

BUSINESS PLAN FOR THE CLEAN POWER COOPERATIVE

CONSULTANT REPORT

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Gray Davis, Governor

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FINAL REPORT

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CLEAN POWER COOPERATIVE**

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on behalf of

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Portola, California**

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Abstract

Since the California electric market opened to retail competition, approximately 2% of residential and small commercial customers have switched to an alternative electricity service provider (“ESP”); most of these customers are being served with “green” power. Many ESPs have exited the market, due to the slow customer adoption rate, high marketing costs and thin operating margins. The purpose of this study is to evaluate the feasibility of consumer aggregator, not-for-profit cooperative that would aggregate the electricity load of environmentally-conscious California residential and small commercial consumers.

Learning from the experience of other ESPs, the cooperative would enhance its likelihood of success by:

- Targeting consumers – and in particular organizations – that have an affinity with the cooperative business structure and that are already environmentally aware
- Exploiting the advantages of internet-based communications with its members and potential customers
- Minimizing its financial exposure to fluctuating wholesale electricity prices and the uncertainties of the renewable energy credit
- Differentiating itself from other “green” ESPs by emphasizing its not-for-profit status and allowing each member to select the mix of green power supply sources and new renewable energy projects that constitute his/her electricity load.

The cooperative would minimize operating complexity and cost by out-sourcing back-office functions and using a contract-for-differences approach for power supply transactions and pricing. Based on a modest gross margin to cover operating costs, the cooperative could have a positive cash flow from operations in its initial year of operation, and would achieve a financial break-even point with 9,700 customers.

Study Objectives

The objectives of this project were to:

- Investigate the business feasibility of a new consumer aggregation cooperative to supply electricity from renewable resources to its residential and small commercial members
- Develop a comprehensive business plan for the proposed Clean Power Cooperative, which would provide guidance to its Board of Directors and enable potential lenders to assess the cooperative's business prospects.

This first objective was met through an analysis of market conditions, assessment of electric service providers' marketing activities, and interviews with organizations that are prospective "marketing partners." Using a relationship-building marketing approach, coupled with outsourcing of non-core business functions and the use of "contracts for differences" to simplify supply procurement and pricing, the Clean Power Cooperative could hold down administrative and overhead costs during the start-up period. Based on Management Consulting Services' analysis, Clean Power could have positive cash flow from operations during its initial year of operation, on a membership base of less than 10,000 residential customers.

This final report satisfies the second objective, by presenting:

- The results of the market assessment and competitive analysis, together with the implications for marketing strategy, supply procurement and pricing
- An operating and staffing strategy designed to hold down costs while meeting customer electricity needs
- Detailed financial analysis and pro forma financial projections.

Executive Summary

In September 1996, California legislation was signed into law, deregulating the retail sale of electric power. Assembly Bill 1890 provided for restructuring of the electric power industry in California including provisions for commercial and residential customers to be allowed to choose their electric supplier beginning in 1998.

It was anticipated that a more competitive environment would encourage more efficient use of scarce resources and lower consumer prices; in addition, renewable energy advocates hoped that consumer demand would foster broader utilization of “green power.” However, despite an initial burst of market activity, the demand for green power has grown slowly among small retail consumers. From the time that the market opened in April 1998 to June 2000, approximately 2% of the small electric power customers had switched to an alternative energy service provider (ESP). Roughly 75% of these customers are being served with green power.

The formation of an effective green power cooperative could significantly expanded the use of renewable energy in the California. This new organization, “Clean Power Cooperative,” will aggregate the electric demand of California consumers desiring electricity from green power sources. Financially, the formation of Clean Power Cooperative appears feasible. The combination of low operating costs and higher degree of trust historically enjoyed by purchasing cooperatives should provide Clean Power with a sustainable competitive advantage.

ES.1. The Clean Power Cooperative Concept

The proposed business concept offers features that will help distinguish Clean Power Cooperative from other California “green power” ESPs and offers significant competitive advantages.

- **Marketing approach** – Clean Power will utilize a marketing partnership program targeting electric customers indirectly through existing like-minded California cooperatives (e.g., credit unions; food buying and other co-ops). These marketing partners will each approach its membership in its own unique way.
- **Consumer credibility** – Clean Power will highlight its trustworthiness, emphasizing its status as a not-for-profit enterprise with the mission of expanding the use of green power; and a position as an accepted, locally controlled member of the co-op community.
- **Ease of use** – Clean Power will use a “contract for differences” approach to provide relative transparency for the electric customer with respect to switching, billing, and acquiring certified green power. This approach will be facilitated by extensive, user-friendly internet-based customer interactions.
- **A choice of products** – Electric customers will be offered choices from a portfolio of different and specific green energy sources (e.g., solar, wind, hydro, geo-

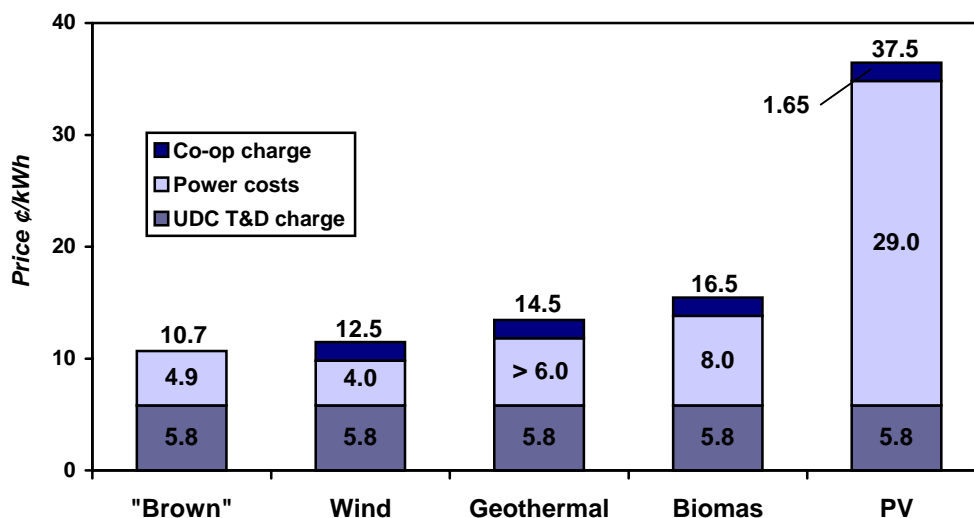
thermal, etc.). This will allow customers to purchase renewable power from projects that they are willing to support.

- **Competitive prices** – Lower costs for services should result from customer aggregation, the not-for-profit business approach, and efficient “pooled” back-office operations. In addition, Clean Power will take advantage of the California Renewable Customer Credit for as long as it continues to be offered by the State.

Figure ES-1 illustrates Clean Power’s cost structure per kWh. As membership and sales volume increases, Clean Power’s already modest operating cost per kWh will likely decline. Since members will have the option of selecting their unique electricity supply portfolio, the power cost will be under the control of the customer.

Figure ES-1

Clean Power Cooperative Retail Prices



UDC T&D charge is net of billing credit; power costs are net of 1¢/kWh renewable energy credit. UDC charge and power costs are weighted average for SCE, PG&E and SDG&E (with SDG&E energy charge capped at 6.5 ¢/kWh)

ES.2 Feasibility of Clean Power Cooperative

The opening of California retail electricity markets to “customer choice” attracted over 250 ESPs; within the year, most had exited the state due to high marketing costs and low customer adoption rates.

Clean Power’s relationship-building marketing approach, coupled with out-sourcing of non-core business functions and the use of “contracts for differences” to simplify supply procurement and pricing, are ways to hold down administrative and overhead costs during the start-up period. Based on Management Consulting Services’ analysis, Clean Power could have positive cash flow

from operations during its initial year of operation, on a membership base of less than 10,000 residential customers.

The current price volatility and tight electric supplies in California presents additional business and financial risks. Depending upon the outcome of current public initiatives regarding price volatility, Clean Power may need to provide risk management products to its members.

ES.3 Next Steps

In order to move the Clean Power Cooperative from concept to reality, the following activities should be undertaken.

- **Solicit start-up funding.** Clean Power Cooperative needs very modest amounts of start-up capital. Management Consulting Services' analysis suggest that \$500,000 would be sufficient. Organizations such as the National Rural Utilities Cooperative Financing Corp. (CFC) and philanthropic organizations aligned with the promotion of renewable resources should be approached for "seed money" needed for Clean Power Cooperative start-up costs.
- **Recruit a Chief Executive.** Clean Power will need a seasoned energy executive, preferably with experience in the California market.
- **File Organizing Documents.** In addition to filing incorporation papers, the paperwork needed for CPUC registration as an ESP should also commence.
- **Form Board of Directors.** In addition to providing co-op oversight, the inaugural Board of Directors should: (a) serve as a "sounding board" to hone the cooperative's marketing efforts and materials; and (b) provide contacts and referrals to the targeted marketing partners. Thus, the group should include respected, "high visibility" individuals drawn from the target audience community (e.g., credit unions, food co-ops, environmental organizations, etc.).

1. Introduction

Starting in April 1998, following passage of AB 1890, investor-owned utilities no longer controlled generation, transmission, distribution, and customer services as one integrated company. Although the investor-owned utilities are still permitted to engage in these businesses, their control is functionally “unbundled” as if there were separate companies. The functions are performed partly by the utility companies, partly by competitive businesses, and partly by new entities created by AB 1890. A further description of Generation, Transmission, Distribution and Customer Service follows.

- **Generation** - Generation of electricity has become competitive and operates under market principles. Anyone can own and operate a power plant and sell power to any customer. Sellers and buyers can participate in a short-term, centrally coordinated market, called the California Power Exchange (Cal PX), in which prices are set by hourly bids, or they can enter into direct access contracts. The market sets prices for wholesale energy, and power plant profits rise and fall accordingly. Customers may make individual arrangements with suppliers or they may aggregate their purchases in order to increase their negotiating power. By default, a customer who does not elect to receive service from an alternative supplier will receive energy from the Cal PX. It is the supplier of last resort for California consumers.

Even though consumers can decide to purchase power from an alternate generator, the investor-owned and municipal utilities continue to be responsible for delivery of that power and service to all consumers. For those customers choosing to participate in direct access agreements, state and federal regulations guarantee that their quality of service, distribution and transmission costs, and overall reliability are the same as if they had remained with their current utility for all their power needs. In order to prevent the utilities from exercising undue market power, the California Public Utilities Commission required them to divest at least half of their generating capacity. Southern California Edison and Pacific Gas & Electric have both indicated that they intend to auction off all of their non-nuclear generation. (Because of licensing considerations, it is not viewed as practical to auction nuclear assets.)

- **Transmission** - investor-owned utilities have given control, but not ownership, of their transmission lines to an Independent System Operator (ISO). The ISO is responsible for ensuring that all power sellers have access to the transmission grid, and for ensuring the reliability of the system.
- **Distribution** - Distribution in California remains the same. Each utility will still own and operate the local distribution system under the regulation of the California Public Utilities Commission.

- **Customer Service** - The administrative and customer service functions are separated from distribution and opened up to competition. Investor-owned utilities can still provide customer service functions but in competition with others.

The actual cost reductions available in California and in most other states will be diminished in magnitude and delayed in time by the recovery of “stranded costs” by generating utilities. Stranded cost is the difference between what regulators would allow a utility to charge under the cost-plus environment and what the market will bear once competition is introduced. A power plant, that was very expensive to construct, cannot generate electricity as cheaply as other plants. Since electric power is a fungible commodity, in a free market, knowledgeable and rational consumers would not choose to purchase power at a higher price, thus leaving a portion of the capital costs associated with this asset uncollectable or “stranded”.

California has implemented a Competition Transition Charge (CTC) that is designed to pay off these stranded costs in the period from January 1998 through March 2002. Each customer will pay the CTC through his or her distribution utility, even if the customer has chosen a different electric service provider.

1.1 Renewable Energy Programs

AB 1890 provided that \$540 million was to be collected from ratepayers of the major investor-owned utilities to foster the competitiveness of a renewable energy market during the transition years from 1998 to 2001. Senate Bill 90 (SB 90) placed those funds in a Renewable Resource Trust Fund, to be administered by the California Energy Commission, with explicit allocation of the monies. One-fourth of the funds (\$135 million) was reserved for customer-side price supports during the transition years. This Customer Credit program (\$75.6 million) would provide subsidies up to \$0.015/kWh for renewable energy purchase from the grid. In July 2000, the Customer Credit was reduced to \$0.01/kWh.

1.2 Recent Market Developments

This past summer, a combination of factors – lower electricity imports into California due to rising demand in other western states and reduced hydroelectric supplies – produced dramatically higher wholesale electricity prices in California. This impact was particularly severe in the San Diego Gas & Electric (SDG&E) service territory, where customers’ monthly bills were nearly doubled from last year’s level.¹ In response to the rising prices, price caps were imposed on Cal PX prices, initially dropping the \$750/MWh maximum down to \$500/MWh, and subsequently to

¹ SDG&E had fully recovered its stranded costs in mid-1999, and thus its rates were no longer subject to the rate freeze imposed by AB 1890. PG&E and SCE purchased power costs also increased; however, costs in excess of the level allowed under the rate freeze were not passed on to consumers (accruing in a deferred cost account instead).

\$250 per MWh. In addition, the CPUC ordered that SDG&E cap electricity prices at 6.5¢/kWh for the first 500 kWh; monthly usage in excess of that level would be priced at market rates. Finally, the California legislature enacted a series of emergency measures on August 30, 2000 to address the problem:

- **AB 265** – imposes a 6.5¢/kWh price cap for purchases by SDG&E customers retroactive to June 1, 2000 through December 1, 2003 (and extendable to 2004). The cap will mainly affect residential customers, schools and small commercial accounts.
- **AB 1156** – provides a \$150 million fund to cover the potential shortfall in SDG&E revenues resulting from the price cap.
- **AB 970** – shortens the approval period for new power plants in California to six months, and provides \$50 million to the California Energy Commission to implement cost-effective energy conservation and demand-side management programs to reduce peak demand for the 2001 summer.

Both AB 265 and AB 970 were signed into law on September 6.

On November 1, FERC issued a proposed rule that would impose a \$150/MWh “soft cap” on wholesale power prices in California; generators could receive prices above the cap price upon written request which justified the basis for the higher price. In written comments on the FERC proposed rule, Gov. Davis urged that a \$100/MWh cap be imposed instead, over a 36-month period. Gov. Davis also requested that FERC order refunds of “excessive” generation charges – something which FERC already stated was beyond its regulatory authority.

The Cal PX and SDG&E price caps are stop-gap measures – insulating small end-users from the full impact of high electricity prices and price volatility, and shifting the burden onto the IOUs.²

² PG&E recently warned in an SEC filing that it may incur \$15 billion in unrecovered electricity costs through the expiration of the rate freeze—an amount 3 times its year-end 1999 shareholder equity.

