Local Interview Results

Interviews with local employers and local utility providers to potential opportunities for the green technology park in Shasta Lake provide insights to the Strengths, Weaknesses, Opportunities and Threats; also known as a SWOT Analysis. Who better to assess the business climate in Shasta Lake and the region than employers operating in it on a daily basis?

Local Employer Interviews

Six local employers from Shasta Lake and two green companies in Shasta County were interviewed:

Company Name	Company Representative
EV4U	Richard van Wyhe
Knauf Insulation	Iain James
Lawrence & Associates	Dan Jensen
Premier Brand Meats	Roger Lawson
Surbore	Don Larson
Siskiyou Forest Products	Darren Duchi
Sierra Pacific Industries	Mark Pawlicki
Trenches Pipe Company	Mark Schroeder

The interviews were conducted in a qualitative manner not as a survey, in order for probing into potential areas of opportunity. Following is the list of questions:

- Why are you located in Shasta Lake/Shasta County?
- What factors in the area contribute to your company's success?
- What, if any, are local barriers or issues that negatively affect your operations/business?
- Are there related business opportunities to your company (such as vendors and suppliers) that could flourish in Shasta Lake?
- How appealing would a green technology park be to your business? What components are most important to you as features for a green technology park?
- What "green" companies/industries could be recruited to this green technology park in Shasta Lake?

Findings

Reasons for Locating in Shasta Lake/Shasta County

The leading reasons focused around lifestyle of the community and recreational offerings. “I fell in love with the area while on vacation.” “I moved my business because I wanted to retire in the area.” “The view” [in reference to Lake Shasta]. “It is a nice place to raise a family, live and work.” “Our employees wanted to move here.”

Next in ranking were the assets of transportation access via Interstate-5, low electricity rates and availability of an existing building. Other reasons include:

- Lack of organized labor.
- Market access to customer base.
- Better tax and permitting schedule/process than Oregon.
- Purchased a company located in area.
- Desire for a quality showplace where customers could be invited to see operations.

One company came to area because costs were lower, but now perceives costs to be at the same level as operating in the Bay Area.

Factors Contributing to Company’s Success

#1 Location – proximity to other related companies, proximity to hometown, proximity to resources (forest products), ability to serve customers in Los Angeles Region, Bay Area, Portland, Seattle, and immediate access to Interstate-5.

Other factors mentioned include:

- Quality of life/lifestyle as attribute to attract talent from outside the area
- Available labor.
- Stable workforce with little turnover.
- Beauty of area.
- Pro-business City government.
- Local clientele – services provided by company are well suited to area.
- Available fuel supply (by-product of sawmill) to power co-gen plant.
- Low lease rates.
- Low cost electricity.

Local Barriers or Issues

Although some local employers have no negative issues to report, others brought up concerns about the local business climate.

- As high as the local unemployment typically is in Shasta County, some companies still have trouble filling open positions with qualified employees. Most candidates lack experience and the company addresses with a lot of in-house training and recruitment from outside the area. Specialist contractors/workers need to be sourced from Sacramento or Bay Area.
- Higher transportation costs due to distance to major markets and suppliers.
- Lack of local suppliers for materials and plating.
- For a customer base, the local market is small.
- Environmentalists are anti-development (i.e. NIMBY – "Not in my back yard" attitude) and anti-business. There is prevalent resident opposition to industry and factories.
- Environmental constraints in Shasta County more rigorous that rest of California, which increases business costs.
- Higher cost of electricity in California due to energy taxes and renewable energy portfolio than other part of the US (e.g. South, Midwest)
- In the past, permitting timeline is too long (3 to 6 months) due to the city employing a consultant for development oversight. It was a very inefficient process. The consultant is no longer at City so there does not seem to the problem any longer.

Suggested Business Opportunities for Shasta Lake related to Local Business Needs

Following is a list of businesses and products that local businesses would like to source locally:

- Plastic recycler (specifically HDPE) – Local recyclers are not precise with sorting by quality of materials which is important to the type of recycled input products used in operation. Company currently drawing recycled plastics from California, Arizona, Nevada, Oregon, Washington, Idaho and even Houston, TX.
- Glass recycler
- PVC manufacturer
- Stainless steel fittings manufacturer
- Packaging materials
- Desire to source timber locally – most brought in from Canada

Green Technology Park Appeal

For the most part, employers believe this is a great idea. They believe that offering a green business park would be an asset and it would be an advantage to businesses to produce goods and services in a "green building". It will still be important to make a financial case that is reasonable to non-green development. Businesses want to go green but it must be economical at the same time.

