



Residential Solar Investment Program

Eligible Contractor and System Owner
Process Guide

April 25, 2017





About the Connecticut Green Bank

Formerly the Clean Energy Finance and Investment Authority (CEFIA), the Connecticut Green Bank was established by Connecticut's General Assembly on July 1, 2011 as a part of Public Act 11-80. The Green Bank's mission is to lead the green bank movement by accelerating private investment in clean energy deployment within Connecticut and to achieve economic prosperity, job creation and energy security throughout the state. As the nation's first full-scale green bank, the organization seeks to:

Attract and deploy capital to finance the clean energy goals for Connecticut

Help scale-up the deployment of renewable energy in the state

Help Connecticut become the most energy efficient state in the nation

Reduce reliance on grants, rebates and other subsidies and move towards innovative low-cost financing of clean energy deployment

Residential PV Incentives in CT



Residential Solar Investment Program

Originally created under Section 106 of Public Act 11-80

Goal of 30MW of residential PV by 2022 – **Achieved July 2014!**

Revised under Public Act 15-194 to 300 MW

Eligibility is determined by residential address, not by homeowner name, utility meter number or utility account number

1 to 4 family owner-occupied homes are eligible; vacation, investment and spec homes are not eligible

Maximum system size for which incentives are provided is 20 kW PTC

Homeowners and third-party PV system owners must work with a Green Bank Eligible Contractor

Contractor eligibility per latest contractor RFQ (cgb.powerclerk.com)

Systems must be located in Eversource or United Illuminating Company (UI) service territories. CMEEC customers may not participate in RSIP without prior approval.

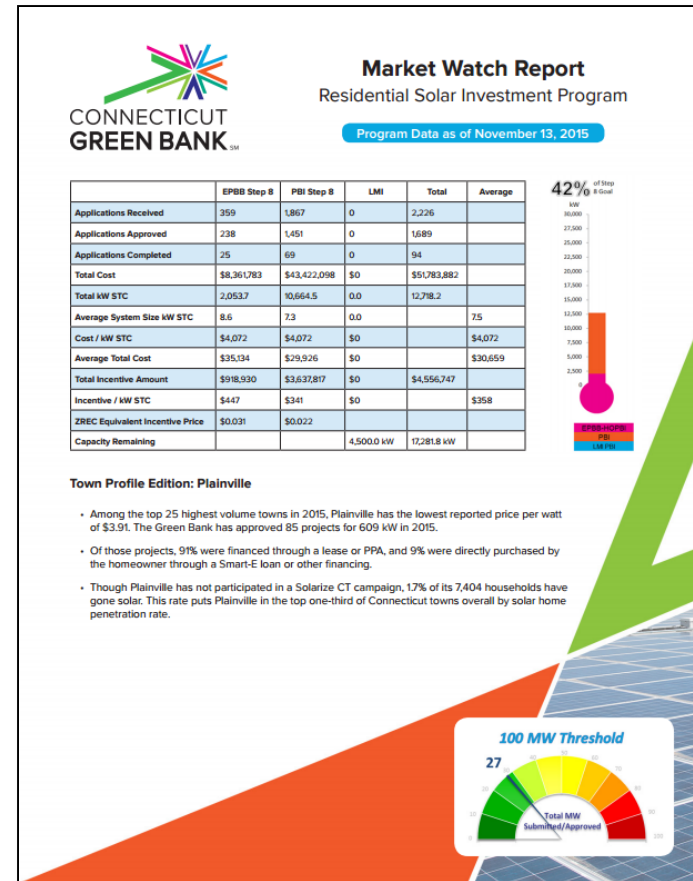
Residential PV Incentives in CT



- Stay up to date on incentive levels by visiting www.gosolarct.com and cgb.powerclerk.com

View Monthly Market Watch Report:

- <https://www.energizect.com/your-home/solutions-list/residential-solar-investment-program>



PV System Size Guidelines



System size for which incentives is provided is limited to **20 kW PTC**

If an oversized PV system is submitted to the Green Bank in an incentive application, the Green Bank will calculate a full-price incentive based on a system producing 100% of the customer's annual electrical usage, and a lower incentive for the excess portion (based on PowerClerk kWh calculation and consumption on electric bill)

Note that interconnection guidelines and fees are different for projects over 10kW. Larger systems may incur additional equipment upgrade costs. Please take the potential for extra costs and equipment into consideration when providing proposals to customers for systems over 10kW in size. For more information, see [Eversource](#) or [UI](#) (click on "Distributed Generation" at left).

CT's interconnection guidelines provide for three tiers:

- **Certified Inverter:** Projects up to 10 kW (application fee: \$100)
- **Fast Track:** Projects up to 2MW (application fee: \$500)
- **Study Process:** Complex projects over 2 MW (application fee: \$1000 plus study fees). Plus "additional steps" if over 5 MW.

