

Energy Risk Management Policy



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1 General Provisions

1.1 Background and Purpose of Policy

Silicon Valley Clean Energy's (SVCE) mission is to reduce dependence on fossil fuels by providing carbon free, affordable and reliable electricity and innovative programs for the SVCE community.

This Energy Risk Management Policy (Policy) has been developed to help ensure that SVCE achieves its mission and adheres to policies established by the SVCE Board of Directors (Board), power supply and related contract commitments, good utility practice, and all applicable laws and regulations. SVCE is not engaged in the power supply business for profit and is, therefore, precluded by this Policy from engaging in many of the risk-taking activities typical to an organization orientated solely toward profit maximization.

This Policy defines SVCE's general energy risk management framework and provides management with the authority to establish processes for monitoring, measuring, reporting, and controlling market and credit risks to which SVCE is exposed in its normal course of business.

1.2 Scope of Business and Related Market Risks

SVCE provides energy to retail customers in its service territory that entails business activities such as; bilateral purchases and sales of electricity under short-, medium- and long-term contracts; scheduling of load and generation of electricity into California Independent Systems Operator (CAISO) markets; retail marketing of electricity to consumers within its service territory; compliance with voluntary objectives and regulatory requirements as it relates to carbon free and renewable portfolio standard (RPS) compliant energy; participation in CAISO Congestion Revenue Rights ("CRRs") market; managing the balance of load and generation over short, medium and long term horizons; and compliance with California Public Utilities Commission (CPUC) Resource Adequacy (RA) requirements.

Examples of energy market risks include, but are not limited to, the following:

- Mark-to-Market Risk
- Market Price Risk
- Net Revenue Risk
- Counterparty Credit and Performance Risk
- Load and Generation Volumetric Risk
- Operational Risk
- Liquidity Risk
- Regulatory/Legislative Risk

This Policy focuses on the following:

- Risk Management Goals and Principles
- Definitions of Risks
- Internal Control Principles
- Risk Management Business Practices
- Authorized Transaction and Trading Limitations
- Risk Management Governance

This Policy does not address the following types of general business risk, which are treated separately in other official policies, ordinances and regulations of SVCE: fire, accident and casualty; health, safety, and workers' compensation; cybersecurity, general liability; and other such typically insurable perils. The term "risk management," as used herein, is therefore understood to refer solely to energy market risks as herein defined, and not those other categories of risk.

1.3 Policy Administration

This Energy Risk Management Policy (Policy) is adopted by the SVCE Board of Directors and will be reviewed and updated as needed at least every two calendar years by SVCE's Board. The CEO is responsible for implementation of the Policy. The CEO is also responsible to develop Energy Risk Management Guidelines (Guidelines), which is required for staff to implement the Policy.

1.4 Policy Distribution

This Policy shall be distributed to all SVCE employees and third-party contractors who are engaged in the planning, procurement, sale and scheduling of electricity on SVCE's behalf and/or in other SVCE departments providing oversight and support for these activities.

2 Risk Management Goals

Although SVCE does not engage in risk-taking activities typical in a for-profit organization, certain risks are incidental to the normal power supply operations and hedging activities. SVCE's policy is to manage risk inherent with serving load, including the risks associated with normal cost-hedging activities, those associated with participation in wholesale markets in general and the CAISO in particular.

The goals of energy risk management shall be to:

1. assist in achieving the business objectives in the Strategic Plan, Integrated Resource Plan (IRP) and Cash Reserve Policy including retail rate stability and competitiveness and the accumulation of financial reserves;
2. avoid losses and excessive costs which would materially impact the financial condition of SVCE;
3. establish the parameters for energy procurement and sales activity to obtain the best possible price while ensuring compliance with Board-approved policies;
4. identify specific cost, regulatory and legislative risks that could adversely affect SVCE's ability to achieve its business objectives, and to the extent possible, quantify and measure performance against those risks;
5. assist in assuring that market activities and transactions are undertaken in compliance with established procurement authorities, applicable laws, regulations and orders;
6. encourage the development and maintenance of a corporate culture at SVCE in which the proper balance is struck between control and facilitation and in which professionalism, discipline, technical skills and analytical rigor come together to achieve SVCE objectives; and
7. manage business risks to acceptable levels consistent with retail rate-setting, resource procurement and cash reserve management.

SVCE manages its energy resources and transactions to provide its customers with low cost renewable, carbon free and other energy while at the same time minimizing risks. The risk management principles that SVCE will use include:

1. Undue exposure to CAISO or bilateral energy market volatility for the purpose of potentially achieving lower costs but at the risk that costs may, in fact, be much higher, will not be accepted.
2. Procurement and hedging strategy will be determined by analytical methods supplemented by experienced judgement. SVCE will use that experienced judgement and its analytical tools to assess system cost drivers such as weather, short term energy prices, load variation and operational constraints to manage timing and quantity of purchases and sales of energy and related services, consistent with the limits identified in this Policy.
3. When actions are taken that are consistent with this Policy and for the combined goal of low costs and optimized risk, those actions are considered to be consistent with the objectives of this Policy.
4. SVCE will not engage in transactions, without proper authorization, whose purpose is not tied to managing costs and risks or are outside of the limits identified in this Policy.