Subsequently, both PG&E and SCE filed for 16.5% and 10% rate increases, respectively, to take effect on 1/1/2001, in order to recover their wholesale power costs as part of a “rate stabilization program.” In the alternative, the two utilities have requested the CPUC to terminate the current rate freeze, stating that they have fully recovered stranded costs when the current value of their remaining owned-generation is factored in. PG&E has also filed suit in Federal court, seeking affirmation of its “right” to collect from customers the amounts paid for wholesale power purchases in excess of the rate freeze amount (and which, under AB 1890, may be uncollected and uncollectable when the statutory rate freeze expires in April 2002).

2. Market Assessment and Marketing Strategy

The Clean Power Cooperative will be targeted at the small end-user market – residential and small commercial customers. The bulk of its customer base will most likely be environmentally-minded owners of single-family residences willing to pay a premium for electricity generated from renewable energy resources. In order to reach potential customers, Clean Power Cooperative will develop relationships with other membership organizations that have an affinity with the Clean Power Cooperative concept and product, and who are willing to become “marketing partners.” Prospective marketing partner candidates include:

- Consumer cooperatives such as credit unions, food co-ops, housing co-ops, etc.
- Environmental organizations
- Other California electric cooperatives.

Marketing partners would assist Clean Power Cooperative in reaching their members with a high quality green product delivered on a not-for-profit basis, and would directly or indirectly share in the revenue stream.

2.1 Market Size

AB 1890 mandates that customers of investor-owned utilities (IOUs) be allowed to select an alternate electricity supplier; publicly-owned utilities and electric cooperatives have the option (but not the obligation) of allowing customer choice. Considering only the portion of the market served by Pacific Gas & Electric (PG&E), Southern California Edison (SCE) and San Diego Gas & Electric (SDG&E), then over 80% of the California electricity market is currently open to customer choice. (See Figure 1.) However, market penetration to-date by alternate electric service providers (“ESPs”) has been limited and largely confined to large electricity consumers. (See Figure 2.)

Figure 1
Market Share 1998 California Electricity Consumption

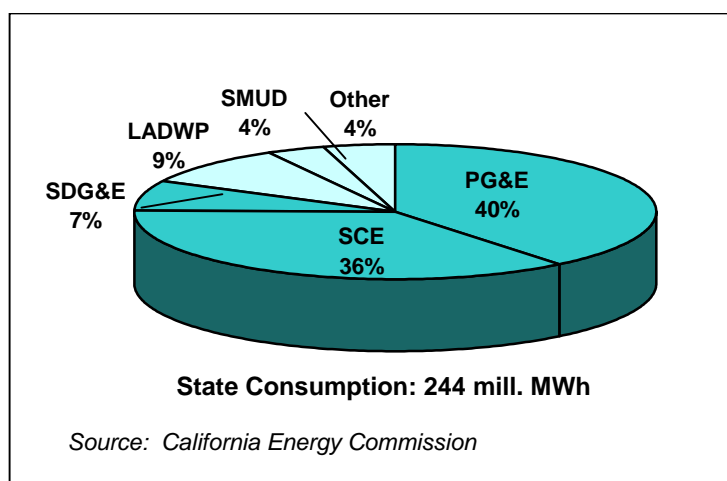
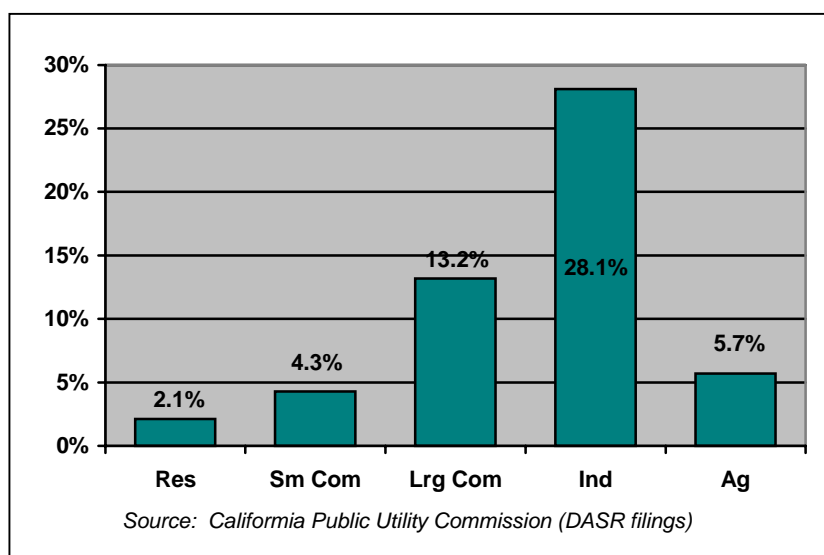


Figure 2

**Electric Load Supplied by ESPs as of July 31, 2000
(IOU Service Territories only)**



The three IOUs serve an estimated 9.5 million residential customers (see Table 1). As of July 31, 2000, only 152,000 residential customers were obtaining electricity from an ESP. If Clean Power can capture 2% of the 6.3 million single-family dwellings in the IOU service areas, it would be supplying 124,000 customers with an annual energy demand of approximately 49 million megawatt hours (MWh).³

Moreover, the California Energy Commission (CEC) projects continued growth in residential electricity demand; the number of residential customers is expected to grow by 15% over the next decade, and average electricity consumption per household is projected to increase by 5%.

Table 1

Residential Customers by Home Type, 2000

| IOU | Single Family | Multi-Family | Mobile Home | Total |
|------------------|------------------|------------------|----------------|------------------|
| PG&E | 2,913,924 | 1,185,865 | 262,040 | 4,361,829 |
| SCE | 2,703,527 | 1,115,744 | 223,068 | 4,042,339 |
| SDG&E | 657,819 | 363,831 | 57,412 | 1,079,062 |
| Total | 6,275,270 | 2,665,440 | 542,520 | 9,483,230 |

Source: "California Energy Demand 2000, Electric Consumption Summary," (private communication from the California Energy Commission, July 2000)

³ Single-family residences are more readily accessible to ESPs since occupants of multi-family residences and mobile homes may not be the energy decision-makers.

2.2 Network Marketing Channels

Clean Power Cooperative needs a cost-effective, niche-market strategy that will reach residential and small commercial electric customers through a network of like-minded organizations in California. The key marketing challenge will be to persuade marketing partners to endorse Clean Power and then convince their members to participate. Clean Power will rely on each individual marketing partner to appeal to its membership in its own unique way with the support of Clean Power Cooperative. The marketing partners are expected to emphasize local community involvement and foster consumer trust.

Initial promising marketing channels include environmentally conscious not-for-profit organizations like credit unions and food co-ops. Later targets may include recreational co-ops like Recreational Equipment Inc (REI), environmental advocacy groups like the Nature Conservancy, and other social/religious organizations. Described below are the results from Management Consulting Services' initial interviews with candidate marketing partner organizations.

(a) Credit Unions

The network of California credit unions is a potential source of promising marketing partners; however, a significant outreach effort will most likely be required to raise awareness and encourage active participation.

Credit union membership represents a substantial portion of the addressable market in California for green power. According to the California Credit Union League, there are 8.4 million members in California credit unions, which represents 25% of the households in California. Membership cohesion is so strong that members maintain their credit union accounts even when they move out-of-state (about 5% total California credit union membership).

While energy choice and green power are not high priority issues for credit union consideration, the managers are generally receptive to the idea of offering green power through California credit unions. A convincing argument for the benefits of aggregating green power purchases in the co-op – with detailed supporting information – could result in significant participation by the credit union community. In addition, a remarkable 42% of credit union members characterize the credit union as a “primary financial institution” and might therefore give consideration to marketing literature featuring the Clean Power Cooperative.

Recent interviews with senior executives from 19 California credit unions have been very revealing. Although California credit unions sometimes offer creative or non-traditional products and services to their members, provision of electric power typically “has not even appeared on the radar screen.”⁴ Some credit union managers would view it as “a real stretch,”

⁴ It should be noted that a New Hampshire credit union – St. Mary's Bank – began offering electric power services to its members in 1998 as a way to combat the local IOU's (PSC of New Hampshire) high prices, as was the cover story in the national credit union association's monthly magazine.

while others would be more interested. Due to charter restrictions or corporate culture, some credit unions would be precluded from considering it at all. On the other hand, credit unions that are most interested – even if relatively uninformed about energy choice – claim they would explore any new product or service “that offers potential benefits for their members.”

Without exception, the credit union community views their greatest asset to be their traditionally strong relationship with their members – and this relationship is based on familiarity and trust. Therefore, credit unions would be very cautious about jeopardizing this trust by endorsing any new concept that they didn’t fully understand or believe to be in the best interests of their members.

To penetrate the credit union community, Clean Power will need to develop a two-tiered educational program directed first at the credit union management and then, with the credit union’s assistance, at the membership. Clean Power may be assisted in its efforts by the national and/or state credit union associations; the Clean Power Cooperative concept has been discussed with key staff at the two organizations, and met with an initial receptive response.

(b) Food Co-ops

Another source of promising marketing partners for Clean Power Cooperative is the network of food co-ops. The culture of the food co-op community is closely aligned with green philosophies and direct grass-roots participation in environmental advocacy. Green power could be offered to their members as another consumer product. Interviews with a number of food co-op managers confirm this interest and their particular receptivity to the opportunity to purchase green power. In fact, when retail electricity competition began, the California food co-ops tried to interest several ESPs in supplying the groups’ store electricity needs – only to be rebuffed because their load was not large enough to be of interest! Interestingly, current relationship with a competing green provider does not appear to be a serious barrier to future consideration of a new green provider like Clean Power Cooperative.

A good example of the activist nature of California food co-ops is the Sacramento Natural Foods Co-op (with 6,700 members), which just signed a contract with the Sacramento Municipal Utility District (SMUD) for green power. They are the first sizeable commercial account in SMUD’s program, with implementation expected by September-October of 2000.

The co-op approached SMUD after seeing SMUD brochures at a recent Earth Day event. The co-op management believes that encouraging the use of green power is consistent with its environmental mission (claiming “it would be hypocritical if they didn’t do it”). SMUD is providing two power options: a “100% green” product and a “50% green” product. Initially, the power supply sources will be a local landfill gas generator and possibly some wind facilities. The arrangement appears to be using a “contract for differences” mechanism – displacing brown power for green at some time during the year. The co-op will be purchasing green power for its

own use (expecting a \$9000 annual bill) and also encouraging members to subscribe (with the primary marketing effort by SMUD).

Members should expect to pay a premium of 10-12% for 100% green power. As an added incentive, SMUD will reimburse the co-op \$20 for each new subscriber. The co-op has pledged that the incentive payments will go directly to a fund for local environmental causes.

(c) Environmental Organizations

Although environmental groups would seem to be a logical marketing channel for the Clean Power Cooperative, these organizations pose a number of marketing challenges.

- **May lack strong group identity or cohesion.** Membership often overlaps across groups (i.e., an environmentally-conscious individual may belong to several different environmental groups); a member is likely to have an affinity for environmental causes and not for a particular organization.
- **Disagreement on what constitutes “green” power.** Certain organizations object to hydropower (e.g., disrupts fish migration patterns and natural stream flows); others object to wind generation projects (e.g., land-use impact, poses potential hazard to migratory birds, etc.). However, there is stronger consensus on need to encourage new projects rather than supporting existing “legacy” projects.
- **Diffuse decision-making and/or limited local management structure.** To succeed as a marketing channel, the Clean Power Cooperative concept will need the direct support of the organization management, which will then educate and encourage its members to join. Many environmental groups are directed by their national offices; at the state level, leadership ranks can be temporary (elective) offices undertaken on a part-time basis – allowing little opportunity for the sustained effort needed to induce participation in Clean Power.

However, the Nature Conservancy is one environmental group that Clean Power might focus on enlisting. The Nature Conservancy strives to safeguard environmentally-sensitive sites; in concert with government bodies, corporate contributions and grass roots organization efforts, it seeks to preserve such sites (via private or public purchase, zoning restrictions, etc.), and often establishes and maintains educational or research facilities on-site. The organization has a track record of working with for-profit organizations (and providing them access to its membership). For example, the Nature Conservancy agreed to offer an “affinity credit card” to its members in return for a percentage of members’ charges on the cards – and achieved a 25% acceptance rate! In addition to the national staff, the Nature Conservancy maintains a full-time paid staff in-state.

Management Consulting Services was told that the Clean Power Cooperative would need a “business like” approach when making an overture to the Nature Conservancy – that is, a well thought-out business plan, specifics on its power cost, power procurement process, etc., and be able to demonstrate the financial benefit to the Nature Conservancy and its members of partici-

pating in the co-op. Contact should be made at both the state and national organization level; however, such contact should be postponed until key vacancies at the state level are filled.

2.3 Implications for Marketing Strategy

Potential Clean Power Cooperative members may be individuals or groups of electric customers. Current restrictions on California-chartered credit unions are expected to be loosened next year to allow formal affiliations with other not-for-profit organizations.

As an added incentive, the marketing partners may share in the revenue stream from purchased energy either directly or indirectly. However, the current NCUA “group purchasing rule” limits compensation for Federally chartered credit unions to “administrative costs only.”

Clean Power recognizes that a significant outreach effort will be required to reach potential customers. This effort will likely entail: generally raising the awareness of marketing partner executives to the green energy issue; educating them and their membership about the details and benefits of energy choice; and soliciting a formal endorsement leading to active participation. Among the tools to be utilized in this educational effort are information brochures, an energy user’s handbook, strategically placed advertisements, and an extensive interactive website.

3. Competitive Analysis

Under AB 1890, customers in the three IOU services territories could choose their electricity supplier beginning in April 1998. Since California is the largest power market and the first to offer to offer retail competition, 250 companies initially registered with the California Public Utilities Commission as electric service providers (ESPs). Within the first year, however, there was a large shakeout in the market. The slow customer adoption rate, high marketing costs and thin operating margins led to the market exodus. Currently, only about a dozen ESPs are actively seeking new customers. (See Table 2)

The surviving ESPs in California are focusing their efforts on large end-users and/or selling green power to the residential and small commercial customer segment.⁵ As a result, ESP penetration in the residential/small commercial market to-date has been limited.

This section describes the marketing activities of the major green power marketers in California, and summarizes the lessons learned from their experience.

3.1 Profile of Representative California Green ESPs

Several green power ESPs are currently active in the California electricity market. Table 2 provides an overview of the green power products and rate structures for the principal green power ESPs. Under CPUC rules, ESPs are required to disclose its electric power sources. As shown on Table 3, about half of the ESPs offer “generic” green power; others, such as Commonwealth, Green Mountain and New Power, offer different mixes of green power based on the type of renewable energy (such as biomass, geothermal, hydro, etc.). Only Go-Green.com, Green Mountain and New Power are differentiating their electricity product on the basis of inclusion of new green power generation sources.

The pricing basis varies among these green ESPs. For example, only TimberLand is offering power at a fixed price (8¢/kWh for the coming year October 1, 2000 through September 30, 2001); the other ESPs’ are pricing at a discount or premium to either the UDC power cost or the Cal PX price.

Additional detail on the marketing strategies and tactics, target markets and customer base of the principal green power ESPs operating in California is set out in the pages following.

⁵ The maximum annual payment cap (\$1000 per customer) under the renewable energy credit program makes green power less economically attractive to large end-users.