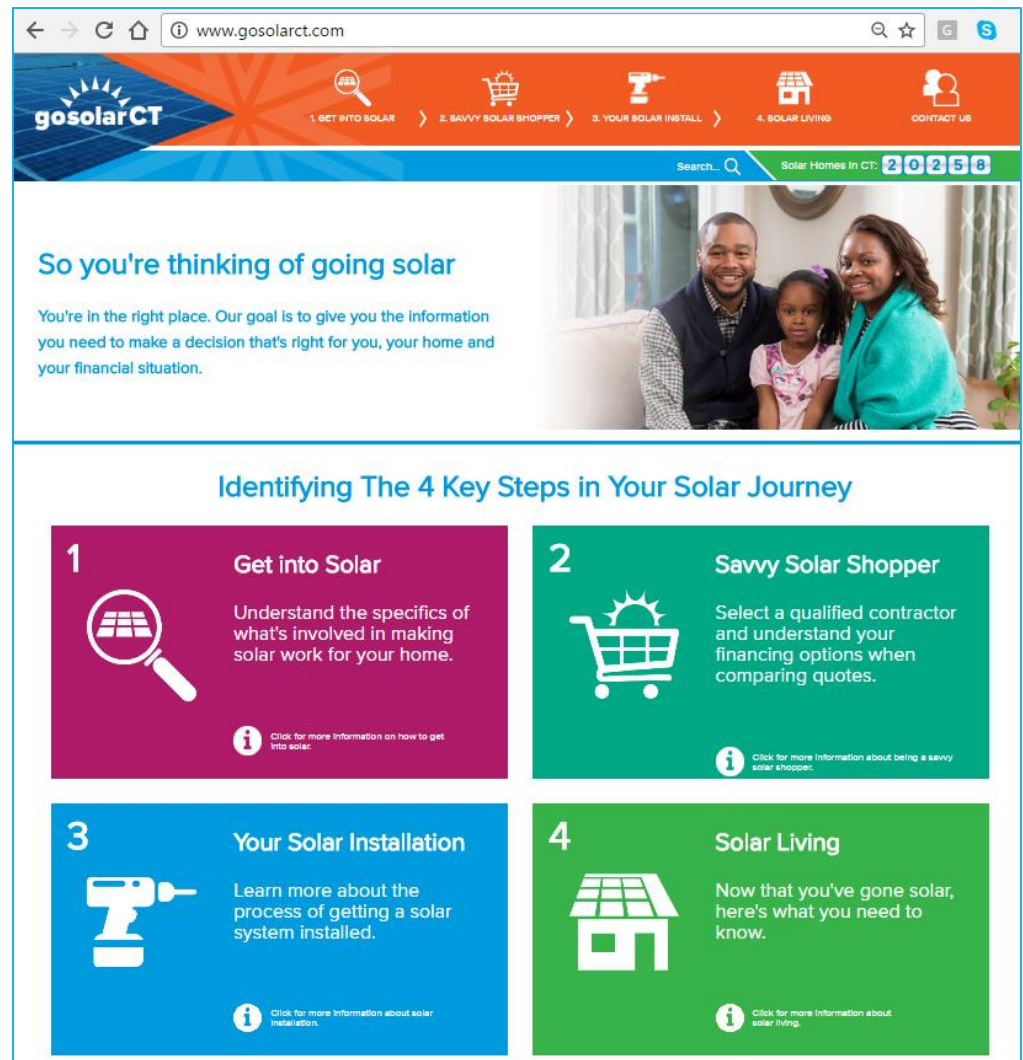
Farm Operator Households

- Farm operator households are those who share dwelling units with principal farm operators of family farms.
- Multiple operators that do not share the same household operate less than 10 percent of family farms. In this case, the farm operator household population would include the households of the principal farm operator, but not the households of the other operator(s).
- A Farm Operator Household residence may qualify for RSIP **only** if the proposed PV system is less than or equal to 20 kW PTC in size.



Massaro Community Farm, Woodbridge. Not RSIP-eligible

- Statewide campaign for residential solar PV in CT
- Great educational tool to help customers learn how solar works, how to pay for it, and how to find you
- Find a contractor tool with personalized contractor pages www.gosolarct.com



The screenshot shows the website interface for gosolarCT.com. At the top, there is a navigation bar with icons for '1. GET INTO SOLAR', '2. SAVVY SOLAR SHOPPER', '3. YOUR SOLAR INSTALL', '4. SOLAR LIVING', and 'CONTACT US'. A search bar is located on the right side of the navigation bar. Below the navigation bar, there is a main content area featuring a large photo of a family (a man, a woman, and a child) and the text: 'So you're thinking of going solar. You're in the right place. Our goal is to give you the information you need to make a decision that's right for you, your home and your financial situation.' Below this, there is a section titled 'Identifying The 4 Key Steps in Your Solar Journey' with four numbered steps:

- 1 Get into Solar**
Understand the specifics of what's involved in making solar work for your home.
Click for more information on how to get into solar.
- 2 Savvy Solar Shopper**
Select a qualified contractor and understand your financing options when comparing quotes.
Click for more information about being a savvy solar shopper.
- 3 Your Solar Installation**
Learn more about the process of getting a solar system installed.
Click for more information about solar installation.
- 4 Solar Living**
Now that you've gone solar, here's what you need to know.
Click for more information about solar living.

