

Bay Area Economic Council Survey  
Santa Clara County  
Elmwood Jail Self Sufficiency – Solar Power Installation

1. **Project Number:** INQ-20090424122023-569961879
2. **Submitting Entity:** County of Santa Clara
3. **Project Partners:** Department of Corrections
4. **Contact Information:** Caroline Judy
5. **Proposal Name:** Elmwood Jail Self Sufficiency - Solar Power Installation
6. **Project Description:** The Elmwood Jail Self Sufficiency project would install solar photovoltaic panels and a solar hot water system at the County's minimum and medium security jail campus. The County is seeking \$5.5 million in funding to support this 1 mW solar project. The total project costs are anticipated at approximately \$7.5 million, and will result in over \$6 million in savings to the County over a 20 year system life. The Elmwood facility presents an opportunity for innovative solar system design, and the County intends to issue a request for proposals for a concentrating solar system design to improve efficiency of the overall generation capacity.
7. **Bay Area Strategy Category:** 3=Energy/Climate
8. **Importance to Economic Competitiveness/Strategic Priorities: Current Status of Project:**

The Elmwood Self Sufficiency Solar Generation project will offer the opportunity for design and installation of concentrating solar technologies in a large scale commercial application. This market segment in the solar industry is relatively new and several Bay Area companies are leading innovators. As new market entrants these smaller innovative solar companies are growing rapidly and provide opportunities for high value, green jobs. Many studies have shown that this type of job growth is beneficial to the region as wage rates are high and opportunities for advancement are excellent. In addition, the County's project will further the diffusion of concentrating solar technologies within the Bay Area. As an early adopter of these technologies the County's project will facilitate identification of barriers to widespread commercialization of more efficient solar power generation.
9. **Delivery Timeline:** In design
10. **Start Date:** 12 months
11. **Barriers:** The existing facility infrastructure at Elmwood is aging and as a consequence the project will require updating transfer switches. The financing for the project will have to consider these costs as well as the solar panel system costs. This additional cost barrier will present technical and administrative challenges for the project. Not impossible to overcome - just added complexity.
12. **Total Costs:** \$ 3.75 design and \$3.75 construction = \$7.5
13. **Total Funding Sources Anticipated Contribution:** \$1
14. **Total Funding Sources Committed:** 0
15. **Total Funding Anticipated from other entities:**
  - a. State: \$3.25 m

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- b. Federal:0
  - c. Other:0
16. **Timing of Funding Need:** 2 -24 months
17. **Number of People Project anticipates employing:**
- a. in the 0-6 months following the launch of the project - 0
  - b. in the 6-12 months following the launch of the project - 42
  - c. in the 12-24 months following the launch of the project – 0
18. **How does this project relate to sustainable job creation and long term competitiveness of the Bay Area workforce?** The County has studied the economic impact of various proposed projects considered for ARRA funding. The Elmwood Self Sufficiency Solar power project will generate 41 jobs through direct and indirect impacts. The creation of jobs is attributable to the resource hours required to deliver a functional solar power generating system. These resource hours would include, to varying degrees, architectural and engineering design, project management, technical services, fiscal, site survey, and installation staff. Additional jobs will be required to facilitate and make the project completion possible. These resource hours would include, to varying degrees, utility company's staff (for grid interconnection, plan review, regulatory compliance, and permitting), material and equipment manufacturing, and material and equipment transportation. In addition, on-going jobs would be attributed to resource hours required to sustain the investment on an on-going basis after it has been installed. They would include scheduled interval maintenance of system components such as inspections and replacement of inverters and interconnects, cleaning of solar panels, etc. These are sustainable jobs.
19. **Estimated net economic benefit:**
- a. Under 25 million - x
  - b. 25-50 million -
  - c. \$50-100 million -
  - d. \$100-500 million-
  - e. \$500 million)-
20. **Explain response to above:** Based upon study conducted by Antonio Avalos, Ph.D. and Workx Research Corporation
21. **Measures taken to promote environmental sustainability:** The County's Elmwood Self Sufficiency Solar Power Generation project will reduce the GHG emissions associated with consumption of PG&E grid power. By removing the entire campus electrical load from the grid the County will reduce CO2 emissions by 1,887 metric tons annually, or the equivalent of removing 346 automobiles annually. This is one of the most significant reductions in GHG emissions that the County will be able to achieve at a single facility. Existing law requires energy conservation improvements but does not require renewable power generation.
22. **Measures taken to promote disadvantaged communities:** The County's mission is to provide health and human services for low income and at risk populations, and enhance public safety.

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The Elmwood project will not directly address the needs of disadvantaged communities, However there will be indirect impacts through reduced facility operating expenses and therefore additional funds will be available for direct services to these populations.



