flows, and fair values. The credit standing of a potential



## ENERGY & CREDIT RISK MANAGEMENT POLICY

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counter-party may be established from its credit rating (published by one of the commonly recognized rating agencies), market intelligence, electronic news releases, or other public information sources.

Managing credit exposure is an important component in OTC or bilateral energy transactions. Some recommendations on managing credit exposure:

- Establish counter-party approval criteria based on Pasadena requirements for size, presence, history, and financial strength
- Determine the creditworthiness of potential counter-parties using the established approval criteria and develop a list of pre-approved counter-parties for OTC transactions. (Since credit risk is managed by the exchange in the PX and futures markets, creditworthiness is not an issue in those markets.)
- Require letters of credit from counter-parties who do not meet the criteria
- In the absence of a Credit Department to monitor counter-party credit and administer letters of credit, consider opening *all* OTC transactions with only pre-approved counter-parties who meet or exceed the criteria.

### **2.3.1 Counter-Party Credit Measurement**

Credit exposure to a counter-party can be measured in two ways. The first is the cost of replacing the energy in the marketplace, defined as a position's current or "mark-to-market" value. The second is an estimate of the future replacement cost of a transaction using a probability analysis over the remaining term.

### **2.3.2 Establishing Credit Responsibilities**

Establishing limits and monitoring credit information should be done separate from energy transaction activities, in order to ensure appropriate segregation of duties within Pasadena. Credit (a credit manager or authorized individual at Pasadena) will have the authority to halt all future transactions with a particular counter-party when that counter-party is deemed less than creditworthy. Credit will prepare and distribute an approved counter-party list to PSBU on a monthly basis and as updates are available.

## ENERGY & CREDIT RISK MANAGEMENT POLICY

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### **2.3.3 Extension of Credit**

PSBU will enter into a transaction with a counter-party only when that transaction added or netted with other transactions with the same counter-party does not exceed the maximum limit and term based on the counter-party's assigned credit rating.

### **2.3.4 Credit Exposure Reporting**

Relevant, accurate, and timely information about counter-party credit exposures and approved lines of credit should be provided to all individuals in PSBU authorized to engage in energy transactions on behalf of Pasadena. Reporting of credit exposure against pre-defined limits shall be done monthly and any violations reported immediately.

## **2.4 ORGANIZATIONAL RISK**

Section 3 on Organizational Structure, Responsibilities, and Procedures addresses this risk.

## **2.5 POSITION RISK**

This risk is addressed in Controls (Section 4).

## **2.6 MARKET INFORMATION**

In order to make informed energy purchase, sale, and transmission decisions, current market information on prices, price forecasts, unit outages, weather forecasts, hydroelectric conditions, and fuel prices must be available to PSBU. Current and future electricity and fuel prices are accessible through different energy data providers, unit outages are reported in industry publications, and weather and hydroelectric conditions are available through several sites on the Internet. PSBU should make ready use of all of these information sources to enable an accurate evaluation of the market and a fair assessment of sale and purchase opportunities.

## **2.7 PASADENA TOLERANCE FOR RISK**

Risk tolerance is defined by the acceptable transaction and position limits of PSBU. These are identified in Table 4-1. This Policy will set guidelines for these limits. To ensure that all guidelines are adhered to, all energy

## ENERGY & CREDIT RISK MANAGEMENT POLICY

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sales and purchases must be carried out in accordance with this Policy and appropriate reports made on a timely basis.

### **2.8 RISK EXPOSURE AND RISK MANAGEMENT**

Certain exposures may be created as PSBU participates in both the physical and financial markets. These risks may expose Pasadena to revenue volatility, cost and pricing uncertainty, and difficulty in meeting budgeted cash flow and fund targets. Depending on the source and nature of the risks, there are a range of risk management strategies and tactics that may be employed by PSBU. Therefore, management is responsible to implement programs to systematically identify, quantify, and manage its various market-driven exposures and to establish a pre-defined level of risk tolerance.

The disclosure of Pasadena's exposure levels will be reported by the Risk Manager (or responsible individual in Finance and Administration) on the Position Report. Exposures may be measured using a consistent Value-at-Risk or equivalent methodology, with all open positions marked to market.

#### **2.8.1 Risk Measurement**

The Policy stipulates that Pasadena's energy positions will be covered, so the price risk of open positions in the portfolio will be opportunity risk rather than outright financial risk. In either case, risk may be measured using market price forecasts or the more complex Value-at-Risk (VAR). VAR is a measure of the expected loss in a portfolio (or individual instrument) from adverse market price movements within specified probabilities and time horizons. For speculative transactions, limits are usually defined such that the VAR of the portfolio (or individual instrument) does not exceed approved dollar levels. For covered transactions (i.e. sales from resources, purchases to meet load, and hedges), a VAR of the portfolio is a measure of potential opportunity loss rather than outright financial loss. If VAR is used, it should be calculated on a regular basis and compared to a pre-established dollar limit. The Risk Manager will establish the frequency and limit.

