

Twelve-Month Performance of Verogy Solar Generating System

Submitted to the Emanuel Synagogue Board of Trustees by Tom Mastronarde – Oct 16, 2022

The Verogy solar generation system achieved full output on Sept. 17, 2021, after a six-week initial operation period of somewhat reduced performance that was mitigated by replacement of defective inverter components in August, 2022.

In the **twelve-month period** from **Sept 19, 2021 to Oct 18, 2022** (in line with the Eversource monthly meter reading and billing schedule), the following results for that one-year period were observed:

- The solar generating system **produced 11% more electricity** than projected in the Power Purchase Agreement.
- The solar generating system **provided 85% of the overall electricity** used by the synagogue building.
- The low cost of the solar energy produced by system produced an **annual savings of \$28,000** in the overall cost of electricity for the building.
- *It was noted that annual building electrical consumption increased by 13% over the design basis value due to increased hours of use of the Sanctuary and additional HVAC loads during a prolonged period of hot weather.*

Electric Energy Usage for twelve-month period ending Sept 17, 2022

Building Electricity Usage (12 months)	259,481 kWh
Solar electricity produced (12 months)	221,163 kWh
Electricity purchased form Eversource (12 months)	48,720 kWh
Cost of Solar Electricity from Verogy	\$18,800
Cost of Eversource Electricity	\$9,785
Overall Cost of Electricity	\$28,585
Equivalent Cost of electricity to Emanuel if all electricity had been purchased from Eversource	\$56,600
Annual Savings for 12-month period	\$28,015

It should be noted that the cost analysis above is not aligned with the previous annual budget or results for the last fiscal year and that the cash flow for the cost of electricity is not a uniform value every month.

Going forward, reports on electricity production, building usage, and costs will be aligned with the Emanuel budget and fiscal year that started July 1, 2022. In addition, the projected monthly cash flow for this fiscal year will be updated this December to reflect higher Eversource rates.