



Innovative Turnkey Solar Power Systems in One Procurement



GO BEYOND ENERGY EFFICIENCY NOW

General Services Administration



GSA Federal Supply

MAS Contract Information and Price List

Go Beyond Energy Efficiency Now

General Services Administration

Federal Supply Service

Authorized Federal Supply Schedule Price List

Facilities Maintenance and Management

Schedule 03 FAC

Special Item Numbers 871 209 and 003 97

Contract Number: GS-21F-0099V

For more information on ordering from Federal Supply Schedules click on the FSS Schedules button at www.fss.gsa.gov

Contract Period

June 22, 2009 to June 21, 2014

REC Solar, Inc

775 Fiero Lane, Suite 200

San Luis Obispo, CA 93401

805-528-9705

805-528-9701 FAX

www.recsolar.com/gov

Business Size: Other than small business

Online access to contract ordering information, terms and conditions, up-to-date pricing, and the option to create an electronic delivery order are available through GSA Advantage!, a menu-driven database system. The web address for GSA Advantage! is: <http://www.gsaadvantage.gov>

Customer Information

1. **Special Item Numbers:**
Single procurement will be reported under two SINs:
871 209: Innovations in Energy
003 97: Ancillary Repair & Alterations
2. **Maximum Order:** \$1,000,000
This is the threshold when an ordering activity should request a price reduction. It does not limit the size of an actual order.
3. **Minimum order:** \$100
4. **Geographic coverage:** Domestic only
5. **Point(s) of production:** REC Solar domestic locations
6. **Discount from list price or statement of net price:** All prices herein are net.
7. **Quantity discounts:** Additional 0.75% for orders over 5 MW
8. **Prompt payment terms:** To be negotiated at Task Order level
9. **Government Commercial Credit Card:**
Accepted above and below micro-purchase threshold
10. **Foreign items:** As specified at Task Order level
- 11a. **Time of Delivery:** 30-45 days ARO to commence; 26 weeks commence to completion, or as specified in negotiated delivery/Task Order
- 11b. **Expedited Delivery:** Items available for expedited delivery are noted in this price list.
- 11c. **Overnight and 2-day delivery:** Not available
- 11d. **Urgent requirements:** As specified in negotiated delivery/Task Order
12. **F.O.B. Point(s):** Destination
- 13a. **Ordering Address:**
REC Solar, Inc
775 Fiero Lane, Suite 200
San Luis Obispo, CA 93401
Attn: Burke Kascha-Hare
Phone: 805-540-5486
Fax: 805-528-9701
Email: gsa@recsolar.com
14. **Payment Address:** Should Electronic Funds Transfer (EFT) payment be available, REC Solar requests that the EFT remittance be specified as follows:
REC Solar, Inc.
Pacific Capital Bank
ABA Routing Number: See invoice
Account Number: See invoice

Should EFT not be available, the remittance address is the same as the Ordering Address above.
15. **Warranty provisions:** Manufacturer's warranty and REC Solar installation warranty are specifically identified at the Task Order level between the ordering agency and the contractor.
16. **Export Packaging Charges:** Not applicable
17. **Terms and conditions of Government Credit Card acceptance:**
REC Solar accepts Government Commercial Credit Cards in accordance with Government Commercial Credit Card program guidelines.
18. **Terms and conditions of rental, maintenance, and repair:** Addressed at Task Order level
19. **Terms and conditions of installation:**
Addressed at Task Order level
- 20a. **Terms and conditions for any other services:** Addressed at Task Order level
21. **List of service and distribution points:**
Not applicable
22. **List of participating dealers:** Not applicable
23. **Preventive maintenance:** Addressed at Task Order level
- 24a. **Special attributes:** Renewable energy technology
25. **DUNS:** 042510763

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REC Solar's innovative pricing structure allows GSA purchasers to acquire the *exact* system size required for their facility without any material excess or shortages, guaranteeing that all required system components are included.