3 Definition of Market Risks

The term "market risks," as used here, refers specifically to those categories of risk which relate to SVCE's participation in wholesale and retail markets as a Load Serving Entity (LSE) and its interests in long-term contracts. Market risks include market price risk, counterparty credit and performance risk, load and generation volumetric risk, operational risk, liquidity risk, and regulatory and legislative risk. These categories are defined and explained as follows.

3.1 Mark-to-Market Risk

Mark-to-Market risk is the risk that wholesale trading positions, long-term supply contracts and generation resources may move "out of the money," that is, become less valuable in comparison with similar positions, contracts or resources obtainable at present prices. These same positions can also be "in the money" if they become more valuable in comparison to similar positions, contracts or resources obtainable at present market prices. This valuation methodology is commonly referred to as "Mark-to-Market." If SVCE is "out of the money" on a substantial portion of its contracts, it may have to charge higher retail rates. This may erode SVCE's competitive position and market share if other market participants (e.g., Direct Access providers or PG&E) are able to procure power at a lower cost and offer lower retail electricity rates.

3.2 Market Price Risk

Market Price risk is the risk that market prices change, resulting in changes to energy procurement cost. For example, the cost for the unhedged portion of a supply portfolio (net open position) will increase when market prices increase. Conversely, if resources are in excess to needs and market prices fall, the revenue expected from the sale of the surplus resources will decrease. In addition, uncertain market price relationships (locational risk) affect SVCE's procurement costs.

A subcomponent of market price risk is market liquidity. Illiquid markets make it more difficult to buy or sell a commodity and can result in higher premiums on purchases or deeper discounts on sales.

Another dimension of market price risk is congestion risk. Congestion risks arise from the difference between the prices SVCE pays the CAISO to schedule its load and the prices SVCE receives from the CAISO for energy delivered by SVCE's suppliers.

3.3 Net Revenue Risk

Net Revenues are the total of all revenues received (from retail sales to customers and from the sale of any energy products that were surplus or unneeded) less the total costs (including the costs of long-term contracts, forward transactions, and spot market purchases plus all other operating costs). Net Revenue Risk is the risk that any of those factors—revenues or costs—changes (e.g. changes in market prices or retail sales volumes, or failures of counterparties). Net Revenue is the "bottom line" for SVCE as it determines the financial viability of the authority.

One of the main components of net revenue risk is on the retail revenue side, which is at risk when customers opt out from service by SVCE and return to PG&E, or if customers choose to find another supplier through direct access opportunities that may arise. In addition, when the Power Charge Indifference Adjustment (PCIA) is changed, it directly affects SVCE's bottom line if SVCE compensates by changing its retail rates.

3.4 Counterparty Credit and Performance Risk

Performance and credit risk refers to the inability or unwillingness of a counterparty to perform according to its contractual obligations or to extend credit. Failure to perform may arise if an energy supplier fails to deliver energy as agreed. There are four general performance and credit risk scenarios:

1. counterparties and wholesale suppliers may fail to deliver energy or environmental attributes, requiring SVCE to purchase replacement products elsewhere, possibly at a higher cost;
2. counterparties may fail to take delivery of energy or environmental attributes sold to them, necessitating a quick resale of the product elsewhere, possibly at a lower price;
3. counterparties may fail to pay for energy or environmental attributes delivered; and
4. counterparties and suppliers may refuse to extend credit to SVCE, possibly resulting in higher collateral posting costs impacting SVCE's cash and bank lines of credit.

An important subcategory of credit risk is concentration risk. When a portfolio of positions and resources is concentrated in one or a very few counterparties, sources, or locations, it becomes more likely that major losses will be sustained in the event of non-performance by a counterparty or supplier or as a result of price fluctuations at one location.

3.5 Load and Generation Volumetric Risk

Energy deliveries must be planned for based upon forecasted load adjusted for distribution line losses. SVCE forecasts load over the long and short term and enters into long- and short-term fixed-price energy contracts to hedge its load.

Load forecasting risks arises from inaccurate load forecasts and can result in the over or under procurement of energy and/or revenues that deviate from approved budgets. Energy delivery risk occurs if a generator fails to deliver expected or forecast energy. Variations in wind speed and cloud cover can also impact the amount of electricity generated by solar and wind resources, and occasional oversupply of power on the grid can lead to curtailment

of energy deliveries or reduce revenue as a result of low or negative prices at energy delivery points. Weather is an important variable that can result in higher or lower electricity usage due to heating and cooling needs.

In the CAISO markets this situation can result in both oversupply and undersupply of electricity relative to SVCE's load and the over or under scheduling of generation or load into the day ahead market relative to actual energy consumed or delivered in the real time market. Load and generation volumetric risk may result in unanticipated open positions and imbalance energy costs. Imbalance energy costs result from differences in the price or volume of generation or load scheduled into the day ahead market when compared to the price or volume of generation or load occurring in the real time market during that time period.