Some employers recognized that the City has limited resources to attract primary industries with incentives so this unique business park could be another way to draw attention to Shasta Lake. Others believe that incentives (tax incentives, cash) are of more value to businesses than a green business park.

One employer believes that Shasta Lake is not ready for a green business park and thinks Chico may be a better place to develop a green industrial park. The personality and culture of Chico is perceived to be a better fit for green companies.

Most Important Features Available at Green Technology Business Park

Leading features suggested to make the proposed green technology park a unique offering include:

- Ability to source renewable power for operations.
- Quality landscaping to portray a good image of business, business park and community.
- Able to use recycled water for manufacturing process, cooling and landscaping irrigation.
- Public area amenities for walking, exercise and lunch breaks. Water features (e.g. small lake) and exercise circuit suggested.
- Public transportation to business park coordinated with shift changes.
- Fast-track permit process for green businesses/target industries.
- Solar farm to provide direct power to business park.
- Allow solar panels to be installed on rooftops of buildings.

Others expressed questions about the business park, such as:

- Would land be for purchase or just ground lease?
- Will this business park be a private development? [One employer expressed preference to not invest city funds for business park development.]

Suggestions for "Green" Company/Industry Targets

The leading issue articulated in regards to the consideration of targets for the new business park is a focus on company owners that appreciate the environmental assets of Shasta County, including outdoor enthusiasts for lakes, rivers, mountains. It is perceived that people who appreciate the environment and enjoy outdoor activities go hand in hand with companies that have a green or sustainable philosophy.

Essentially, entrepreneurs and owner operators should be a priority for recruitment since lifestyle attributes are the biggest draw to area.

There is also a desire from local businesses to attract industries that complement existing businesses in the area.

Specific industries suggested include:

- Small components, such as lighting and control panels
- Plastics recycler (HDPE)
- Glass recycler
- Wind turbine manufacturers
- Solar panel manufacturers

Local Utility Representative Interviews

Six representatives from local utilities in Shasta County were interviewed:

Utility	Utility Representative
Shasta Lake Electric Utility	Tom Miller, Electric Utility Director
Shasta Lake Electric Utility	Trent Drenon, Assistant Electric Utility Director
City of Redding	Pat Keener (economic development and Redding Municipal Utility District)
City of Redding	Pam Clackler (water conservation)
City of Redding	Josh Keener (waste water treatment)
Northern California Power Agency	James Pope, General Manager

Energy Utilities

The interviews were conducted in a qualitative manner not as a survey, in order for probing into potential areas of opportunity. Following is the list of questions:

- How are you approaching smart grid and smart metering?
- What is your renewable energy portfolio and how is the utility moving into more energy sourced from renewable generation?
- What is the utility doing for energy efficiency practices with customers?
- What opportunities may exist for related companies to locate at the Shasta Lake green technology park?

Smart Grid and Smart Metering (also known as Automated Metering Initiative - AMI)

Shasta Lake Electric Utility: Fully-installed automated meter reading systems throughout service area of 4,400 customers. The City worked with Tantulas, a Canadian company. A case study on Shasta Lake's installation is provided as background information.

Plan for future is for customers to be able to log into website and see their usage rates in real-time. A customized software program will need to be developed since there is no such programs "on-the-shelf". This may be opportunity for a target business park company. Shasta Lake Electric Utility may increase rates to pay for such a website program.

Redding Electric Utility: No plans for smart grid or smart metering installations for the next three to five years. They are waiting for improvements to technology before investing in this upgrade.

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Northern California Power Agency: NCPA represents fifteen member utilities, including the Redding Electric Utility. In regards to smart grid and smart metering, NCPA members are taking a second adapter position, waiting to see what the larger utilities are going to do. There is also anticipation that later generations of smart grid and smart metering technology will be lower-priced.