Table 2

ESPs Registered with the CPUC to Provide Electric Service to Residential and Small Commercial Customers

| Company | IOU Territory Served | | |
|---------------------------------------|----------------------|-----|-------|
| | PGE | SCE | SDG&E |
| 3 Phases Electrical Consulting | | ✓ | |
| Abacus Energy Services LLC (d) | ✓ | ✓ | ✓ |
| ACN Energy Inc. | ✓ | ✓ | ✓ |
| Alviso Pacific Power Corp | ✓ | ✓ | ✓ |
| American Utility Network | ✓ | ✓ | ✓ |
| Ancor | ✓ | ✓ | ✓ |
| BBOss LLC | ✓ | ✓ | ✓ |
| Clean Earth Energy Inc. | ✓ | ✓ | ✓ |
| Commonwealth Energy Corp | ✓ | ✓ | ✓ |
| Consumer Energy Services Inc. | ✓ | ✓ | ✓ |
| Cucamonga Electric | ✓ | ✓ | ✓ |
| eEnergy Inc. | ✓ | ✓ | ✓ |
| Energy American LLC | ✓ | | |
| EnronEnergy Services (d) | | | |
| Go-Green.com | ✓ | ✓ | ✓ |
| Green Mountain Energy | ✓ | ✓ | ✓ |
| New West Energy | ✓ | ✓ | ✓ |
| New Power (b) | ✓ | ✓ | ✓ |
| Power for Less, Inc. | ✓ | ✓ | ✓ |
| PowerCom Energy | ✓ | ✓ | ✓ |
| PowerSource Ltd. | ✓ | ✓ | ✓ |
| Reliant Energy Retail Inc. | | ✓ | |
| SmartEnergy.com | ✓ | ✓ | ✓ |
| Strategic Energy LLC(c) | | ✓ | ✓ |
| TenderLand Power Company | ✓ | ✓ | ✓ |
| United Energy Management | ✓ | | |
| UtiliSource (e) | ✓ | ✓ | ✓ |
| Utility.com | | ✓ | |
| Van Company | ✓ | | |

Note: Companies in **bold** supply green power (either 100% or partially green).

(a) One year if Ancor supplies the customer meter

(b) Formerly PG&E Energy Services; recently purchased by Enron Energy Services, and is not accepting new customers until January 2001.

(c) Currently offers service to small commercial customers only.

(d) Not accepting new customers at this time.

(e) Formerly Eastern Pacific Energy

Source: California Public Utility Commission and Office of Ratepayer Advocate.

Table 3

**“Green Power” Residential Service Plans and Prices for Representative ESPs
(as of September 2000)**

| Provider | Service Plan | Pricing Structure | Electricity Source |
|---|--------------------------|--|---|
| ACN Energy, Inc. (www.acnenergy.com) | ACN “Cool Green” | Currently restructuring and has no specified rates to offer new customer | 100% renewable |
| Clean Earth Energy | “Clean Earth” | 17% discount from energy portion of UDC energy bill, plus other UDC charges | 100% renewable |
| Commonwealth Energy (www.electric.com) | “Green Smart” | 5% discount from energy portion of UDC energy bill, plus other UDC charges | 100% California renewable (60% geothermal; 40% biomass and waste) |
| Go-Green.com (www.go-gree.com) | “EcoSave” | UDC’s Weighted Average Power Exchange (PX) Energy Charge plus \$3.89/month | 100% California renewable including 10% new renewable sources |
| Green Mountain.com (www.greenmountain.com) | 100% Renewable Power | PX Credit/kWh plus \$4.95/month | 99% existing renewable; 1% new renewable |
| | Solar for the Future | PX Credit/kWh plus \$6.95/month | 95% existing renewable; 5% new renewable |
| | Wind for the Future | PX Credit/kWh plus \$.015/kWh plus \$6.95/month | 75% existing renewable now; 25% wind power when operational |
| New Power (www.newpower.com) (formerly PG&E Energy Services) | Clean Choice | Not signing up customers until January 2001 | 5% new renewable; 15% existing renewable; 80% large hydro |
| | Clean Choice-50% | | 12.5% new renewable; 37.5% existing renewable; 50% large hydro |
| | Clean Choice 100% | | 25% new renewable; 75% existing renewable |
| Power Source Ltd. (www.mypower.com) | My Green Power Agreement | \$0.035/kWh above UDC price plus \$2/month service fee | 100% renewable |
| TenderLand Power Co., Inc. (www.tenderland.com) | Standard Plan | Flat rate \$0.08/kWh from 1 Oct 2000 through 30 Sept 2001. Limited to first 80,000 residential and commercial customers. | 100% renewable |
| Utility.com (www.utility.com) | Value Power | 20% discount from energy portion of UDC energy bill, plus other UDC charges | 100% renewable |

Source: Management Consulting Services interviews, September 2000.

(a) Green Mountain.com

GreenMountain.com is considered by many of its competitors to be the most aggressive green ESP marketer and targets environmentally-aware affinity groups. Approximately 100,000 residential and business customers in California, Pennsylvania and New Jersey purchase the company's Green Mountain Energy products. Half of these customers are in California, primarily in Northern California and San Diego. Its key selling points are a choice of renewable power products with Green-e certification. Green Mountain also offers photovoltaic systems and a Platinum Visa card.

Green Mountain began as the ESP formed by the Vermont-based utility, Green Mountain Power; the business was sold to a group of investors and renamed Green Mountain.com. The company remains privately-owned:⁶ in May, BP Amoco acquired an 18.5% interest in the company.

Green Mountain began building name recognition for its renewable energy products at the end of 1997, anticipating a January 1, 1998 market opening. When the market opening was delayed until April 1998, Green Mountain pulled back to wait for the new date.

Green Mountain experienced its growth in spurts, climbing as new advertising/marketing campaigns were launched. Green Mountain targets its advertising/marketing to consumers already making environmental shopping choices – those purchasing other "green" products, shopping at natural foods stores, and/or belonging to environmental groups. The company's direct sales efforts focus on California's coastal communities where consumers are particularly active on environmental issues. Most of Green Mountain's customers are homeowners in the 24- to 55-year old age category with diverse economic backgrounds.

Green Mountain is most frequently mentioned by its competitors in California as the company doing the best job of (or the most) advertising/marketing of renewable energy products. The company uses a range of marketing channels to reach its target audience:

- Direct mail
- Mass media advertising, including:
 - radio (particularly on National Public Radio)
 - television ads on local network affiliate stations and cable networks and sponsorships on public television
 - print advertising in newspapers, magazines published by affinity groups, bus shelter ads
- Web-based marketing
- Working with environmental and community-based organizations.

⁶ Green Mountain.com filed an initial public offering (IPO) in mid-1999 that was subsequently withdrawn.

According to Green Mountain, web-based sales thus far are less effective than the company's affinity group marketing approach. These "affinity" organizations receive donations from Green Mountain when their members sign up to purchase electricity. The Episcopal Diocese of California (26 individual churches) and Real Goods Trading Company are examples of Green Mountain's affinity group marketing relationships.

Green Mountain offers three "power blends" in California, identified on Table 3. Green Mountain's goal is to be the market share leader, and not to make its products a loss leader, in changing how power is retailed. The company emphasizes the premium aspects of its products and the fact that it is bringing new renewable and sustainable energy resources into the marketplace. It has conducted numerous focus groups, on its own and in conjunction with Green-e, composed of customers and non-customers. Green Mountain feels that the potential market base for renewable energy in California is 8.5 million customers. Of these, an estimated 25% have heard of green or renewable electricity before being contacted by or receiving information from Green Mountain (up from 10% the year earlier).

Green Mountain also markets three thin film and two polycrystalline solar systems designed by Solarex (PV modules) and Applied Power Corporation. These solar systems are eligible for a state ratepayer-financed buy-down program for renewable technologies and an additional U.S. Department of Energy buy-down. In addition to its renewable power products, Green Mountain is marketing a GreenMountain.com Platinum Visa Card. Approximately 0.25% of the card users purchases are donated by Green Mountain towards its Solar Powered Schools program.

In April 2000, Green Mountain introduced its solar product, the first 100% solar product that specifically supports development of new solar facilities. The company is planning the development of a new 100 kW solar power system, to be located atop PowerLight Corporation's new solar panel manufacturing plant in Berkeley. In May, Green Mountain announced that it had landed one of the largest renewable energy contracts in California (estimated at 40 million kWh annually) and will provide its Wind for the Future product to four Toyota Motor Sales' facilities in the Los Angeles area. Other commercial customer accounts include Kinkos and Birkenstock.

(b) Commonwealth Energy Corp.

Privately-owned Commonwealth Energy Corporation, headquartered in Tustin, California, provides electricity and energy efficiency/disaster preparedness/earthquake products to residential and commercial customers in California and Pennsylvania. The company began marketing its renewable energy products in California in February 1999. Commonwealth had signed up 86,000 customers in California, but in early July 2000 was forced to return 30,000 commercial/industrial customers to their utility distribution company (the default electricity supplier), citing low sales margins as a result of recent price spikes.

Commonwealth does not target its current advertising to any particular residential segment and has used a comprehensive range of advertising/marketing channels to find its customers (direct

mail, radio, cable and public television, newspaper ads, magazines/newsletters, billboards, special events, affiliations with environmental and other groups, and the company's web site at www.electric.com). The company considers its marketing approach to be the most aggressive of the ESPs currently active in California. Commonwealth was most satisfied with the response it received from its radio advertising and least satisfied with the direct mail response (less than 1%). Commonwealth estimates its marketing cost at about \$70 per customer.

The main emphasis of Commonwealth's marketing message is price, although environmental benefits, reliability, convenience, and good customer services also were identified as important elements of its marketing message. Price responsiveness and compelling advertising/market were identified as the factors producing the highest acceptance among the company's customers, with green content/source of power as the lowest ranking factor. Commonwealth estimates that 60% of the potential customers in California have already heard about green or renewable energy before they hear about Commonwealth's products. The company has conducted consumer studies and focus groups and finds that, in general, Californians don't understand deregulation or the environmental impact of power generation. Commonwealth also has found that, while many potential customers say they would be willing to pay more for renewable energy, they are still primarily motivated by price. Commonwealth lists Green Mountain and Utility.com as competitors that do a good, but not better, job of advertising/marketing their products and services.

(c) Go-Green.com

Go-Green.com, headquartered in San Jose, California, is owned by Preferred Energy Services, a utility auditing company with expertise in engineering, economics, marketing and energy regulation/policy. Go-Green.com's renewable electricity product is available to residential and small commercial customers in California. The company began marketing its renewable energy products in California in April 1998 and has experienced a consistent upward trend in acquiring new customers. The ESP counts the MCI WorldCom, the City of Santa Monica (city buildings) and the Association of California Water Agencies (ACWA) among its customers.

Go-Green is reported to be in the final stages of acquiring Green-e certification for its products. The company currently offers only one product (EcoSave). For residential customers, the product is priced at a flat monthly charge (donation) of \$3.89 plus the customers' regular utility costs. The company's agreement with ACWA calls for power at below-utility prices for accounts using less than 50 kW. The specific type of renewable resource for Go-Green's product is not provided (content label is 100% in-state eligible renewable), but the company plans to add one or two "generation specific" products in the next six to nine months. The company's product is available in all three UDC territories, but it is primarily active in the Bay Area and Southern California.

Go-Green.com targets its advertising/marketing to "environmental" customers (i.e., people who are already conscious/aware of the environmental benefits of renewable energy), and uses a grass

roots approach involving marketing affiliates (e.g., Bay Area Action includes information on Go-Green.com in its newsletters and helps distribute marketing materials to its members and, in Southern California, Concerned Citizens of Leisure World are very active). Go-Green.com uses environmental events, like the Earth Day celebrations in Berkeley, Santa Cruz and Santa Barbara to distribute literature to potential customers. Their experience has been that customers are skeptical about deregulation but will take their literature home from marketing events, research the company and its competitors and then call Go-Green.com or uses the web site to sign up. While the company receives some referrals from the CEC and Green-e, 30% of its customers sign up for service using the company's web site. Other internet sites, like energyOn.com and energy.com, also provide links and referrals to Go-Green.com. Go-Green.com's web site has provided its best marketing/advertising results but they are also very satisfied with their marketing affiliate response as well. Direct mail was targeted to zip codes with high percentages of environmentally conscious consumers (Berkeley, Santa Cruz, Santa Barbara and other coastal communities), but was ranked among the channels Go-Green.com was least satisfied with when it produced only the average 1-2% response. Go-Green.com estimates its marketing cost at about \$100 per customer.

The main emphasis of Go-Green.com's marketing message is on customer choice and environmental benefits. Green content/source of power and licenses/certifications were ranked highest as the factors producing the greatest acceptance among the company's customers, with price responsiveness, reputation/image/name recognition/brand awareness, and compelling advertising/marketing as the lowest ranking factors. Go-Green.com estimates that only 25-30% of the potential customers in California have already been exposed to green or renewable energy before they hear about the company's product. The company has not conducted consumer studies or focus groups (although these are planned for the future), but has surveyed its customers to find out what they know about renewable energy and ways to make their products more accessible to potential customers. Go-Green.com cited Green Mountain as the competitor that does the best job of advertising/marketing and that their large budget and market saturation approach helps to condition the market for all other renewable marketers.

(d) Utility.com

Utility.com is a privately held company founded in 1998 by energy and internet industry experts, including idealab! (the company behind eToys, GoTo.com, PetsMart.com, CitySearch, tickets.com and NetZero). Its electricity products are available in all three UDC service territories in California, and markets in Massachusetts and Pennsylvania. Utility.com was the nation's first online "utility" company, offering sign up, billing and payment on the internet (direct debit from a checking account or direct charge to a credit card).

Green Planet, Utility.com's 100% renewable product (no identified sources) for residential and small business customers, is Green-e certified. The company claims it is able to pass along savings of up to 20% on the electricity portion of residential customers' utility bills, and 10% for small business customers, by using internet technology to reduce expenses and through aggregate

buying power for supplies. There are no sign-up fees, deposits, switching fees or mandatory contracts. The company's residential prices of 20% less than the customers' UDC are guaranteed through January 15, 2001. Utility.com currently offers internet access (with a discount to Utility.com energy customers) and plans to branch out into "all services critical to residents and small businesses" (including telephone, DSL and internet telephony) in the future. In May 2000, Utility.com announced that it had entered into a partnership with Sempra Energy Trading to provide natural gas and Sempra will become the preferred wholesale natural gas provider for Utility.com.

The company uses billboards and web banners in addition to online marketing. Current "members" receive \$25 for each referred new sign-up (using a referral box at the end of the on-line registration). Utility.com also offers the Affiliate Generator Program for other web sites that place the Utility.com banner on their sites. The affiliates receive \$10 for each referral that signs up for energy service. In May 2000, Utility.com announced an affiliation with GreaterGood.com, enabling consumers who purchase Utility.com products through the GreaterGood.com web site to give up to 15% automatically to the cause of their choice of more than 3,500 not-for-profit organizations (including schools, Special Olympics, World Wildlife Fund), at no increase in their electricity bill.

Utility.com differentiates itself from competitors by being there sooner, better, with more products and services, better customer service and lower price.

