

Public Utilities and Renewable Energy in the Central Valley: Increasing the Voluntary Commitment

**A Report from The Center for Energy Efficiency and
Renewable Technologies**

**By
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About the Center for Energy Efficiency and Renewable Technologies (CEERT)

The Center for Energy Efficiency and Renewable Technologies is a nonprofit organization devoted to reducing fossil fuel dependence and its associated environmental effects by removing policy barriers to renewable energy and greater energy efficiency. CEERT is based in Sacramento.

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Executive Summary

Municipal utilities and irrigation districts play a large role in providing retail electricity to the Central Valley. That role is expanding rapidly as formerly rural areas within the local utilities' territories become developed. Given this, successfully integrating renewable energy into the region's electricity mix depends in significant part on these publicly owned utilities.

Local public utilities are not covered by the same state mandates that cover the state's big three investor owned utilities—Southern California Edison (SCE), Pacific Gas and Electric (PG&E), and San Diego Gas and Electric. Two of those, SCE and PG&E, operate within the Central Valley. Legislation passed in 2002 requires these IOUs to increase their renewable energy portfolio at a steady rate until 2017, when renewables must account for 20 percent of their portfolios. The same legislation only requires municipal utilities to voluntarily increase their renewables portfolio.

This paper explores the role municipal utilities and irrigation districts are playing and can play to advance renewable energy activity in the Central Valley. It considers, especially, the opportunities and barriers facing the local utilities and renewable energy procurement, and offers recommendations for voluntary efforts that can help public utilities increase their renewable portfolio more rapidly than most are now doing. It also recommends efforts that other entities—especially the Great Valley Center—can make to help the public utilities establish and meet significant renewables goals.

Key Opportunities and Barriers Shaping Public Utilities' Renewables Approach

The author identified 11 key opportunities or motivations for public utilities to invest more in renewable energy, and 6 key challenges and barriers hindering those utilities' from investing more.

Opportunities or Motivations :

- The fuel resource is readily available.
- Natural gas prices are rising and unstable.
- Air quality impacts from the power sector must be reduced.
- Population growth is raising demand for energy.
- Water resources are declining.
- Adding renewables now avoids a legislative mandate later.
- Buying cooperatives make procuring renewable energy easy.
- Most local utilities have experience with hydroelectric power.
- Renewables provide an opportunity for local economic development.

- Renewables could provide added benefits to agriculture and help keep that important industry in the Valley.
- Buying renewables avoids or reduces the cost of a new fossil-fuel power plant.

Challenges and Barriers:

- Discounting benefits of renewables prompts utility operators to believe renewables cost more than conventional resources.
- Some renewables provide intermittent power.
- The location of some renewables requires working outside the local transmission system and entering the ISO's control.
- Irrigation district boards, especially, resist change.
- Munis and Ids are devoted to being the lowest-priced provider.
- Information is dispersed and indirect.

Voluntary Actions for Munis and Irrigation Districts

The author identified seven voluntary actions that each of the Central Valley's municipal electric utilities and irrigation districts selling retail electricity can take to overcome the barriers to renewable energy procurement. Some of these actions have already been taken by some of the municipal utilities.

Voluntary Actions:

- Adopt and commit to a local renewable portfolio standard for non-hydro renewables.
- Increase public benefits fund contributions, specifically earmarking a portion for renewables procurement and development.
- Integrate renewable procurement into all aspects of resource acquisition and planning and do not limit spending on renewables to funds available in the public benefits fund.
- Participate in cooperative buying opportunities.
- Share resources for developing an agricultural biomass energy industry within the Central Valley.
- Develop a public information strategy that educates the public about renewables and the utility's policies regarding renewables, and encourages customer involvement in advancing renewables.
- Create a public advisory board for renewable policy that is made up of a cross-section of the community, that meets at least once a month, and that works with staff to advance renewable acquisition and development.

Helpful Actions from the Outside

There are many interested groups willing to apply various sorts of pressure and attention, including possible legislation, to force local utilities to increase their renewable portfolio. There are fewer groups that are in position to help the local utilities in the Central Valley address some of the key internal barriers to effective voluntary increases in the portfolio. These barriers include change-averse board members, lack of adequate knowledge and support at executive levels, and lack of internal staff expertise. The Great Valley Center is one of those few groups, and it is ideally positioned to take the lead on three recommended actions.

Actions to Address Internal Barriers and Nurture Renewables Commitment:

- Convene a Central Valley working group on renewables for lead procurement staff and executive directors from the Valley's munis and IDs.
- Develop and conduct a renewables education program for ID and muni board members.
- Assist development of a Central Valley agricultural biomass initiative among the three IDs.

Conclusion

Pressure for the legislature to take action to force public utilities to increase their renewables mix continues to mount. The key source of that pressure was once isolated to renewable energy advocates. It now includes IOUs, which are concerned about maintaining a competitive position with public utilities and contend that without their own mandate from the legislature, public utilities have a competitive advantage. It is apparent, then, that without greater overt voluntary commitment to renewable development and procurement than has been demonstrated to date, public utilities around the state will continue to face—and be distracted by—such legislative activity.

INTRODUCTION

Renewable energy offers the Central Valley many benefits. It produces few or no pollutants, uses free or inexpensive fuel, and it provides a physical hedge against rising fossil fuel prices. As the authors of a March 2003 Great Valley Center report on renewable energy potential in the Central Valley concluded, the Central Valley could and should become a leader in renewable energy development and use.¹ Substantial factors point the region toward renewables, including the region's natural and agricultural resources, its diverse energy market structure, and its anticipated population growth.

But how do we get there? How does the Central Valley become a renewables leader and take the most advantage of renewable energy's benefits?

The March report suggested that municipal utilities and irrigation districts would be key players on the path to achieving this renewables leadership. Inspired by this notion, and with funding from a LEGACI Grant provided by the Great Valley Center, the Center for Energy Efficiency and Renewable Technologies set out to explore in greater detail the role the Central Valley's municipal utilities and irrigation districts are playing and can play to advance renewable energy.² What follows is the result of this exploration.

This study is organized into four sections. The first section provides background about the statutory authority and restrictions affecting the sale of electricity by municipal and irrigation districts and their renewable energy development and acquisition. It also summarizes the renewable energy generation and procurement activity today at the Valley's major irrigation districts and municipal utilities.

The second section considers the opportunities that prompt municipal utilities and irrigation districts to invest in renewables. It also explores the barriers discouraging investment. Several of these opportunities and barriers were touched upon in the Great Valley Center's March 2003 report. However here they are considered as they specifically apply to the Valley's municipal utilities and irrigation districts.

The third section offers some options for voluntary measures or approaches that can increase investment in renewables by the municipal utilities and irrigation districts, in the short term and longer term. These options are not exhaustive but seem to be the most realistically achievable if a municipal utility or irrigation district is committed to including more renewables in its portfolio.

¹ Collaborative Economics. "Renewable Energy: Strategic Opportunities for the Great Central Valley." Prepared for the New Valley Connexions program of the Great Valley Center. March 2003. Online at: http://www.greatvalley.org/nvc/projects/coecon/energy_report.pdf.

² The report reflects the views of the author and the Center for Energy Efficiency and Renewable Technologies. It does not reflect the views of the Great Valley Center, its staff or directors.

Finally, the fourth section offers some recommendations for short-term action, especially by the Great Valley Center, to help nurture the municipal utilities' and irrigation districts' commitment to renewable energy. As this study suggests, the level of commitment varies widely among the Valley's municipal utilities and irrigation districts. But there are signs that with some attention and help by a knowledgeable convener, such as the Great Valley Center, the commitment can be strengthened and increased.

The author interviewed select staff and administrators at all of the Valley's municipal utilities and at the irrigation districts engaged in or about to be engaged in retail electricity sales. These staff and administrators provided candid insight into the range of challenges that small to large public utilities face in California today. Additionally, the author interviewed others, including utility trade association staff, energy consultants, state legislative staff, and environmental advocates. To encourage a free exchange of information and ideas, especially concerning the political and cultural barriers to renewables at specific utilities, the author has refrained from listing or acknowledging each interviewee individually.