Renewable Energy Portfolio and Incentives

Shasta Lake Electric Utility: 10% of Shasta Lake's power comes from renewable energy sources according to the 2009 annual report to the California Energy Commission (CEC). The largest amount is generated through wind farms in Washington State. 24% of Shasta Lake's total power mix comes from large hydroelectric, which the CEC does not recognize as renewable energy generation. However, the City of Shasta Lake, by City Council resolution, chose to recognize large hydro towards its renewable energy goals. This was partly due to the community's relationship with the dam building in the 1940s. The City of Shasta Lake's direct power sources are the Shasta and Keswick Dams. The City has direct (physical) interconnection to Keswick Dam and Shasta Lake Electric Utility is the first load coming out of Shasta Dam. Further, the City in meeting the legislative intent has opted to purchase additional renewable energy; enough to cover the city's native load (does not include Knauf Insulation).

Shasta Lake Electric Utility does offer rebates for solar installations. Only a few local installations have occurred, most likely because electric rates are comparably lower from Shasta Lake Electric Utility. There are only about six total solar installations in Shasta Lake, including those installed at city facilities.

Redding Electric Utility: According to the REU Power Content Label for third quarter 2009, 9.4% of Redding's power comes from renewable sources. Geothermal and small hydroelectric are the leading sources for Redding's renewable energy. 25.7% of REU energy is sourced from large hydroelectric.

$10 million is available in local program for incentivizing local solar installation. Still not a competitive price, even with incentive, due to Redding's power costs being the second lowest in California. With this incentive, REU is planning for one hundred residential customers installing solar by 2012, accounting for 2 MW of solar generation.

Energy Efficiency Programs

Shasta Lake Electric Utility: Home Energy Audit Program is a new service offered. Shasta Lake Electric Utility contracts through Energy Services Group based in Oregon. Grants are awarded to upgrade

materials for better energy efficiency, such as insulation and windows. The city is currently hosting meetings with contractors and HVAC installers to promote the new program.

Redding Electric Utility: Redding has paid out 48,000 customer rebates and incentives, accounting for $20 million, for energy efficiency programs since 2000. The result has yielded a 12 MW reduction in power usage. Programs cover such things as HVAC, Energy Star appliances, solar fans, insulation and weatherization, window replacements, caulking and weather stripping, heat pump replacements lighting replacements and occupancy sensors for lighting.

A successful program for Redding is the "Earth Advantage" Program[1] that was replicated from Portland, Oregon. Redding Electric Utility is partnering with Shasta Builders' Exchange, the City Building Department, and the City's Water and solid Waste Utilities on this comprehensive program for new construction projects in the City of Redding. Outcomes of this program include: increased energy efficiency, healthier indoor air quality, environmental responsibility and resource efficiency.

Suggested Companies/Industries for Green Technology Park

- AMI monitoring software/website development
- Manufacturers of energy efficiency materials and equipment

Note: Comments were made as to the desire to see these products made locally, but concerns were also raised about the difficulty to attract manufacturers to California due to the state business climate.

Other Utilities

The interviews were conducted in a qualitative manner not as a survey, in order for probing into potential areas of opportunity. Following is the list of questions:

- How are you approaching sustainability and conservation?
- What programs do you offer to support green practices?
- Do you have any suggestions for park features that would enhance its "green" offerings?

Mandates/Market Drivers

Due to abundant water resources, residents and businesses in the area tend not to be as forward-thinking for water conservation as Southern California and larger cities in California. There are several new mandates and programs that will affect change in water conservation and other sustainable practices:

[1] http://www.reupower.com/energysvc/earth-adv.asp

- State 20x2020 Water Conservation Plan mandates a 20% per capita reduction of water demand by 2020[2] . An interim goal of 10% reduction by 2015 has also been established. Communities that do not comply will be denied access to state grants and loans. This regulation will be a huge driver for more sustainable approaches with water management; much like the impact of the state's renewable portfolio standard spurred the growth of renewable energy generation. However, unlike energy conservation programs where there are mandated programs to collect money from ratepayers to support programs, funding for water conservation programs does not exist nor is there a mechanism to collect funds from rate payers.
- The Federal Environmental Protection Agency is working on "Water Sense"[3] labeled products, similar to how "Energy Star" products receive a rating for energy efficiency. It is anticipated that this label will serve as a criteria for receiving potential water conservation incentives or rebates in the future.
- The CALGreen Building Codes[4] will go into effect January 2011. Areas of focus include building materials, energy efficiency, water conservation and general building design. Following is an excerpt regarding the purpose of the new codes:

> *The development of the CALGreen Code is intended to (1) cause a reduction in greenhouse gas emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. The reduction in greenhouse gases has been mandated in recent years by the Governor through executive orders and the passage of the California Global Warming Solutions Act of 2006 (Assembly Bill 32, Chapter 488 of the 2006 Statutes) adding Division 25.5 to the California Health and Safety Code. The provisions of AB 32 require a cap on greenhouse gas emissions by 2020, mandatory emissions reporting, and an ongoing market-based compliance program. Establishing the CALGreen Code is an important step towards more efficient and responsible building designs. The California Air Resources Board estimates that the mandatory provisions in this new code will reduce green house gases by 3 million metric tons by the year 2020.*

Programs Currently Offered

[2] http://www.swrcb.ca.gov/water_issues/hot_topics/20x2020/index.shtml

[3] http://www.epa.gov/WaterSense/

[4] http://www.documents.dgs.ca.gov/bsc/CALGreen/Master-CALGreen-Non-Res-Guide2010-sec-ed-final-11-09-10.pdf

Few rebate/incentive programs are offered outside of energy efficiency. However, the "Earth Advantage" Program does encompass water conservation practices.

The operation of Redding's waste water treatment plants may involve new installations of renewable energy generation to run independently. The City is working on using methane from the digester to generate enough energy to run the Clear Creek treatment plant. A Purchase Power Agreement is also being investigated for a solar installation to power one of the treatment plants.

Suggested Green Park Features

- Require water-wise landscaping.
- Capture water run-off for irrigation use.
- An ideal situation among companies in the proposed green technology park would be the integration among businesses in the park to utilize waste streams in production from business to business. The term for this practice is *Industrial Eco-system*: "Fostering cooperation among various industries whereby the waste of one production process becomes the feedstock for another."[5]

[5] http://www.smartcommunities.ncat.org/business/parkintro.shtml

Reference Material

A. Tantulas Case Study on Shasta Lake Electric Utility AMI

B. Shasta Lake Electric Utility Power Content Label

C. Redding Electric Utility Power Content Label

Tantalus

MUNICIPAL UTILITY AIMS HIGH WITH WATER & ELECTRIC AMI

City of Shasta Lake Utilities

Challenge :: The same business requirements and regulatory mandates that drive large utilities to invest in AMI also apply to smaller utilities. The City of Shasta Lake is no exception. Although this northern California electric and water utility serves less than 5000 customers, it is caught up in the brisk pace of change that requires California utilities to prepare for Time of Use (TOU) pricing, adapt to supply constraints, and have a network that supports the kinds of interactive consumer energy management applications proposed in a state-wide mandate aimed at conserving energy.

Solution :: The range and robustness of the TUNet® 220 MHz WAN gives territory wide coverage in a mountainous, thickly forested region. This creates a rapid and reliable two-way data communications network that enables Shasta Lake to collect interval meter readings (hourly electric / daily water). TUNet also allows the utility to query any electric meter on the system instantly, which is particularly useful when investigating power quality issues or performing off-cycle reads.

The wireless TUNet network provides Shasta Lake with a Smart Grid ready network that requires less infrastructure and incurs much lower on-going maintenance costs than technologies that use a public backhaul network. Additionally, because the City's poles were already congested, a solution that did not require extensive pole-mounted equipment was an important consideration.

With the addition of leak detection capabilities offered with the joint Tantalus/Badger Orion water AMI solution, Shasta Lake has been able to offer proactive notifications to customers, and noticeably raise the level of customer satisfaction.

Results :: Size did not hold back Shasta from becoming a leading light in California's Smart Grid evolution. TUNet provides the utility with an AMI network that supports the functional criteria outlined in SB 1438, the proposed legislation which aims to improve the way energy is distributed, managed and consumed in California.

At its core, TUNet enhances distribution system operating efficiency and improves service reliability, by automating the meter reading process, instantly alerting staff if there is an outage or service disruption, enabling the utility to quickly identify water leaks or suspected energy diversions, and providing the data needed for accurate forecasting and better workforce management.

For example, operations staff are notified by a text message in the event of an outage or power quality alert. Rapid dissemination of information helps Shasta Lake quickly assess the extent of a problem - whether an isolated event or unfolding situation - and determine the best course of action.

Automating routine processes such as meter reading and bill preparation, combined with the ability to remotely investigate (and often rectify) field issues is a boon to a utility that numbers just seven full-time staff.