#### **2.8.2 Market Exposure Sensitivity**

The quantification of market risk involves determination of the maximum expected loss on the overall portfolio resulting from an adverse market movement that could reasonably be expected in the course of business. The calculation of a "worst case" movement of the portfolio is modeled

## ENERGY & CREDIT RISK MANAGEMENT POLICY

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using varying market sensitivity intervals and should be performed by the Risk Manager on a monthly basis.

### **2.8.3 Stress Testing**

Different market events should be simulated periodically to test the portfolio exposure and hedging assumptions, as well as to evaluate hedging alternatives. The frequency of stress tests depends on the extent of market volatility and is most important in high load periods.

### **3 ORGANIZATIONAL STRUCTURE, RESPONSIBILITIES, AND PROCEDURES**

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The energy transaction activities of PSBU should be regularly monitored and reviewed by the Risk Manager who is responsible to ensure that the limits and risk management procedures described in this Policy are observed.

#### **3.1 STRUCTURE**

This Policy is designed to be implemented using the existing organization structure of Pasadena Water and Power. The existing structure is adequate to ensure that all transactions are within the limits of this Policy, but requires accepting new responsibilities for proper risk management of energy transactions. PSBU is responsible for all wholesale energy sale and purchase activities, and Finance and Administration is responsible for risk management activities.

It is important that the structure:

- Facilitate energy transactions while controlling risk. This includes allowing enough freedom to act on transactions, avoiding excessive analysis and governance.
- Absorb new or additional responsibilities associated with the requirements of risk management and transactions in different markets.

Risk management requirements, such as monitoring and reporting, may require increased staffing, reassignments, or outsourcing. (Outsourcing might include analysis of hedging opportunities and reviewing the creditworthiness of counter-parties.)

#### **3.2 RESPONSIBILITIES**

The key areas of responsibility of an organization engaged in physical and financial electricity transactions are:

- Transactions: deal making, approvals, paperwork (draft agreements, confirmations, bookings), credit, accounting
- Operations: scheduling

**ENERGY & CREDIT RISK MANAGEMENT POLICY**

- Establishing authorizations and limits on transaction term, type, and size
- Risk management: risk monitoring and measurement, position reporting
- Establishing counter-party credit lines and accounts (e.g. PX, futures) to enable transactions in different markets
- Credit, including analyzing and providing financial statements
- Identifying authorized representatives within approved counter-parties for all transactions-related activities

These and other responsibilities can be categorized as front, middle, and back-office functions, and are shown in Table 3-1. These functions must be present in any organization engaged in trading and risk management for successful dealing, control, and processing.

**Table 3-1  
Front, Middle, and Back-Office Functions**

<b>Front Office</b> (dealing)	<b>Middle Office</b> (control)	<b>Back Office</b> (processing)
<ul style="list-style-type: none"> <li>➤ Marketing contact</li> <li>➤ Customer contact</li> <li>➤ Deal structure</li> <li>➤ Pricing</li> <li>➤ Transaction booking</li> <li>➤ Positioning</li> <li>➤ Hedging</li> </ul>	<ul style="list-style-type: none"> <li>➤ Independent control</li> <li>➤ Risk monitoring</li> <li>➤ Risk measurement</li> <li>➤ Mark-to-market</li> <li>➤ Risk limits</li> <li>➤ Risk metrics</li> <li>➤ Credit emergency shutdown</li> <li>➤ Management reporting</li> <li>➤ Counter-party credit authorization</li> </ul>	<ul style="list-style-type: none"> <li>➤ Scheduling</li> <li>➤ Nominations</li> <li>➤ Confirmations</li> <li>➤ Reconciliations</li> <li>➤ Account booking</li> <li>➤ Settlement</li> <li>➤ Invoicing</li> </ul>

Specific assignment of these and other responsibilities is discussed later in this section. Some of these responsibilities may overlap existing duties within PSBU. In some utilities, many of these responsibilities are assigned to teams. At Pasadena, the responsibilities will be assigned to individuals to ensure “ownership” and preclude the need for team meetings and additional coordination efforts.

**3.3 TRANSACTION PROCESS**

The transaction process can involve real-time deals and term deals. Real time deals involve only Pasadena resource schedulers, subject to strategy defined by PSBU. Term deals can involve all levels in the transactional hierarchy, up to the General Manager. Real time deals are hourly and balance-of-day transactions where the resource schedulers have sole authority, up to the constraints defined in this document, to buy or sell to balance load requirements with resources.

The process of evaluating and opening (or not opening) transactions is best understood with the aid of the following diagram. The diagram demonstrates the flow of information in the transaction process and the way in which transactional limits are observed throughout the process. This flow diagram governs all transactions except real time (where economics and credit approvals are not practical or applicable) and emergencies.