PART I: MUNIS AND IDs IN THE CENTRAL VALLEY

Why They Matter for a Renewable Future

To an electricity purveyor surveying an energy map, the Great Central Valley represents a giant swath of potential electricity development. The region covers more than 42,000 square miles spread across 19 counties that stretch North to South from Shasta to Kern counties.³ It contains 17 percent of the state's population, and that number is growing each year at a steady pace.⁴ It is the fastest growing region in the state. New home starts, and businesses to support those residents, represent new electricity customers.

Two of the three investor owned utilities (IOUs) in California--Pacific Gas and Electric and Southern California Edison--count large portions of the Central Valley among their service territories. PG&E is especially present. Five municipal utilities (munis) and three irrigation districts (IDs) also sell retail electricity to customers in the Valley within designated territories. A fourth irrigation district is preparing to offer retail electricity service and several others have tried and failed to do so in recent years.

There are three main reasons to focus on the renewable energy activities of the munis and IDs, and how to increase those activities. First, although the IOUs cover the bulk of the Central Valley, the municipal electric utilities and irrigation districts play an increasingly important role. Their local service territories are transforming from strictly rural and agricultural customers to a mix of rural along with suburban and urban electricity consumers. This is especially true of the irrigation district territories. Yet unlike the IOUs, which are required by recent renewable portfolio standard (RPS) legislation to increase their renewable resource portfolio to ensure that by 2017 at least 20 percent of their energy mix is renewable,⁵ the municipal utilities and irrigation districts face no renewable acquisition mandate. Instead, the legislature has left it up to the public utilities to voluntarily work to increase the renewables portion of their energy portfolios.

If munis and IDs do not take this voluntary approach seriously, significant numbers of the Central Valley's residents and utility customers will miss the economic and environmental benefits of renewables. This could become especially troubling as electricity demand grows and natural gas fuel prices for conventional energy plants

³ Ibid.

⁴ Great Valley Center. "Indicators Report: Economy and Quality of Life." May 1999. Online at: http://www.greatvalley.org/publications/indicators/state_report_1999.pdf.

⁵ SB 1078, the RPS bill, passed and signed into law in the summer of 2002, established a renewable portfolio standard for California IOUs.

increase, as they are predicted to do in the long term.⁶ Therefore, while the state's and the Valley's energy supply is somewhat stable (compared with just two years ago when the state was in crisis), it is important to identify ways to encourage munis and IDs to aggressively embrace renewables and become accustomed to building them into their energy procurement and planning.

Second, many of the state's public utilities fared better during the 2001 energy crisis than did the IOUs. They were able to maintain lower electricity prices and uninterrupted service, while also avoiding bankruptcy. This performance has helped feed a strong sentiment by some Valley opinion leaders, businesses, and residents for greater local control of utility service. There is certainly not a rush to convert more irrigation districts to electricity retailers or to create more municipal utilities. But there is a slow and deliberate march in that direction in some quarters. Whether this results in more local electricity retailers or just greater assurance that those that already exist remain in service is unclear. It seems certain, though, that public utilities will play a growing role in determining how the Central Valley will meet its energy needs.

Third, publicly owned electric utilities have funds that can be used to expand their renewables portfolio. Beginning with California's electricity deregulation legislation passed in 1996, AB 1890, publicly owned electric utilities are required to set aside each year a percentage of revenues and use them for public benefit programs. One of the defined public benefits is renewable energy. Subsequently, the period during which the public benefit funds mandate applies has been extended to 2011. Additionally, because of changes in the amounts IOUs devote to public benefits, some environmental advocates argue that the amount publicly owned utilities must devote to public benefits has increased to about 3.6 percent of revenues. Nevertheless, most municipal utilities continue to set aside 2.85 percent for public benefits.⁷

While renewable energy acquisition is one of the public benefits covered by these laws, it is not the only one. The funds also go to supporting efficiency programs, research and development, and low-income assistance programs. Unlike the IOUs, each publicly owned utility can determine how to divide their public benefits funds among these four categories.

Renewables Defined

Before examining how Central Valley munis and IDs are approaching renewables today, it is important to clarify the terminology defining renewable energy.

⁶Ferguson, Rich. "Risky Diet 2003. Natural Gas: The Next Energy Crisis" The Center for Energy Efficiency and Renewable Technologies. September 2003. Provides a discussion of the effects of anticipated increases in future natural gas prices. Online at: <http://www.ceert.org/pubs/crrp/index.html>.

⁷ For a brief but detailed explanation of public benefits fund legislation and requirements, see Appendix B in: Bachrach, Devra. "Program Evaluation of the Los Angeles Department of Water and Power Public-Benefits Programs." Natural Resources Defense Council. January 2003.

The state law mandating an RPS for IOUs defines eligible renewables essentially as those defined by Public Utilities Code 383.5, with some restrictions on including biomass, geothermal and hydroelectric.⁸ Thus, the following are considered renewable: "solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and any additions or enhancements to the facility using that technology."

Many of the municipal utilities and irrigation districts in the Central Valley, and the main trade association for public utilities, the California Municipal Utilities Association, use a broader definition of renewables. They say that the sections of the RPS legislation directing publicly owned utilities to take voluntary measures to meet the spirit of the law allow the local utilities to define renewable energy for themselves.⁹ In practice, many local utilities and irrigation districts designate large hydroelectric plants (hydro plants producing more than 30 MW) to be renewable energy. If large hydro is included in the definition of renewable energy, irrigation districts and some munis in the Central Valley can--and do--say that their energy portfolio is from 70 to 100 percent renewable.

However, the prevailing consensus on renewable resources, both in law and politically, does not accord with the Muni's and ID's position. Large hydroelectric plants have been excluded by law from most renewables definitions in California, largely

⁸The RPS bill states: 399.12. For purposes of this article, the following terms have the following meanings:

(a) (1) "Eligible renewable energy resource" means an electric generating facility that is one of the following:

(1) The facility meets the definition of "in-state renewable electricity generation technology" in Section 383.5.

(2) A geothermal generation facility originally commencing operation prior to September 26, 1996, shall be eligible for purposes of adjusting a retail seller's baseline quantity of eligible renewable energy resources except for output certified as incremental geothermal production by the Energy Commission, provided that the incremental output was not sold to an electrical corporation under contract entered into prior to September 26, 1996. For each facility seeking certification, the Energy Commission shall determine historical production trends and establish criteria for measuring incremental geothermal production that recognizes the declining output of existing steamfields and the contribution of capital investments in the facility or wellfield.

(3) The output of a small hydroelectric generation facility of 30 megawatts or less procured or owned by an electrical corporation as of the date of enactment of this article shall be eligible only for purposes of establishing the baseline of an electrical corporation pursuant to paragraph (3) of subdivision (a) of Section 399.15. A new hydroelectric facility is not an eligible renewable energy resource if it will require a new or increased appropriation or diversion of water under Part 2 (commencing with Section 1200) of Division 2 of the Water Code.

(4) A facility engaged in the combustion of municipal solid waste shall not be considered an eligible renewable resource unless it is located in Stanislaus County and was operational prior to September 26, 1996. Output from such facilities shall be eligible only for the purpose of adjusting a retail seller's baseline quantity of eligible renewable energy resources.

⁹ The RPS Bill reads: 387. (a) Each governing body of a local publicly owned electric utility, as defined in Section 9604, shall be responsible for implementing and enforcing a renewables portfolio standard that recognizes the intent of the Legislature to encourage renewable resources, while taking into consideration the effect of the standard on rates, reliability, and financial resources and the goal of environmental improvement.

because of concerns about significant environmental impacts of large hydroelectric dams. Nearly everyone following renewables issues in the state, including public utility managers, conclude that no new large hydroelectric plants are likely to be built in the California in the foreseeable future, and that to meet the RPS requirements, new renewable procurement will not include large hydroelectric power. However, concerns remain that public utilities will acquire new hydroelectric power from other states or green tags for that power and argue that it should be counted as new renewable procurement.

In recognition of the limited role large hydro both can and *will* play in meeting any RPS goals, and in deference to California law defining renewables as excluding large hydro power, this report defines renewables as excluding large hydroelectric facilities.