REC Solar membrane
roof mount,
commercial warehouse

Procuring Solar in One Simple Step

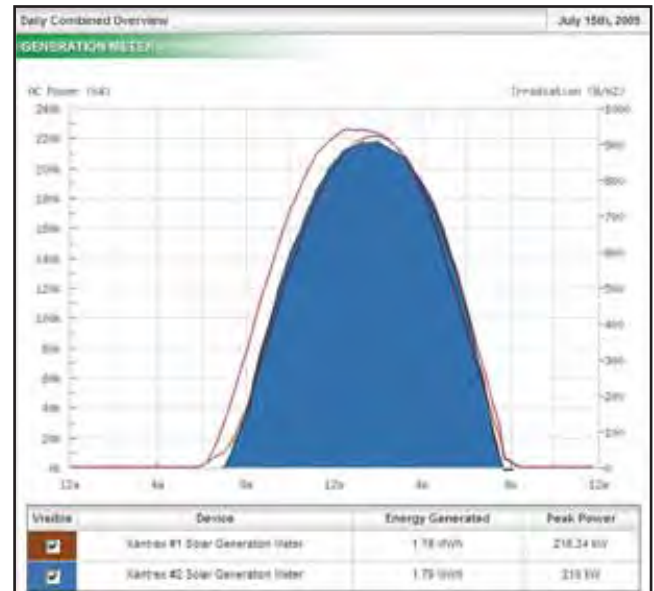
The GSA Facilities Maintenance and Management Schedule provides a variety of energy management solutions that present a clear path for federal facilities to reduce their energy costs, decrease reliance on fossil fuels, and enhance environmental stewardship. It is the streamlined procurement vehicle for federal agencies and other organizations to obtain energy-related services and products from pre-qualified vendors.

The addition of REC Solar's turnkey solar offering to this schedule enables both energy solution development and solar power system implementation to occur in one efficient and coordinated location.

REC Solar's innovative pricing structure allows GSA purchasers to acquire the **exact** system size required for their facility without any material excess or shortages, guaranteeing that all required system components are included. We will help you to determine the optimal size of your facility's solar power system, define any custom requirements for the scope of work, and then guide you through the pricing structure to determine the total installed price. Your order is placed through the execution of a single Task Order and most systems are installed within six months.

REC Solar's standard grid-tied solar power system includes:

- Site Analysis
- System Design
- Procurement
- Installation
- Commissioning
- System Performance Monitoring



Realtime solar power production data can be monitored on a lobby kiosk display, a local-network computer, or on the internet.



REC Solar membrane roof mount, commercial network hub



REC Solar's innovative turnkey solution can help you ***take the lead*** by bringing your facility to the next level of energy policy compliance – all in one simple procurement.



REC Solar seam
roof mount, national
wholesale distributor

REC Solar's Innovative Turnkey Solution

The solar power specialists at REC Solar have designed the most innovative turnkey solution available through a single procurement that takes GSA Schedule solar power purchases all the way from concept through commissioning. There is no easier, faster way to obligate your budgeted maintenance and management funds into an energy-efficient, cost-saving, environmentally friendly solar power system for your facility.

■ Here's What We Do:

Professional Solar Feasibility Report

Our preliminary design, energy demand analysis and solar feasibility service will determine the best system size based on your building and/or ground characteristics and your facility's targeted energy generation requirements. The Solar Feasibility Report fee (typically under \$3,000) can be applied to the cost of a subsequent full-system purchase. Your report will:

- Summarize energy, financial and environmental benefits
- Provide a conceptual solar array layout, plus size and special installation requirements
- Provide a firm price quotation to support purchase or funding request

Comprehensive Optimized Design

Our experienced solar system designers are responsible for megawatts of solar power currently being generated across the U.S. at commercial, utility, municipal and residential facilities. Your design will feature:

- Solar array optimized to take full advantage of your facility's unique parameters
- Specifications customized to satisfy your agency's particular design standards and requirements

