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From: Greg Kremer, Grantee for Distributed Energy Resources Grant Number 04-26

Subject: January 2005 Status Report for Distributed Energy Resources Project # 04-26

Summary: The overall system output continues to be dominated by the wind turbine. The solar production is so low that there appears to be a problem with the system. Dovetail Solar has been notified of the concern. The overall production is at its lowest value yet (47.5 KWH vs 63 KWH in December), and this month my energy use increased slightly (to 48.7 KWH) due to increased use of the heating system, and interestingly it nearly matched the system production, so my "net-meter" value was 1.2 KWH.

The following items are being reported in accordance with the project agreement:

Photographs of the DER system installation site:

No new photos.

Log of activities performed to get approval for installation of the DER system (siting, permitting, zoning, interconnection, and net metering agreements):

- The net metering agreement is in place and I have made progress working out billing issues with AEP.

Actual Project Costs [system design, equipment (itemized), installation, fees (itemized)]:

- \$21,797 as previously reported.

Electric bill usage information (starting one year before system installation, and noting major changes to the project site's energy profile): [All values in KWh, E indicates Estimated reading]

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|------------|------|-------|-----|-----|-----|-----|--------------------|--------------------|-------|-------|-------|-------|
| 2003 | 267 | 229_E | 178 | 165 | 135 | 139 | 183 | 183 | 124_E | 185_E | 52 | 158 |
| 2004 | 130 | 130 | 66 | 72 | 47 | 5 | -59.4 ¹ | -42.1 ² | -40 | -14.4 | -25.4 | -20.2 |
| 2005 | 1.2 | | | | | | | | | | | |
| 12 mo. avg | 45.2 | 155 | 146 | 138 | 130 | 119 | 98.6 | 79.8 | 69.8 | 62.8 | 55.5 | 49.2 |

Notes: All values for May 2004 and earlier are from the electric bill (with a meter reading day in the middle of the month). The solar portion of the renewable energy system became operational on May 31 2004 so its effect begins to show in the electric bill reading for June 2004.

For informational purposes, the meter reading at 6AM June 1 2004 was 29204.2

¹ : This is the difference between the meter reading on Aug 1st and the last actual reading from the June electric bill (6/18/04).

² : This is the difference between my readings of the electric company meter for the month (rather than the mid-month readings by the electric company) to correspond to the values reported below for system energy production. All future months follow this pattern.

- The AEP meter reading on January 31 was ~28988.
- Actual energy use for January was 48.7 KWH, over 3X less than 1 year ago.

Monthly Energy production measured by the DER system metering equipment:

- The system has two meters, the "AC IN" meter that feeds the core loads that are attached to the battery backup system, and the "AC Out" meter that measures the energy provided to all other loads and the grid. The addition of the two values indicates the net energy production at the output of the inverter.

| Date | AC In Meter (KWH) | AC Out Meter (KWH) | Total Monthly Energy Production | Total Energy Produced Since System Installation |
|----------|-------------------|--------------------|---------------------------------|---|
| June 04 | NA | NA | 75 KWH ¹ | 75 KWH ¹ |
| July 04 | 22 ² | NA | 75 KWH ¹ | 150 KWH ¹ |
| Aug. 04 | 60.5 | 18.5 ³ | 80 KWH ⁴ | 230 KWH |
| Sept. 04 | 100.5 | 70 | 91.5 KWH ⁵ | 321.5 KWH |
| Oct. 04 | 140 | 92 | 61.5 KWH | 383 KWH |
| Nov. 04 | 167 | 121 | 56 KWH | 439 KWH |
| Dec. 04 | 207 | 144 | 63 KWH | 502 KWH |
| Jan. 05 | 254.5 | 144 | 47.5 KWH | 549.5 KWH |

Notes:

¹ : Estimated based on the net decrease in the metered usage from the electric company's meter between June 1 and August 1 (-74.6 KWH) plus a conservative estimated energy use of 38KWH per month for June and July.

² : Meter installed in late July, reading from 3:30 PM August 1st.

³ : Meter repaired on August 21, reading from 7:15 AM September 1st.

⁴ : Estimated total value using the actual value for the core loads (60.5-22=38.5 KWH) plus a ratioed number based on 10 days of metered usage between Aug. 22 (5 KWH) and Sept. 1 (18.5 KWH), ((18.5 - 5 KWH)/10 days)* 31 days = 41.85 KWH.

⁵ :This is the first value taken directly from the meters, and all subsequent values should be directly from the meters.

Notes on System Performance (downtime, maintenance, repair costs, weather, etc.):

- The output of the solar system is very low. I have noticed several days now where in full sun near midday (local solar conditions reported as 480 W/m²) the "solar boost 3048" box showed an output current of less than 1 amp. I would have expected a value above 5 amps based on previous experience. I have not seen the digital readout rise to any significant value in the past few weeks. I will follow up with Dovetail solar to see if there is a problem with the system.
- The wind system is working well, but the winds are still intermittent. It seems like the majority of the power is produced in a handful of days each month.

Public Education Activities:

- Interviewed for college renewable energy reports.