Eligible Contractors List

- www.gosolarct.com – Contact Brett McCampbell at EnergySage to create a profile! brett@energysage.com
- It is the responsibility of the Contractor or System Owner to ensure contact information is accurate and up-to-date
- The Green Bank **does not** publicly list Eligible System Owner companies unless requested
- The Green Bank **does not** make public distinction between Eligible and Provisional Contractors

EPBB Structure



Expected Performance Based Buydown incentives are only available to homeowners choosing to purchase a PV system from an Eligible Contactor.

Current Step – Step 10

- Total EPBB amount is calculated as follows: **\$0.487/W** for the first 10kW_{PTC} or 100% of annual consumption; **\$0.40/W** for the second 10kW_{PTC} or > 100% of annual consumption, up to $20\text{ kW}_{\text{PTC}}$
- Systems with design factor $\geq 75\%$ will receive full rebate amount/W. Incentive for systems < 75% will be discounted according to design factor
- EPBB paid to contractor after system is installed and has received Approval to Energize from utility
- **Homeowners receiving EPBB may not relocate their PV system outside of CT for the useful life of the PV system.**

PBI Structure



Performance Based Incentives are only available to third-party PV system owners offering financing such as a lease or Power Purchase Agreement (PPA)

Current Step – Step 10

- **\$0.039/kWh** paid calendar quarterly for 6 years for up to 20 kW_{PTC}
- Project is eligible for PBI payments after system is installed and has received Approval to Energize from utility
- PBI payments cannot exceed total system cost
- **PowerClerk Design Factor minimum of 60%**
- **Third-party PV system owners receiving PBI payments may not relocate PV systems outside of Connecticut for the useful life of the PV system**

Extending an Existing PV System



Extending/adding to previously incentivized PV systems is allowed under the Residential Program, at the discretion of the Green Bank.

The contractor must notify the Green Bank in advance if the rebate application is for the extension/addition of an existing PV system

You may email your notification to smallsolar@ctgreenbank.com

System extensions will be incentivized at cumulative installed capacity level
(ex: 3 kW extension for existing 9 kW system, 1 kW at “First 10 kW” rate; 2 kW at “Second 10 kW” rate, taking usage into account)

System extensions may bring the cumulative system size past 20kW_{PTC} , but the Green Bank will not provide an incentive on excess of 20kW_{PTC}

Monitoring Requirement



- Each **contractor** or **system owner** is responsible for installing a **cellular revenue grade meter** and an Approved Performance Data Provider (PDP) monitoring system with a five-year cellular plan at each site.
- **The Green Bank currently accepts only the following monitoring systems:**
 - Locus Energy - LGate 120
 - Solar Data Systems – Solar-Log 350, 360, 370 & GE I-210+
 - Enphase Energy – Envoy-S Metered & IQ Envoy
 - SolarEdge – RWND-3D-240-MB with 100A CT Cellular meter
- PBI incentives cannot be disbursed without an approved PDP installed on-site
- Contractor is responsible for ensuring installed meter/monitor is fully operational and compatible with PV system
- Contractors should direct all technical troubleshooting questions and concerns to support.

Application Documents



All paperwork must be uploaded into PowerClerk in PDF format to cgb.powerclerk.com (all individual documents must be under 5 MB)

PDF files too large? Use smallpdf.com/compress-pdf

Companies are provided two (2) login IDs, more can be available upon request

The Connecticut Green Bank will not accept mailed, faxed or emailed documents

Application Documents



Copies of the following documents must be uploaded into PowerClerk:

1. Signed contract or lease agreement

Submitted contract must comply with current [RFQ requirements](#)

- Sales / Lease / PPA contract requirements are outlined in Section 2 of the RFQ
- **CONTRACTOR MUST PASS ON 100% OF INCENTIVE AS UPFRONT COST REDUCTION TO PURCHASED SYSTEMS**
- **DO NOT INSTALL PRIOR TO GREEN BANK APPROVAL**

2. Energy Efficiency Information (Optional Upfront, Required for Completion)

Each project must submit energy efficiency information to the Green Bank using one of the following energy audit types:

- Home Energy Solutions (HES)
- Building Performance Institute (BPI) Home Energy Rating System (HERS)
- DOE Home Energy Score
- New Construction Letter – see appendix
- See Appendix for more information.