Equipment and Materials

REC Solar's innovative dollars-per-watt pricing schedule includes the cost of the complete system, customized to fit your specific needs. The price includes:

- Solar Modules – Transform sunlight into DC electricity

- Inverters – Convert DC power into AC power and enable your plant to connect into the conventional power grid
- Racking System – Secures solar modules to roof structure or ground in compliance with all local, state and federal building codes
- Performance Monitoring Equipment – Real-time display of actual system production
- All Electrical Components, Tools and Machinery – No hidden costs; our installation specialists arrive equipped with everything necessary to complete the job – from screwdrivers to forklifts

Project Implementation

Our innovative turnkey solution provides everything required to deliver your fully integrated, installed, tested and operational grid-tied solar power system.

- Interconnection – Coordination with local utilities, all permits and approvals included
- Rebate Administration – Navigation through complicated renewable energy rebate processes, as applicable to your facility
- Operations and maintenance training – Our team of experts ensure that your staff is fully trained to keep your low-maintenance solar electric generating system performing optimally for years to come

Web-Based Monitoring

System-embedded precision sensors transmit performance reports via the internet to you every 15 minutes.

- Monitor and display real-time electricity production from within your own facility (option to feed into existing energy management control system)
- Receive instantaneous alerts when production anomalies occur
- Easily interface with public lobby kiosk displaying informative, live-stream graphic representation of your system's solar production, energy savings, and environmental benefits
- Summarize energy, financial and environmental benefits



The Federal Government proposes that 6 percent of US electricity should come from renewable resources by 2012 and 20 percent by 2021.

American Clean Energy and Security Act of 2009



REC Solar membrane roof and ground mount combination, public facility

Facility Energy Policy Compliance

Federal energy laws and regulations that influence your facility:

- The American Recovery and Reinvestment Act (ARRA) of 2009
- Executive Order 13423, “Strengthening Federal Environmental, Energy, and Transportation Management” (January 24, 2007)
- The Energy Policy Act (EPACT) of 2005
- The Energy Independence and Security Act of 2007 (EISA – originally named the CLEAN Energy Act of 2007)
- Your agency’s specific regulations

Renewable Energy Goals for Federal Facilities

EPACT 2005 directs the federal government to increase its renewable energy use with the following annual goals:

Fiscal Year	Increase in Use of Renewable Energy
2009	3.0% or more
2010	5.0% or more
2011	5.0% or more
2012	5.0% or more
2013	7.5% or more

Energy Reduction Goals for Federal Facilities

EO 13423 mandates agencies to obtain half of the renewable energy from new sources and **on-site** where feasible.

Fiscal Year	% Reduction from 2003 Baseline
2009	12
2010	15
2011	18
2012	21
2013	24
2014	27
2015	30



REC Solar's 300-plus full time employees, supported by our multi-million dollar engineering department, enabled us to install more than 1,500 solar power systems in 2008.



Company Profile

REC Solar, Inc.

CCR Number: 474249

CAGE Code: 1SBH9

NAICS: 221119, 237130, 238290, 238210, 541330

Corporate

Headquarters: 775 Fiero Lane, Suite 200
San Luis Obispo, CA 93401

■ Experience

REC Solar has installed more than 3,000 solar power systems on commercial, government, residential and utility facilities since 1997. We currently maintain 11 regional operations, sales and construction offices in California, with four more facilities in Oregon, Colorado, Arizona and Hawaii. REC Solar also maintains contractor licensing in Nevada, New Jersey, Connecticut and Rhode Island, as well as strong subcontractor relationships in virtually every other state nationwide.

In 2008, REC Solar installed PV systems totaling more than 10 MW, half in systems over 500 kW in size. REC Solar's 300-plus full time employees, supported by our multi-million dollar engineering department, enabled us to install more than 1,500 solar power systems in 2008.