3.6 Operational Risk

Operational risk consists of the potential for failure to act effectively to plan, execute and control business activities. Operational risk includes the potential for:

1. organizational structure that is ineffective in addressing risk (i.e., the lack of sufficient authority to make and execute decisions, inadequate supervision, ineffective internal checks and balances, incomplete, inaccurate and untimely forecasts or reporting, failure to separate incompatible functions, etc.);
2. absence, shortage or loss of key personnel or lack of cross functional training;
3. lack or failure of facilities, equipment, systems and tools such as computers, software, communications links and data services;
4. exposure to litigation or sanctions resulting from violating laws and regulations, not meeting contractual obligations, failure to address legal issues and/or receive competent legal advice, not drafting and analyzing contracts effectively, etc.; and
5. errors or omissions in the conduct of business, including failure to execute transactions, violation of guidelines and directives, etc.

3.7 Liquidity Risk

Liquidity Risk is the risk that SVCE will be unable to meet its financial obligations. This can be caused by unexpected financial events and/or inaccurate pro forma calculations, rate analysis, and debt analysis. Some unexpected financial events impacting liquidity could include:

1. breach of SVCE credit covenants or thresholds; SVCE has credit covenants included in its banking and several short-term energy contracts. Breach of credit covenants or thresholds could result in the withdrawal of SVCE's line of credit or trigger the requirement to post collateral;
2. calls for collateral from the CAISO or SVCE's counterparties based on terms of transacting agreements; and
3. from time to time SVCE may be the subject of legal or other claims arising from the normal course of business. Payment of a claim by SVCE could reduce SVCE's liquidity if the cause of loss is not covered by SVCE's insurance policies.

3.8 Regulatory/Legislative Risk

Regulatory risk encompasses market structure and operational risks associated with shifting state and federal regulatory policies, rules, and regulations that could negatively impact SVCE. Some examples are the potential increase of exit fees for customers served by Community Choice Aggregators such as SVCE that would result in higher electricity rates for

SVCE's customers, and the risk that the customers would select another supplier through an expanded Direct Access program.

Legislative risk is associated with actions by federal and state legislative bodies, such as any adverse changes or requirements that may infringe on SVCE's autonomy, increase its costs, impact its customer base, or otherwise negatively impact SVCE's ability to fulfill its mission.

4 Internal Control Principles

Internal controls shall be based on proven principles that meet or exceed the requirements of financial institutions and credit rating agencies and good utility practice. The required controls shall include all customary and usual business practices designed to prevent errors and improprieties, ensure accurate and timely reporting of results of operations and information pertinent to management, and facilitate attainment of business objectives. These controls are currently and shall remain fully integrated into all activities of the business and shall be consistent with stated objectives.

4.1 Segregation of duties

One of the main aspects of internal controls is the segregation of duties to ensure that the staff person that executes a transaction is not the same person that evaluates or settles the transaction. Appropriate segregation of duties is to be established and maintained throughout the system of controls over financial risks. Senior management must be diligent in ensuring that appropriate segregation of duties is adhered to within the context of organizational changes, while considering staffing limitations, SVCE's business model as a cost hedger, and the overall level of transactions with counterparties. Segregation of duties and functions between front, middle, and back office activities is generally as follows:

- The Front Office is directly involved in resource planning, product procurement and sales transactions and implementation of strategies within authorized limits.
- The Middle Office's functions are related to risk management and counterparty credit. The primary responsibility is ensure that all products utilized and transaction activities are undertaken in compliance with current policy.
- The Back Office is comprised of those functions responsible for verification, validation accounting, processing, reconciling and settling all transactions.

Controls over inputs and systems operations are of particular importance in ensuring the integrity of data used in risk control and management. In all cases, there will be an appropriate segregation of duties or oversight to reduce the risk of error and/or fraud.

To the maximum extent practicable given SVCE's business model and level of staffing, Front-Office activities will be functionally independent from Middle and BackOffice activities. As a result, the Front Office will generally neither perform nor supervise Middle-Office Risk Management activities, or Back Office financial accounting or settlements. The Director of Power Resources is responsible for ensuring the Front Office's ability to perform tasks in compliance with this Policy. This arrangement will provide independent and regular management oversight for both risk-taking and risk-control activities. It will also allow for a clear separation of duties between the Front-Office transacting and Middle Office risk-control functions.

To the maximum extent practicable given SVCE's business model and level of staffing, Middle Office activities will be functionally independent from all Front Office and Back Office activities. The Middle Office will have primary responsibility for risk management oversight

and policy development and compliance. If there are not adequate resources necessary to fully support a Middle Office, this function may be combined with another function provided that appropriate segregation of duties or sufficient internal controls are maintained at all times.

To the maximum extent practicable given SVCE's business model and level of staffing, Back Office settlement activities will be functionally independent from all Front Office and Middle Office activities. The Back Office will have primary responsibility for all transaction confirmation, accounting and reconciliation processes. If there are not adequate resources necessary to fully support a Back Office, this function may be combined with another function provided that appropriate segregation of duties or sufficient internal controls are maintained at all times.