3. One-Line Electrical Drawing (Optional Upfront, Required for Completion)

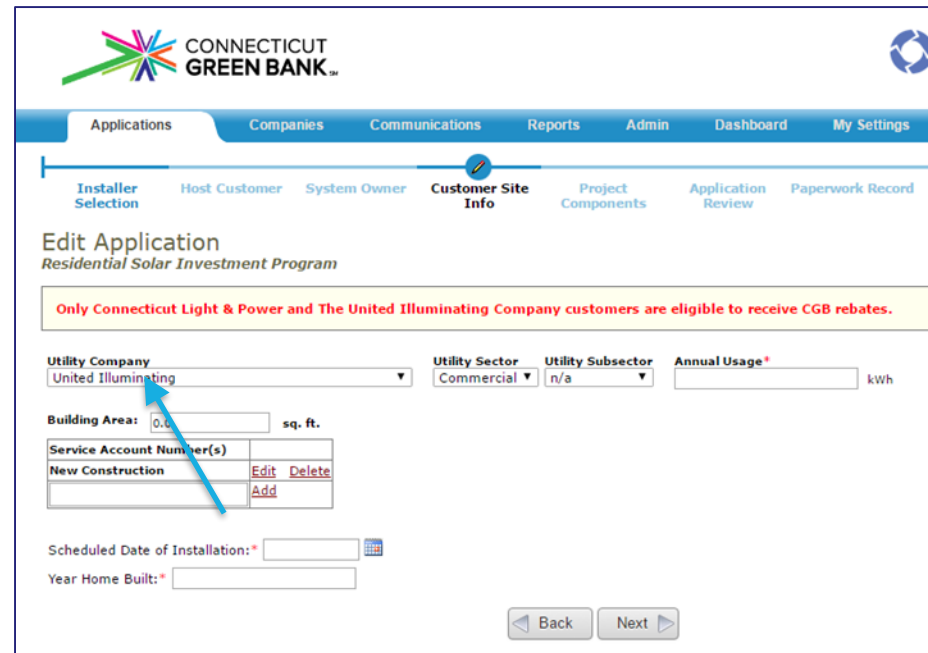
- Hand-drawn submissions will be rejected
- Diagrams must be legible and clear enough for Green Bank inspectors to understand
- System specifications and calculations must be accurate and correct

4. Site Plan

- Hand-drawn submissions will be rejected
- System specifications and calculations must be accurate and correct
- Must include compass, installation address and locational information

5. Customer's Electric Bill

- Must show account number and service address (must match application address) and past 6-12 months of usage
- If new construction and **no service is installed**, upload a copy of the New Construction Letter in place of the electric bill **and** under “New Construction Letter” in PowerClerk and enter “New Construction” as Service Account Number
- If new construction and a **temporary service is installed** or **usage is very low** due to customer not occupying home yet, enter electric bill anyway, upload New Construction Letter in addition in PowerClerk and enter “New Construction” as Service Account Number
- When **no usage data** is available, Contractor should provide estimated electrical load to enter in PowerClerk.



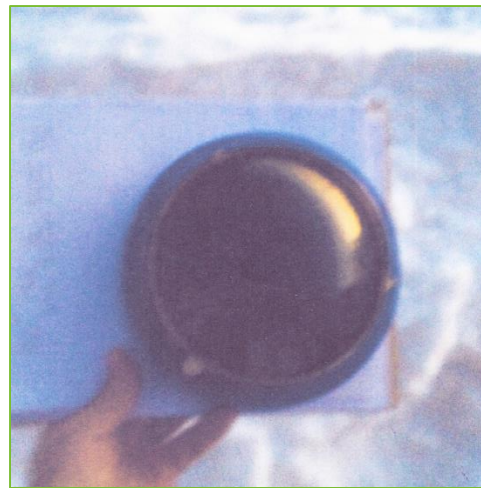
The screenshot shows the 'Edit Application' page for a Residential Solar Investment Program. The page includes a navigation bar with tabs for Applications, Companies, Communications, Reports, Admin, Dashboard, and My Settings. Below this is a sub-navigation bar with tabs for Installer Selection, Host Customer, System Owner, Customer Site Info (which is active), Project Components, Application Review, and Paperwork Record. The main content area is titled 'Edit Application' and 'Residential Solar Investment Program'. A yellow warning box states: 'Only Connecticut Light & Power and The United Illuminating Company customers are eligible to receive CGB rebates.' The form contains several fields: 'Utility Company' (dropdown menu showing 'United Illuminating'), 'Utility Sector' (dropdown menu showing 'Commercial'), 'Utility Subsector' (dropdown menu showing 'n/a'), and 'Annual Usage*' (text input field with 'kwh' label). Below these are 'Building Area:' (text input field with '0.0' and 'sq. ft.' label), 'Service Account Number(s)' (table with 'New Construction' row and 'Add', 'Delete' buttons), 'Scheduled Date of Installation: *' (calendar icon), and 'Year Home Built: *' (text input field). At the bottom right are 'Back' and 'Next' buttons.

6. Shading Information

- PowerClerk uses Solar Pathfinder style readings
- Bright Path and Bright Harvest are also accepted **only** when using 7 obstruction angles
- Tilt, azimuth, and shade directly affect output and incentive amount. Contractors and System Owners are **solely responsible** for site assessment details submitted to PowerClerk. The Green Bank reserves the right to modify incentive amounts based on Green Bank Inspection, if necessary.