■ Organization

REC Solar is a wholly owned subsidiary of the Mainstream Energy Corporation, which also owns AEE Solar, a North American wholesale distribution subsidiary. Mainstream Energy is 20 percent owned by REC ASA (REC Group), the leading vertically integrated player in the solar energy industry. REC Group is among the world's largest producers of polysilicon and wafers, solar cells and solar modules. This ensures high quality, environmental stewardship starting with American made high purity silicon all the way through the completed system.



■ Synergy and Capabilities

The unique relationship REC Solar enjoys with Mainstream Energy and REC Group provides direct access to high performance modules from the world's leading integrated manufacturer. These partnerships also ensure that REC Solar has durable financial backing and the ability to deliver its products nationwide.

As the installation and integration experts in this powerful partnership, REC Solar has unsurpassed capabilities and over a decade of experience in the design, procurement, installation and maintenance of commercial systems from 100 kW solar rooftops to multi-megawatt solar power plants. We pride ourselves on consistently delivering the highest quality systems designed to meet and exceed the expected long-term power demands of our customers.

Estimating Your System Size

Follow these simple steps for a budgetary estimate of the size of your system and to approximate the electricity production you can expect each year from harnessing the power of the sun at your facility:

■ Measure the Area of Your Site:

To determine the total area of your facility's roof or the ground area (if the panels are to be mounted at ground level) use a map, aerial photo, building plans or a tape measure.

If preferred, REC Solar can assist you by using satellite technology to make these estimations, or provide you a detailed quote based on our on-site *Solar Feasibility Report*. Call 888-657-6527 or 805-540-5486 to get started.

On the Roof of Your Building or Carport:

1. Multiply the Total Roof Area by 0.6 to get your Usable Roof Area

The Usable Roof Area is based on the likelihood that approximately 60 percent of the total roof area will be usable for mounting PV solar panels after accounting for building ventilation machinery, communications devices and shaded areas.

$$\begin{array}{r} \text{_____ Total Roof Area (sq. ft.)} \\ \times 0.6 \\ \hline = \text{_____ Usable Roof Area (sq. ft.)} \end{array}$$

2. Multiply the Usable Roof Area by 8.5

A typical solar power system will produce about 8.5 kW for every 1,000 square feet of Usable Roof Area. Actual production will vary somewhat depending on other factors such as the geographic location of the building and the slope of the roof.

$$\begin{array}{r} \text{_____ Usable Roof Area (sq. ft.)} \\ \times 8.5 \\ \hline = \text{_____ System Size (kW)} \\ \text{1 kilowatt (kW) = 1,000 watts (W)} \end{array}$$

On the Ground:

A typical solar power system mounted on flat ground within the continental U.S. will produce about 250 kW for every acre of PV solar panels.

$$\begin{array}{r} \text{_____ Total Ground Area (acres)} \\ \times 250 \text{ kW} \\ \hline = \text{_____ System Size (kW)} \\ \text{1 kilowatt (kW) = 1,000 watts (W)} \end{array}$$

■ Estimate Annual Production

Most of the continental U.S. receives an average equivalent of 4.1 peak sun-hours per day. Multiplied by 365 days, the typical system can be expected to generate the equivalent of approximately 1,500 hours of peak electricity production per year. To estimate the annual production from your roof or ground-mounted system, simply multiply its total size (System Size in kW as calculated above) by 1,500.

$$\begin{array}{r} \text{_____ System Size (kW)} \\ \times 1,500 \text{ (sun-hours/year)} \\ \hline = \text{_____ Annual Electricity Production} \\ \text{in Kilowatt Hours (kWh)} \end{array}$$

