

SUNSOURCE® COMMERCIAL ENERGY SYSTEM - SITE SURVEY CHECKLIST

506741-01 10/2013 Supersedes 3/2013

CUSTOMER NAME:

DATE:

CUSTOMER ADDRESS:
(Street, City, State
and Zip Code)

ELECTRIC
UTILITY:

QUOTE NO.

ORDER NO.

SECTION I – SITE AND CUSTOMER

1.	Does site have the appropriate voltage and building electrical configuration?	Commercial Single-Phase HVAC Unit Applications The utility-interactive SunSource® Commercial Energy System for split-phase power will only interconnect and supply power if the grid power meets the following specifications: <ul style="list-style-type: none"> L1 - L2 voltage measures between 211 Volts and 264 Volts _____ Line to neutral/ground voltage measures between 106 and 132 Volts _____ Frequency measures between 59.3 Hz and 60.5 Hz _____ 	240/120 (1-Phase)
		Commercial Three-Phase HVAC Unit Applications The utility-interactive SunSource® Commercial Energy System will only interconnect and supply power if the grid power meets the following specifications: <ul style="list-style-type: none"> L1 - L2 - L3 voltage measures between 183 Volts and 229 Volts _____ Line to neutral/ground voltage measures between 106 and 132 Volts _____ Frequency measures between 59.3 Hz and 60.5 Hz _____ Nominal 208 VAC Wye configuration _____ NOTE - A transformer can be used to step-down 460 and 230VAC building voltage to the appropriate levels and adapt to delta systems.	208/120 (1-Phase)
2.	Array Information	<ul style="list-style-type: none"> No. of solar modules: _____ No. of columns: _____ No. of rows: _____ Distance to HVAC Rooftop Unit (ft.): _____ Distance to distribution panel (ft.): _____ Mounting System Type: <i>Ballasted</i> _____ <i>Other</i> _____ 	208 Wye 230 Delta 460/277 Wye 460 Delta Other: _____

3.	Is the building's electrical distribution panel adequate?	Generally, the distribution panel should be rated 100 AMP for 208/230 VAC systems or 50 Amp for 460 VAC systems for one SunSource® Commercial Energy system installation. For two systems, the panel should be twice as large. (Also see Code Compliance section).	Yes No
4.	A. Does site have good southern exposure?	Perform a solar site survey using a Solar Pathfinder™ or other survey tool to assess the solar resource available. Next, use the web-based program, PVWatts (ver. 1), from the National Renewable Energy Lab, to estimate the monthly and annual solar energy generation potential	Yes No
	B. Is it free of shading?	NOTE: For more information concerning Solar Pathfinder, see <i>Lennox Corp. 1303-L1, Application and Design Guidelines</i> for more information Comments: _____	Yes No

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For more detailed information see Lennox Corp. 1303-L1. **SunSource® Commercial Energy System Application and Design Guidelines.**

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SECTION I – SITE AND CUSTOMER (Continued)

5.	Is the roof suitable for mounting solar modules?	1. Is there enough area for the solar modules? One solar module requires about 25 square feet. <i>NOTE - Do not exceed the maximum number of solar modules that can be connected to each HVAC unit: Enphase M215 Microinverter - 17 for 1 phase applications, 25 for 3 phase applications. Enphase M250 Microinverter - 16 for 1 phase applications, 24 for 3 phase applications.</i>	Yes No												
		2. What type of roof is it? There are several types of mounting kits to accommodate the more common styles of roofs. (Since the solar modules must be removed during a re-roof, it is best not to install the solar modules on a roof in poor condition. Take note of the pitch of the roof and the height of the eaves. OSHA has fall protection compliance guidelines. For example, see <i>OSHA Directive STD 03-00-001</i> . <ul style="list-style-type: none"> • Roof Pitch (i.e., 5-12) or Tilt Angle (22.6°): _____ • True Orientation (0 to 360°): _____ • Parapet Height (ft.): _____ Roof Type <table border="0"> <tr> <td>Rolled Composition</td> <td>Tar and Gravel</td> <td>EPDM (Rubber)</td> </tr> <tr> <td>Torch Down</td> <td>Metal (Standing Seam)</td> <td>Metal (Corrugated)</td> </tr> <tr> <td>Metal (Ribbed/Trapezoidal)</td> <td>Other:</td> <td></td> </tr> </table> Metal Type: _____ Rafter Information <table border="0"> <tr> <td>Vertical Rafters</td> <td>Horizontal Rafters</td> <td>Purlins</td> </tr> </table> Structural Member Spacing (inches on center) Rafter Cross Cut Dimensions (2 x 4, 2 x 6, 2 x 8): _____ Material: _____	Rolled Composition	Tar and Gravel	EPDM (Rubber)	Torch Down	Metal (Standing Seam)	Metal (Corrugated)	Metal (Ribbed/Trapezoidal)	Other:		Vertical Rafters	Horizontal Rafters	Purlins	Flat Roof Pitch Roof
		Rolled Composition	Tar and Gravel	EPDM (Rubber)											
Torch Down	Metal (Standing Seam)	Metal (Corrugated)													
Metal (Ribbed/Trapezoidal)	Other:														
Vertical Rafters	Horizontal Rafters	Purlins													
3. In flat roof applications, stanchions (anchors) may be required as a supplement to a simple ballast system. This will be determined during the site evaluation. The type of information that will be needed are: exposure category (B, C, D), design wind speed, design snow load, roof maximum load limits, etc. Occupancy Category: I II III IV Wind Loading Class: B C D Wind and Snow Data Seismic Loading Zone: 0 1 2A 2B 3 4 5 ¹ Maximum Wind Speed (mph): _____ Seismic Map ¹ Snow Load (lbs./ft. ²): _____ Maximum Roof Load (lbs./ft. ²): _____ Base Elevation Above Sea Level (ft.): _____ Maximum Building height - Ground Level to Highest Ridge (ft.): _____ ¹ Obtain from Authority Having Jurisdiction (AHJ). <i>NOTE: Lennox is not responsible for determining design requirements and roof attachments. The American Society of Civil Engineers standard ASCE 7-05 provides an analytic method for determining wind, snow and seismic loads.</i>	Yes No														