(e) TenderLand Power Company

TenderLand Power Company is based in Truckee, California and provides services to residential and commercial customers in the three service territories in California. TenderLand was formed in April 1999 but did not begin to actively advertise or market its electricity service until October 1999. Initially TenderLand had planned to target its advertising/marketing to more highly-educated consumers who they believed would be more in tune with the issues. These customers were believed to be upper-income but not affluent. To-date the company has had better results by focusing on specific customer niches, for example food co-ops, and by purchasing advertising space in the food co-op's newsletters and offering discounts on electricity products for co-op members. It intends to cultivate more of these relationships and believes they have been their most satisfying advertising/marketing experience to date. The company estimates that only 10-15% of its customers have heard about green or renewable energy before they were contacted by TenderLand.

TenderLand has used direct mail, radio, some newspaper, newsletters, its web site, and has participated in some Earth Day events. Newspaper advertising has been the company's least satisfying experience. It does not participate in the Green-e certification program. The main emphasis of their advertising/marketing is the environmental benefit of new renewable resources. Depending on the consumer's awareness of the new restructured environment, some customers also have some concerns about reliability. TenderLand's representative felt that their customers

base their acceptance of the company and its products on their superior customer service. They claim that, as a small company, they are more customer-responsive. It was estimated that approximately 30% of TenderLand's customers want to know which specific renewable resources are being used in their products. TenderLand differentiates itself from its competition by planning to own its own generation and by not re-selling existing renewable resources that are already in the system.

Residential customers pay a \$2.99 per month fee and commercial customers pay \$2.99 or 1% of the total monthly bill, whichever is greater, in addition to their regular utility charges for services and energy.⁷ Payment can be made through automatic debit from a bank or other financial institution account, automatic debit on Visa, MasterCard or Discover accounts (for an additional charge of 2% of total bill), or by personal check or money order.

TenderLand's Renew 100 product actual power mix in 1999 was 20% biomass, 35% geothermal, 5% small hydroelectric and 40% wind, while the earlier projected mix was 25% biomass, 35% geothermal, 20% small hydroelectric and 30% wind. The company claims to be contributing to the construction of dozens of new wind turbines in California.

TenderLand Foundation, a non-profit, public charitable organization, was formed by TenderLand Power Company to make contributions from profits to charitable and public benefit causes in the communities selected by the company. The focus areas of the grants are the environment, education and the arts.

3.2 Green Power Marketing by Municipal Power Systems

The two largest public power systems in California – LADWP and SMUD – have not opened their systems to retail competition. Nonetheless, each is providing their customers with the option of selecting a green electricity supply, described below.

(a) Los Angeles Department of Water and Power

The Los Angeles Department of Water and Power (LADWP) provides water and electric services to 1.2 million residential and more than a quarter million non-residential customers. LADWP began marketing its renewable energy product to customers in its service territory in May 1999. The utility has signed up 55,000 residential and 95 non-residential customers. LADWP's electricity product contains 20% renewable power and is priced 6% above the utility's normal rates. The Department claims that its renewable energy consumers will off-set the price increase by participating in utility-sponsored energy efficiency measures (distributes CFBs and a CD on energy efficiency). The renewable product is not Green-e certified, but LADWP claims to maintain the same standard even though its supply sources change frequently.

⁷ TenderLand's monthly fee increased from \$1.99/month in March 2000.

LADWP sends bill inserts marketing its renewable product to all customers, but targets its promotional events (cultural events, grassroots campaigns, corporate responsibility awards, inter-faith environmental summit) to more specific customer groups. The Department is also working with some local environmental groups (Heal the Bay, Global Green, Mono Lake, Tree People) that distribute marketing materials to their members/supporters, and has participated in Earth Day events. LADWP recently began working with non-profit organizations (March of Dimes, American Lung Association) and will be starting a public service announcement campaign with the March of Dimes in the near future. Community and neighborhood groups that participate as marketing affiliates receive a \$5/customer bounty for each individual they refer who signs up for the renewable product. The Department has not yet used radio, cable television or billboards but plans to use these advertising/marketing channels in the future. Participation by national and statewide environmental groups has been the least satisfying channel for LADWP.

The main emphasis of LADWP's marketing message is the environmental benefit of renewable energy, focusing on children/future generations, and the opportunity to offset the modest price increase through energy efficiency/conservation. Price responsiveness (or indifference because of the potential off-set), reputation/image/name recognition/brand awareness and green content/source of power were identified as the factors producing the highest acceptance among the company's customers, with visibility in the marketplace as the lowest ranking factor. LADWP differentiates its product from other marketers (who cannot yet market to the utility's customers) claiming that it is building new sources such as geothermal, solar, wind and small hydroelectric resources. Department representatives interviewed were not able to estimate the percent of the potential customers in that have already heard about green or renewable energy before they hear about its products, but they did conduct a baseline poll before product launch and will be completing another poll in the near future. LADWP lists Commonwealth Energy Corporation and Green Mountain as the renewable energy marketers that do the best job of advertising/marketing their products and services.

(b) Sacramento Municipal Utility District

Sacramento Municipal Utility District (SMUD) serves nearly 440,000 residential and over 56,000 non-residential electric customers. SMUD offers "Greenergy," a program similar to LADWP's. Residential and commercial customers who sign up for Greenergy receive a home energy analysis CD (to find out how much energy the customer is using to run appliances, lights, etc.) and a coupon for two compact fluorescent light bulbs. SMUD matches customers' electric needs with purchases of renewable resources on the SMUD power system. The All Renewables Option is priced at a \$0.01/kWh premium over the normal utility rate. The Community Solar program is also priced at \$0.01 above the normal utility rate and results in the installation of photovoltaics at local community facilities like the Sacramento Zoo and the airport. Current resources for renewables options are being purchased from geothermal plants and the landfill gas-to-energy plant at Kiefer Landfill. The All Renewables Option product is Green-e certified.

3.3 Business Success Factors

A primary reason for the as yet disappointing number of conversions to direct access green power in California is the unexpectedly high marketing costs. These high marketing costs result from low consumer awareness, the “inertia” that favors remaining with the default service provider, and burdensome regulatory requirements.

The electric service providers that have survived early attrition are typically those who have:

- targeted consumers – and, in particular, organizations – that are already environmentally aware and actively pursuing environment-friendly measures.
- been quick to exploit the advantages of internet-based communications with what amounts to a pre-screened group of more technically-sophisticated consumers
- attempted to minimize as far as possible their financial exposure to fluctuating wholesale electricity prices and the uncertainties of the Renewable Customer Credit.

Drawing implications from the actions of the surviving ESPs, Clean Power should target organizations who are already “pre-sold” (e.g., food co-ops rather than credit unions) as the most likely first markets. Those targets should include organizations that have already committed to other ESPs, because strong loyalties have not yet been formed.

Clean Power should devote meaningful attention to development of effective web-site and internet-based communications as an important marketing tool for two-way exchange of information, as well as another channel to identify the more technically-sophisticated (and perhaps more receptive) consumers.

Given the highly chaotic California deregulation climate, Clean Power needs to evaluate carefully alternative contract terms (i.e., price structure, contract duration, incentives, etc.) that will minimize financial uncertainties for all participants (i.e., the co-op, green generators, consumers). Consideration needs to be given to the likely market development under a realistic, well-documented set of assumptions (i.e., trends in wholesale price of electricity for the business planning time horizon). For example, given the wildly fluctuating wholesale price of electricity, Clean Power needs to consider whether to fix the retail price and let the co-op’s bottom line float or to fix the green premium (over market clearing price) charged to consumers and let the retail price fluctuate.

Clean Power Cooperative may be the only not-for-profit supplier in the California marketplace and thus may have an advantage with respect to competitive pricing and trustworthiness. However, the most formidable competition may be the existing IOUs (because of the “inertia” factor against switching). Clean Power must address how it will distinguish itself from these ESPs to create an incentive for the so-called “default” customer to consider switching.

The surviving competition has been marketing aggressively post AB-1890 using direct mailing, billboards, websites, incentives to organizations, and other products & services. However, the results have been disappointing for a number of reasons including externalities (i.e., the chaotic deregulation situation and supply shortage) beyond their control, but also because of poor performance and not fulfilling their contracts. Even though a relative late-entrant, Clean Power can succeed if it differentiates itself from the crowd and stands behind its commitments.

4. Power Supply Assessment

A goal of the Clean Power Cooperative is to encourage development of new green power generating capacity in California by aggregating residential and small commercial renewable energy demand. Most ESPs are offering “generic green power” to their customers. A distinguishing feature of the Clean Power Cooperative will be to allow consumers to exercise their individual preferences to buy the type of renewable power (e.g., solar, wind, hydro, geothermal, etc.) they want from specific individual facilities.

From the outset, Clean Power will contract with new renewable power projects. Initially, there may not be sufficient capacity available of every type of renewable power, or customers may request power from projects that are not yet operational. Until the power supply source requested by the customer comes on-line, Clean Power will provide power from existing green power sources by purchasing:

- “Generic green” power available from the Automated Power Exchange (APX)
- Power from older qualifying green facilities (“legacy” projects) that unsold generating capacity.

Eventually, as member subscriptions grow, Clean Power Cooperative will encourage and perhaps help finance new green in-state generation facilities of the types reflected by member preferences.

The management of Clean Power Cooperative can reasonably anticipate that a variety of new renewable energy projects will be available in the immediate future. The State of California is currently encouraging the development of new renewable energy sources that might provide power for Clean Power’s customers. AB 1980 provided \$162 million to subsidize construction and operation of new renewable generation projects. Table 4 identifies the types of renewable energy projects qualifying for these funds.

Table 4

Electricity Generation Technologies Qualifying for Funding under AB 1980

| | |
|---------------------------------|---|
| • Biomass | • Municipal solid waste |
| • Digester gas | • Photovoltaics |
| • Geothermal | • Solar thermal |
| • Hydroelectric (30 MW or less) | • Fuel cells that convert renewable fuels into electricity. |
| • Landfill gas | • Wind |

The State conducted an auction in June 1998 to allocate these funds. Developer could bid up to a maximum of 1.5¢ per kWh produced in the first four years of operation as the amount of the subsidy sought. Projects were selected for funding based on their bid, from the lowest subsidy bid up to the ceiling bid amount. As a result of the auction, 55 projects (totaling 5550 MW) were

selected for funding. As of August 2000, five projects had been cancelled or delayed beyond the mandated December 31, 2001 start up date. As indicated in Table 5, the remaining projects represent a broad range of renewable technologies. A detailed list of projects is provided in Appendix B.

Table 5
New Renewable Generation Projects Funded under AB 1890

| Technology | Number of Projects | Capacity (MW) |
|-------------------|---------------------------|----------------------|
| Biomass | 1 | 3.8 |
| Digester Gas | 1 | 2.1 |
| Geothermal | 2 | 59.0 |
| Landfill Gas | 21 | 68.5 |
| Small Hydro | 1 | 1.0 |
| Wind | 24 | 310.6 |
| Total | 50 | 445.0 |

In applying for funding, many developers gave the project start date as December 31, 2001 – the latest date for eligibility. As of September 15, 2000, 11 projects amounting to 92.7 MW of capacity are operational.⁸

In August 2000, new legislation was passed that would encourage development of additional in-state generating capacity:

- **AB 995** extends the production incentives for renewable electricity to January 1, 2007
- **AB 970** to expedite licensing of new generating capacity.

Given the electricity supply tightness and high prices experienced in California during this past summer, Management Consulting Services believes it likely that the State will continue its efforts to encourage new generating capacity construction, providing an opportunity for the Clean Power Cooperative to contract for electricity capacity sufficient to meet its members needs.

⁸ These are: eight landfill gas projects, two wind projects, and one geothermal project. (Source: Private communication with CEC staff)

5. Governance

Clean Power Cooperative will be operated as a not-for-profit, buyers cooperative. Cooperatives worldwide generally operate using the same principles as adopted in 1995 by the International Cooperative Alliance. The principles are part of a cooperative statement of identity, which also includes the definition of a cooperative and a list of cooperative values:

- **Definition** – A cooperative is an autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise.
- **Values** – Cooperatives are based on the values of self-help, self-responsibility, democracy, equality, equity and solidarity. In the tradition of their founders, cooperative members believe in the ethical values of honesty, openness, social responsibility and caring for others.

Key principals that will govern the operation of Clean Power include:

1. **Voluntary and Open Membership** – Cooperatives are voluntary organizations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination.
2. **Democratic Member Control** – Cooperatives are democratic organizations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership. In primary cooperatives, members have equal voting rights (one member, one vote) and cooperatives at other levels are organized in a democratic manner.
3. **Member Economic Participation** – Members contribute equitably to, and democratically control, the capital of their cooperative. At least part of that capital is usually the common property of the cooperative. They usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing the cooperative, possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the cooperative; and supporting other activities approved by the membership.
4. **Autonomy and Independence** – Cooperatives are autonomous, self-help organizations controlled by their members. If they enter into agreements with other organizations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their cooperative autonomy.
5. **Education, Training and Information** – Cooperatives provide education and training for their members, elected representatives, managers and employees so they can

contribute effectively to the development of their cooperatives. They inform the general public — particularly young people and opinion leaders — about the nature and benefits of cooperation.

6. **Cooperation among Cooperatives** – Cooperatives serve their members most effectively and strengthen the cooperative movement by working together through local, national, regional and international structures.
7. **Concern for Community** – While focusing on member needs, cooperatives work for the sustainable development of their communities through policies accepted by their members.

Board of Directors – The initial Board of Directors for Clean Power will be selected from those who participate in the organization of the cooperative. The bylaws of the organization provide for at least seven, but no more than twenty-one directors who will serve staggered three-year terms with one-third up for election in any given year. Up to five of the directors may be appointed by the board from non-members of the cooperative. These appointees will be individuals who may not be eligible for membership, but who are able to further the purposes of Clean Power.

Tax Status – It is anticipated that Clean Power Cooperative will be organized as a tax-exempt 501 (c) 12 cooperative. As such it will not be burdened with either federal or state income taxes, but could be liable for various gross receipt, property or sales taxes.

Patronage – Because the purpose of the cooperative is to further the goals of their members, but not to make a profit, margins in excess of those required to run the business will be returned to members in accordance with tax law and as deemed prudent by the board of directors. Clean Power members may be asked to defer voluntarily the repatriation of patronage to allow Clean Power to make strategic investments in selected renewable resources.

6. Operations

The proposed Clean Power Cooperative concept is designed to be “scalable” so that business success is not dependent upon size. As a not-for-profit co-operative, Clean Power Cooperative should have a competitive economic advantage over the leading for-profit electric service providers.

First year business targets will be modest. When the membership grows, economies-of-scale should improve the financial performance as fixed costs are spread over a larger membership base. Incremental growth will be the rule and contracts for the purchase of green energy will be implemented gradually in proportion to the growth in membership. With the success of green power sales, consideration may be given to offering other products and services as an added incentive to membership. In the future, for example, Clean Power may aggregate group purchases of energy conservation appliances.

The driving focus in Clean Power’s operations is hold down operating costs by retaining only core functions in-house, and out-sourcing and simplifying operations to the maximum extent. This sections describes how such a strategy would be executed.