System Pricing - July 2010

<i>All Prices are \$/W</i>	5 - 30 kW	30 - 100 kW	100 - 400 kW	400 - 800 kW	800+ kW **
GSA Base System Price	\$6.91	\$6.38	\$5.78	\$5.27	\$4.78
Geographic Zones					
Zone 1 (CA, OR, AZ, CO, HI*)	\$6.91	\$6.38	\$5.78	\$5.27	\$4.78
Zone 2 (NV, UT, ID, NM, WA)	Not Offered	\$6.62	\$5.91	\$5.38	\$4.89
Zone 3 (all other continental 48 states)	Not Offered	\$6.66	\$5.94	\$5.41	\$4.91
Zone 4 (AK, PR, US Territories)	Not Offered	Zone 3 pricing plus negotiated price adder			

* HI locations will have separately priced logistics adder

** Purchases over 5MW in size receive an additional 0.75% price discount

ADDERS (see Definitions on page 14 and reverse side of this sheet)					
Solar Feasibility Report	<i>OPTIONAL: Fixed price prior to system purchase, credited to purchased total system price.</i>				
Zone 1	\$1,300	\$1,300	\$1,425	\$1,550	\$1,825
Zone 2	\$2,000	\$2,000	\$2,100	\$2,200	\$2,500
Zone 3	\$2,900	\$2,900	\$3,000	\$3,125	\$3,250
Zone 4	Zone 3 pricing plus negotiated price adder				
Attachment to Roof					
Membrane / Sealed Roof Mounting Attachment	\$0.17	\$0.15	\$0.15	\$0.13	\$0.13
Ground Mount	\$0.49	\$0.38	\$0.38	\$0.33	\$0.34
Ballasted Racking	\$0.53	\$0.40	\$0.28	\$0.22	\$0.23
Single Axis Tracker	Not Offered	Not Offered	\$0.90	\$0.78	\$0.69
Solar Carport	Not Offered	\$2.23	\$1.99	\$1.84	\$1.77
Non-standard roof characteristics	\$0.26	\$0.22	\$0.21	TBN	TBN
High Roof Access	\$0.24	\$0.14	\$0.06	\$0.03	\$0.02
Components					
Modules - premium grade for reduced area	\$0.61	\$0.61	\$0.61	\$0.49	\$0.44
Monitoring upgrade	Not Offered	\$0.08	\$0.03	\$0.01	\$0.01
Inverter Protection / Enclosure	\$0.41	\$0.21	\$0.15	\$0.10	\$0.08
Interior electrical panel	\$0.22	\$0.12	\$0.05	\$0.02	\$0.02
Installation					
Davis-Bacon or prevailing wage rates	\$0.29	\$0.26	\$0.23	\$0.22	\$0.21
Separately Negotiated Items	To Be Addressed at Task Order Level				
Annual Maintenance					
Preventative maintenance package	To Be Addressed at Task Order Level				
TOTAL SYSTEM PRICE		SUM OF ALL ABOVE			

System Pricing Definitions

■ Base System Price

Turnkey price to install a complete grid-interactive solar electric power system. System options with price adders are offered to customize the system and account for specific site requirements. The following equipment and services are included in the Base System Price:

Solar Feasibility Report (SFR)

Site evaluation to determine the feasibility, cost and anticipated savings of installing a solar power system. Using satellite imaging and computer modeling, a design engineer will determine the system size and energy production that the solar power system will produce at a specific site. We will review your facility electric bills and perform a cost savings analysis. A site inspection will be performed to determine site-specific parameters such as roof construction, electrical system, and utility interconnection requirements to determine the suitability of installing solar. The findings of this analysis will be presented in a feasibility report, preliminary solar system layout drawings, and cost proposal.

Engineering Services

Standard engineering services required to install on typical building rooftop including: site evaluation, preliminary module layout, construction plan engineering stamp and review (EE, SE), jurisdictional permitting (one agency and one utility), inverter direct performance monitoring, utility interconnection documentation, operations and maintenance manual.

Equipment

Equipment and installation materials to install a complete solar power system, including: commercial grade crystalline silicon photovoltaic modules; high efficiency DC/AC inverter and control system; aluminum racking with stainless steel fasteners; roof attachment points for standing seam or composite roof (see cost adders for other roof types and mounting locations); copper conductors, conduit, junction boxes and circuit protection devices per National Electric Code to connect array to main electric panel (assuming a distance of less than 400 foot from center of array to electric panel); and other balance of system hardware as required for installation. Requires a low voltage utility interface (less than 600 VAC).