6.	Will the solar modules be closer to HVAC unit or distribution panel?	Wiring may be routed to the solar power circuit from either the HVAC rooftop unit or the electrical distribution panel. Indicate preferred installation method.	HVAC Panel
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SECTION I – SITE AND CUSTOMER (Continued)

7.	Check for ease of modifications to distribution panel.	<p>If the solar power circuit back feeds through the HVAC branch circuit breaker (in the distribution panel), it will need to be relocated to a slot that is at the opposite end from the main breaker.</p> <p><i>NOTE - The HVAC branch circuit breaker does not need to be relocated if the sum of the main panel breaker rating and the solar fuse (F54) rating is less than the electrical distribution panel's buss bar rating.</i></p> <p>If the solar power circuit is run directly to the distribution panel, a new breaker (20 AMP for 230 VAC systems or 10 AMP for 460 VAC systems) will need to be installed in one of the slots that is at the opposite end from the main breaker.</p> <p>This step is to get an early view of issues such as no available slots or difficulty relocating the HVAC branch circuit breaker.</p> <p>In addition, the back feed breaker, whether it is the HVAC branch circuit breaker or a separate breaker (20 AMP for 230 VAC systems or 10 AMP for 460 VAC systems) is suitable if it is a conventional breaker and the terminals are NOT marked Line and Load. It should not be a GFCI or arc-fault type circuit breaker.</p>	Easy
			Hard
8.	Does the customer have an “always on” internet connection?	<p>An internet connection, with broadband router is required for the Envoy Communications Gateway to connect to the monitoring service. While use of the Envoy and the service are highly recommended, they are not required for the solar power system to operate.</p> <p><i>NOTE - If a transformer is used, a Line Communications Filter is recommended and should be connected on the solar side of the transformer.</i></p>	Yes
			No

SECTION II – INTERCONNECTION AND NET-METERING

9.	Does the electric utility have a net-metering program?	<p>It is necessary to notify the electric utility of the customer’s intention to install a utility-interactive solar power generation system. Most utilities are familiar with these systems and will already have a policy and rules for “net-metering”.</p>	Yes
			No
10.	Does the electric utility have any special requirements?	<p>Some utilities will require an indicating, lockable disconnect switch on the solar power system. If the utility has some form of incentive program, they may require the solar power system to be sub-metered. When the utility has requirements like this, they sometimes provide the required hardware.</p>	Yes
			No
11.	Does the utility require a Revenue grade meter for REC or SREC tracking?	<p>If yes, who supplies the meter? Utility Customer</p> <p>What type of meter do they require?</p> <p><i>Note: Some utilities are specific to make and model of Revenue metering.</i></p>	Yes
			No
12.	If there is an incentive program, is there a minimum kW threshold?	<p>For example, some utilities require a 1kW and 2kW threshold for some rebate/incentive programs.</p>	Yes
			No
13.	Does customer understand this is not a grid independent system?	<p>It is important to make sure the customer understands that this is a utility-interactive PV system and <u>WILL NOT</u> generate power when the grid is down. In addition the SunSource® Commercial Energy System will not produce power concurrently with a back-up generator.</p>	Yes
			No