6.1 Operations Strategy

As a not-for-profit community-based co-operative, Clean Power Cooperative will emphasize “user-friendly” customer interactions; cost-efficient back-office operations; and a streamlined, responsive organizational structure.

- **Information systems** – An internet-based information system will be designed for simplified switching, contracting and billing arrangements and providing a mechanism for fostering a meaningful exchange of information between electric customers and the Clean Power Cooperative
- **Back-office operations** – Economies-of-scale will be achieved through pooling of resources with other similar organizations. For example, Clean Power might build on the existing facilities and manpower of Plumas-Sierra Rural Electric Co-op.

The underlying principle for the proposed Clean Power Cooperative concept is to provide California energy users – primarily residential and small commercial customers – the opportunity to displace “brown” power with green power through the mechanism of “contract-for-differences.”

By focusing only on annual generation quantities, Clean Power Cooperative will avoid the complexity of “tracking individual electrons around the grid.” Customer switching will be greatly simplified, since direct access is not required; the only difference for the customer will be

that Clean Power Cooperative will now be responsible for payment of each customer's monthly electric bills.

6.2 Organization and Staffing

Clean Power Cooperative will require internal resources to support the operations of the co-op. Because the initial savings from aggregation are likely to be modest, there will need to be an emphasis on an efficient operation with few frills. This structure will likely extend into future years because electric aggregations are expected to remain narrow margin businesses. The key ongoing staffing decision for Clean Power Cooperative will be what to accomplish with in-house staff and what can be delegated to outside organizations.

(a) Outsourcing Options

There are a variety of outsourcing opportunities available to Clean Power Cooperative. Most of these would be based on a relationship with the established electric cooperative program, but some aspects, like billing could be efficiently performed by organizations like Northern Sierra Service Corp.

- **Customer Service** – Initially Clean Power Cooperative management should handle all customer service calls. This will provide co-op members with responsive, high quality service. In its first few years, when membership is small, the Clean Power Cooperative staff should be able to handle the calls. When the organization grows larger, a call center may be justifiable. Cooperative call centers are an option for handling most customer service functions. The Cooperative Response Center in Austin, Minnesota is an example on an existing call center. Alternatively, Clean Power Cooperative could contract with an established electric cooperative in California, like Plumas-Sierra Electric Cooperative in Portola California. As a third option Clean Power Cooperative could join with other aggregator cooperative like the California Electric Users Cooperative and the California Oil Producers Cooperative (COPE) to establish a cooperative call center in California.
- **Metering, Billing and Remittance Processing** – Clean Power Cooperative would continue to rely on the investor-owned utility to read the customer meters and prepare the customer billing. The bill would then be submitted to Clean Power for payment; Clean Power, in turn, would bill its members.
- **Marketing and Sales** – There are two types of marketing and sales for which Clean Power Cooperative will be responsible: marketing through its marketing partners (credit unions, food co-ops, etc.) and the sale of electricity to the ultimate retail consumer. The sales and marketing of Clean Power Cooperative to additional marketing partners (and thereby to end-use customers) as a concept is a critical core business that will be key to the ultimate savings delivered by Clean Power Cooperative to its members. Management Consulting Services believes

that such a function should not be delegated and suggests that this be a primary focus of the staff and board of directors of Clean Power Cooperative.

Overall, most of the functions provided by Clean Power Cooperative to its members can be accomplished best through the use of Clean Power Cooperative combined business volume to structure contractual relationships with third party vendors. Some of these vendors will likely be drawn from the existing electric cooperative sector where there are years of experience in this area.

(b) Core Functions

Management Consulting Services believes that Clean Power Cooperative can start with most functions subcontracted. Our suggestion is that Clean Power Cooperative start with a full time general manager and an administrative assistant to provide the organization with day-to-day continuity

The core functions that Clean Power Cooperative must attend to are those associated with customer service and the procurement of wholesale contracts. The procurement of wholesale power will be a frequent process, as new members are added. Clean Power Cooperative will either need to rely on a power-marketing partner in this area or use consultants to manage the procurement process. In this plan, Management Consulting Services assumes that Clean Power Cooperative will utilize an outside source, such as Plumas Sierra, to initially manage the electricity procurement process.

(c) Operating Costs

The overall operating costs for Clean Power Cooperative, excluding cost of power and UDC services, is projected at \$674,340 for its first year, or 14% of revenue. This cost will rise as the sales volume (MWh sold) increases and, based on the financial model projections, reaches \$11,589,345 in 2010. Clean Power Cooperative will have to work diligently to maintain costs at this level. The major components of cost are:

- **Salary and Benefits** – Management Consulting Services has modeled a two-person administrative staff at Clean Power Cooperative for the first ten years of its existence. This would consist of a general manager and administrative assistant. The manager will need to be a capable individual with a broad set of skills. The manager's principal role in the cooperative's initial years would be to develop contacts within the target market (credit unions, food co-ops, environmental organizations, etc.) who would become Clean Power's marketing partners. As customers and sales grow, additional staff would be hired:
 - **Key account representatives** – to manage the marketing partner relationships
 - **Electricity procurement staff** – to handle power contracting with individual green power project developers.

Management Consulting Services has estimated initial year personnel costs at \$152,250, rising to \$737,850 by 2010, when the staff count is at 8 full-time persons.

- **Office Expense** – Clean Power Cooperative will not need significant office space in its present configuration. The analysis assumes \$4,200 per person per year for office and other administrative overhead expenses.
- **Outside Professional Services** – Clean Power Cooperative will need to draw upon outside professional services, such as legal, accounting, and regulatory representation. A minimum budget for these activities is projected to cost \$30,000 per year. In addition to the outside professional services, Management Consulting Services has included \$5,000 for Board of Director expenses.
- **Contract Services** – There will be contract services related to electric aggregation such as account set-up, customer billing, customer service, and accounts payable payments. Management Consulting Services assumes that these functions will be out-sourced and, based on our prior analysis of the cost for these services,⁹ estimates this cost to be approximately \$371,000 (\$6.46 per meter per month) for the initial year of operation.
- **Marketing Expenses** – Management Consulting Services has budgeted \$50,000 for web page design and \$10,000 per year for annual maintenance. Clean Power will also incur costs for marketing/informational materials, and compensation for its marketing partners; Management Consulting Services has estimated these costs at \$25 per each new member.

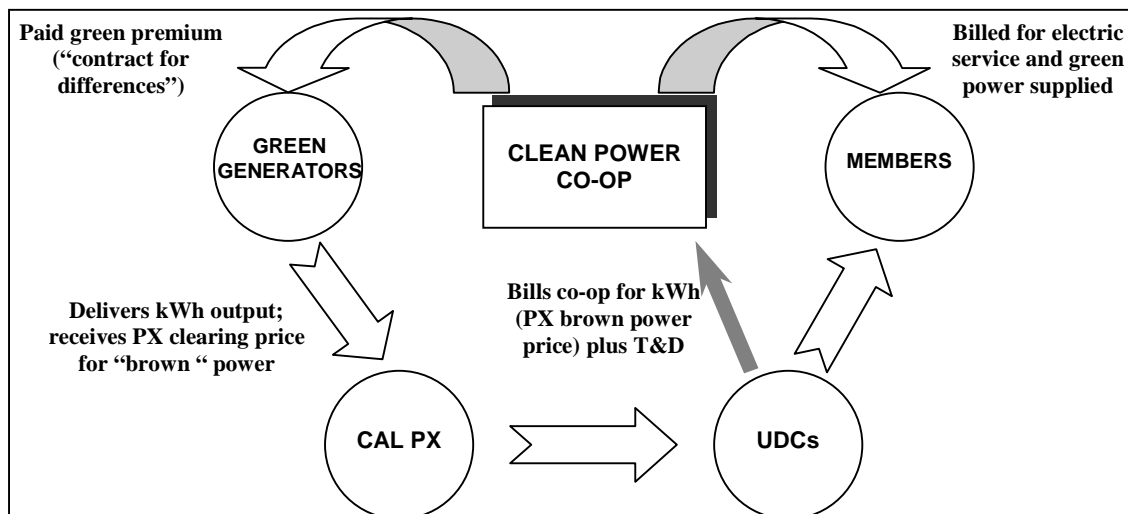
6.4 Contract for Differences

In California the deregulated energy market provides for the delivery of electric power into the grid by electric generators and the receipt and distribution of the electric power by utility distribution companies (UDCs). The independent system operator (ISO) is responsible for balancing deliveries and receipts and manages the grid based on power demand and supply submitted by Scheduling Coordinators (SC). The dominant SC is the California Power Exchange (Cal PX), which manages an auction in which consumer demand and supply are matched each hour. The UDCs estimate the demand for residential customers based on statistical analyses and load profiles of customers grouped by factors such as climate zone, population, appliance mixture, and housing type. The Cal PX auction establishes a market-clearing price that becomes the effective proxy for wholesale prices included in consumers' bills. Fortunately the Clean Power Cooperative does not need to participate directly in these complex hourly transactions.

⁹ See *Preliminary Planning Study for a Green Electricity Purchasing Co-op in California*. A Report for the Center for Energy Efficiency and Renewable Technologies, as part of the Regulatory Research Project. (July 1999)

Figure 3

Schematic of the Clean Power Cooperative Business Concept



Instead, the cooperative will manage a direct financial relationship between its members, the members' UDCs, and various green power generators, while leaving the operational relationships to the ISO-Cal PX-UDC dispatch mechanisms. Clean Power will collect payment from its members for the green power they consume and pay the UDCs and green power generators for energy delivered to the members. As shown in Figure 3, the Clean Power business concept involves several key features:

- Clean Power will agree with each member to supply green power (generic or a specific type) at a premium above the price that which the customer would have paid to the UDC for brown power. (The cost to the consumer will be the PX wholesale power cost, plus a premium for green power, plus any cost recovery due to the UDC, less adjustments for any prevailing Renewable Customer Credit Subsidies from the State.)
- Clean Power will identify green power generators that can supply the type of green power that its members would like to purchase (e.g., photovoltaic, wind, biomass, etc.) and negotiate a price for energy in relation to the wholesale price determined by the PX auction.
- The generator will deliver the contracted amount of energy to the ISO over a prescribed billing period (e.g., 800 MW hours in one year).
- The generator will be paid the appropriate market price (Cal PX or ISO ancillary services), pursuant to the normal UDC/Cal PX/ISO settlement procedure.
- Clean Power will arrange for payment of the difference between market price received by the generator (Cal PX/ISO) and the co-op member price negotiated by Clean Power with the generator.

- The UDC, which distributes power to a co-op member, will bill Clean Power for the member's electric power consumption and Clean Power will pay the UDC for the energy consumed on a monthly basis. (The UDC receives the PX wholesale cost plus UDC service and recovery costs).

The sample contract assumes the continued existence of the statutory rate freeze imposed by AB 1890. During the period of the rate freeze, the assumption is that the co-op member will pay a fixed premium over the PX price as contained in the member's bill. The premium will be negotiated by the co-op and will likely differ among suppliers, based on the suppliers' market position and the desirability of its technology from an environmental standpoint. After the expiration of the rate freeze, the form of contract may need to change since market prices are expected to be volatile and that volatility will be reflected directly in consumer bills. In order to give members a level of certainty about the size of their monthly bill, an approach that emphasizes negotiation of a fixed price (as compared with a fixed premium over PX during the rate freeze) may be desirable.

The green power suppliers are obligated to deliver a prescribed amount of energy to the PX over a stated billing period. There is no attempt to actually track the hourly load shape of the aggregation represented by the co-op. In effect, the co-op is paying the generator the contract price to assure delivery of the generator's output into the grid. The distinctive function performed by the co-op is that it provides a mechanism whereby a member can pay a specific generator, selected by the member for that generator's output. This assures that the generator will continue to operate. The contract for difference specifies mechanisms for auditing the generator's operation and establishing the basis for the co-op's claim on behalf of its members for renewable credit under the California Energy Commission's program.



The basic obligation of the member is to pay the co-op on a timely basis for power consumed. The co-op will be responsible for disbursing the proceeds appropriately. This will include payments under the contracts for difference to the generators and payments to the utility distribution companies (UDCs) for energy delivered to the members. The co-op will be an ESP only in that it is providing bundled ESP billing; it will not provide separate energy purchasing or real time scheduling coordination.

6.5 Risk Assessment

The decidedly mixed results of post-AB 1890 green power activities in California offer both challenges and opportunities for the proposed Clean Power Cooperative. The difficulties experienced by other California electric service providers are understood and Clean Power will learn from their mistakes.

Figure 4

Key Elements of Risk

| POTENTIAL RISK FACTOR | Clean Power Cooperative STRATEGY |
|---|---|
| <p>Post-AB 1890 Growing Pains:</p> <ul style="list-style-type: none"> • emergence and subsequent shakeout of unqualified ESP's • overly restrictive direct access requirements and inefficient, error-prone information transfers between old and new providers • generally unfavorable media coverage • poor public perception resulting in part from ambiguous State-sponsored public education campaign • sudden and possibly premature rush to full-scale implementation, resulting in unusually difficult start-up problems and excessively high marketing costs | <p> focus on the "trust factor"</p> <ul style="list-style-type: none"> (1) simplified switching, contracting and billing arrangements (no direct access issues) (2) internet-based interactions with customers <p>focus on the "trust factor"</p> <ul style="list-style-type: none"> (1) provision of internet-based communications with members (2) identification of and connection with specific green sources (3) reliance on indirect marketing channels (e.g., credit unions, co-ops) to inform potential members <ul style="list-style-type: none"> (1) slow growth philosophy (2) cost-efficient marketing through not-for-profit co-op community |
| <p>Unfavorable/Uncertain Regulatory Structures:</p> <ul style="list-style-type: none"> • wholesale price pass-through structure for default service pricing limits ability to compete profitably • uncertain future for the Renewable Customer Credit incentive • demand variability risk allocation | <p> not-for-profit status and low operating expenses should improve likelihood for favorable economics</p> <p>focus on potential customers whose primary interest is green power and who may be less sensitive to unfavorable pricing</p> <p>contract for differences (annualized energy accounts) avoid tracking demand requirements</p> |

7. Financial Analysis

As a newly-formed consumer aggregation cooperative, Clean Power faces several financial hurdles.

- Start-up costs – to satisfy CPUC bond and UDC credit-worthiness requirements, marketing expenses (including financial incentives for marketing partners), organizational expenses, etc. – are significant.
- Traditional lenders to electric cooperatives such as the Cooperative Financing Corporation (CFC) would likely be reluctant to extend funds to cover initial year operating deficits, particularly since the cooperative will lack physical assets to collateralize borrowed funds.
- Although target market is relatively price-insensitive, monthly electricity bills will nonetheless need to be reasonably competitive with that of other green ESPs in order to attract and retain members.

Hence, Management Consulting Services' financial analysis addresses two questions:

- What membership level is needed to cover Clean Power's operating costs – and how quickly might this level be achieved?
- How large a premium over the UDC's bundled electricity charge must Clean Power Cooperative charge in order to recover its costs – and is the resulting consumer charge reasonably competitive?