Bay Area Economic Council Survey  
Santa Clara County  
Energy Conservation and Facility Retro-commissioning Project

1. **Project Number:** INQ-20090424082949-753073124
2. **Submitting Entity:** County of Santa Clara
3. **Project Partners:** Cypress Envirosystems, Lawrence Berkeley Labs. In addition, project will use private job order contractors to execute the work.
4. **Contact Information:** Caroline Judy
5. **Proposal Name:** Energy Conservation and Facility Retro-commissioning
6. **Project Description:** The County plans to establish a retrocommissioning program to evaluate building systems and implement energy conservation measures in existing buildings. These improvements will allow older facilities to participate in auto-demand response programs and other Smart Grid programs. Retro-commissioning projects involve a detailed review and analysis of the major building systems (cooling, heating and lighting) and how these are functioning. The projects also involve the repairs and tuning of the systems such that they meet design performance standards. Energy conservation measures may require replacing older equipment, redesigning lighting systems, or installing innovative new devices. For example, installation of wireless pneumatic thermostats enables older buildings to participate in auto demand response programs. The County has successfully used new technology such as this to significantly reduce utility demand, but lacks the resources to expand these programs beyond a few demonstration facilities. This funding will allow the County to extend the retro-commissioning/energy conservation program to 29 facilities, at a cost of \$3.3 million.
7. **Bay Area Strategy Category:** 3=Energy/Climate
8. **Importance to Economic Competitiveness/Strategic Priorities:** Energy conservation in existing facilities represents the single largest opportunity to reduce GHG and slow climate impacts resulting from use of fossil fuels. The County has partnered with innovative firms such as Cypress Envirosystems, and academic partners such as Stanford University and Lawrence Berkeley Labs to evaluate opportunities to apply new technologies to reduce and better manage energy consumption in existing facilities. Through demonstration of the efficacy of these approaches the County of Santa Clara is contributing to the diffusion of new technologies, and supporting further innovation. In addition, the County's retrocommissioning program is anticipated to generate 40 new jobs, according to a recent study. Economic competitiveness is driven by innovation and diffusion of new technologies. The County's proposal will enable both.
9. **Current Status of Project:** Design is complete
10. **Delivery Timeline:** 12 months
11. **Start Date:** Immediately/Underway
12. **Barriers:** Funding is the only barrier to the expansion of the County's retrocommissioning and energy conservation program.
13. **Total Costs:** \$3.976 million

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- 14. **Total Funding Sources Anticipated Contribution:** \$750,000
- 15. **Total Funding Sources Committed:** \$275,000
- 16. **Total Funding Anticipated from other entities:**
  - a. State: \$2,951,000
  - b. Federal: 0
  - c. Other:0
- 17. **Timing of Funding Need:** Immediate
- 18. **Number of People Project anticipates employing:**
  - a. in the 0-6 months following the launch of the project - 0
  - b. in the 6-12 months following the launch of the project - 40
  - c. in the 12-24 months following the launch of the project – 0
- 19. **How does this project relate to sustainable job creation and long term competitiveness of the Bay Area workforce?** The County of Santa Clara would contract out these projects with a cost of \$3,378,328 which constitute the source of the one-time employment impact. In addition, the estimation of the on-going maintenance funding needs for retro-commissioning relies on a 2% annual maintenance factor, which is the industry recommended maintenance funding level for commercial grade facilities. Under this assumption, the annual sustainability investment is estimated to be \$67,566. The estimated total one-time employment impact is 40 jobs, 13 jobs from Tier 1 projects and 27 jobs from Tier 2 projects. Based on the estimated annual maintenance expenses, the on-going employment impact is 1 job per year. Therefore, the most significant employment impact of the projects is directly related to project implementation. However, success of the program will prove the viability of the technology and approach to reducing energy consumption in older facilities. If other large property owners adopt the County's methodologies then additional jobs will be generated beyond the direct project impacts. Competitiveness is enhanced as Bay Area firms continue to innovate and these innovations are adopted.
- 20. **Estimated net economic benefit:**
  - a. Under 25 million - x
  - b. 25-50 million -
  - c. \$50-100 million -
  - d. \$100-500 million-
  - e. \$500 million)-

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21. **Explain response to above:** Based upon study conducted by Antonio Avalos, Ph.D. and Workx Research Corporation
22. **Measures taken to promote environmental sustainability:** The County's proposal will result in significantly reduced energy consumption in 36 County owned facilities. Investment in energy conservation technologies especially in existing facilities reduces GHG emissions associated with power generation. Existing law requires the County to meet Title 24 requirements, but does not require sustained energy conservation. Building systems efficiency degrades over time and requires constant monitoring. The County's proposal goes beyond existing energy conservation requirements by implementing an ongoing program to monitor efficiency over time. In addition, the County's proposal installs new technology that enables participation in energy demand reduction programs. Both efforts contribute to environmental sustainability by reducing energy consumed in existing buildings.
23. **Measures taken to promote disadvantaged communities:** The proposal does not impact disadvantaged communities directly. There is an indirect impact as the consumers of County government services are largely low income, disadvantaged members of society.