4.2 Additional Internal Controls

Besides segregation of duties, additional required operational control principles include the following, which the CEO shall implement by incorporating them into the ERM Guidelines and procedures:

1. Delegation of authority that is commensurate with responsibility and capability, and relevant training to ensure adequate knowledge to operate in and comply with rules associated with the markets in which they transact (e.g., CAISO). Contract origination, commercial approval, legal review, invoice validation, and transaction auditing shall be performed by separate staff or contractor for any single transaction. No single staff member shall perform all these functions on any transaction.
2. Defining authorized products and transactions (see Section 6.3).
3. Defining procurement authority for any transactions for which procurement authority has not already been explicitly granted as set forth in SVCE's Purchasing Policy and any Board Resolution delegating energy procurement authority (e.g. Resolution 2016-15 which delegates authority to the CEO to execute confirmation agreements with energy service providers with whom SVCE has executed Master Agreements).
4. Defining proper trade capture process for executing power supply contracts.
5. Complete and precise capture of transaction and other data, with standardization of electronic and hard copy documentation.
6. Meaningful summarization and accurate reporting of transactions and other activity at regular intervals.
7. Consultation with legal counsel on all legal issues related to this Policy.
8. Timely and accurate risk and performance measurement at regular intervals.
9. Regular compliance review to ensure that this Policy and the Guidelines are adhered to, with specific guidelines for resolving instances of noncompliance.
10. Active participation by senior management in risk management processes.

5 Risk Management Business Practices

5.1 Risk Measurement Metrics and Reporting

A vital element of this Policy is the regular identification, measurement and communication of risk. To effectively communicate risk, all risk management activities must be monitored on a frequent basis using risk measurement methodologies that quantify the risks associated with SVCE's procurement-related business activities and performance relative to goals.

SVCE measures and updates its risks using a variety of tools that model programmatic financial projections, market exposure and risk metrics, as well as through short term budget updates.

SVCE seeks to minimize financial exposure to higher-volatility spot market wholesale electricity using rolling hedges and net open position percentage bands. Financial exposure creates budget uncertainty. To mitigate the financial exposure to short-time horizon price volatility, SVCE continually reduces its financial exposure by reducing the quantity of energy in either open long or short positions.

The following items are measured, monitored, and reported:

1. Reserve Requirement Targets – on no less than an annual basis, SVCE staff will monitor SVCE’s reserves to ensure that they meet the targeted thresholds as outlined in SVCE’s Cash Reserve Policy.
2. Mark-to-Market Valuation – marking to market is the process of determining the current value of contracted supply. A mark-to-market valuation shall be performed at least on a monthly basis.
3. Exposure Reporting – calculates the notional dollar risk exposure of open portfolio positions at current market prices. The exposure risk calculation shall be performed at least on a monthly basis.
4. Open Position Monitoring – on a monthly basis, SVCE shall calculate/monitor its open positions for all energy and capacity products.

Consistent with the above, the Middle Office will develop reports and provide feedback to the Risk Oversight Committee. Risk measurement methodologies shall be re-evaluated on a periodic basis to ensure SVCE adjusts its methods to reflect the evolving competitive landscape.

5.2 Mark-to-Market Risk

SVCE manages its mark-to-market risk by comparing the current value of any wholesale trading positions and long-term supply contracts to the cost of the contracts. This is important if there are trading restrictions for entering into new transactions with certain counterparties based on the terms of the agreements and to counterparty credit limits. Being aware of the Mark-to-Market of the portfolio is important as it provides an indication of the competitiveness of the portfolio.

5.3 Market Price Risk

SVCE manages market price risk by determining its Load and Resource Balance which defines forecasted load, energy under contract and SVCE’s open positions in various energy product types including renewable energy, carbon free energy, system power, and SVCE’s procurement targets.

SVCE determines its NOP by comparing the forecasted use to supply resources on a monthly basis. The NOP is exposed to potentially volatile market prices. The quantity of energy SVCE will contract for in each year is guided by the NOP tolerances. Market price risk is determined by evaluating how costs could increase (or decrease) if market prices were to reach high (or low) values.

SVCE minimizes financial exposure to higher-volatility spot market wholesale electricity prices by hedging its NOP according to the NOP tolerance bands in Section 6.4. To reduce this exposure, SVCE’s practice is to close its NOP (hedge at close to 100%) for the prompt

month and quarter. The relatively tight prompt year tolerance band provides a high level of budget certainty. However, SVCE will continue to have some exposure to spot market prices due to the load changes and the difference between forecasted and actual load. These differences result in a need to purchase or sell energy in the short-term markets.

In general, SVCE will seek to spread out its long-term purchases of renewable energy to diversify exposure to market conditions and reduce the risk of concentrating purchases in any one year.

For products generally purchased through short- and medium-term contracts, SVCE follows a similar strategy of diversifying contracting over the delivery horizon.

As predominantly a net buyer, SVCE manages its market liquidity risk through purchasing at different intervals and maintaining a diverse set of counterparties to transact with.