APPROVED



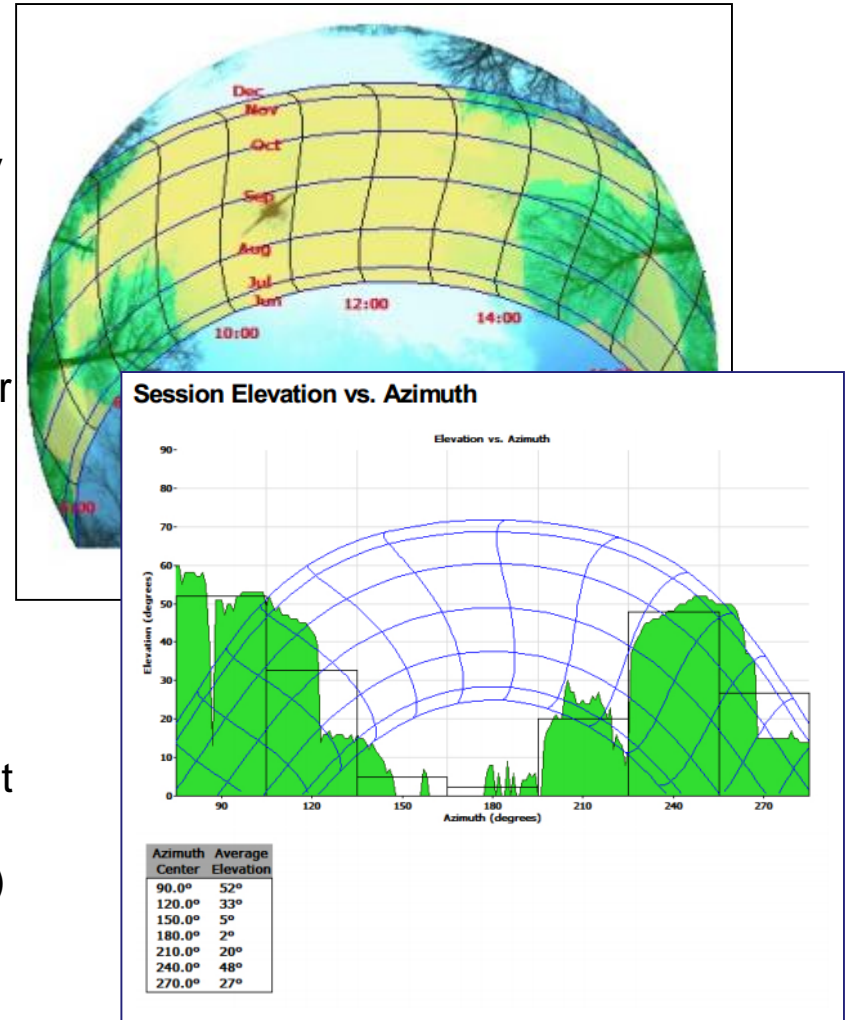
REJECTED



REJECTED

6. Shading Information, Continued

- TSRF **does not always** translate similarly to PowerClerk's Design Factor
- Other forms of shade reports (e.g.: Solmetric) are accepted, but may need to be transcribed to enter into PowerClerk (or use "elevation table")
- **YOU** are responsible for accuracy of site characteristics entered to PowerClerk. Failure to measure accurately and thoroughly upfront will cost **YOU** incentive dollars in the end.
- If **tree service** is planned, you must note it in the shade report and provide documentation (tree service contract, etc.)



6. Shading Information, Continued

- To easily obtain shade numbers to enter into PowerClerk using a Sun Eye, adjust the azimuth center to 180, change the number of windows to 7, and the azimuth window to 30 degrees.
- [Solmetric Sun Eye Manual](#)

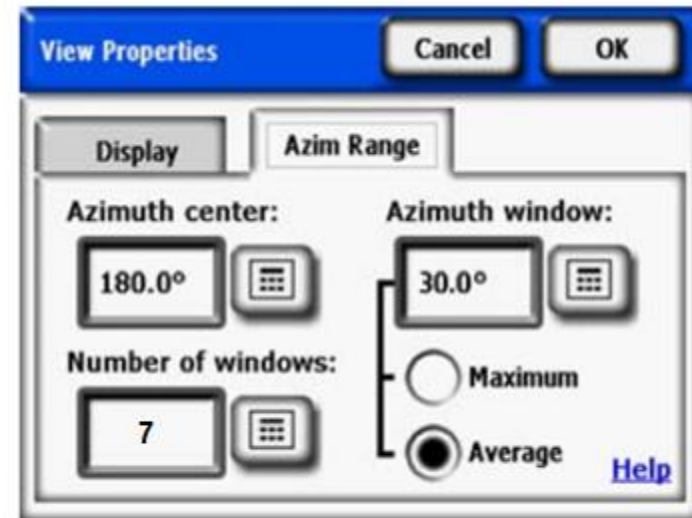
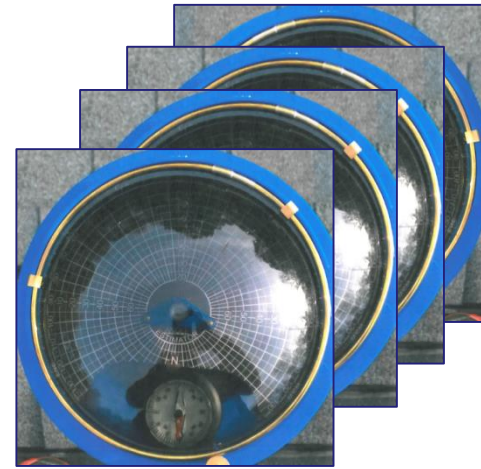
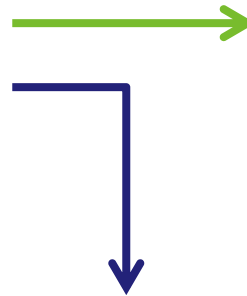
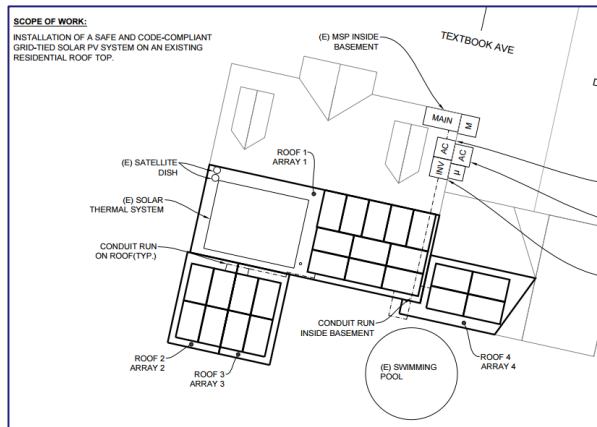


