

An online energy portal with capabilities for effective maintenance, asset management reporting and student learning shall be provided and will include:

### **Standard features on all systems**

- Live monitoring of energy, revenue, status and savings using any internet connected PC or smartphone
- Wide screen summary view with site photos for lobby display on an internet connected TV
- Lifetime data storage with graphs for any time period and CSV data download for analysis
- Current status and 30 day logs of measured values for each inverter with reported faults
- Graphical display of daily inverter energy for 30 days showing relative output of all inverters
- Link to an online local weather reporting service
- Programmable links to other internet websites for easy navigation
- Online printable instruction guides for installed equipment. Help and videos explaining portal features.
- Storage with online password protected retrieval of documents, maintenance records and photos
- Internet communication status log for last 30 days
- Email of daily output report with status and notification of any reported faults when they occur
- View alarm and communication status for all solar sites in the portfolio

### **OPTIONAL features for larger systems (>50kW)**

**Weather sensors** for irradiance, panel temp, ambient temp. Graphs, live sensor values, min/max temp, max irradiance, max daily insolation. CSV download of lifetime sensor values. System will send an alarm if any inverter output is below expected for measured irradiance.

**IP Camera** with live still image of roof conditions and local weather. Daily photos to be captured, stored and be retrievable for system lifetime. Onboard storage for 14 days of 24/7 video for security

**Revenue grade meter** with 60 day log of all measured values (kW, kWh, V, A, PF, F) for troubleshooting. Ability to match metered values to utility statement for verifying correct payment. Performance analysis actual to forecast energy, revenue and variance using PVsyst design parameters

**String monitoring** display each string current with low output alarm from smart combiners or inverters with built in DC current sensors.

**3G cellular modem with data plan** Where local LAN internet connection is not available, provide a 3G cellular modem/ router with data plan from local telco to transmit site data.

**Education Content** Lessons, videos, experiments accessible online in the classroom by all students to study performance of their school's system to learn about solar energy. Graphs showing carbon footprint offset and carbon tax savings for any time period.

### **Qualified Vendors**

The system provided will have a consistent user interface and work with different brands of equipment. The vendor must have a proven track record of reliable installations and be able to demonstrate similar systems on line. Use Cachelan SolarVu energy portal with SMART Enterprise portfolio management or equivalent.