TUNet is an end-to-end solution that closes the loop between the utility and its customers, a primary goals of the California mandate. Hourly data collected via TUNet can be incorporated into either online of hard copy billing statements to give customers a better understanding of their usage patterns, and help them make informed decisions on when and how they use energy.

Deployment ease and flexibility enables Shasta Lake to effectively manage growth as the community expands. The Tantalus network meets Shasta Lake's current AMI requirements and has the flexibility to support a wide range of energy efficiency programs such as load control. This will enable to selectively shed loads on customer appliances such as HVAC devices for short periods of time if faced with system shortages, dramatic price increases or equipment failure.

"This represents a radical change in the way utilities can manage their business. Customers can use the information to reduce their power consumption and bills. Plus, it constantly monitors for power outages and water leaks, and instantly alerts staff if there's a problem."

City of Shasta Lake Profile

- Shasta Lake, California
- 4,400 electric customers
- 3,600 water customers
- 7 square mile service area (18 sq. km)
- Hilly in-city terrain with thick vegetation

TUNet Advantages

- Easy, fast deployment of TUNet (electric) & Badger ORION (water) meters
- Simple integration with existing CIS, SCADA and planning & engineering applications
- Single tower provides 100% radio coverage and extends into adjacent utility
- Cost savings via in-house deployment: all meter change-outs done by utility staff, including retrofits of C&I electric meters
- Immediate savings by automating service to hard-to-read / high-turnover locations and delinquent accounts
- Support for remote disconnect / reconnect
- Ability to add advanced applications including DR, load control and TOU pricing in accordance with Smart Grid trends
- Freedom to rapidly scale AMI system and capacity to accommodate population growth

ANNUAL REPORT TO THE CALIFORNIA ENERGY COMMISSION: Power Source Disclosure Program
August 2010
for the year ending December 31, 2009
SCHEDULE 2C: RETAIL SALES
Applicable to: Retail Providers

INSTRUCTIONS: This form will automatically calculate the correct annual power content label percentages based on your sales reported on Schedule 2.

Product 1	All Classes of Service
Product 2	-
Product 3	-
Product 4	-
Product 5	-
Product 6	-

	Product 1	Product 2	Product 3	Product 4	Product 5	Product 6
Renewable	10%	0%	0%	0%	0%	0%
Biomass & Waste	0%	0%	0%	0%	0%	0%
Geothermal	0%	0%	0%	0%	0%	0%
Small hydroelectric	0%	0%	0%	0%	0%	0%
Solar electric	0%	0%	0%	0%	0%	0%
Wind	9%	0%	0%	0%	0%	0%
Coal	28%	0%	0%	0%	0%	0%
Large hydroelectric	24%	0%	0%	0%	0%	0%
Natural Gas	35%	0%	0%	0%	0%	0%
Nuclear	4%	0%	0%	0%	0%	0%
Other	0%	0%	0%	0%	0%	0%
TOTAL	100%	0%	0%	0%	0%	0%

CEC Reg. # 0

POWER CONTENT LABEL

2009 Actual Power Mix

ENERGY RESOURCES	2009 REDDING POWER MIX* Based on retail sales	2009 CA POWER MIX** (for comparison)
Eligible Renewable	**9.4%**	13.9%
-- Biomass & Waste	1.3%	2.8%
-- Geothermal	3.0%	6.3%
-- Small hydroelectric	3.7%	2.0%
-- Solar	0.2%	0.4%
-- Wind	1.2%	2.4%
Coal	**9.4%**	1.8%
Large Hydroelectric	**25.7%**	12.2%
Natural Gas	**32.2%**	56.7%
Nuclear	**0.0%**	15.3%
Other (1)	**23.3%**	0.0%
Total	**100%**	100%

* 52% of Redding's Power Mix is Redding generation or specifically purchased from individual suppliers. Non-specific purchases are treated as 2009 CA Gross Power Mix.

** Percentages are estimated annually by the California Energy Commission based upon electricity sold to California consumers during the previous year.

(1) This value represents energy from a sale of wind & hydro renewable energy credits for calendar year 2009.

For specific information about this electricity product, contact the City of Redding Electric Utility at 530-339-7300. For general information about the Power Content Label contact the California Energy Commission at 1-800-555-7794 or on the web at www.energy.ca.gov/consumer.