Congestion risk is managed through the contracting process with a preference for day ahead scheduling and energy delivery at the NP 15 trading hub and through resource assessment and selection. Once energy is procured SVCE manages congestion risks through the prudent management of Congestion Revenue Rights (CRRs). CRRs are financial instruments used to hedge against transmission congestion costs encountered in the CAISO day-ahead market. SVCE uses a third-party scheduling coordinator to manage its CRR portfolio. SVCE uses CRRs to reduce its exposure to congestion and other CAISO charges, and will not use CRRs for speculative purposes.

5.4 Net Revenue Risk

SVCE manages net revenue risk by managing each of its contributing factors as described in other sections in this Policy—market price risk, load and generation volumetric risk, counterparty performance, etc. In addition, SVCE strives to provide competitively priced products that are valued by its customers to minimize opt out rates. Net revenue is monitored closely so that trend changes can be identified as early as possible and corrective action can be taken as appropriate.

5.5 Counterparty Credit and Performance Risk

SVCE evaluates and monitors the financial strength of service and energy providers. Generally, SVCE manages its exposure to energy suppliers through a preference for counterparties with Investment Grade Credit ratings as determined by Moody's or Standard and Poor's and through the use of security requirements in the form of cash and letters of credit. SVCE measures its mark-to-market counterparty credit exposure consistent with industry best practices. Additionally, SVCE manages counterparty credit risk by monitoring and controlling collateral, letters of credit and other forms of credit calls on the agency as well as paying bills in a timely fashion to avoid defaulting on any term of an agreement.

5.6 Load and Generation Volumetric Risk

SVCE manages energy delivery risks by ensuring that contracts include appropriate contractual penalties for non-delivery, acquiring energy from a geographically and technologically diverse portfolio of generating assets with a range of generation profiles.

SVCE manages load forecasting and related weather risks by contracting with qualified data management and scheduling coordinators who together provide the systems and data necessary to forecast and schedule load using good utility practice.

SVCE's load scheduling strategy, as executed by its scheduling coordinator, ensures that price risk in the day ahead and real time CAISO markets is managed effectively and is consistent with good utility practice.

5.7 Operational Risk

Operational risks are managed through:

- Adherence to this Policy and oversight of procurement activity;
- Conformity to Employee Handbook;
- Staff resources, expertise and/or training reinforcing a culture of compliance;
- Ongoing and timely internal and external audits; and
- Cross-training amongst staff
- Authorized traders and others involved in any phase of transacting are prohibited to own stock in a current or potential counterparty to avoid a conflict of interest

5.8 Liquidity Risk

SVCE manages liquidity risk through adherence to its loan and power purchase agreement credit covenants, limiting commitments to provide security consistent with the Guidelines, ensuring it has adequate loan facilities, prudent cash and investment management, and adherence to its Cash Reserve Policy. SVCE monitors its liquidity (defined as unrestricted cash, investments and unused bank lines of credit) no less than weekly. SVCE utilizes scenario and sensitivity analyses while preparing budget, rate, and pro forma analyses in order to identify potential financial outcomes and ensure sufficient liquidity under adverse conditions.

5.9 Regulatory/Legislative Risk

SVCE manages its regulatory and legislative risk through active participation in working groups and advocacy coalitions such as the California Community Choice Association. SVCE regularly participates in regulatory rulemaking proceedings and legislative affairs to protect SVCE's interests.

5.10 Reporting

Reporting of critical information to relevant parties is a key component of energy risk management. Periodic reports will be provided to the ROC that shall provide sufficient details on SVCE's transactions, NOP, market exposure, credit exposure, counterparty credit ratings, transaction compliance, and other relevant data. The frequency and content of the reports for each oversight body shall be prescribed in the Energy Risk Management Guidelines. Should the risks associated with the portfolio or a specific transaction within the portfolio fall outside of any established risk limit, the CEO will report this fact to the ROC within one business day via email, and will evaluate the risk of holding any of the contracts in the portfolio to delivery and report to the Board within 3 months.

6 Authorized Transaction and Trading Limitations

6.1 Trader Authorization Process

The Front Office shall request that the Middle Office begin the trader authorization process. The Middle Office shall verify that the trader's background and experience is sufficient to transact on behalf of SVCE. Before authorizing personnel to transact, the Middle Office shall:

- Require that trader affirm that they are not currently under investigation for market manipulation;
- Require that trader affirm that they have not been previously investigated for market manipulation;
- Verify that trader has read and understands SVCE's ERM Policy and Guidelines; and
- Determine that the trader has sufficient understanding and experience of the energy markets in which SVCE participates.

The Middle Office shall maintain a list of the authorized trading personnel as part of the ERM Guidelines.

6.2 Approved Markets

Approved markets in which SVCE authorized traders can participate are as follows:

- California Independent System Operator (CAISO);
- Western Electricity Coordinating Council (WECC); and
- California Air Resources Board (CARB) emissions/carbon auctions

6.3 Approved Transactions

Authorized transactions which SVCE authorized traders can utilize must be consistent with this Policy. Transactions must be directly related to the procurement and/or administration of:

- electric energy,
- reserve capacity,
- transmission and distribution service,
- ancillary services,
- congestion revenue rights (CRRs),
- renewable energy,
- renewable energy certificates (RECs),
- basis transactions,
- greenhouse gas emissions allowances,
- tolling agreements, and
- bilateral purchases of energy products.