Installation Services

Service Contract Act compliant base wages, roof-mounted array on building height less than 40 feet and with roof slopes not to exceed 45 degrees, roof area accessible by standard scissor lift or ladder; includes all subcontracting costs associated with installation; assumes standard daylight working hours and access during grid-tie interconnection power outage.

Exceptions

No shake, thatch or specialty (clay, terra cotta) roof material; building must be accessible by paved road; electric panel must be on exterior wall of building or easily accessible by wire chase (for interior locations, see adders); existing service panel accepts PV tap; no explosive or hazardous materials in or near



work area; no roof slope greater than 45 degrees; customer provides internet connection for monitoring system no further than 100 meters from inverter pad; no painting of conduit; configuration of existing EMCS system to interpret data monitoring.

■ Options and Cost Adders

Used to address system customization and unique facility/agency requirements.

Membrane/Sealed Roof Mounting Attachment

Cost adder to mount array on membrane and other sealed roofs utilizing watertight roof stanchions to support the array. No lead flashings.

Ground Mount

Option to mount the solar array on the ground assuming relatively level location with soils that can be easily excavated to install foundations. See System Sizing Guidelines.

Ballasted Racking

Roof mounting option that allows the array to be secured to roof using ballast weight to minimize or eliminate roof penetrations (only for buildings that can support additional roof loads)

Single Axis Tracker

Option to ground mount the solar array on a rotating axis that follows the path of the sun throughout the day; increases system production by approximately 20 percent.

Non-Standard Roof Characteristics

Cost adder for non-standard roof types (e.g., tile, concrete or sheet metal), slopes exceeding 30 degrees, or other atypical characteristics

High Roof Access

Cost adder for installations more than 40 feet above adjacent grade but less than 4 stories. Buildings greater than 4 stories are Separately Negotiated Items.

Interior Electrical Panel

Electrical service panel located inside building, which requires construction of up to 150 foot conduit.

Modules - Premium Grade for Reduced Area

Commercial grade crystalline silicon modules with high area efficiency to reduce array size for buildings with space limitations. Typically increases DC nameplate production by 25 percent.

Inverter - Extended Warranty

Extend the inverter warranty from 5 years to 10.

Monitoring Upgrade

Includes a weather data station for expected production modeling, facility net energy usage reporting, and revenue grade production meter for utility payback (if applicable).

Inverter Protection/Enclosure

Stainless steel inverter housing available for 200 kW and larger systems. Chain link fencing enclosure and vehicle bollards around inverter included.

Davis-Bacon or Prevailing Wage Rates

Additional labor rates above SCA standard base rates.

Preventive Maintenance Package (per annum)

Option to provide annual inspection and preventive maintenance services. Includes cleaning and tightening module attachments, open voltage measurements, thermal imagery and re-torque of lugs, inverter air filter cleaning, photo documentation of system condition, and system condition/performance report.

Separately Negotiated Items

Negotiated price adder via separate proposal to account for all other Statement of Work and site/location specific requirements. Examples include but are not limited to: low voltage utility interface greater than 600 VAC, building height greater than 4 stories, ground mount on hard/rocky soil, security clearances, design standards and specifications beyond National Electric Code base, permitting in multiple jurisdictions, lead flashings for roof stanchions, logistics costs for Hawaii systems, specific construction bonding requirements, painting of conduit, and configuration of existing EMCS to interface with monitoring system.

Additional Options

Solar Carport

Single post cantilever T-design with maximum cantilever length of 18' at a pitch of 0 – 10 degrees and 8'-4" clear height, open framing with module racking, including roof weather barrier, corrosion-resistant coating, 3' tall column bollards, rain gutters, bird nesting deterrent, undercanopy lighting, and up to 50 psf snow loading or equivalent seismic/wind rating.