Irrigation Districts, Retail Electricity and Renewables

Irrigation districts are principally established to provide to agriculture irrigation water and electricity for pumping. They are also authorized by state law to provide electricity to retail customers.¹⁰ Indeed, selling electricity to retail customers is one of the limited ways irrigation districts can generate revenue. This revenue source may become more important in the future as agricultural counties transition to a more urbanized economy, and as new water policies shift the demand for, and availability of, surface water for irrigation. So far, few Central Valley irrigation districts have tried to go into the retail electricity business. Only three of the approximately 60 districts in the Central Valley have done so successfully. These three are the Turlock Irrigation District, Modesto Irrigation District, and Merced Irrigation District. A fourth district, the South San Joaquin Irrigation District, is in the process of preparing to sell electricity to retail customers.

To sell electricity, irrigation districts have to scale some daunting hurdles. Some of these are defined by the business challenges running an electric utility poses. These include:

- An adequate and competent staff who know how to run an electric utility;
- Substantial financial resources to weather the risk;
- Electricity generation capacity able to grow with customer base; and
- A large enough customer base to justify the move to retail electricity sales.

Other hurdles are defined by public policies and competitor actions. Legislation passed in 2000 restricts irrigation districts that want to retail electricity to selling it within their district boundaries.¹¹ If a district wants to sell outside its boundaries, it must receive permission from the Public Utilities Commission, a body that typically doesn't have

¹⁰ See the California Water Code, sections 20500 to 29978.

¹¹ The legislation is Assembly Bill 2638, introduced by Cardoza and Calderon, and signed into law by Governor Gray Davis on September 30, 2000.

regulatory power over local electric utilities. The same legislation also allows IOUs to reduce their retail rates in areas where their territory overlaps with an irrigation district that sells electricity. The legislation protects the competitive edge of IOUs and provides a forum at the PUC for IOUs to challenge an irrigation district's efforts to enter or expand its reach in the retail electricity market.

Independent actions by the IOUs also discourage irrigation district entry into, or expansion in, the Central Valley electricity market. PG&E, for instance, maintains a staff dedicated to monitoring and challenging irrigation districts. One irrigation district general manager noted that PG&E representatives are in the audience at each of the district's board meetings and had made dozens of information requests on board and district actions. Another ID manager said his agency abandoned entering the electricity market primarily because of IOU challenges. Irrigation districts that have considered but rejected establishing retail electricity sales in the last decade, that were unable to clear the hurdles mentioned here, include Fresno, Laguna, and Woodbridge.

For most irrigation districts, the law requires that board members be registered voters *and* landowners.¹² Requiring land ownership nearly guarantees that in rural districts agricultural interests will dominate. The rule is different for those districts that also retail electricity. Board members must be registered voters, but they do not have to be landowners. This significantly broadens the pool of board members and theoretically reduces the influence of agriculture's needs. In reality, though, the elected boards of IDs that retail electricity typically include at least some members associated with the agriculture industry. Moreover, the agricultural history of the district and agriculture's prominent role in the local economy keeps agricultural interests on the table and influences the organizations' culture.

Until now none of the three irrigation districts that serve retail electricity have aggressively embraced renewable energy sources. Each will need special encouragement and assistance to voluntarily exceed minimum acquisition their leaders feel is required to stave off a renewables mandate. Below is a brief description of each of the key irrigation district's resource mix today and anticipated in the future.

Turlock Irrigation District

Service Profile: Turlock Irrigation District (TID) was founded in 1887 and was California's first publicly owned irrigation district.¹³ It began providing electricity in 1923 and today serves a 425-square mile district that includes Turlock, South Modesto, Ceres, Keyes, Denair, Hughson, Hickman, La Grange, Ballico, Delhi, and Hilmar. It serves about 77,000 customers. It is nearing the end of a 6-year process to expand its territory by acquiring for \$25 million the 225-square-mile Westside service area from PG&E that includes Patterson, Crows Landing and Diablo Grande.

¹² See California Water Code, sections 21100 to 21104.

¹³ See Turlock Irrigation District website for detailed history, <http://www.tid.org>.

Resource Mix: About 40 percent of TID's current electricity generation capacity comes from hydroelectric plants, including large hydro projects on the Tuolumne River and smaller plants on the irrigation system. The district also owns two 49-MW natural gas turbine plants, one of which is a peaker unit. TID is planning construction of a 250-megawatt (MW) combined-cycle natural gas generating facility, called the Walnut Energy Center. The district owns interests in coal-fired power and geothermal power. Geothermal represents about 2 percent of TID's total generation capacity. The district also holds short and long-term contracts for power from outside the district. In 2002, nearly 80 percent of the megawatt-hours sold were not generated by the district.¹⁴ Retail electricity represents 80 percent of the district's operating revenue.

Renewables Efforts: Non-hydroelectric renewable energy does not play a notable role in TID's energy portfolio or, apparently, in its planning. The district's board has not passed an RPS resolution. It also has not included any renewables to operate instead or in combination with construction of the Walnut Energy Center. The EIR for the WEC noted the availability of biomass, including agricultural biomass, but rejected developing a biomass-fueled power plant because biomass-plants' "cost tends to be high relative to conventional combined-cycle units burning natural gas." TID also rejected wind and central solar generation as alternatives to WEC because of intermittency, costs and location (for wind generation) outside the district.¹⁵ Owning plants within the district appears to be a priority.

TID does not actively market a green power or solar rebate program to customers to encourage photovoltaic solar energy use. There has been some discussion within the district about buying green tags from renewable facilities located in the upper Midwest to increase the district's renewable portfolio.¹⁶ In the past, the district has also had discussions with local agricultural interests about developing biomass or biodigester facilities, but costs have so far discouraged any action.

TID is a member of the Northern California Power Authority, a 15-member joint powers agency. It is through the NCPA that TID has its geothermal interest. Recently, NCPA prepared a solicitation for bids for providing renewable energy to its members. Turlock has opted not to participate in that solicitation.

Miscellany: Turlock claims to have among the lowest rates in the state. Residential rates are in the 8-cent-per-kilowatt-hour (kWh) range. The district owns and operates a significant transmission grid within its district boundaries.

¹⁴ Turlock Irrigation District. 2002 annual report.

¹⁵ For WEC CEC application discussion of alternatives see: http://www.energy.ca.gov/sitingcases/turlock/documents/applicant_files/volume_1/009_Alternatives.pdf.

¹⁶ Green tags represent the environmental attributes (e.g. less pollution; less water consumption) of renewable energy.

Modesto Irrigation District

Service Profile: Founded in 1887, Modesto Irrigation District (MID) began selling electricity in 1923, after completion of the Don Pedro dam (co-owned with TID). In 1940, MID became sole electricity provider within its district boundaries after buying out PG&E.¹⁷ Today it serves more than 100,000 customers and includes in its service area the towns of Modesto, Ripon, Salida, Empire and Waterford. It also provides electricity outside its district boundaries and within PG&E territory. It will also serve a new community, called Mountain House, being built northwest of Tracy. This community is expected to provide 15,000 new customers.¹⁸ In recent years, the Modesto area's rapid growth has yielded MID about 2,500 new residential customers per year just from new housing developments.

Resource Mix: Modesto Irrigation District has about 400 MW of generating capacity and contracts for approximately 300 MW, bringing its total capacity to about 700 MW. The district recently brought a new \$65-million 80-MW natural gas plant online, and is going through permitting to build a 90-MW plant in Ripon. It also has an older 112-MW gas-fired plant.¹⁹ It also relies on hydroelectric power and an interest in a New Mexico coal-fired power plant.²⁰ It receives much of its hydropower through contracts, including one for power from San Francisco's Hetch-hetchy hydroelectric facility. In general, in the wake of the 2001 energy crisis, MID has developed a strong interest in owning and controlling its own generation facilities, especially facilities located within range of its own transmission system.

Renewables Efforts: In the 1980s, the district invested in a geothermal project that failed. Since then, its renewables investments have been limited, although the district has set a goal of adding 30 MW of renewable energy to its portfolio by 2007. That 30 MW would amount to less than 5 percent of its existing portfolio. MID is preparing a renewable acquisition plan, but it had not been released in time to be considered in this study.

The district has discussed the possibility of developing a generator that would be fueled by a digester at the city's sewer facility. MID also has an interest in opportunities to use agricultural biomass, including food processing plant waste, for generating electricity, although that interest has not gone into an actual plan or project. The utility is also considering whether it can develop or invest in wind.