7.1 Assumptions

(a) Sales Assumptions

To estimate the number of members acquired each year Management Consulting Services used a Markov diffusion model approach. Using the number of single-family residences in the three IOU service territories, Management Consulting Services assumed that a small but growing percentage heard of the Clean Power Cooperative (via Clean Power's marketing partner); Management Consulting Services set this percentage at 1% in the initial year, increasing by 1% per year over the 10-year planning horizon. Of the individuals now aware of Clean Power, a portion have an interest in joining and a portion of the "interested" target audience ultimately joins the co-op. Figure 5 shows the resulting adoption (or enrollment) rate, while Figure 6 depicts Clean Power's customer base.¹⁰

¹⁰ The customer base shown in Figure 6 is net of customer attrition.

Figure 5

Assumed Adoption Rate for Clean Power Customers

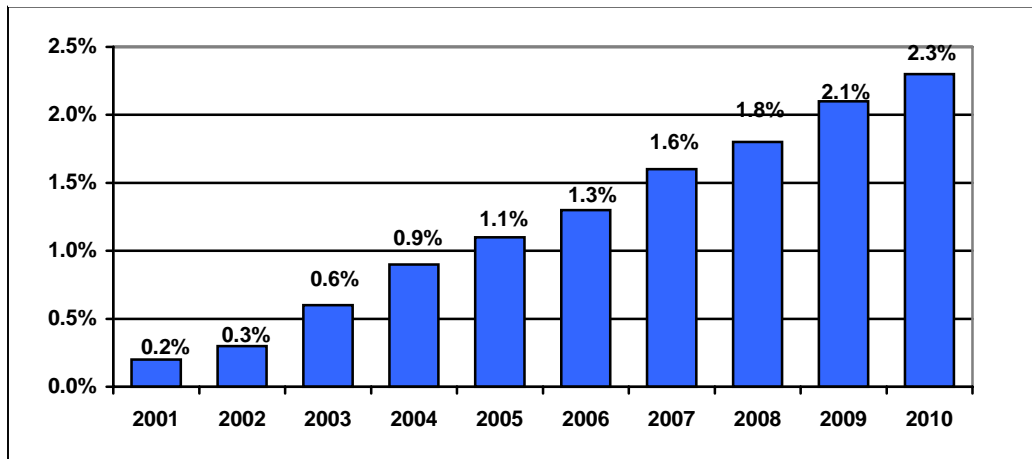
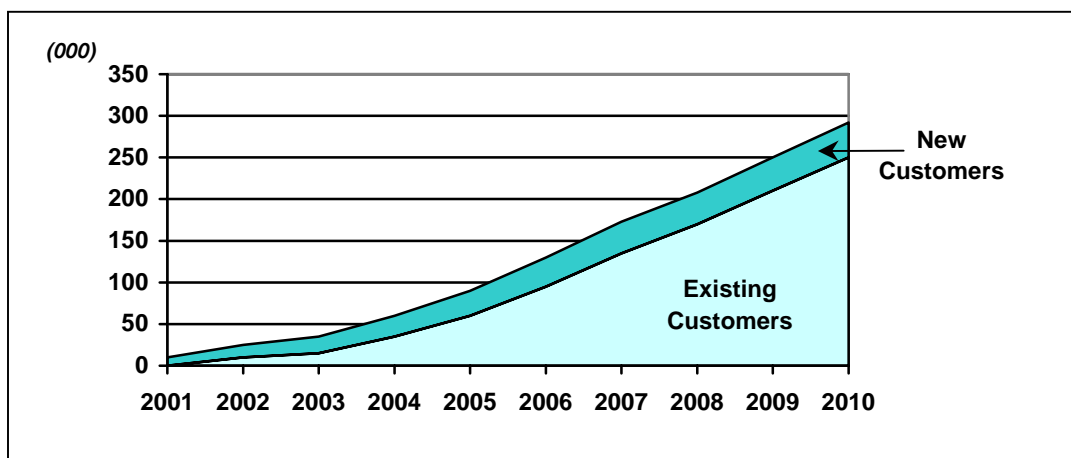


Figure 6

Estimated Clean Power Customer Base



To estimate annual kWh sales volume, Management Consulting Services applied the following assumptions:

- Sales to newly-added members equal to one-half of annual electricity consumption
- Annual electricity consumption set at 7,972 kWh per year – i.e., average single-family energy consumption in the PGE, SCE and SDG&E service areas, weighted by their respective shares of total UDC single-family homes.

(b) Revenue Assumptions

Management Consulting Services applied the following assumptions to estimate Clean Power's annual revenues:

- 12.30¢ per kWh, to cover the UDC charge plus Clean Power's operating expense
- Continuation of the renewable energy credit at 1¢ per kWh
- A initial membership fee of \$20 – equivalent to the membership fee customarily charged by electric cooperatives
- A customer deposit of \$25; this amount is refunded if the customer leaves the cooperative and the cooperative makes an annual interest payment (8.5%) on the deposit to the customer.
- A billing credit received from the IOU, at an average amount of \$0.96 per meter per month.¹¹

(c) Operating Cost Assumptions

Operating costs comprise three cost categories – UDC charges, contracted back-office services, and Clean Power's administrative and overhead costs.

- **UDC charges** – for transmission and distribution costs, CTC, commodity power cost, etc. – which currently averages 11.67¢ per kWh¹²
- **Contracted back-office services** – declines from \$6.46 per meter per month to \$3.91 per meter per month by 2010.
- **Clean Power's administrative costs** – includes the following costs:
 - Salaries and benefits
 - Interest expenses – on letter of credit lodged with UDCs to satisfy credit-worthiness requirements, on cash bond required by CPUC, and for other working capital needs (timing difference between payments made to UDCs and for green power tags and receipt of customer payments)
 - Marketing expense -- \$25 per customer added; paid to marketing partners on anniversary of customer enrollment
 - Bad debt expense – set at 2% of revenue

¹¹ Based on the PG&E (\$0.83/month), SCE (3.3¢/day or \$1/month), and SDG&E (\$1.41/month) billing credit; On a cents per kWh basis, the weighted average credit is 0.16¢ (weighted by annual residential electric volume).

¹² This cost reflects SCE's and PG&E current tariff charge for energy, and transmission and distribution ("T&D") services, and SDG&E's T&D charge plus 6.5¢ energy charge (at the PUC-approved price cap). A weighted average cost was calculated, based on per customer average annual electricity consumption and the number of households in each IOU service area. With elimination of SCE's and PG&E's transition charge (assumed to occur in April 2002), this weighted average UDC charge falls to 11.4¢ in 2002 and to 11.1¢ thereafter.

- Office rent and overhead – set at \$350 per Clean Power employee per month (increased with inflation).

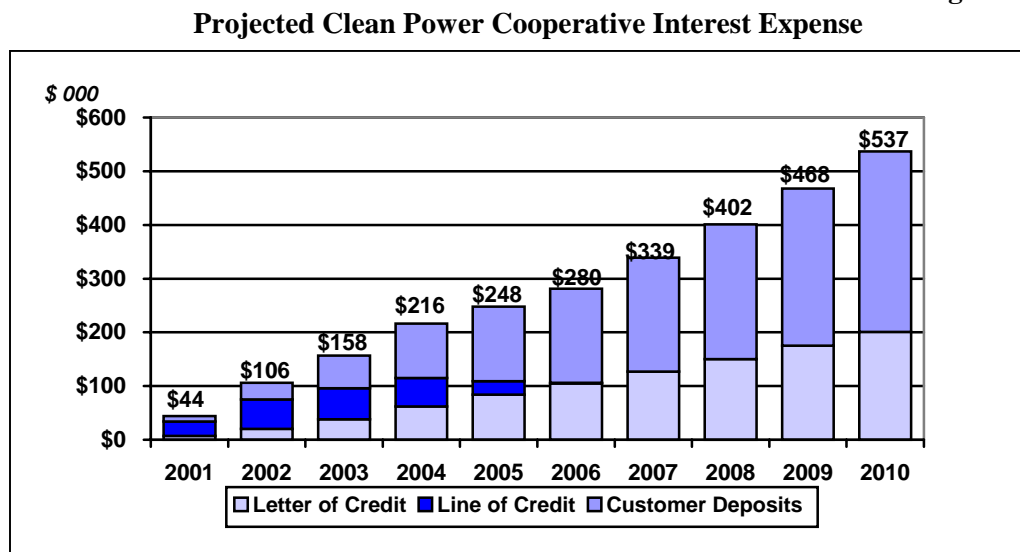
(d) Interest Expense Assumptions

In its initial year of operation, Clean Power Cooperative has considerable capital requirements:

- A cash bond must be lodged with the California Public Utilities Commission (CPUC)
- In the absence of a prior operating history and credit agency rating, each IOU requires a security deposit equal to twice the estimated average customer bill per customer service
- Working capital needed to meet operating expenses, cost of designing its web site, and accounts payable (payments to green power generators).

IOU security deposits are assumed to be met through a letter of credit, at a cost equal to 1% of the letter of credit amount. To meet its working capital needs and the CPUC’s bond requirement, Clean Power is assumed to hold a line of credit from National Cooperative Services Corporation (NCSC), an arm of the Cooperative Finance Corporation (CFC); NCSC’s current variable interest rate – 8.7% – was used to estimate this interest expense. As its customer base and revenues increase, Clean Power is able to pay down this line of credit and can finance its working capital needs from internally-generating funds (i.e., retained earnings) by its sixth year of operation. Finally, Clean Power is assumed to pay interest on customer deposits, at an 8.5% interest rate.¹³ Figure 7 shows the interest expense projected for the Clean Power Cooperative.

Figure 7



¹³ This is a higher rate than that paid by the three IOUs; according to their filed tariffs, the IOUs’ interest rate on customer deposits is equal to the rate on “prime commercial paper ,“ which is presently about 5.8%.

7.2 Pro Forma Financials

Based on the sales volume, revenue and cost assumptions discussed above, Clean Power Cooperative’s gross margin increases from \$0.63 million in its initial year of operations (i.e., 2001) to \$20.8 million by 2010. (See Figure 8) Clean Power’s gross margin is applied towards covering its own operating costs – namely, administrative and overhead, interest, depreciation and amortization, and interest expenses. As shown on Figure 9, Clean Power is projected to show a loss of \$86,300 in its initial year of operation, when serving a projected 9,575 customers.¹⁴ Clean

Figure 8

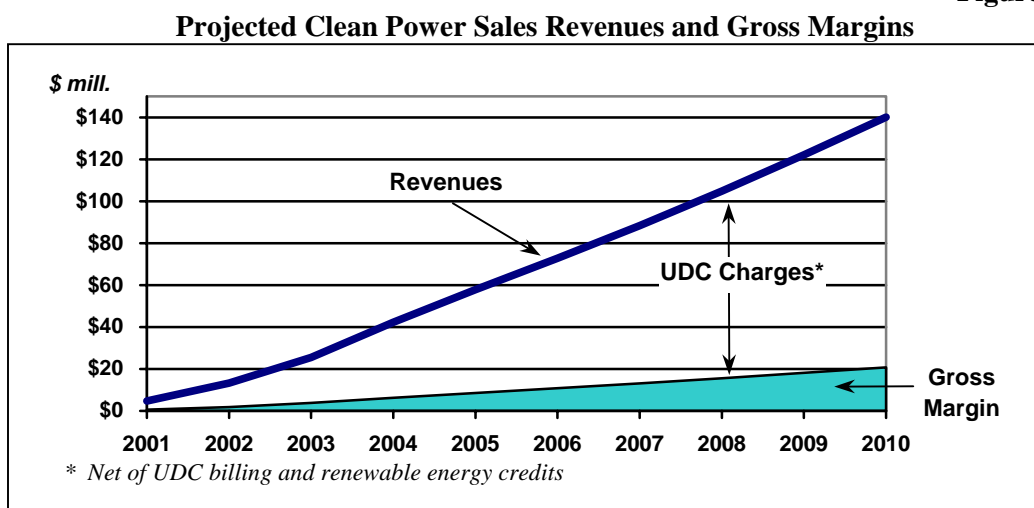
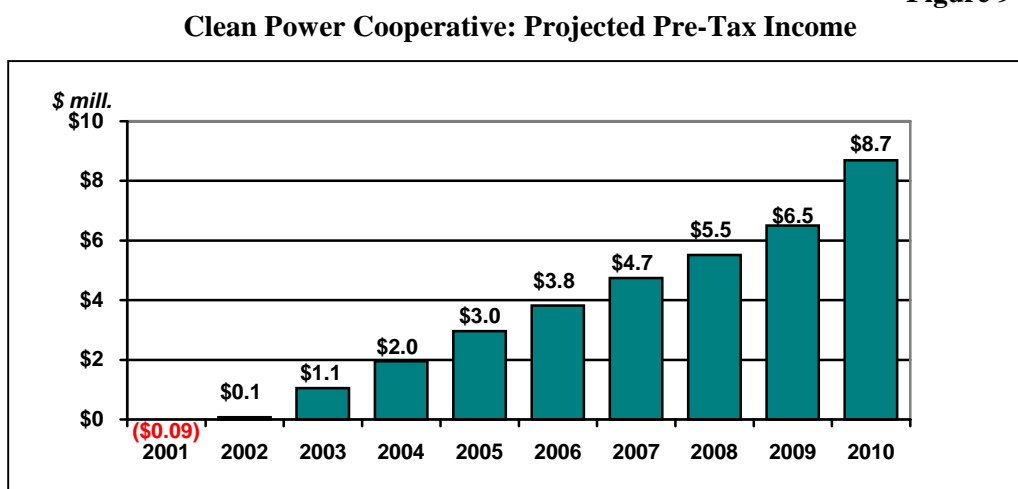


Figure 9



¹⁴ Since newly-added customers are assumed to be served for six months on average, this is equivalent to 4,787 full-year customers.

Power's "break-even" point is 9,700 customers on a full-year basis – which occurs in its second year of operation. On a cash flow basis (i.e., adding back non-cash operating expenses), Clean Power's net cash from operations is positive even in its initial year of operations.

The price charged by Clean Power includes 1.65¢/kWh to cover its operating costs; the resulting monthly residential bill would be \$3.80-\$4.70¹⁵ higher than the amount currently charged by the IOUs. By 2005, the margin needed to cover costs is projected to fall to slightly over 1¢/kWh – and this amount might be lower if Clean Power no longer needs to meet the IOU credit-worthiness requirement through a security deposit secured by a letter of credit.