Single Axis Tracker

Single post no-tilt design with racking for two modules wide, minimum spacing of 12', ground mounted with wind resistance up to speeds of 85 MPH, concrete foundations, components made from lightweight corrosion-resistant anodized aluminum.

Using GSA Is Now the Fastest, Simplest Way to Get Solar

OMB endorses GSA schedules as “competitive procedures” for ARRA funds disbursement.

The following paragraphs are excerpted from OMB Memorandum M-09-10, dated February 18, 2009: *Initial Implementing Guidance for the American Recovery and Reinvestment Act of 2009.*

from page 39 (emphasis ours):

To the maximum extent practicable, contracts using Recovery Act funds shall be awarded as fixed-price contracts (see FAR Subpart 16.2) using competitive procedures. These procedures include those identified under FAR Subparts 6.1, 6.2, and 16.505(b)(1) and Subsections 8.405-1 and 8.405-2. **Existing fixed-price contracts that were competitively awarded may be used to obligate funds expeditiously.**

from page 41 (emphasis ours):

Presolicitation notices must be posted on FedBizOpps (FBO) in accordance with FAR Part 5, including applicable dollar thresholds. Under the Recovery Act, presolicitation notices are required for any order, meeting the FAR Part 5 dollar thresholds, under a task or delivery order contract, including GWACs, multi-agency contracts, GSA Federal Supply Schedule contracts. **These notices will be posted in FBO for information purposes only (i.e., the requirements of FAR Subpart 5.203 do not apply). Contracting officers should continue to also use their usual solicitation practice (e.g., e-Buy).**

REC Solar can help bring your facility to the next level beyond energy efficiency now, enabling you to take the lead in energy policy compliance.



REC Solar ground mount, international scientific base

Get Started Now

REC Solar's innovative turnkey procurement process makes it easy to bring solar electricity to your facilities in one simple purchase.

See "REC's Innovative Turnkey Solution" on page 7 for a description of our one-purchase turnkey solution. To get started, follow these steps:

1. **Estimate your solar power system size using one of the options below:**
 - a. If available, use the recommendations from an existing comprehensive energy management assessment.
 - b. Use the worksheet provided on page 10, "Estimating System Size."
 - c. Contact REC Solar to request assistance from a design expert who will use commercial satellite photography.
2. **After estimating the system size for your facility, use the pricing information on pages 11 and 12** to calculate an approximate turnkey system price for budgetary purposes. (Note that order volume and market conditions may qualify you for additional discounts resulting in prices lower than those listed.)
3. **Once you have estimated your system size and cost, you have two options:**
 - a. Order an on-site Solar Feasibility Report from REC Solar, and we will determine your optimal system size and specifications to provide you with a firm price quotation.
 - b. Move forward to Task Order development based upon your estimated requirements.
4. **Execute Task Order**, which REC Solar will develop specifically for your facility's solar electric power system.

**To initiate the process contact REC Solar:
888-657-6527 or 805-540-5486 | gsa@recsolar.com**



REC Solar seam roof mount, utility power plant

Statement of Work Guidelines

These guidelines are provided to assist ordering entities in defining their Task Order scope for integrating solar electric power into facilities.

■ General Scope

The general scope would include turnkey photovoltaic systems, or any part or component thereof, including but not limited to the design, construction and installation of a photovoltaic system. The Contractor will provide all work to include the equipment selection, permitting, bonding and installation of a photovoltaic system. The system will be capable of providing 480-volt, 3-phase power which will be grid-tied.

The final system configuration will allow automatic operation without operator intervention. System design and equipment specifications should minimize maintenance requirements. System will include metering with modem for remote data collection and display of system performance on vendor-provided web site. System performance will include at a minimum solar irradiance, DC power, AC real power, AC current, AC voltage, and power factor; ambient air temperature, PV cell temperature and AC energy during different monitoring periods from one hour to one year. Contractor will utilize green building materials where applicable. The project should meet facility design standards (identify specifically) wherever applicable.