¹⁷ See Modesto Irrigation District website page on district history at: <http://www.mid.org/html/milestns.htm>.

¹⁸ Modesto Irrigation District 2002 annual report.

¹⁹ Ibid.

²⁰ "About MID: Fingertip Facts." Online at: http://www.mid.org/html/fngr_fax.htm. Accessed on 8/25/03.

Miscellany: MID's residential rates are between 8 and 10 cents per kWh for customers using more than 500 kWh per month.

Merced Irrigation District

Service Profile: Merced Irrigation District (MEID) is fairly new to the electricity retail business. The district was established in 1919.²¹ It first began selling wholesale electricity from its Exchequer dam generator on the Merced River in 1927. In 1964, after completion of a New Exchequer dam and the McSwain dam on the Merced, the district entered into a 50-year contract to sell power from those dams to PG&E. Those contracts, which provide PG&E the power for a price of about 1 cent per kWh, expire in 2014 when the dams are up for re-licensing.

In 1996, after unsuccessful attempts to renegotiate the wholesale power contracts with PG&E, MEID began to sell retail electricity within its district borders. The profits from those retail sales, the district figured, could fund the dams' re-licensing, which will cost at least \$12 million. The district expects that with re-licensing, it will have opportunities to sell the dam's electricity to its own retail customers.

Livingston, Atwater and Merced are among the communities within the district and today about 2,200 customers have signed up, with another 4,500 new residential units planned for development in the near term within the district. The peak load today is about 70 MW.

Resource Mix: Merced supplies its retail customers with electricity through power purchase contracts, mainly with Turlock and Modesto irrigation districts. Merced's ability to take the leap to retail sells was helped in part by a commitment from one large local agricultural firm, Foster Farms, to buy retail electricity from the district.

Renewables Efforts: MEID recently negotiated a 25-year term contract to buy 5 MW of wind power from PPM Energy's High Winds Project in Solano County. The purchase begins in January 2004, and for the first two years, because Merced doesn't actually need the additional power, PPM will remarket the output from the wind resources. The staff report to the MEID board about this transaction noted that the wind purchase "helps the District demonstrate that it is supporting and meeting green power requirements of the state. This can be [an] important element in reducing legislative pressure for more stringent requirements for public agency utilities."

²¹ "A Long Tradition of Generating Power." Online at: <http://www.mercedid.org/energy/history.html>. Also see "FAQ About The Merced Irrigation District Electric Services." Online at: <http://www.mercedid.org/energy/faq.html>. Accessed on 10/2/03.

MEID is investigating the possibility of doing biodigesters with local agricultural interests, or buying electricity from biodigesters developed by local interests. A few years ago the district explored developing a central biodigester for collected dairy waste, but the cost was prohibitive. It is also considering including three small hydroelectric units on irrigation canals in its retail electricity mix.

Miscellany: MEID says its rates for customers who switched from PG&E service to the district several years ago were 20 to 30 percent lower. However, PG&E has adjusted its rates to be competitive with MEID's within the district's borders.

Like Turlock and Modesto, MEID has been developing its transmission system within its district. This is in line with its goal to reduce the impact on its customers of future power delivery problems in the rest of the state.

South San Joaquin Irrigation District

South San Joaquin Irrigation District is preparing to sell retail electricity within its district boundaries, which includes the towns of Manteca and Escalon. The district, founded in 1919, owns a 50 percent interest in the Tri-Dam Project on the Stanislaus River.²² A long-term contract to sell the hydroelectric power from that dam to PG&E will expire at the end of 2004. SSJID has decided to use some or all of that power to serve the retail electricity market within its district, something it expects it can do at considerably lower cost to consumers than PG&E.²³ By doing this, the district can generate new revenue which, among other things, can support improvements and accommodate the changing land use and population distribution in the district. At this point, the district generally has not determined a role for renewables in its portfolio, and will not likely do so unless the renewables provide an additional benefit to agriculture (e.g. by addressing biomass disposal).

Municipal Utilities and Renewables

The Central Valley is home to five municipal utilities: Sacramento Municipal Utility District, Lodi Electric, Roseville Electric, Redding Electric, and Gridley Electric. Gridley also manages the local utility operations of the town of Biggs. These five represent a wide range in size, electricity generation types, and approaches to renewable energy in their planning and procurement. In general, though, the municipal utilities are more engaged in planning for and including non-hydro renewables in their resource mix than are the irrigation districts.

Like irrigation districts, municipal utilities have an elected board. But unlike irrigation districts, municipal utilities' original mission is not exclusively to serve the

²² "History of SSJID." Online at: <http://www.ssjid.com/history.html>. Accessed on 9/29/03.

²³ Chevron Energy Solutions Company. "Retail Electric Utility System: Business Operations Plan." Prepared for the South San Joaquin Irrigation District. March 2003.

needs of agriculture. Rather, it is typically to provide low-cost, reliable electricity service to a diverse constituency, and is overseen by an elected board that must represent the diverse constituency. Often, city councils serve as the municipal utility board. These difference in original mission and governance may partly explain why some of the municipal utilities in the Valley are several steps ahead of the irrigation districts in planning for, developing and procuring renewable energy.

The following is a brief description of the Valley municipal electric utilities, their current energy portfolio, and their plans for the future.

Sacramento Municipal Utility District

Service Area: Sacramento Municipal Utility District was established by a vote of Sacramento County voters in 1923.²⁴ But it wasn't until 1946, after SMUD had raised sufficient funds through bond sales to buy PG&E's Sacramento-area electricity distribution system, and after a court ordered a reluctant PG&E to make the sale, that the district really went into the business of retail electricity. Today the utility serves more than half a million customers, of which nearly 89 percent are residential customers. Its territory extends over 900 square miles and includes all of Sacramento and part of Placer counties, two rapidly growing counties. Peak demand was more than 2,700 MW in 2002.

Resource Mix: SMUD's power mix includes ownership of large hydroelectric facilities, gas-fired co-generation facilities, renewable projects, and contract power purchases. The utility's interests on the American River, including 8 powerhouses, provide about 20 percent of its customer demand for power. SMUD owns three gas-fueled co-generation plants and a single-cycle peaker plant. It recently broke ground on a new 500-MW gas-fueled co-generation plant at the site of the decommissioned Rancho Seco nuclear power plant. Its board will decide in the next year whether to build a second 500-MW co-generation plant at the same site.

Renewables Effort: SMUD is known nationally for its progressive renewable energy efforts. More than a decade ago it began a program to encourage customers to install solar units on their homes and businesses. The utility also offers a green energy program that allows customers to pay \$4 to \$6 more per month for a "green" resource mix. More than 20,000 customers have signed up. SMUD does not count renewable energy bought with that customer premium toward its renewable portfolio standard goals. That goal is set at 20 percent non-hydro renewables by 2011, and SMUD is planning how to meet that goal.

In 2002, the utility reported about 10 percent renewable energy on its power content label. Recently, SMUD added 10 MW of wind energy, and has plans to add more so that by mid-2006, the wind assets will amount to 100 MW. The

²⁴ "About SMUD." Online at: <http://www.smud.org/about/index.html>. Accessed on 11/3/03.

utility also contracts for some biomass power and is interested in expanding local biomass generation within its territory.

Miscellany: The utility has a significant distribution and transmission system. Last year, it also established itself as an independent control area, removing itself from the California Independent System Operator's control. Rates for SMUD electricity for the average residential ratepayer (one who uses about 750 kWh per month) is about 13 cents per kWh.²⁵

Roseville Electric

Service Area: Roseville Electric serves the city of Roseville, which has seen a large amount of growth and development in the last decade. About 2,000 to 2,500 new homes are built within the utility's service area annually. Today, Roseville Electric serves about 40,000 residential customers and 5,000 commercial customers. Peak load is growing an average of 5 to 7 percent per year.²⁶

Resource Mix: Nearly all of Roseville's power is purchased through contracts. This results in a power mix of more than 40 percent large hydroelectric, 9 percent coal, nearly 30 percent natural gas, about 7 percent nuclear, and about 11 percent renewables. Like most local publicly owned utilities, in the aftermath of California's energy crisis, Roseville Electric is looking for ways to increase the amount of energy generated locally to be more independent of the ISO's shared transmission system and ensure reliability. The utility is planning to build an energy park that will include two natural-gas-fueled combined cycle generators that will produce a total of about 150 MW.