¹⁵ This amount is exclusive of the "green premium" which would vary by customer depending upon mix of green power chosen by the customer. As discussed in the Executive Summary, this premium could well be minimal. (See Figure ES-1 on page ES-2)

APPENDIX A:
Pro Forma Financials

| | | | | | | | | | | |
|----------------------|------|------|------|------|------|------|------|------|------|------|
| Capital Expenditures | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| INFLATION RATE | 1% | | | | | | | | | |

BEGINNING OF YEAR

| | | | | | | | | | | | Years |
|----------|-----|--------|--------|--------|--------|--------|-----|-----|-----|-----|-------|
| Web Site | -0- | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | -0- | -0- | -0- | -0- | S |
| b | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| c | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| d | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| e | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| f | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| g | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| h | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| i | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| j | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| Total | -0- | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | -0- | -0- | -0- | -0- | S |

ADDITIONS

| | | | | | | | | | | | Years |
|----------|--------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| Web Site | 50,000 | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| b | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| c | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| d | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| e | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| f | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| g | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| h | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| i | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| j | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| Total | 50,000 | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |

RETIREMENTS

| | | | | | | | | | | | Years |
|----------|-----|-----|-----|-----|-----|--------|-----|-----|-----|-----|-------|
| Web Site | -0- | -0- | -0- | -0- | -0- | 50,000 | -0- | -0- | -0- | -0- | S |
| b | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| c | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| d | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| e | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| f | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| g | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| h | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| i | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| j | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| Total | -0- | -0- | -0- | -0- | -0- | 50,000 | -0- | -0- | -0- | -0- | S |

END OF YEAR

| | | | | | | | | | | | Years |
|----------|--------|--------|--------|--------|--------|-----|-----|-----|-----|-----|-------|
| Web Site | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | -0- | -0- | -0- | -0- | -0- | S |
| b | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| c | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| d | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| e | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| f | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| g | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| h | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| i | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| j | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| Total | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | -0- | -0- | -0- | -0- | -0- | S |

RATIOS

| | | | | | | | | | | |
|----------------------------------|---------|---------|---------|---------|----------|----------|---------|---------|---------|---------|
| Depr. Exp. Yrs - Total Plant | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Depr. Exp. Yrs - Acc. Depr. | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Depr. Exp. Yrs - Net Plant | 4.00 | 3.00 | 2.00 | 1.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total Plant Growth | #DIV/0! | 0.00% | 0.00% | 0.00% | 0.00% | -100.00% | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| Net Plant Growth | #DIV/0! | -29.00% | -33.33% | -50.00% | -100.00% | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| Additions vs. Expense | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| Additions vs. Exp (Stable Evrmt) | 1.02 | 1.02 | 1.02 | 1.02 | 1.02 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |

DEPRECIATION EXPENSE

| | | | | | | | | | | | Years |
|-----------------------------|--------|--------|--------|--------|--------|-----|-----|-----|-----|-----|-------|
| Annual Depreciation Expense | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | -0- | -0- | -0- | -0- | -0- | S |
| b | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| c | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| d | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| e | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| f | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| g | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| h | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| i | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| j | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | -0- | S |
| Total | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | -0- | -0- | -0- | -0- | -0- | S |

ACCUMULATED DEPRECIATION

| | | | | | | | | | | |
|---------------------------|--------|--------|--------|--------|--------|--------|---|---|---|---|
| Balance Beginning of Year | -0- | 10,000 | 20,000 | 30,000 | 40,000 | 50,000 | - | - | - | - |
| Plus Depreciation Expense | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 | - | - | - | - | - |
| Less Retirements | - | - | - | - | - | 50,000 | - | - | - | - |
| Balance End of Year | 10,000 | 20,000 | 30,000 | 40,000 | 50,000 | - | - | - | - | - |

NET UTILITY PLANT

| | | | | | | | | | | |
|-------------------------------|----------|----------|----------|----------|----------|-----|-----|-----|-----|-----|
| Total Plant | 50,000 | 50,000 | 50,000 | 50,000 | 50,000 | -0- | -0- | -0- | -0- | -0- |
| Less Accumulated Depreciation | (10,000) | (20,000) | (30,000) | (40,000) | (50,000) | - | - | - | - | - |
| Net plant | 40,000 | 30,000 | 20,000 | 10,000 | - | - | - | - | - | - |

APPENDIX B:
Organizations Interviewed

APPENDIX B:
Organizations Interviewed

| Type of Organization | Number Interviewed |
|--|-----------------------|
| Government Agencies, Industry Associations, Advocacy/Educational Groups | 7 |
| Electricity Service Providers | 6 |
| Credit Unions | 34 |
| Food Cooperatives | 5 |
| Other Cooperatives | 2 |
| Environmental Organizations | 2 |

APPENDIX C:
New Renewable Power Projects
Receiving AB 1890 Funding

APPENDIX C:
New Renewable Energy Generation Projects
Receiving AB 1890 Funding

| Technology | Project Name | Developer | Capacity (MW) | On-Line Date |
|---------------------|--|---|----------------------|---------------------|
| Biomass | Wheelabrator | Wheelabrator Shasta Energy Co, Inc. | 3.8 | 8/31/00 |
| Digester Gas | SF Southeast Digester Gas Cogeneration Project | City and County of San Francisco | 2.05 | 3/1/01 |
| Geothermal | CE Turbo | CE Turbo LLC | 10 | 9/1/00 |
| | Salton Sea | Salton Sea Power L.L.C. | 49 | 7/1/00 |
| Landfill Gas | Newby Island | Gas Recovery Systems | 5.5 | 12/31/01 |
| | Ox Mountain | Gas Recovery Systems | 10 | 12/31/01 |
| | Vasco Road | Republic | 4.5 | 12/31/01 |
| | City of Sunnyvale | City of Sunnyvale Public Works Department | 1.6 | 12/31/99 |
| | Buena Vista | County of Santa Cruz, Dept. of Public Works | 1.974 | 1/1/01 |
| | EDI Azusa | Energy Developments, Inc. | 5.2 | 6/30/01 |
| | EDI Chateau Fresno | Energy Developments, Inc. | 2.6 | 8/30/01 |
| | EDI Keller Canyon | Energy Developments, Inc. | 3.9 | 7/30/01 |
| | MM Lopez | MM Lopez Energy LLC | 5.69 | 3/1/99 |
| | MM Prima Deschecha | MM Prima Deschecha Energy LLC | 5.49 | 5/1/99 |
| | MM San Diego | MM San Diego LLC | 2 | 6/30/97 |
| | MM Tajiguas | MM Tajiguas Energy LLC | 2.84 | 8/31/00 |
| | MM Tulare | MM Tulare Energy LLC | 1.78 | 7/31/98 |
| | MM West Covina | MM West Covina LLC | 5.69 | 4/1/99 |
| | MM Woodville | MM Woodville Energy LLC | 0.56 | 7/1/00 |
| | MM Yolo | MM Yolo Power LLC | 2.3 | 8/30/98 |
| | Badlands | Riverside County Waste Resources | 2 | 9/30/00 |
| | Coachella | Riverside County Waste Resources | 0.952 | 7/30/01 |
| | Edom Hill | Riverside County Waste Resources | 2 | 12/1/01 |
| | Lamb Canyon | Riverside County Waste Resources | 1 | 12/1/01 |
| Mead Valley | Riverside County Waste Resources | 0.952 | 7/30/01 | |
| Small Hydro | SF Sunol/Calaveras Small Hydro Project | City and County of San Francisco | 1 | 11/1/01 |
| Wind | Cabazon Wind Project | Cabazon Wind Partners LLC | 60.72 | 3/1/01 |
| | CalWind Resources | CalWind Resources, Inc. | 8.58 | 12/29/01 |
| | Christensen/Lazar | Enron Wind Development Corp. | 23.25 | 12/31/01 |
| | Gorman | Enron Wind Development Corp. | 40 | 12/31/01 |
| | Victory Garden | Enron Wind Development Corp. | 30 | 12/31/01 |
| | Wintec | Enron Wind Development Corp. | 16.5 | 6/30/99 |
| | Alta Mesa IV | Mark Tech. Corp./FORAS Energy, Inc. | 25.2 | 1/31/01 |
| | Painted Hills | Painted Hills Wind Developers (Enron) | 20 | 12/31/01 |

| Technology | Project Name | Developer | Capacity (MW) | On-Line Date |
|------------|----------------|------------------------|---------------|--------------|
| Wind | 16 West - 1 | SeaWest WindPower Inc. | 3.5 | 3/1/01 |
| | 16 West - 2 | SeaWest WindPower Inc. | 3.5 | 3/1/01 |
| | Alexander 1 | SeaWest WindPower Inc. | 4.9 | 12/1/01 |
| | Alexander 2 | SeaWest WindPower Inc. | 4.9 | 12/1/01 |
| | Alexander 3 | SeaWest WindPower Inc. | 4.9 | 12/1/01 |
| | Catellus 1 | SeaWest WindPower Inc. | 4.9 | 3/1/01 |
| | Catellus 2 | SeaWest WindPower Inc. | 4.9 | 3/1/01 |
| | Catellus 3 | SeaWest WindPower Inc. | 4.9 | 3/1/01 |
| | Catellus 4 | SeaWest WindPower Inc. | 9.8 | 3/1/01 |
| | Catellus 5 | SeaWest WindPower Inc. | 10.5 | 3/1/01 |
| | Phoenix 2 | SeaWest WindPower Inc. | 0.7 | 3/1/01 |
| | Phoenix 3 | SeaWest WindPower Inc. | 1.4 | 3/1/01 |
| | Phoenix 4 | SeaWest WindPower Inc. | 1.4 | 3/1/01 |
| | Phoenix 5 | SeaWest WindPower Inc. | 4.2 | 3/1/01 |
| | Phoenix 1 | Venture Pacific, Inc. | 2.1 | 7/1/99 |
| | Windland, Inc. | Windland, Inc. | 19.8 | 3/1/01 |

Source: California Energy Commission, private communication 9/14/00

APPENDIX D:
Draft Bylaws
for
California Clean Power Cooperative

BYLAWS
of
CALIFORNIA CLEAN POWER COOPERATIVE

ARTICLE 1. GENERAL

Section 1.01 - Purposes

California Clean Power Electric Cooperative (“CPC”) is a non-profit cooperative association, without capital stock, formed under the provisions of California Nonprofit Corporation Law, for the purposes set forth in CPC’s Articles of Incorporation.

Section 1.02 - Powers

CPC shall have the powers set forth in its Articles of Incorporation, including, without limitation, the following:

- (a) To borrow money without limitation as to amount of indebtedness of liability; to give a lien on any of its property as security in any manner permitted by law.
- (b) To act as the agent or representative of any member or members in any of the activities mentioned in the Articles of Incorporation.
- (c) To buy, lease, hold, and exercise all privileges of ownership over real or personal property as may be necessary or convenience for, or incidental to, the conduct and operation of the business of CPC.
- (d) To draw, make, accept, endorse, guarantee, execute, and issue promissory notes, bills of exchange, drafts, warrants, certificates, and all kinds of obligations and negotiable or transferable instruments for any purpose that is deemed to further the objects for which CPC is formed, and to give a lien on any of its property as security.
- (e) To acquire, own, and develop any interest in patents, trademarks, and copyrights connected with, or incidental to, the business of CPC.
- (f) To cooperate with other similar associations in creating central, regional, or national cooperative agencies, for any of the purposes for which CPC is formed, and to become a member or stockholder of such agencies as are now, or may in the future, be in existence.
- (g) To represent and act on behalf of its members in the acquisition for use and consumption of electric energy and the payment therefore.

ARTICLE II. MEMBERSHIP

Section 2.01 - Eligibility

(a) Any person or entity who consumes electric energy in the State of California and has an account with an electricity provider (utility distribution company (UDC), electric service provider (ESP) or public agency such as a municipal utility, municipal utility district (MUD), public utility district (PUD), or irrigation district) is eligible for membership.

(b) The Board of Directors may establish such additional conditions for membership as it may from time to time deem desirable to promote the efficient and economical conduct of the business of CPC and its members. The Board shall have the right, in its absolute discretion, to refuse membership to any applicant which in its opinion does not meet the conditions so established from time to time.

Section 2.02 - Admission of Members

(a) Application for membership shall be in such form as may be adopted by the Board of Directors. Upon acceptance of an application, the Board of Directors shall issue a membership certificate. An application form signed and executed on behalf of CPC to indicate acceptance shall constitute such membership certificate.

(b) Submission of a signed membership application and acceptance by CPC shall authorize CPC to submit a Direct Access Service Request (DASR) to the member's utility distribution company (UDC) designating CPC as the member's electric service provider (ESP) for all purposes.

(c) Upon admission to membership the member shall perform such acts as may be necessary to verify and confirm that CPC is the member's ESP.

Section 2.03 - Membership Fee

There may be a membership fee established by the Board of Directors from time to time.

Section 2.04 - Obligation of Members

Every person becoming a member of CPC by such act agrees to be bound by and to abide by all the provisions of the Articles of Incorporation, the Bylaws, and any rules and regulations of CPC, all as in effect at the time of application for membership and as may be thereafter adopted or amended.

Section 2.05 - Representation

Members may be represented and the right of voting and assenting may be exercised by any person duly authorized in writing filed by the member.

Section 2.06 - Transfer of Membership

No membership nor any membership right shall be assigned, transferred, alienated or encumbered, either voluntarily or involuntarily, or by operation of law or otherwise.

Section 2.07 - Termination of Membership

(a) Any member may withdraw from membership upon compliance with such uniform terms and conditions as the Board may prescribe.

(b) Designation of another entity as the member's ESP for purposes of direct access pursuant to the rules and regulations of the Public Utilities Commission shall constitute withdrawal.

(c) The Board may, by the affirmative vote of not less than two-thirds of all the members of the Board, expel any member who fails to comply with any of the provisions of the Articles of Incorporation, Bylaws, rules or regulations adopted by the Board, but only if such member shall have been given written notice by CPC that such failure makes the member liable to expulsion and such failure shall have continued for at least ten days after such notice was given. Any expelled member may be reinstated by vote of the Board or by vote of the members at the annual or special meeting. The membership of a member who, for a period of six (6) months after service is available to the member, has not purchased electric energy from the CPC, or of a member who has ceased to purchase energy from the CPC, may be canceled by resolution of the Board.

(d) Upon the withdrawal, death, cessation of existence or expulsion of a member, the membership of such member shall thereupon terminate and the membership certificate of such member shall be surrendered forthwith to the CPC. Termination of membership in any manner shall not release a member or his estate from any debts due the CPC.

Section 2.08 - Rights upon Termination

(a) Upon termination of membership for any cause, all voting, property and other membership rights shall cease and terminate; provided, that such member shall be entitled to receive payment for any outstanding capital credits in accordance with rules and regulations established by the Board of Directors.

(b) The foregoing provisions are not intended to penalize any member whose membership is terminated, but reflect the intention that CPC shall conduct its business without profit, that membership will not have any intrinsic value apart from the right to use the facilities and services of CPC, and that the right of members which does have intrinsic value is recognized by the provision and payment of capital credits in the same manner as if membership had continued.

ARTICLE III. MEMBERSHIP MEETINGS AND VOTING

Section 3.01 - Voting Power of Members

The voting power of the members of CPC shall be equal. Each member shall have one (1) vote.

Section 3.02 - Annual Meeting of All Members

(a) An annual meeting of members shall be held in MONTH of each year. Such meeting shall be held on such date in MONTH and at such time and location as the Board of Directors from time to time establishes.

(b) At the annual meeting the members shall elect directors as provided in these Bylaws and shall conduct such other business as may come before the meeting.

Section 3.03 - Special Meetings of All Members

Special Meetings of members may be called by the Chairman of the Board of Directors, the President of CPC, by a majority of the Board of Directors, or by the written request of one-tenth of the membership. Each such call shall be in writing and shall state the time, place and purpose of such meetings.