Figure 2-42. Azimuth Range

When Using PowerClerk






System Information

Always break up large or separate arrays to account for shading, tilt and azimuth and take multiple shade readings



System Rating 5.865 kW DC / 5.377 kW CEC-PTC

[Add PV Modules](#) [Add Inverter](#) [Add Other](#) [Calculate System](#)

		Component Description
		<u>1 Inverter(s) - ABB, 6.0 kW (Model PVI-6000-OUTD-US-A (240V))</u>
	X	11 PV Module(s) - Trina Solar, 255W (Model TSM-255PD05.05)
	X	4 PV Module(s) - Trina Solar, 255W (Model TSM-255PD05.05)
	X	4 PV Module(s) - Trina Solar, 255W (Model TSM-255PD05.05)
	X	4 PV Module(s) - Trina Solar, 255W (Model TSM-255PD05.05)

When Using PowerClerk



Contractors and System Owners are responsible for entering or uploading data into PowerClerk:

- System Owner information
- Equipment and design specifications
- All system cost components
- Financing type (PPA or lease rates, escalators, etc.)
- System mounting
- All required paperwork

Once the “Submit” button has been clicked, only Green Bank staff can make changes to the PowerClerk application. Any changes to proposed system must be made in the form of a change order.

Incentive Reservations – 270 Day Deadline



The Green Bank will send incentive reservation letter to the contractor and homeowner or system owner electronically. This is the authorization to proceed with the installation. No hard copies will be mailed and a valid email address is required **from each homeowner and contractor.**

The incentive reservation is valid for 270 days from the date of approval. The Green Bank will not accept new incentive applications from contractors with one or more projects that have not been completed within 270 days (“completed” means having met **all** project completion requirements including submission of all project completion documents to PowerClerk). Incentive step-downs may also be applied to expired projects that span incentive steps. **No extensions will be granted.**

Common Errors



- Take the time to double check your work before submitting. It will save time in the long run!
- Common Errors:
 - Inconsistency between contracts, drawings and PowerClerk entries (ex: 300W modules on contract, 305W modules on site plan)
 - Price in PowerClerk not aligned with that in contract

Change Orders



If equipment changes, please submit change to the Green Bank when submitting Project Completion information in PowerClerk. Change document should be on the contractor's letterhead and be signed by both the contractor and homeowner.

Notify smallsolar@ctgreenbank.com after submitting change orders!

- Each change order should contain:
 - any changes to equipment including the original and updated quantity, manufacturer, size, and model for modules and inverters
 - any changes to total system cost or lease / PPA price
 - updated electrical drawing and site plan, if applicable
- If the Green Bank approves the changes, a revised incentive reservation letter will be sent to both the contractor and homeowner/system owner via email

Cancellations



If a project has been cancelled, please notify the Green Bank via

smallsolar@ctgreenbank.com

- Notify the Green Bank as soon as possible after a project has been cancelled
- Companies may batch cancellations on a bi-weekly basis by sending a list via email with application numbers and last names
- Incentive reservations are not transferrable

Self-Inspection and Field Inspection



All Contractors shall submit a self-inspection at the completion of each project. The Green Bank reserves the right to spot-inspect any system for any contractor (notice will be provided). Contractor wishing to be present during inspection must schedule this directly with the assigned inspector. Visit cgb.powerclerk.com for inspection checklist.