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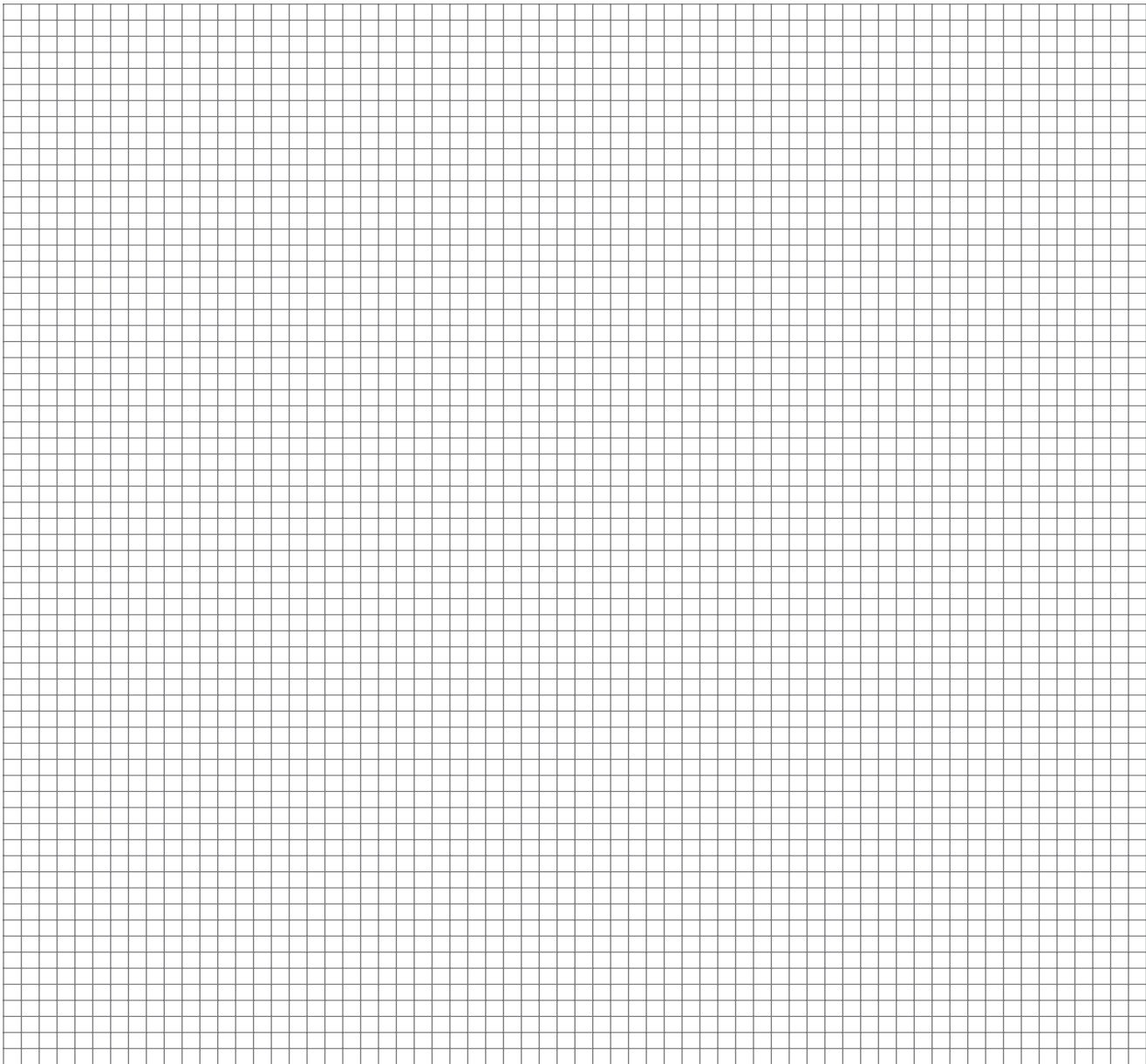
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SECTION III – CODE COMPLIANCE

14. Have all the local electrical code requirements been identified?	In almost all US jurisdictions, the National Electric Code (NEC) will be cited as the authority for electrical inspections. In Canada, it is the Canadian Electric Code (CEC). There may be additional local requirements. NEC section 690 gives the requirements for solar PV installations. Wind and structural load calculations are sometimes requested by code officials. If this is the first time to install a SunSource® Commercial Energy System in this jurisdiction, it is advisable to meet with the local inspection department to find out what requirements exist. This will save time in the long run since the permit submission can address any special requirements.	Yes No
15. Grounding electrode required for the solar PV systems.	Local jurisdiction may require a separate grounding electrode for the solar modules.	Yes No

16. Provide a sketch of the solar module layout



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