Section 3.04 - Notice of Meetings

(a) Notice of any meeting of members shall be mailed at least ten (10) days in advance to all members entitled to vote at such meeting at the address appearing upon the books of CPC. Such notices shall generally describe the purpose of the meeting.

(b) Notice of the annual meeting of all members may be given in a publication regularly published by the CPC and mailed to each member entitled to vote.

Section 3.05 - Quorum

One-third of the members of CPC shall constitute a quorum at the annual meeting or any special meeting of all members of CPC.

Section 3.06 - Voting by Mail

Whenever authorized by these Bylaws or by the Board of Directors, a membership vote may be conducted by mail without the necessity of a meeting. The quorum requirements for action taken by mail vote shall be the same as those specified in Section 3.05 with respect to meetings of members.

Section 3.07 - Proxy Voting

Each member shall have the right to vote at a membership meeting in person or by proxy, which proxy shall be in writing executed by the member and filed with the Secretary of CPC.

Section 3.08 - Rules for Elections and Voting

(a) The Board of Directors may make and from time to time change the rules and regulation for conducting voting and election consistent with the provisions of these Bylaws and the Articles of Incorporation.

(b) Nominations for membership on the Board of Directors shall be made in writing.

(c) The Board of Directors may establish a regulation permitting a nomination to be made by an organization that is a member of CPC.

ARTICLE IV. BOARD OF DIRECTORS

Section 4.01 - Number, Qualifications and Term of Office

(a) There shall not be less than seven (7) nor more than twenty-one (21) directors. The exact number of directors shall be established by action of the directors then in office.

(b) Each director's term of office shall be three (3) years except for the initial directors elected in INITIAL YEAR. One-third of the initial directors elected in INITIAL YEAR shall serve two (2) years, one-third shall serve three (3) years, and one-third shall serve four (4) years, with their successor serving three (3) year terms, so that one-third of the Board shall rotate off in a given year after the initial election of directors.

(c) Directors must be members of CPC for thirty (30) days prior to their election and at all time during their term of office.

Section 4.02 - Appointment of Directors

(a) The Board of Directors may appoint up to five (5) directors without conducting an election of the members.

(b) The exercise of the appointment power requires action by a special majority of two thirds of the directors then authorized.

(c) The purpose of the appointment shall be to provide for representation on the Board of Directors for membership organizations whose participation furthers the purposes of CPC.

Section 4.03 - Organizational Meeting

A meeting of the Board of Directors shall be held at such time as the Board of Directors determines after the annual meeting of the membership but not later than the end of September of each year, for the purpose of organization of the Board of Directors, election of officers of CPC and the transaction of any other business.

Section 4.04 - Regular Meetings

Regular meetings, at least quarterly, of the Board of Directors shall be held at such times as the Board of Directors may, from time to time, fix by resolution.

Section 4.05 - Special Meetings

A special meeting of the Board of Directors shall be held whenever called by the Chairman of the Board, the President, by any five of the directors, or by action of the Board at a previous duly called meeting. Any and all business may be transacted at a special meeting. Except when called by action of the Board at a previously duly called meeting, all calls for special meetings shall be in writing, signed by the person or persons making the call, setting forth the date, time and place of meetings, and addressed and delivered to the Secretary of CPC.

Section 4.06 - Notice of Meetings

Notice of meetings may be given by mailing a copy of such notice to a director, at his or her last known address, at least five (5) days prior to the time of the meeting. Notice may also be given at least sixty (60) hours before the time set for the meeting by telegraph to a director or by facsimile. Notice shall contain a statement of the date, time and place of the meeting and may be delivered in like manner to all directors, or individual directors may be notified in some or any of the methods provided for in these Bylaws.

Section 4.07 - Quorum and Action

A majority of the number of directors properly elected pursuant to Section 4.01 or designated pursuant to Section 4.02 shall constitute a quorum of the Board at all meetings. The affirmative vote of at least a majority of the directors present or two-third (2/3) of a quorum, whichever is greater, shall be necessary to pass any resolution or authorize any corporate act.

Section 4.08 - Waiver of Notice

When all of the directors of CPC are present at a any directors' meeting, however called or noticed, and sign a written consent thereto on the record of such meeting, or if the majority of the directors are present and if those not present sign a waiver or notice of such meeting, which waiver is presented before or after said meeting and made a part of the record of such meeting, the transactions of such meeting are as valid as if made at a meeting regularly called or noticed.

Section 4.09 - Action Without a Meeting

Any action required or permitted to be taken by the Board of Directors may be taken without a meeting if all members of the Board of Directors shall individually or collectively consent in writing to such action; provided, however, that such written consent or consents shall be filed with the minutes of the proceedings of the Board of Directors.

Section 4.10 - Compensation of Directors

(a) The directors shall receive no compensation for their services other than reimbursement for reasonable expenses, to be established by the Board of Directors, necessary for carrying out their duties and responsibilities.

(b) The Board of Directors may, in their discretion, provide reasonable additional compensation for the members of the Executive Committee of the Board.

ARTICLE V. POWERS AND DUTIES OF THE BOARD OF DIRECTORS

Section 5.01 - General

Subject to the limitation of statutes of California, the Articles of Incorporation and of the Bylaws relating to action which shall be authorized or approved by the membership, all corporate powers shall be exercised by or under the authority of the Board of Directors.

Section 5.02 - Executive Committee

(a) The Board of Directors shall have the power to establish an Executive Committee consisting of the chairman and such other members as the Board of Directors selects from the members of the Board of Directors.

(b) The Executive Committee shall have such duties and powers as may from time to time be prescribed by the Board of Directors and, except as otherwise provided by law, their duties and powers may be all of the duties and powers of the Board of Directors.

Section 5.03 - Electricity Acquisition Committee

The Executive Committee shall designate a Electricity Acquisition Committee of not more than five (5) persons, which may include up to two (2) CPC members who are not members of the Board of Directors, to conduct investigations and reviews of electricity generators whose output may be sold to members to assure that the generators are delivering environmental benefits under guidelines established by the Board of Directors.

Section 5.04 - Other Committees

The Board of Directors may establish committees, to be appointed by the Chairman of the Board, and refer to such committees such questions as the Board shall determine for investigation, consideration and/or action.

ARTICLE VI. OFFICERS AND MANAGEMENT

Section 6.01 - Corporate Officers

The Offices of CPC shall be a Chairman of the Board and/or a President, one or more Vice Presidents, a Secretary, and a Treasurer. The Board of Directors may also appoint Assistant Secretaries, assistant Treasurers, and such other offices as the Board of Directors may see fit in its discretion to designate. Any one or more of the above offices may be occupied by one person except for the offices of President and Secretary.

Section 6.02 - Powers and Duties

Subject at all times to the control and direction of the Board of Directors, each officer shall have and exercise the powers and duties usual to his or her office.

Section 6.03 - Removal of Officers

The Chairman, President, Secretary and Treasurer of CPC may be removed at any time, either with or without cause, but only by the affirmative vote of the majority of the total number of directors at the time specified by the Bylaws.

ARTICLE VII. NON-PROFIT COOPERATIVE OPERATIONS

Section 7.01 - Cooperative Operation

(a) CPC shall at times be operated on a cooperative non-profit basis for the mutual benefit of its members. No interest or dividends shall be paid by CPC on any capital furnished by its members or its nonmember patrons (collectively, "patrons").

(b) To the greatest extent possible the activities of CPC will be conducted so as to render CPC a cooperative exempt from tax under Internal Revenue Code section 501(c)(12).

Section 7.03 - Patronage Refunds

(a) In the furnishing of electric energy and other goods and services to its members, CPC's operations shall be so conducted that all members, through their patronage, will furnish capital for CPC. In order to induce patronage and to assure that CPC will operate on a non-profit basis,

CPC is obligated to account on a patronage basis to all its members and to declare a patronage dividend in an amount equal to CPC's federal taxable income from its patronage-sourced business done with or for its members (computed before the reduction for patronage dividends paid by CPC and after reduction for any losses incurred during the prior years and deductible by the CPC in computing its current taxable income).

(b) The allocation of the net margins among the members shall be made by the Board of Directors on the basis of or in proportion to the amount of value of the business done with or for the members. All such patronage-sourced income is received by CPC with the understanding that it is furnished by the members as a capital contribution at the moment of receipt by CPC.

(c) CPC is obligated to pay such patronage dividends in cash, property or in written notices of allocation as determined by the Board of Directors. The amount of patronage dividend paid in written notices of allocation shall be paid through credits to a capital account for each member of such portion of the patronage dividend. The books and records of CPC shall be set up and kept in such manner that, at the end of each fiscal year, the amount of capital, if any, so furnished by each member is clearly reflected and credited in an appropriate record to the capital account of each member, and CPC shall within a reasonable time after the close of the fiscal year notify each member of the amount of capital so credited to this account.

Section 7.04 - Consent

In the event that CPC is a cooperative subject to tax under the provisions of Subchapter T of the Internal Revenue Code (26 USC §§1381 through 1388 inclusive), each person who hereafter applies for and is accepted to membership in CPC shall, by such act alone, consent that the amount of any distribution with respect to his patronage which are made in written notices of allocation (as defined in 26 USC § 1388) and which are received by him from CPC, will be taken into account by him at their stated dollar amounts in the manner provided in 26 USC §1385(a) in the taxable year in which such written notices of allocation are received by him.

Section 7.05 - Repurchase of Written Notices of Allocation

If, at any time prior to the dissolution or liquidation of CPC, the Board of Directors shall determine that the financial condition of CPC will not be impaired, CPC may repurchase, in full or in part, written notices of allocation. Any such repurchase of written notices of allocation shall be made, on a pro rata basis, in the order of priority according to the year in which the written notices of allocation were credited to the members.

Section 7.06 - Dissolution or Liquidation

In the event of the dissolution or liquidation of CPC, CPC shall distribute its assets in the following order of priority: (1) to the payment of debts and liabilities of CPC; (2) to setting up such reserves as the Board of Directors shall determine to be reasonably necessary or appropriate for any contingent or unforeseen liabilities or obligations of CPC; (3) pro rata without priority based upon the outstanding capital credits.

ARTICLE VIII. MISCELLANEOUS

Section 8.01 - Purchases from Third Parties

If a CPC member elects to have its members eligible to purchase power or other services from an entity other than CPC, such purchases shall be deemed purchases by the CPC member even though the purchaser received the power or other service directly from a third party, so long as the member is invoiced directly by CPC and remits payment directly to CPC.

Section 8.02 - Amendments

These Bylaws may be amended by a vote of members representing a majority (51%) of the votes of all the members, or by the Board of Directors at any meeting of the Board by an affirmative vote of a majority of all directors.

Section 8.03 - Disposition of Unclaimed Property

(a) If, when any capital credit, equity or patronage refund is being retired, or membership fees or other sums of money are being paid (all of which are hereafter referred to as "moneys due") by CPC to members or other persons, CPC is unable to locate the entity to whom such moneys are payable or the one entitled to payment within three (3) years after the same became payable, the Board of Directors may charge off the same as a liability on its books, the claim of any such entity to any such moneys shall thereby be extinguished, and thereupon CPC shall treat the amount of all such moneys so charged off as incidental income to CPC in the year during which such moneys are so charged off. In the event such moneys have not been paid prior to the running of the statute of limitations of the State of California against any such claim, then such amounts shall, without further action by the Board of Directors, cease to be a liability of CPC and shall be treated as incidental income received during the year said statute of limitations shall have run.

(b) No such charge-off or termination of liability as herein provided shall occur, however, unless notice of moneys due shall have been sent by Certified or Registered US Mail, postage prepaid, with return receipt requested, in the case of moneys due in excess of \$50.00, and by registered, certified, or ordinary mail in all other cases, to the entity appearing from the books of CPC to be entitled to payment of such moneys at least thirty (30) days prior to such charge-off or termination.

Section 8.04 - Lien and Right of Offset

CPC shall have a prior lien against any net proceeds or credits standing on the books of CPC, with the right to offset any indebtedness to CPC by such entity against such proceeds or credits at retirement. Such right of offset shall not be barred by the running of any statute of limitation

against the indebtedness to be offset. Such right of CPC may be subordinated by appropriate written instrument when authorized by the Board of Directors.

Section 8.05 - Indemnification of Officers and Directors

(a) Each director and officer shall be indemnified by CPC, to the fullest extent permitted by law, against all liabilities imposed upon and costs and expenses reasonably incurred by him or her in connection with or arising out of any action, suit or proceeding in which he or she may become involved or to which he or she may be made a party because of his or her being or having been a director or officer of CPC (whether or not he or she continued to be a director or officer at the time of incurring such liabilities, costs or expenses). The foregoing right of indemnification shall be in addition to and not exclusive of any and all other rights as to which any such director or officer may be entitled as a matter of law.

(b) Subject to the then condition and qualification set forth in the California General Corporation Law, expenses incurred by any such person in defending any action or proceeding referred to above which arises out of events occurring on or after the effective date of this provision shall, upon written request by such person, be advanced by CPC prior to the final disposition of such proceeding upon receipt of a written promise by or on behalf of such person to repay such amount unless it shall be determined ultimately that such person or entitled to be indemnified as set forth herein. Such written undertaking shall be accompanied by such collateral to secure such repayment as the Board of Directors, in the exercise of its discretion, determines should be required under the circumstances of the case.

APPENDIX E:
Contractors Funded by the Grant Recipient

APPENDIX E:
Contractors Funded by the Grant Recipient

Plumas-Sierra Rural Electric Cooperative, the recipient of the California Energy Commission's Grant No. ECD-99001, contracted with:

| Contractor | Services Provided | Period of Performance | Value |
|--|---|-----------------------|----------|
| Management Consulting Services, Inc. 1667 K St, NW Washington, DC 20006 | <ul style="list-style-type: none"> - Data collection on California ESP regulations, IOU tariffs, and California electricity market conditions and ESP activities - Data gathering at the California Energy Commission and California Public Utilities Commission, including interviews with CEC staff - Conducted in-person and telephone interviews with California credit union managers, national and local credit union association staff, California food cooperatives, staff of environmental organizations and consumer organizations active in California - Prepared and presented a progress briefing for the Commission Project Manager and the Clean Power Cooperative steering committee (August 2000) - Conducted the market and pro forma financial analysis - Prepared the draft final report and participated in a report review session conducted with the Commission Project Manager and the Clean Power Cooperative steering committee (Oct. 2000) - Preparation of the final report, incorporating the changes and clarifications suggested by the Commission Project Manager and the Clean Power Cooperative steering committee (Dec. 2000) | March-Dec. 2000 | \$45,000 |

In connection with this project, using funds provided through a matching grant from the Cooperative Financing Corporation, Plumas-Sierra also contracted with the following individuals:

| Contractor | Services Provided | Period of Performance |
|--|--|-----------------------|
| Mr. Leland Ruth P.O. Box 19836 Sacramento, CA 95814 | Assisted with preparation of legal documents (e.g., bylaws, articles of incorporation, etc.) and legal filings needed to organize the proposed cooperative | March-Oct. 2000 |
| Ms. Glynnis Jones 3325 M St Sacramento, CA 95816 | Interviewed ESP, IOU and municipal utility personnel | March-Oct. 2000 |