The Green Bank will notify contractors of any failures discovered during review of self-inspection or spot-inspection. **Contractor will be given 30 days to correct inspection failures or resubmit rejected self-inspection reports.**

In order to ensure a passing inspection, Contractors are encouraged to use the field inspection checklist when completing work on-site to ensure passing inspection

Common failures: loose wires, poor labeling, monitoring not configured, homeowner packet not included



PASS



FAIL

WIRE MANAGEMENT FAILURES



EPBB Disbursement



- Disbursements are made directly to contractors twice monthly
- When system is complete and has passed local and utility inspections, the contractor may request EPBB payment by submitting:
 - Signed Project Completion Form
 - Equipment packing slips
 - Utility Approval to Energize
 - Self-Inspection form
 - Approved PDP system ID or MAC ID
- The Green Bank may send system to inspection. Contractor will be responsible for correction of any inspection issues within 30 days of receiving notice of a rejected self-inspection or failed inspection.
- Contractors with 3 or fewer projects in queue may be subject to a 30% payment holdback.
- **See separate EPBB Payment Process guide for further instruction (on cgb.powerclerk.com homepage)**

PBI Disbursement



- When system is complete and has passed local and utility inspections, the contractor may request PBI payment eligibility by submitting:
 - Signed Project Completion Form
 - Equipment packing slips
 - Utility Approval to Energize
 - Self-Inspection form
 - Approved PDP system ID or MAC ID
- The Green Bank may send system to inspection. Contractor will be responsible for correction of any inspection issues within 30 days of receiving notice of a rejected self-inspection or failed inspection.
- PBI payments are made quarterly based on kWh production reported in Green Bank's Locus platform. **Data integrity is the responsibility of the Contractor or System Owner.**
- **See separate PBI Payment Process guide for further instruction (on cgb.powerclerk.com homepage)**

Smart-E Loan



Smart-E is a residential **loan** product for CT homeowners with FICO scores $\geq 680^*$ and **DTI $\leq 45\%$** to access **long-term, low-interest** financing for energy improvements through participating credit unions and community banks with **no money down**

Loan Term	5	7	10	12
Maximum Rate (varies by lender)	4.49%	4.99%	5.99%	6.99%

energizect.com/smarte

joe.buonannata@ctgreenbank.com

* Some participating credit unions and banks will lend to homeowners w/credit scores ≥ 640

RSIP Staff Contact Information



Dale Hedman, Director, Statutory and Infrastructure Programs

- dale.hedman@ctgreenbank.com
- (860) 257-2331

Bill Colonis, Manager, Statutory and Infrastructure Programs

- bill.colonis@ctgreenbank.com
- (860) 258-7828

Ed Kranich, Senior Associate, Statutory and Infrastructure Programs

- edward.kranich@ctgreenbank.com
- (860) 257-2881

Emily Basham, Consultant, Statutory and Infrastructure Programs

- emily.basham@ctgreenbank.com
- (860) 258-7839

Isabelle Hazelwood, Senior Associate, Statutory and Infrastructure Programs

- Isabelle.hazelwood@ctgreenbank.com
- (860) 258-7826

Liz Johnson, Statutory and Infrastructure & Residential Programs

- liz.johnson@ctgreenbank.com
- (860) 258-7815

Mary Vigil, Senior Project Assistant, Statutory and Infrastructure Programs

- mary.vigil@ctgreenbank.com
- (860) 257-2340

Neil McCarthy, Associate, Statutory and Infrastructure Programs

- neil.mccarthy@ctgreenbank.com
- (860) 257-2899

Lynne Lewis, Senior Project Assistant, Statutory and Infrastructure Programs

- lynne.lewis@ctgreenbank.com
- (860) 257-2363

Sara Pyne, Associate, Statutory and Infrastructure Programs

- sara.pyne@ctgreenbank.com
- (860) 257-2162

Selya Price, Senior Manager, Statutory and Infrastructure Programs

- selya.price@ctgreenbank.com
- (860) 257-2362

Please direct all general program
correspondence to
smallsolar@ctgreenbank.com

Appendix

Residential PV Incentives in CT



Local Property Tax Exemption

[Public Act 13-61](#)

Property tax exemption for Connecticut Class I renewable energy systems generating electricity for private residential use

Exemption is automatically available for systems installed on or after October 1, 2014, serving farms or 1 to 4 family owner-occupied homes

Contact your local tax assessor's office for more information

Residential PV Incentives in CT



State of Connecticut Sales Tax Exemption

CT General Statute §12-412, <http://www.cga.ct.gov/2011/pub/chap219.htm>

Exemption applies to the following renewable energy systems:

- PV
- geothermal
- passive and active solar thermal water-heating systems
- passive and active solar space-heating systems

Exemption covers both the equipment related to eligible systems and labor.

Exemption has no expiration date

Consumers purchasing the eligible equipment or labor must present form CERT-140 to the seller at the time of purchase

Certification Form CERT-140 is available on the Department of Revenue Services (DRS) web site: www.ct.gov/drs

Residential Condo Units



Residential condominium units are eligible to apply for incentives under the Residential Program

The PV system must be connected to a residential meter, and the property must be owner-occupied

It is each contractor's responsibility to ensure the condominium association's by-laws allow for the installation of a PV system

Non-HES Energy Audit Documentation



Non-HES energy audits are also accepted. A non-HES energy audit must be completed by a BPI, CEM, CEA, HERS or PE.

The company performing the audit must be properly insured and must also be a registered home improvement contractor (HIC) with the Connecticut Department of Consumer Protection.

Green Bank staff must be able to clearly see the date the vendor completed the energy audit.

Non-HES Energy Audit Documentation



If you are installing a system on a newly-constructed or to-be constructed home, submit a letter from the architect or general contractor, or, submit a copy of the Home Energy Rating System Program (HERS) certificate/letter.