The photovoltaic system can be federal agency owned, in full or in part. The system may be located on site or off site for federal customers. PV systems may be roof-mounted or ground-mounted and may be standalone or integrated into a building or a site. PV systems should integrate with the electric utility grid (grid-tied); buildings may require ancillary repair, renovations or minor alterations.



REC Solar
membrane roof,
public facility

■ Products and Services to Be Provided

I. Feasibility Study

- a. Overview of Project
 - i. Module overlay on satellite imagery
 - ii. Calculated system size (DC and AC)
- b. General Concept/Design
 - i. Roof construction, access and available area
 - ii. Inverter location
 - iii. Electrical service panel characteristics/tap location and method
 - iv. Temporary power shutoff requirements
 - v. Utility interconnection requirements
 - vi. Structural aspects of building and system
 - vii. Environmental design factors
- c. Economic, Financial and Performance Analysis
 - i. Energy production
 - ii. Annual electricity bill savings
 - iii. Total energy bill offset (seasonal)
 - iv. Total kWh offset (seasonal)
 - v. Net consumption with solar
 - vi. Lifetime system cost analysis
 - vii. Environmental benefits (pollution offsets)
- d. Preliminary Site Survey and Planning
- e. Project Timeline

II. Project Implementation

- a. Project Management
- b. Subcontracting
- c. Building Permits and Planning Approvals

- d. Site Survey and Planning
- e. Design
- f. Procurement and Delivery of Materials and Equipment, including:
 - i. Solar PV modules
 - ii. Inverters
 - iii. Production monitoring system
 - iv. Electrical components (wire, boxes, fuses, etc.)
 - v. Racking system
- g. Rebates and Incentives Applications, if applicable

III. Installation of System

- a. Installation Labor / Wage Rate requirements
- b. Mechanical Integration (how to attach system to roof)
- c. Electrical Integration (wiring and conduit)
- d. Utility Interconnection and Utility Agreements if applicable
- e. Building Integration of System (tie into electrical panel)
- f. Permitting and Inspection

IV. Post Installation Service Requirements

- a. Commissioning and Start-Up Measurements
- b. System Orientation and Operations Manual
- c. As-Built Construction Drawings
- d. Maintenance Services
- e. Performance Monitoring/Troubleshooting
- f. Warranty Service



REC Solar seam
roof mount, national
wholesale distributor

Additional Statement of Work Considerations (Optional)

■ Facility Information

1. Will we be mounting your system on the roof, the ground, or both?
2. If roof-mount, what type of roofing material is used? What is the approximate pitch (angle of roof slope)? What is its age and general condition?
3. If ground-mount, what is the slope? Will grading be required?
4. What is the historical (12-month) electrical demand at the facility—monthly kWh consumed and the cost?
5. Where are we going to mount the inverters?
6. What are the DC-voltage wire routing requirements from the roof to the inverter locations?
7. How will we accomplish AC-voltage wire routing from the service panel to the inverter pad?
8. Will this be a tap or a load breaker connection to the gear?
9. If a tap, can we shut down power to the building?
10. Will UL re-certification of the gear be required?
11. Are pictures of the load panels and a close-up of the panel board specification plaque available?
12. Are there any generator sets/transfer switches to work around at the facilities?
13. Staging of equipment: Is there ample room for multiple 40-foot containers and lift equipment, or is it going to be tight?
14. Are there any other risks (explosion hazards, earthwork restrictions due to hazardous substances, etc.)?

■ Other Information

1. Do our workers need special security clearances before entering the facility?
2. Are there any work-hour restrictions under normal facility operations (i.e., no heightened security risk conditions, just normal operations); what about weekends?
3. Do we need to coordinate with the utility, or will interconnection be handled by the facility alone?
4. Who reviews the building permit application?



REC Solar custom ground mount, private school