Renewables Effort: Roseville leaders have said through adoption of a local RPS that the city is committed to increasing its renewable portfolio to 20 percent, but plans to include hydroelectric in the definition. It's current 11 percent power share for renewables includes about 7 percent in geothermal purchased through its involvement in the NCPA, and about 2 percent biomass and waste gas.

The utility intends to install a 1 MW solar facility in its planned energy park. It also plans to add another 4 MW of renewables in the next five years, although what will be included in the mix has not been determined. The utility is expecting to participate in a new renewable energy buy organized through the NCPA to help its local utility members meet RPS goals.

Roseville's annual contribution to its public benefits fund is 5 percent, significantly exceeding the minimum of 2.85 percent. That 5 percent totaled about \$4 million in 2002. About 30 to 40 percent of the public benefits funds go to purchasing new renewables.

²⁵ For current rate schedule see <http://www.smud.org/residential/rates.html>.

²⁶ See Roseville Electric's website at: <http://www.rosevilleelectric.org>. Accessed on: 11/3/03.

The city also offers customers a green energy purchase option, and has enrolled about 700 customers. Money raised from that is matched with public benefits funds and used to provide rebates for solar photovoltaic installation, including on new homes under construction. The utility has funded more than 100 kW of photovoltaics. Roseville Electric is also working with a company in Lincoln to do landfill methane recovery for power generation.

Miscellany: The utility's rate for residential customers is between 8 and 9 cents per kWh.

Lodi Electric Utility

Service Area: The City of Lodi's Lodi Electric Utility began operation in 1910.²⁷ Today it serves about 26,000 customers.

Resource Mix: All of the utility's power is obtained through contracts. Lodi Electric is an active participant in the Northern California Power Authority (NCPA), through which it contracts for and invests in some significant power resources. About a quarter of the utility's power mix is in large hydroelectric, and 30 percent is in natural-gas-generated electricity. Coal-fired power represents about 6 percent and nuclear power about 8 percent of the mix.

Renewables Effort: Non-hydro renewables represent about 33 percent of Lodi Electric's power mix. Most of that is geothermal obtained through NCPA's Geysers project. The city has lately been investigating and planning for developing a centralized biodigester facility to use dairy cow waste from several local dairies. Customer interest in solar distributed generation has been minimal, largely because of the cost. The City Council has adopted a renewable portfolio standard resolution. The utility collects about \$900,000 in its public benefits fund each year, of which about \$50,000 is devoted to renewable technology, primarily to an education campaign.

Miscellany: The city has a growth cap which results in only a small annual growth in new electric customers. Residential rates are about 14 cents per kWh for households using more than 400 kWh per month.

Redding Electric Utility

Service Area: After a years-long dispute, the city of Redding bought PG&E's electric distribution system within the city and established Redding Electric

²⁷ See Lodi Electric website at: <http://www.lodielectric.com>. Accessed on 11/3/03.

Utility as an electricity retailer in December 1921.²⁸ Today, the utility serves about 39,000 residential and business accounts.

Resource Mix: The city owns a collection of gas-fired generators that have a capacity totaling more than 90 MW.²⁹ It also operates a large hydroelectric facility at the Whiskeytown dam, which regulates flows on the Trinity River and Clear Creek. It buys additional hydropower and some nuclear power through contracts with WAPA.

Renewables Effort: A combination of rising natural gas prices, passage of the RPS mandate for IOUs, the general growth in electricity demand in the region, and some expiring power contracts in the next two years, has made Redding Electric more aware of the need to include more renewables in its portfolio. However, like many local utilities, Redding has defined large hydro as a qualifying renewable for purposes of defining its renewable mix. It is investigating opportunities for investing in photovoltaics because of local siting ability.

Miscellany: Redding Electric's system average rate is a little under 10 cents per kWh.

Gridley Electric

Service Area: Gridley Electric serves the small town of Gridley and, through a service agreement, maintains the Biggs system. The utility serves a total of about 3600 customers, of which about 70 are commercial accounts. Until recently, Gridley has not felt the growth pressure that other parts of the Valley have, but in the next couple of years, new development is expected to bring in 500 new homes that will be served by the utility.

Resource Mix: The total maximum load of Gridley and Biggs combined is about 13 MW in a month. The company contracts for that power through the NCPA and the Western Area Power Authority. Most of the power is hydroelectric power.

Renewables Effort: The utility invests in some geothermal power through NCPA. Gridley has also explored using ethanol derived from rice straw to fuel an energy plant, but abandoned the idea as it was too costly.

Miscellany: This electric utility is so small, and its resources so limited, that any additional investment in renewables will likely have to come through some joint action with other organizations or utilities.

²⁸ Moore, Donald. "Redding Electrical Department, 1914 – 1922." Online at: <http://reuweb.reddingelectricutility.com/aboutreu/history.html>. Accessed 8/10/03.

²⁹ See power supply information at <http://reuweb.reddingelectricutility.com/generation/prodduties.html>. Accessed 11/3/03.

PART II: OPPORTUNITIES AND BARRIERS SHAPING MUNI AND IRRIGATION DISTRICT APPROACHES TO RENEWABLES

Renewable energy resources offer significant advantages and benefits that would make them a natural draw for local publicly owned utilities. But there are significant barriers that counterbalance the natural draw. Some of these barriers originate with the renewable technology and market, and some originate with the utilities themselves. The utilities that are most engaged in including renewables in their portfolios typically recognize opportunities and don't face as many hurdles within their organization.

What follows is a list, with brief descriptions, of the benefits of renewables that utility staff and administrators interviewed for this study identified. Several of these were also identified in the Great Valley Center report on renewable energy opportunities in the Valley. The list is followed by a collection of barriers, some identified by interviewees, and some drawn from the author's observations based on the research for this study.

Procuring Renewables: Opportunities and Motivations

The Fuel Resource is Readily Available

This opportunity was most often linked to solar energy, although hydroelectric resources were also frequently cited for this advantage. Solar's particular advantage includes that it is a resource that is available within each utility's service area and doesn't have to be procured from outside the district, which would require transmitting through the California Independent System Operator (ISO) or other grid systems.

Natural Gas Prices are Rising and Unstable

A combination of delivery bottlenecks, lack of accessible reserves, and increasing demand in the power sector have increased natural gas prices in California and the rest of the U.S. In the last year, wellhead prices that once hovered around \$2.50 per MMBtu, have spiked as high as \$11 before landing in the \$4 to \$6 range. Most experts are predicting that prices will be higher in the coming decade than they have been in the past decade. The uncertainty of natural gas prices makes renewable energy, with its "free" fuel, an attractive addition to a power portfolio to hedge against future natural gas spikes.

Air Quality Impacts from the Power Sector Must Be Reduced

Improving air quality is becoming an important decision driver for many Central Valley industries, including the utility sector. Increasing reliance on natural gas or other fossil fuel inevitably adds to the air pollution burden in the region and likewise

invites scrutiny of utility generation by air pollution regulators and requirements for additional equipment to control pollutants. All of this adds to the cost of generation, not to mention the uncertainty about future cost.

Additionally, some environmental advocates and economists argue that in the future, as international concern about global warming pollution grows, so will requirements for controlling carbon dioxide and other greenhouse gas emissions from the power sector. This can add yet another high cost and increase financial risk. Renewable energy, on the other hand, produces little or no air pollution, and thus reduces the risk of future costs to control pollution or buy expensive credits.

Population Growth is Raising Demand for Energy

As rising demand for energy mounts due to population growth, the need to find alternatives to conventional fossil fuel energy sources increases. This is largely because of the link between growing demand and growing fuel price. It becomes important for utilities to reduce the impact of fuel price increases brought about by greater demand by investing in power that has free fuel.

Water Resources are Declining

Simple population growth, renegotiated water delivery agreements such as CALFED, groundwater overdraft, water pollution, and extended droughts have combined to make water in California an increasingly valuable commodity. Fossil-fuel-fed power plants need large quantities of water for cooling and steam production. This raises the cost of running those plants, but it also adds to the uncertainty of future cost and future ability to run the plants as water scarcity reaches a critical level. Some renewable energy resources, such as solar and wind, do not depend on water at all, contributing to their long-term stability of operation costs and their long-term reliability.