Prohibited transactions are those transactions that are not related to serving retail electric load and/or reducing financial exposure. Speculative buying and selling of energy products is prohibited. Speculation is defined as buying energy in excess of forecasted load plus reasonable planning reserves or selling energy or environmental attributes that are not yet owned by SVCE. In no event shall speculative transactions be permitted. Any financial derivatives transaction including, but not limited to futures, swaps, options, and swaptions are also prohibited.

6.4 Tolerance Bands

Hedging its load obligation is a key function for SVCE. The primary responsibility of the Front Office is to manage the energy portfolio and purchase energy to hedge the cost of SVCE's load obligation. As described in Section 5.3 (Market Price Risk), SVCE ladders its energy purchases over time to access the market at different times. Every six months, the Front Office produces a Portfolio Management Plan that must be approved by the CEO. The Portfolio Management Plan must describe the current portfolio position, the recommended hedging transactions, the portfolio position after the transactions, and how the portfolio will remain within the Tolerance Bands in Table 1.

Energy Hedging

Tolerance bands for SVCE’s Net Open Position (NOP) for energy—load minus hedged and fixed-price supplies—shall fall within the tolerances outlined in Table 1 below:

Table 1 Calendar Year Energy NOP Tolerance Bands

Period*	Minimum Tolerance	Maximum Tolerance
Prompt Quarter	85%	105%
Current Balance of Year	80%	105%
Year 2	70%	90%
Year 3	55%	75%
Year 4	40%	60%
Year 5	0	50%

*For example, if the current year calendar year is 2019, then Year 2 is 2020.

Resource Adequacy

SVCE must comply with the regulatory requirements for procurement of capacity products for Resource Adequacy (RA) needs. The CPUC has recently adopted a decision to modify compliance obligations for local resource adequacy from demonstrating for one year to three year by October 31st. Additionally, SVCE must demonstrate, on a month-ahead basis, full compliance with its monthly RA obligations.

SVCE endeavors to purchases RA products over time to meet its obligation and to diversify its purchases between suppliers and market conditions.

Renewable Portfolio Standard and Carbon-free

With respect to purchases to meet the Renewable Portfolio Standard (RPS), SVCE is guided by its Strategic Plan, which states that purchases should be staggered to accommodate regulatory uncertainty, changes in load and supply price risks and that the RPS portfolio should be diversified with respect to technologies.

6.5 Authorized Trading Limits

6.5.1 Transacting Authority Retained by the Board

The Board retains the authority to approve:

- All transactions with terms of over 12 months unless it has explicitly delegated authority to the CEO;
- All transactions with terms of over 5 years; and
- Master Agreements under which the CEO is delegated authority to transact

6.5.2 Authority Delegated to the CEO by the Board

Under the Board-approved Purchasing Policy, the CEO is delegated the authority to approve and execute contracts for Energy Procurement for terms of less than or equal to 12 months, which the CEO shall timely report to the Board. In addition, under Resolution 2019-03, the Board delegates to the CEO the authority to enter into Confirmations for terms not greater than 60 months and limited to purchases of Product consistent with forecasted load and within the Energy NOP Tolerance Bands (as defined in the ERM Policy).

Table 2 below lists the authorized trading limits to transact on behalf of SVCE for all non-resource adequacy related products. If the CEO delegates some of his authority, he must

document any such delegations in the Energy Risk Management Guidelines.

Table 2: Authority Delegated to the CEO by the Board

Product	Term Limit	Maturity Limit	Volume Limit	Counterparty Limits	Who
Energy, Capacity, and CAISO Ancillary Services	Day Ahead and Real Time	N/A	As needed to meet SVCE's expected load obligations with the CAISO	Any counterparty	CEO
Energy, Capacity, CRRs, and Environmental Products	Up to 12 months	18 months	As needed to meet SVCE's expected load needs (per Purchasing Policy)	Any counterparty	CEO
	Up to 60 months	72 months	As needed to meet SVCE's expected load needs	Board-approved Master Agreements	CEO
	Over 60 months	As approved by Board	As approved by the Board	As approved by the Board	Board

6.5.3 Resource Adequacy Authority Delegated to the CEO by the Board

RA obligations are set by the CPUC and may change with respect to the quantity needed, type of RA, location and timing. Failure to meet California's RA compliance obligations, may subject SVCE to hefty penalties. Table 3 contains current RA "Year Ahead" compliance reporting and demonstration obligations, which are subject to change as California considers broad changes to how reliability requirements are met including the possible establishment of a central buyer for all load serving entities.

Table 3: Resource Adequacy Requirements

Resource Adequacy Product	Year-Ahead Demonstration Requirement	Compliance Obligation
Local	Year 1 & 2: by October 31 st , must demonstrate capacity to meet 100% of monthly obligation Year 2: by October 31 st , must demonstrate capacity to meet 50% of monthly obligation	Obligation is based on 50% of SVCE's system coincident peak. Capacity must be procured for the Greater Bay Area and 7 Local Zones. Obligation for quantity and location set annually.
System	Year 1: by October 31 st , must demonstrate capacity to meet 50% of "summer" (May through September) needs	System RA needs are based on 15% monthly planning reserve above SVCE's expected monthly capacity forecast.
Flexible	Year 1: by October 31 st , must	

	demonstrate capacity to meet 50% of "summer" (May through September) needs	
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Eligible RA capacity must meet the CAISO's resource requirements including an assigned Net Qualifying Capacity (MW), have an assigned resource identification number and cannot be counted by another load serving entity.

