

BACWA – Engineering Information Sharing Group  
Meeting Minutes  
October 1, 2009  
10-1 at WCWD

**ATTENDEES**

Rolf Ohlemutz, VSFCD  
Brian Henderson, SF  
Michael Penny, CCCSD  
Garry Lee, DSRSD  
Steve Delight, DSRSD  
Rhodora Biagtan, DSRSD  
Greg Baatrup, FSSD  
Kevin Rahman, SMCSO  
Paul Winnicki, WCWD  
Ken Cooke, WCWD  
Ravi Kachhapati, San Jose  
Irene O’Sullivan, DDSO  
Joel Waxdeck, Livermore  
Mike Barnes, Kennedy/Jenks Consultants

**SOLAR POWER PROJECTS**

**WCWD Solar Power Project**

The project consists of multiple dual axis solar panels with a stated capacity of 1 mW DC. Solar Power Partners (SPP) built the project, which cost approximately \$9 million, but was eligible for a 30% federal tax credit, as well as a \$2.2 million dollar credit from PG&E. Via a 20 year PPA with SPP, the District buys all power produced at a current rate of 10.7 cents/kWH. They have a net metering agreement with PG&E so that power produced in excess of what the District can use is sold to PG&E at the rate in effect at the time. The power price is inflated at 4% per year.

The District benefits when they can sell power to PG&E during the summer when the rates are higher than 10.7, but runs a negative during the winter months when rates are lower. PG&E balances their book at the end of the year, and credits the District for the power it purchases. There is no carryover of credits, and the credits cannot exceed the District’s power costs for the year. The District’s average annual rate, including demand charges, was about 12.5 cents/kWH, so the solar power is cheaper on the average. A key component of the cost effectiveness is whether the District can run on solar power during the peak charges between noon and 6 pm in the summer.

The solar power is connected to the plant 480v power in four locations to minimize cabling and conduit costs. The design needs to account for the difference capacities when working with DC power instead of AC power. For instance, heavy duty switches rated at 600 amps for AC power are rated at only 250 amps of DC power.

Key issues to consider for the project include the agreement, insurance of the panels, what happens if the supplier doesn't perform (include performance bond?), defining the level of documentation to be delivered, do prevailing wages apply, and reviewing whether the PPA provider has the funding to implement the project.

### **FSSD Solar Power Project**

Via an informal RFP process, the District entered into a PPA with Sun Edison to install 1 mW of single axis tracking panels will be installed on between 5.5 and 7 acres, and supply power at 10 cents/kWH. The PPA is for 20 years, and the power cost will escalate by about 4% per year. They broke ground 2 weeks ago. The panels will be mounted on numerous 4-inch poles inserted in the ground. The facility is scheduled to be operational by November 1, 2009.

The vendor for their wind turbine project has had financial difficulties and has been unable to complete the project. The project consists of four 50 kW wind turbines.

### **DDSD Solar Power Project**

Has an RFP out for a solar project to install a 500 kW solar array to provide power for the recycled water facilities that supplies cooling water to nearby power plants. The panels will be installed on between 2 and 4 acres. The RFP was sent to 30 vendors, and 5 attended the recent job walk. Implementation of the project is dependent upon the pricing and whether the power plants decide to proceed.

### **VSFCD Solar Power Project**

Considering installing solar panels on the top of their wet weather storage tank. They have about 2 acres. The Board is very interested in the project. They have not yet determined the cost effectiveness of the project. If they proceed, they will likely sell power to PG&E during the day time.

### **General Solar Project Notes**

Kenwood Energy (Tim Holmes) provided consulting services to WCWD, DDSD, and VSFCD for their projects.

The Public Contract Code has special provision for solar projects that allow agencies to award work without using a low bid process.

## **FUEL CELL PROJECTS**

### **DSRSD Fuel Cell Project**

Installed two 300 kW fuel cells in March 2008. The capital cost was about \$4.6 million, and they got a \$2.7 million grant. DSRSD made about \$1.1 million in plant improvements to support the project. The contract with the fuel cell supplier for maintenance is about \$870,000 for 5 years. (This does not include the maintenance of the gas treatment system, which is paid for by the District.)

The fuel cell has not been as reliable as anticipated. It shuts down when the power frequency deviates slightly from 60 Hz, and this is inconvenient since it takes time to power back up. For a hot restart, the ramp up time is 25 kW/minute; however a cold

restart ramps up only 1 kW/min, so it takes almost 12 hours to get back to capacity. In addition, the shutdowns decrease the life of the stacks. They also had shutdowns when the inlet air temperature was too high; implying the inlet air cooling system was undersized. The quality of the digester gas has been fine, and has not caused shutdowns. To improve reliability and run times, they have run the fuel cells at lower output.

### **DDSD Fuel Cell Study**

They are reviewing the feasibility of installing a 1 mW fuel cell. They have estimated it will cost about \$4.2 million. They are hoping to get ARRA funding to support the project. In addition to reviewing the DSRSD installation, they have also visited the Tulare facility.

Livermore estimated that a 600 kW fuel cell would cost between \$7 and 8 million.

### **BIDDING CLIMATE**

SMCSD had about 10 generals and 15 subs attend a prebid walk through for a \$1 million sodium bisulfite building project. They even had 4 bidders for a recent \$25,000 project, and all bids were under the engineer's estimate.

CCCSD is bidding a \$13 million building for their collections group. 40 people attended the bid walk, and they have distributed 175 sets of contract documents.

Livermore recently bid a lab building project. Engineer's estimate was \$5 million. They received 24 bids ranging from \$3.1 to \$4 million. The pricing for the low bidder and next low bids was very tight.

CMSA received 4 bids for a distributor replacement project estimated at \$75,000. The bids ranged from \$91,000 to \$149,000.

SF had a pipeline project downtown with 6 bidders where the low bid of \$7.2 million was higher than the engineer's estimate of \$6 million. Brian believes the estimate did not account for the difficult working conditions downtown. They may try to rebid the project with a reduced pipeline depth to reduce costs.

### **SUSTAINABILITY**

SF has a biodiesel project at their Oceanside plant, estimated to cost \$12 million. They are competing to get DOE grant funding and are one of two agencies under consideration. They will have an interview as part of the competitive process.

CCCSD has done some greenhouse gas analyses. One conclusion was that they could reduce their carbon footprint by purchasing electricity instead of producing power using natural gas and landfill gas. They would increase operating costs.

**Next meeting date: January 28, 2010 from 10am to 1pm.**

**Potential Site Tours for Future Meetings**

- EBMUD Cogeneration Facility
- CMSA Wet Weather Capacity Project
- San Jose Hypochlorite Project

**Future Discussion Items**

- Stimulus money pursuits (BT 4/09)
- Budget impacts of the recession (EM 4/09)
- Project information management (for example, electronic project management/tracking tools. (TH) (Some discussion as part of CIP discussion)
- GIS or Accessing Data Graphically (BT 1/09)
- Security Systems (PW 10/09)
- Food waste digestion (CMSA, SF, and EBMUD either have projects or a specific interest in this.)
- Succession Planning
- Standard specifications
- Standard details
- Development and/or implementation of major maintenance projects
- Completing small CIP projects
- Project delivery approaches (design build, etc.)
- Maintaining record drawings
- Engineering organization structure
- Use of newer technologies (UV, screw press, etc)
- Rehabilitation of assets
- Process performance