Adding Renewables Now Avoids a Legislative Mandate Later

One municipal utility administrator noted that local control is nearly a religion among publicly owned utilities. Thus, municipal utilities fought hard to keep publicly owned utilities out of SB 1078, the legislative mandate requiring investor owned utilities to increase renewables in their power portfolio. Nevertheless, once that legislation was passed, with only a brief mention that publicly owned utilities should voluntarily increase their renewable resources, public utility administrators and advisors sensed that they had to respond immediately. They assume that if they don't show a good effort to boost their renewables acquisition, the investor owned utilities will lobby hard to see a mandate passed for the munis and IDs. Thus, they figure, buying or planning to buy renewables in the near term will discourage a mandate in the long term.

Buying Cooperatives Make Procuring Renewable Energy Easy

Five of the Central Valley public utilities discussed in this paper are members of the Northern California Power Authority.³⁰ Through that agency, the small publicly owned utilities can combine their buying clout and get better power deals and expert guidance. The NCPA, for instance, has helped several of its member utilities invest in geothermal power from the Geysers Known Geothermal Resource Area in the Mayacamus Mountain Range, 75 miles north of San Francisco. Recently the organization did a bid solicitation for renewable energy sources to help its members increase renewables in their portfolios.

Most Local Utilities Have Experience with Hydroelectric Power

Although it can be argued that large hydroelectric power resources are not legally regarded as a renewable, hydroelectric power does have some renewable attributes. As such, it has served as a successful introduction to renewables for utilities that might otherwise be even less inclined to add other qualifying renewables to their portfolio. Every local utility, then, has had some successful experiences with renewables on which to build a more diverse renewable portfolio.

Renewables Provide an Opportunity for Local Economic Development

Renewable energy fueled by agricultural biomass and/or food processing plant waste could become an important addition to the region's energy production, solve some serious waste disposal and air quality challenges, and provide new jobs all at once. Solar energy has the potential throughout the valley to become a valuable part of the energy mix and simultaneously help introduce to the region new business and job opportunities—particularly solar installation jobs.³¹ In specific locations within the Valley, wind generation could also add some job opportunities.

Renewables Could Provide Added Benefits to Agriculture and Help Keep that Important Industry in the Valley

As noted above, renewable energy from agricultural biomass, especially dairy waste, could help resolve some staggering waste management problems. Developing a renewable biomass option could create a market for farm waste that until now has brought in little or no income, or at the least, reduce the costs of farm production.

Buying Renewables Avoids or Reduces the Cost of a New Fossil-Fuel Power Plant

³⁰ These include Lodi Electric, Redding Electric Utility, Roseville Electric, Gridley Electric, and Turlock Irrigation District. Biggs, which is managed by Gridley, is also a member.

³¹ For a discussion of employment potential in California of all major renewable energy technologies, see : Heavner, Brad and Bernadette Del Chiaro. "Renewable Energy and Jobs: Employment Impacts of Developing Markets for Renewables in California." Environment California. July 2003. Online at: http://www.environmentcalifornia.org/reports/renewables_jobs_7_03.pdf.

By using a combination of efficiency measures--both supply side and demand side--and contracting for renewable energy resources, utilities can reduce the size of or delay construction of new conventional power plants. Reducing the size can make financing a new power plant, when it's absolutely needed, much less expensive.

Procuring Renewables: Challenges and Barriers

Discounting Benefits of Renewables Prompts Utility Operators to Believe Renewables Cost More than Conventional Resources

Nearly everyone interviewed for this study said cost is the number one barrier to greater procurement of renewable energy. They particularly noted that biodigesters and solar photovoltaics were much more expensive than conventional energy resources.

While some renewable technologies can be more expensive, utility operators tend to discount:

- The technologies' unique benefits, particularly their environmental benefits;
- The value of long-term stable fuel prices renewables represent; and
- The increasing price trends of natural gas.

Additionally, renewables in energy portfolios work to lower the cost of conventional fuels by reducing demand for those fuels. Renewables also diversify generation. This can allow utilities to shift load away from fossil fuel plants and contracts when fuel prices spike. Finally, some renewables are priced competitively with fossil fuel energy, and others are expected to become competitive in coming years.

Energy economist Bill Marcus of JBS Energy, Inc., recently analyzed the comparative costs to the Los Angeles Department of Water and Power of energy from a conventional plant and renewable plants.³² Specifically, he compared the cost of a new municipal natural gas-fired combined cycle plant, the Magnolia plant, with a wind plant, a flash geothermal steam plant, and a landfill gas plant. He assumed natural gas prices in the future would be in the range of \$4.50 to \$6 per MMBtu, an assumption not very different from the CEC's own adjusted forecast following this year's price increase. He found that over a 30-year period, renewables were competitive and, during the final 20 years, cheaper than the conventional plant on a dollar-per-MWh basis. The table below displays Marcus's estimates.

³² Marcus, William B. "Clean Affordable Power: How Los Angeles Can Reach 20 Percent Renewables Without Raising Rates." The Center for Energy Efficiency and Renewable Technologies and Environment California Research & Policy Center. March 2003. Online at: http://www.environmentcalifornia.org/reports/cleanaffordablepower3_03.pdf

Resource Cost Comparison (\$/MWh)			
Resource	10 Years	20 Years	30 Years
Magnolia Gas-Fired Plant	\$47	\$54	\$62
Magnolia Plant (w/hedged gas price)	\$52	\$59	\$67
Merchant Renewable Contracts	<\$54	<\$54	
Wind Plant (owned by LADWP)	\$50	\$51	\$52
Geothermal Flash (owned by LADWP)	\$51	\$52	\$52
Landfill Gas (owned by LADWP)	\$38	\$41	N/A

As Marcus writes, “It is evident from this information that on a life cycle basis, municipally owned renewable projects are cheaper than gas-fired generation, although they may be more expensive in some early years.... Even typical bids for renewable merchant projects are also within the range of the cost of new gas-fired generation at today’s new gas price reality.”³³

It is worth noting that Marcus did not include in his estimates of natural gas plant costs the future environmental costs of meeting global warming pollution reductions. The large power company PacificCorps included scenarios in its resource plan that estimated carbon emissions costs ranging from \$2 to \$40 per ton.³⁴ Those costs will add to the operation costs of fossil fuel plants in the future.

The CEC estimates that technical potential for wind, geothermal, biomass, biogas, small hydroelectric, and solar power in California amounts to more than 262 thousand gigawatt hours (GWh) per year.³⁵ Wind, geothermal and limited biomass applications are the most cost competitive today. Costs of developing these resources, which influences the price of the delivered electricity, are dropping.

Some Renewables Provide Intermittent Power

The intermittent nature of renewables leads many utility operators to conclude that because renewables are not always available, investing in them is more costly because they have to also continue to invest in conventional power sources as back up.

This thinking tends to dismiss that by buying wind, the utility is ensuring that it doesn’t have to run its fossil fuel plants round the clock, and reduces the number of conventional plants required to keep electricity flowing. When renewables are operating, the utility saves on fuel or avoids buying or calling on fossil fuel contracts. Additionally,

³³ Ibid page 15.

³⁴ Ibid page 12.

³⁵ California Energy Commission. Renewable Resources Development Report. November 2003. Report # 500-03-080F.

renewables, even the intermittent variety, act as a physical hedge against rising gas prices.

The Location of Some Renewables Requires Working Outside the Local Transmission System and Entering the ISO's Control

One of the things municipal utilities and irrigation districts are most proud of is the degree to which decisions and actions are determined locally. After the energy crisis of 2000/2001, when utilities dependent on the Independent System Operator's management of electricity distribution were subjected to black outs and brown outs, rising tariffs, and the fallout of market manipulation at the ISO, locally owned utilities increased their devotion to local control. SMUD, for instance, pulled its distribution out of the ISO control in 2002. In a press release celebrating the first anniversary of that action, SMUD noted that leaving the ISO was responsible for "eliminating the need for SMUD to participate in rotating outages when other California utilities face energy shortages due to financial issues or failure to meet their obligation to provide reserve power."³⁶

When renewable energy sources are located outside of a locally owned utility's transmission and distribution system, those sources look less attractive to the utility. Getting that power to the utility's district means the utility will have to work with the ISO and schedule time on others' transmission system.