To adequately and effectively meet RA requirements, the CEO needs a broad authority to transact for terms of up to five years and with a broad set of suppliers, including counterparties not under a Master Agreement. And, while credit risk is a significant risk related to energy transactions, it is not as significant a risk for RA products as the prices tend to be less volatile and suppliers are less likely to default on compliance related products. For this reason, many RA transactions are executed under a WSPP with less onerous credit terms than the EEI Master Agreement. For SVCE, the more significant risk associated with RA is that the product procured will not count towards a specific obligation (type or location) or the possibility of the establishment of a central buyer for RA which may strand or change the value of RA under contract. To mitigate such risk, SVCE will ladder RA procurement consistent with an RA Procurement Plan subject to CEO approval. Table 4 lists the CEO's authority for RA transactions, which may be delegated provided proper documentation is established by the CEO.

Table 4: Resource Adequacy Authority Delegated to the CEO by the Board

Product	Term Limit	Maturity Limit	Volume Limit	Counterparty Limit	Who
Local Capacity	Up to 60 months	72 months	As required to comply	Any counterparty	CEO
System Capacity	Up to 60 months	72 months	As required to comply	Any counterparty	CEO
Flexible Capacity	Up to 60 months	72 months	As required to comply	Any counterparty	CEO
All of the above	Over 60 months	As approved by the Board	As approved by the Board	Any counterparty	Board

6.5.4 Limits of Authority Delegated to Authorized Personnel by the CEO

The Front Office periodically prepares a needs assessment and develops a Portfolio Plan, which defines the transactions required to meet SVCE's needs and to remain within the Tolerance Bands of Section 6.4. The CEO must approve the Portfolio Plan and may delegate some of his authority to Authorized Personnel (as determined according to the process described in Section 6.1).

Although the CEO may delegate some of his authority to Authorized Personnel, the Board limits the authority he can delegate as shown in Table 5 below:

Table 5: Limits of Authority Delegated to Authorized Personnel by the CEO

Product	Term Limit	Notional Value Limit
Energy, Capacity, and CAISO Ancillary Services	Day Ahead and Real Time	As needed to meet SVCE's obligations with the CAISO
Energy	Balance of the month	\$5 Million
	Prompt month	\$7.5 Million
	Up to 12 months	\$25 Million
Resource Adequacy Products, CRRs	Prompt month	As needed to meet SVCE's obligations
	Balance of compliance year	As needed to meet SVCE's obligations
	Up to 12 months	\$15 Million
Environmental Products (Carbon Free and Renewable Energy Resources)	Up to 12 months	\$15 Million

6.6 Conflict of Interest

All SVCE employees who are involved in any aspect of transacting for energy or energy-related resources are prohibited from investing in any company with whom SVCE transacts, including those with whom it has executed enabling agreements. Prior to engaging in evaluation of, negotiation with, transacting with, or oversight of a transaction or potential transaction with any company, all involved employees must ensure that they are divested in direct holdings with that company. The ban on investment and requirement to divest is regardless of whether the investment would require disclosure on the employee's FPPC Form 700.

7 Risk Management Policy Governance

7.1 SVCE Board of Directors

The SVCE Board is responsible for adopting this Policy and reviewing it as needed every two calendar years. The Board also approves SVCE's annual budget, contracting authorities and delegates responsibilities for the management of SVCE's operations to its CEO.

7.2 Risk Oversight Committee

SVCE's CEO formed the Risk Oversight Committee (ROC) and is responsible to inform the ROC about any risk management issues and to provide assurance that this Policy is implemented. The CEO shall provide the ROC information and analysis that illustrate that all transactions are consistent with the risk tolerances and that risk management controls and practices are sufficient to monitor and manage risks that SVCE is exposed to.

The ROC shall meet at least once per calendar quarter, or as otherwise called to order by the CEO.

The ROC shall from time to time review the Energy Risk Management Guidelines defining in detail the internal controls, strategies and processes for managing market risks incurred through or attendant upon wholesale trading, retail marketing, long-term contracting, CRR trading and load and generation scheduling. The ROC shall receive and review information and reports regarding risk management, wholesale trading transactions, and the administration of supply contracts. The ROC will also review counterparty credit lines and cash reserves to ensure proper levels are maintained for credit, operations and liquidity. In addition, the ROC shall review any instances of non-compliance with any provisions of the Policy or Guidelines.

7.3 Internal Risk Oversight Committee

The CEO formed the Internal Risk Oversight Committee (IROC) to review in more detail any risk management issues that arise. The IROC comprises members of the Front, Middle, and Back Office and is used to coordinate any activities related to transacting. The IROC regularly reviews SVCE's risks and risk management strategies and assists the CEO to ensure that proper controls are in place. The IROC is responsible to develop, approve and update Energy Risk Management Guidelines that implement the Energy Risk Management Policy.