ENERGY & CREDIT RISK MANAGEMENT POLICY

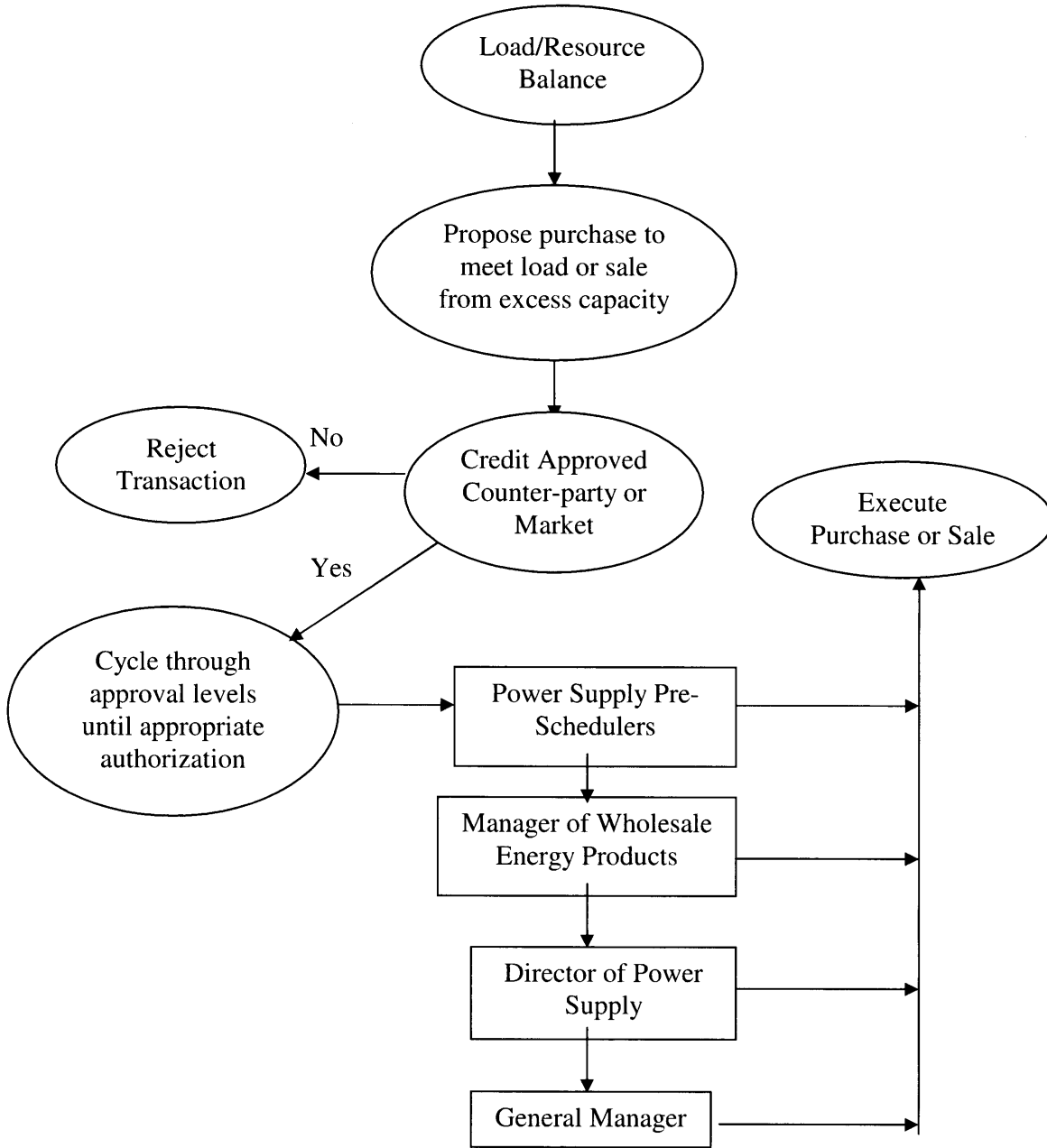


Figure 3-1: Transaction Flow Diagram



### **3.4 ASSIGNMENT OF RESPONSIBILITIES**

#### **3.4.1 City Council**

The Pasadena City Council is responsible for establishing a framework for efficient and economical energy transactions while ensuring that risks are properly managed. This responsibility shall be realized through the following:

- Requirement that the City Council approve this Policy based on a review of Pasadena's potential exposures and the establishment of specific risk tolerances for Pasadena
- Establish a risk management culture and a receptivity to transactions in new markets that is communicated throughout the organization
- Approach implementation of this Policy in a consistent fashion
- Authorize Pasadena's employees to engage only in those activities that correlate with the business needs of the organization and are consistent with prudent risk management
- Recognize that PBSU will not engage in speculation in the physical or financial markets
- Authorize the use of financial instruments such as futures, forwards, swaps, contracts-for-differences, and options, as well as physical market instruments, to manage the risks defined herein
- Require adequate management involvement, financial controls, and systems to monitor, report, and ensure the integrity of this Policy at all levels.

#### **3.4.2 General Manager**

The General Manager is responsible for the overall direction, structure, conduct, control, and reporting of Pasadena's risk management activities. He shall report to the City Council periodically on the nature and profile of Pasadena's market exposures and on the results of risk management activities. The General Manager will also:

- Periodically assess the adequacy and functioning of the system of controls over market, credit, and operational risks