Irrigation District Boards, Especially, Resist Change

Even after many years—and in some case decades—of serving retail electricity, irrigation districts view themselves as agricultural entities at heart. Most district boards include farmers or business operators who work within the agriculture industry. The witnessing of many technologies "coming and going," along with surviving IOU competition and deregulation, has reinforced the institutional bent of most ID boards to remain conservative and cautious about unfamiliar technologies, such as non-hydro renewable energy.

The locally owned utilities that have embraced renewables most comfortably, in the Central Valley and elsewhere, have leadership that is enthusiastic about renewables. That leadership includes both the executive staff and key board members.

Munis and IDs are Devoted to Being the Lowest-Priced Provider

Residential rates for IOU customers in the Central Valley are typically about 12 to 14 cents per kWh. Rates at munis and IDs are usually a few cents less, hovering in the 8 to 9 cent range. Those lower rates are a key benefit locally owned utilities use to attract

³⁶ "SMUD celebrates one-year anniversary as independent control area." Online at: http://smud.org/news/releases/03archive/0627_control_area.html. Accessed 11/5/03.

and keep customers. It's a selling point that helps bring new businesses to town. Munis and IDs loathe raising their rates, and they worry that investing more in renewables will mean higher rates.

Information is Dispersed and Indirect

Staff and board members get their information about renewables from lots of different sources. Typically, staff acquires information at conferences, meetings of trade groups, through acquaintances in the industry and through various reports. Board members are less immersed in the day-to-day business of energy and are more likely to get their information at occasional annual meetings of utility directors or from utility staff.

Those staff who are already interested and involved in acquiring renewable contracts and investing in renewable energy tend to more actively seek accurate information about the opportunities than those who are less interested. For the most detailed information, Central Valley utilities typically have to go outside their home territory. Usually that information is not geared toward the peculiar utility and energy mix in the Valley.

The amount and quality of information the utilities disperse to the public, especially about utility renewable efforts, varies among agencies. Notably, only a few post current power content labels on their websites.

PART III: VOLUNTARY ACTIONS FOR INCREASING MUNI AND ID RENEWABLE PORTFOLIOS

With a few exceptions, municipal utilities and irrigation districts have barely begun to tap the potential for bringing more renewable energy into their portfolio. Those that have done the most voluntarily have done so through a suite of actions.

Listed below, and described in further detail, are measures that locally owned utilities can voluntarily take that will help provide the funds and activities needed to develop and procure more renewable energy. Most are drawn from what utilities in California and elsewhere are already doing to advance their renewable portfolio.

- Adopt and commit to a local renewable portfolio standard for non-hydro renewables.
- Increase public benefits fund contribution, specifically earmarking a portion for renewables procurement and development.
- Integrate renewable procurement into all aspects of resource acquisition and planning and does not limit spending on renewables to funds available in the public benefits fund.
- Participate in cooperative buying opportunities.
- Share resources for developing an agricultural biomass energy industry within the Central Valley.
- Develop a public information strategy that educates the public about renewables and the utility's policies regarding renewables, and encourages customer involvement in advancing renewables.
- Create a public advisory board for renewable policy that is made up of a cross-section of the community, that meets at least once a month, and that works with staff to advance renewable acquisition and development.

Adopt and Commit to a Local Renewable Portfolio Standard (RPS) for Non-Hydro Renewables.

The California Municipal Utilities Association has advised the boards of locally owned utilities to adopt a local RPS to help discourage a legislative mandate. A number of utilities have done so. However, these utilities often include large hydroelectric renewables in their RPS, which is contrary to the spirit of the RPS legislation and encourages the view that the utilities' commitment to increasing renewables is weak at best. For a locally adopted RPS to mean anything, it must be accompanied by a strong commitment to renewables—and the air and water quality benefits and price stability renewables promise—that is swiftly demonstrated by the other actions described below.

Increase Public Benefits Fund Contribution, Specifically Earmarking a Portion for Renewables Procurement and Development.

The original legislation establishing the public benefits fund requirement for locally owned utilities set a *minimum* amount for the contribution.³⁷ That minimum was set as the lowest expenditure level on efficiency, renewables and R D & D of the three IOUs on a percent of revenue basis, as of December 31, 1994. The funding level for low-income programs were based on 1996 levels and customer need. CMUA estimated the public utilities contribution to their public benefits fund should be 2.85 percent per year.

In subsequent legislation extending the public benefits fund requirement, the formula for calculating the contribution remained the same, but by then the amount the IOUs were required to contribute to efficiency, renewables and RD & D had increased. Under these circumstances, the Natural Resources Defense Council estimates that public utilities were required in 2002 to contribute—at a *minimum*—3.6 percent of total revenues to their public benefits fund, and slightly higher percentages for the years going forward.³⁸ In fact, most of the Valley’s utilities continue to contribute the lower amount to the fund. Moreover, most have interpreted the term *minimum* to also mean *maximum* in the case of this fund.

The locally owned utilities are free to spend the public benefits funds in any of four areas: low-income assistance, energy efficiency, renewables and RD & D. Most of the utilities do not allocate a specific amount of these funds to renewables, and some allocate very little. Some utilities also argue that spending the limited public benefits funds on renewables will reduce the number of low-income customers that can be served and reduce efficiency efforts. This lack of dedicated allocation plus the tendency for utilities to contribute the minimum required results in relatively little allocation for renewables. The obvious remedy, then, is twofold: Increase the amount allocated so that devoting money to renewables does not impose a great burden on the efficiency and low-income efforts and simultaneously earmark a portion of the fund for renewables.

Integrate Renewable Procurement Goals into All Aspects of Resource Acquisition and Planning and Do Not Limit Spending on Renewables to Funds Available in the Public Benefits Fund

The utilities that have been most successful in meeting ambitious renewables goals have done so by considering renewables as a necessity, not an option. At these utilities, acquiring renewables is part of a larger procurement goal to diversify the portfolio, provide a physical hedge against rising fossil fuel prices and availability, and reduce the utilities’ pollution contribution and emissions control expenses. When renewables are considered in this way, it defeats good planning to let renewables procurement be constrained by public goods funds availability, particularly when those funds represent a tiny fraction of a utilities’ annual spending on energy resources.

³⁷ AB 1890, the electricity industry restructuring bill, was the original legislation.

³⁸ Bachrach, page 56

Participate In Cooperative Buying Opportunities

Cooperative investments in renewable and nonrenewable resources are not new for many Central Valley utilities. And recently, the Northern California Power Authority put out an RFP to buy renewable energy for a number of its members, including some Central Valley locally owned utilities. Central Valley utilities that are not participating in the NCPA purchase should add to their agenda a new effort to find other willing partners to help bear the burden of developing and procuring new renewables.

Share Resources for Developing an Agricultural Biomass Energy Industry Within the Central Valley

The Central Valley is in prime position to support renewable electricity generation through gas produced by anaerobic digestion of biomass from dairy waste, plant waste, and food processing waste. Nearly every locally owned utility in the Valley has expressed an interest and explored ways to benefit from or help such generation occur. Most of the Valley's utilities recognize the value of helping agriculture solve its waste and pollution challenges, while also expanding local energy resources that are within local distribution systems. But they are also daunted by the potential expense and the vast amount of information that has to be mastered to make investment choices or develop a strategy. Progress has been slow at best.

Because of their historic link to agriculture, it makes sense for the irrigation districts to take a strong lead in helping develop this renewable energy sector. To make this effort affordable, the three irrigation districts should share resources to fund and support an employee to devote full time to identifying and helping realize biomass generation projects. The employee will essentially be a resident expert who has strong planning and implementation skills, and is savvy about the electricity business.

Resources for information and support for developing a biomass sector abound. The recently formed Biomass Consortium based at U.C. Davis, as well as work by the California Energy Commission, provide extensive research and information.

Develop a Public Information Strategy that Educates the Public about Renewables and the Utility's Policies Regarding Renewables, and Encourages Customer Involvement in Advancing Renewables

A utility that is committed to increasing its renewables portfolio needs customer support. Developing that customer support requires providing customers with information on the benefits and costs of renewables, the utility's goals to build a larger renewable portfolio, and the progress the utility has made toward meeting those goals. Most utilities in the Central Valley do relatively little to keep their customers informed about renewables, and do the minimum to alert them to the utility's power mix.