- HERS: <http://www.resnet.us/>

New construction refers to homes built to most recent building code.

Partial renovations and additions do not constitute new construction or gut rehabilitation.

Under HERS gut rehabilitation is defined as work performed where the entire house was stripped to the studs.

Non-HES Energy Audit Documentation



If you do not have a HERS rating certificate/letter you should submit a New Construction Letter. This letter should be on the general contractor or architect's letterhead and should include all of the following information:

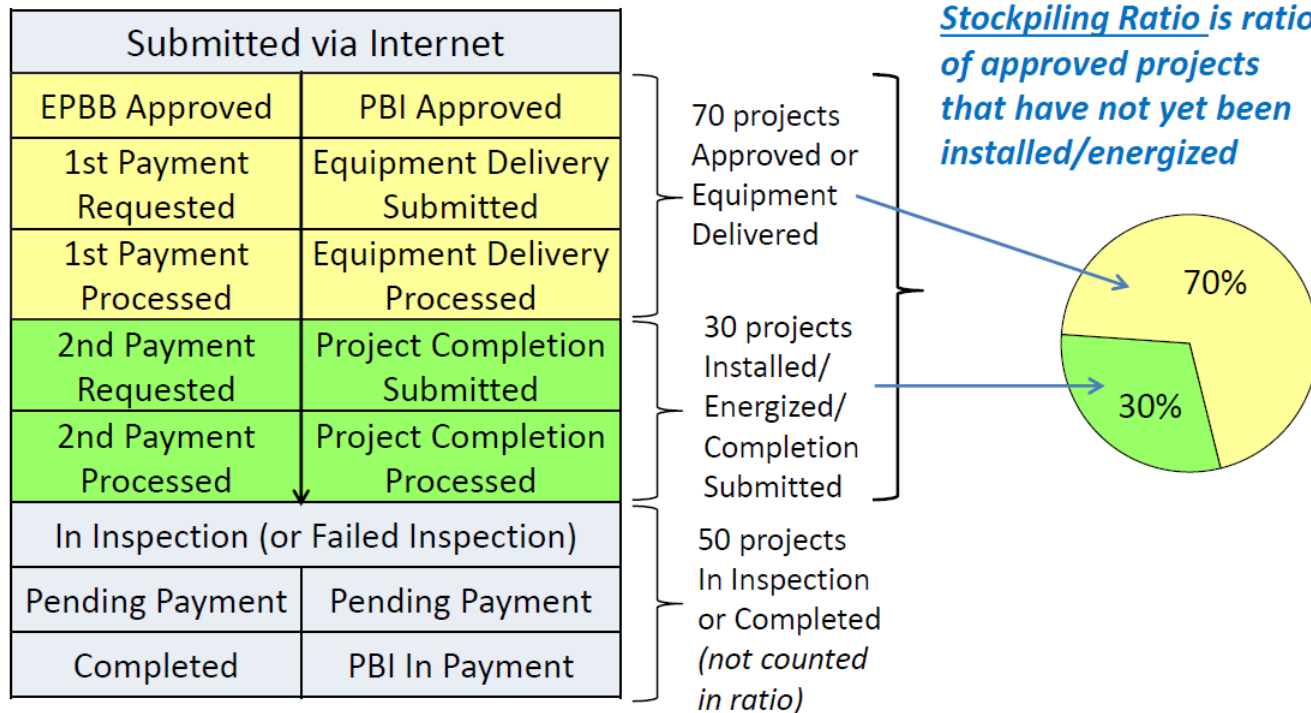
- Date of anticipated or actual construction completion
- Statement of compliance with all current Connecticut electrical codes, building codes and regulations
- List of energy conservation/efficiency measures undertaken, if applicable
- Estimated annual load (should be entered into PowerClerk as well)
- Homeowner's signature
- General contractor or architect's signature

Incentive Reservations – Stockpiling Ratio



Contractors and System Owners with more than 65 total projects cannot hold more than 70% of those projects in “Approved” status.

Incentives cannot be “stockpiled” at one Step if they are not to be completed within a reasonable amount of time



Commercial PV Incentives in CT



Zero Emission Renewable Energy Certificate (ZREC) Program

Created under Section 107 of Public Act 11-80

Request for Proposals (RFP) provided by Eversource and UI on their websites

Program regulated by the Public Utilities Regulatory Authority (PURA)

PURA home page:

- www.ct.gov/pura

Eversource ZREC web page:

- www.cl-p.com/Templates/Content.aspx?id=4294987347&terms=zrec

UI home page:

- www.uinet.com, or www.uinet.com/powerprocurement

Commercial PV Incentives in CT



Commercial Property Assessed Clean Energy (C-PACE)

Open to commercial, industrial and multi-family property owners

Allows building owners to finance qualifying energy efficiency and clean energy improvements through placing a voluntary assessment on their property tax bill

Property owners pay for the improvements over time through this additional charge on their property tax bill and the repayment obligation transfers automatically to the next owner if the property is sold

PACE financing offers a broad range of benefits to building owners, municipalities, mortgage holders, lenders and energy efficiency/renewable energy contractors

www.c-pace.com