ADDENDUM
SVCE Energy Risk Management Policy
Version Tracking

Version	Date of Board Approval	Major Changes Made
4	June 12, 2019 (proposed)	<p><u>Authorized Transactions and Trading Limitations – Energy Hedging Tolerance Bands:</u> Clarification/clean-up to Table 1 – Tolerance Bands:</p> <ul style="list-style-type: none"> • Clarified tolerance bands apply to calendar year; • Changed “Prompt Year” to “Balance of Current Year”; <p>Added an example for further clarification.</p> <p><u>Authorized Transactions and Trading Limitations - Delegation of Authority to CEO under Master Agreements:</u> Under Resolution 2019-03, the Board delegates to the CEO the authority to enter into Confirmations for terms not greater than 60 months and limited to purchases of Product consistent with forecasted load and within the Energy NOP Tolerance Bands. Establishes maximum maturity limits.</p> <p>Added 6.5.3 Resource Adequacy Authority Delegated to the Board which expands CEO authority to transact up to 60 months in term with counterparties including ones without a Master Agreement for RA related transactions.</p>

Version	Date of Board Approval	Major Changes Made
3	January 9, 2019	<p><u>Introduction, purpose, scope of policy:</u> Section 1 (General Provisions) includes an overall description of the policy, summarizes the scope of the policy and lists the risks that will be discussed in the policy</p> <p><u>Authorized transactions:</u> Section 1.2 (Scope of Business and Related Market Risks) lists the types of activities that SVCE will engage in to conduct its business (e.g. bilateral trading of energy, scheduling of load and resources, participating in CAISO markets including CRRs). Section 6.2 (Approved Markets) states that SVCE can transact in the CAISO, WECC and CARB markets. Section 6.3 (Approved Transactions) lists authorized products (e.g. energy, capacity, transmission, ancillary services, renewable energy resources, CRRs, etc.) and prohibited transactions (e.g. transactions that are speculative or financial derivatives products).</p> <p><u>Risk management goals:</u> Section 2 (Risk Management Goals) lists seven goals to manage the risks inherent in serving load in the CAISO market structure.</p> <p><u>Definition of risks:</u> Section 3 (Definition of Market Risks) provides a comprehensive description of the market risks faced by SVCE:</p> <ul style="list-style-type: none"> • Mark-to-Market Risk • Market Price Risk • Net Revenue Risk • Counterparty Credit and Performance Risk • Load and Generation Volumetric Risk • Operational Risk • Liquidity Risk • Regulatory/Legislative Risk

Version	Date of Board Approval	Major Changes Made
3 (Cont.)	January 9, 2019	<p><u>Segregation of duties:</u> Section 4.1 (Segregation of Duties) describes the general responsibilities of the Front Office, Middle Office and Back Office and provides a comprehensive description of the importance of segregation of duties in the risk management control infrastructure.</p> <p><u>Discussion of how identified risks will be measured and managed:</u> Section 5 (Risk Management Business Practices) describes generally how risks are measured and managed and includes an explanation of how each risk identified in Section 3 (Definition of Market Risks) is managed.</p> <p><u>Reporting:</u> Section 5.1 (Risk Measurement Metrics and Reporting) lists the general items that are to be measured, monitored and reported. Reporting is also discussed in Section 5.10 (Reporting) as a "key component" of energy risk management: "Periodic reports will be provided to the ROC that shall provide sufficient details on SVCE's transactions, NOP, market exposure, credit exposure, counterparty credit ratings, transaction compliance, and other relevant data." Detail is to be found in the Guidelines. Reporting is also mentioned in Section 4.2 (Additional Internal Controls) as a part of the required operational controls.</p> <p><u>Authority to transact:</u> Section 6.5 (Authorized Trading Limits) is divided into authority reserved by the Board (Section 6.5.1), authority delegated to the CEO (Section 6.5.2), and the limitation on what the CEO can delegate to authorized personnel.</p> <p><u>Transacting limits:</u> Section 6.4 (Tolerance Bands) provides the same list as in the current policy for energy, but does not include tolerance bands for renewable resources or capacity (Resource Adequacy) products.</p> <p><u>Conflict of Interest:</u> Section 6.6 (Conflict of Interest) states that employees involved in transacting are barred from investing in any company with whom SVCE transacts.</p> <p><u>Governance structure:</u> Section 7 (Risk Management Policy Governance) describes the responsibilities of the Board, ROC, and Internal ROC. Section 4.1 (Segregation of Duties) describes the general responsibilities of the Front Office, Middle Office and Back Office.</p>

Version	Date of Board Approval	Major Changes Made
2	May 10, 2017	<p>The policy was enhanced following the formation of SVCE's Risk Oversight Committee; additional sections and information added included:</p> <ul style="list-style-type: none"> Energy Risk Management Objective Governance Structure Roles and Responsibilities Hedging Authorized Transaction and Trading Limitations Counterparty Credit Reporting
1	February 8, 2017	Original document