One way to benefit from customer support for renewables is to offer customers opportunities to increase their renewable commitment by paying a little extra for a greener portfolio. SMUD and Roseville Electric have had success with green energy programs and use the additional revenue to fund more renewable energy.

Create a Public Advisory Board for Renewable Policy that is Made Up of a Cross-Section of the Community, that Meets At Least Once a Month, and that Works With Staff to Advance Renewable Acquisition and Development

Utility board and staff can help push and keep renewable goals on track by bringing in some critical allies from among their ratepayers and interested citizens who have or are willing to develop an expertise about what it takes to advance a renewables policy. Establishing an advisory board that meets regularly and to which staff feel some accountability will give these knowledgeable and willing-to-learn allies an important venue.

PART IV: RECOMMENDATIONS FOR ACTIONS TO ENCOURAGE AND NURTURE MUNI AND ID RENEWABLE COMMITMENT

Change is not easy. For most Central Valley utilities, incorporating renewables as a key component of their planning and procurement will require a range of adjustments in business practice and in thinking. Efforts by outside organizations will be useful to ensure that inertia doesn't overcome the need to change, and to help provide the resources that will make change more inviting.

The Great Valley Center is well situated to be the hub to encourage change. It is non-partisan; it has a mission to protect the environment while advancing economic development in the Valley; it has a demonstrated interest in energy issues, especially renewable energy development in the Valley; it is locally grown and based and has strong ties to various segments of the Valley community. Other organizations that can and have been helpful are the Northern California Power Authority (NCPA), and the Public Renewables Partnership (PRP).³⁹ The NCPA has helped its members cooperatively find and buy renewable power. The Public Renewables Partnership provides a range of services, including technical assistance and education, to link locally owned utilities with renewable experts and purveyors.

To nurture the effort to advance renewables, the Great Valley Center should include the following among its activities:

- Convene a Central Valley working group on renewables for lead procurement staff and executive directors from the Valley's munis and IDs.
- Develop and conduct a renewables education program for ID and muni board members.
- Assist development of a Central Valley agricultural biomass initiative among the three IDs.

Convene a Central Valley Working Group on Renewables for Lead Procurement Staff and Executive Directors from the Valley's Munis and IDs

The executives of most of the Valley's locally owned utilities know each other from years of working in the same field. However, there have been few opportunities for the utility leaders to focus together on renewable energy issues. Some executives interviewed for this paper indicated a desire and willingness to engage in focused discussions, including opportunities to learn more about how to actually put renewables into action while maintaining competitive electricity rates.

³⁹ For information on the NCPA, see <http://www.ncpa.org>. For information on the PRP, see www.repartners.org.

Develop and Conduct a Renewables Education Program for ID and Muni Board Members

Even if staff and executives at a locally owned utility want to take more steps to significantly increase the renewable mix, their board members can block their efforts. It is especially important, then, for board members to understand the benefits of renewables and the opportunities, as well as the costs. Bringing the boards along to be both informed and sympathetic to renewables will require a sustained effort to educate board members about all aspects of renewables. The Great Valley Center, in cooperation with groups like the PRP, NCPA and CEERT, is ideally positioned to accomplish this.

Assist Development of a Central Valley Agricultural Biomass Initiative Among the Three IDs.

A number of Central Valley public utilities are interested in advancing renewable biomass-fueled energy that uses agricultural waste. The three IDs selling retail electricity, because of their proximity to each other and their historic mission to serve the agricultural community, are positioned to take a leading role in the biomass energy effort. But they will need help to maintain a strong and active focus in this area and to get beyond interest to tangible results.

CONCLUSION

There are untapped opportunities to increase the role of renewable energy in the Central Valley. For the Valley to successfully contend with its air quality problems and protect its economy from the effects of rising natural gas prices in the future, investing in renewables now is imperative.

There are several voluntary actions utilities can take that will lead to increasing the renewable portfolio in the Valley to correspond with the RPS requirement for IOUs. But whether those voluntary actions will be enough will depend on each utility's ability to recognize the need for renewables, to plan and procure renewables as a normal part of business, and to commit to educating both customers and board members about renewables' benefits.

Pressure for the legislature to take action to force public utilities to increase their renewables mix continues to mount. The key source of that pressure was once isolated to renewable energy advocates. It now includes IOUs, which are concerned about maintaining a competitive position with public utilities and contend that without their own mandate from the legislature, public utilities have a competitive advantage. It is apparent, then, that without greater overt voluntary commitment to renewable development and procurement than has been demonstrated to date, public utilities around the state will continue to face—and be distracted by—such legislative activity.

APPENDIX A

Central Valley Irrigation Districts⁴⁰

Irrigation District	Town	County
Alpaugh Irrigation District	Alpaugh	Tulare
Alta Irrigation District	Dinuba	Tulare
Anderson Cottonwood Irrigation District	Anderson	Shasta
Banta-Carbona Irrigation District	Tracy	San Joaquin
Browns Valley Irrigation District	Browns Valley	Yuba
Camp Far West Irrigation District	Wheatland	Yuba
Central California Irrigation District	Los Banos	Merced
Consolidated Irrigation District	Selma	Fresno
Corcoran Irrigation District	Corcoran	Kings
Cordia Irrigation District	Marysville	Yuba
Deer Creek Irrigation District		Tehama
Delano-Earlimart Irrigation District	Delano	Kern
Durham Irrigation District	Durham	Butte
El Camino Irrigation District	Gerber	Tehama
El Dorado Irrigation District	Placerville	El Dorado
El Nido Irrigation District	El Nido	Merced
Empire West Side Irrigation District	Stratford	Kings
Exeter Irrigation District	Exeter	Tulare
Fresno Irrigation District	Fresno	Fresno
Galt Irrigation District	Herald	Sacramento
Glenn-Colusa Irrigation District	Willows	Glen/Colusa
Hills Valley Irrigation District	Orange Cove	Fresno
Ivanhoe Irrigation District	Visalia	Tulare
James Irrigation District	San Joaquin	Fresno
Laguna Irrigation District	Riverdale	Fresno
Lakeside Irrigation District	Hanford	Kings
Lindmore Irrigation District	Lindsay	Tulare
Lindsay-Strathmore Irrigation District	Lindsay	Tulare
Lower Tule River Irrigation District	Porterville	Tulare
Madera Irrigation District	Madera	Madera
Maxwell Irrigation District	Maxwell	Colusa
McAllister Ranch Irrigation District		Kern
Merced Irrigation District	Merced	Merced
Modesto Irrigation District	Modesto	Stanislaus
Naglee-Burke Irrigation District	Tracy	San Joaquin
Oakdale Irrigation District	Oakdale	Stanislaus

⁴⁰ This list is based on districts reported in the California Controller's "State of California Special Districts Annual Report. Fiscal Year 1999-2000." This is the most recent report year available.

Irrigation District	Town	County
Orange Cove Irrigation District	Orange Cove	Fresno
Oroville/Wyandotte Irrigation District	Oroville	Butte
Paradise Irrigation District	Paradise	Butte
Pixley Irrigation District	Pixley	Tulare
Porterville Irrigation District	Porterville	Tulare
Princeton-Codora-Glenn Irrigation District	Princeton	Colusa
Provident Irrigation District	Willows	Glenn
Richvale Irrigation District	Richvale	Butte
Riverdale Irrigation District	Riverdale	Fresno
Saucelito Irrigation District	Poterville	Tulare
Shafter-Wasco Irrigation District	Wasco	Kern
South San Joaquin Irrigation District	Manteca	San Joaquin
Stone Corral Irrigation District	Visalia	Tulare
Stratford Irrigation District	Stratford	Kings
Table Mountain Irrigation District	Oroville	Butte
Terra Bella Irrigation District	Terra Bella	Tulare
Thermalito Irrigation District	Oroville	Butte
Tranquility Irrigation District	Tranquility	Fresno
Tulare Irrigation District	Tulare	Tulare
Turlock Irrigation District	Turlock	Stanislaus
Vandalia Irrigation District	Poterville	Tulare
West Side Irrigation District	Tracy	San Joaquin
West Stanislaus Irrigation District	Westley	Stanislaus
Woodbridge Irrigation District	Woodbridge	San Joaquin

