



FY 2015 SREC Registration Program Installer Training

Tammy Gray Renewable Energy Operations Manager

Jeremiah Diaz Lead Renewable Energy Inspector

NJCleanEnergy.com



Today's Discussion

- SRP Registration Process and FY15 Changes to Program Requirements
- Review New FY15 Forms and Technical Requirements
- Overview of Additional SRP Program Processes
- SRP Registration Timelines
- Q&A



SREC Registration Submittal Requirements N.J.A.C. 14:8-2.4 (c)

Effective June 2012

N.J.A.C. 14:8-2.4 - Energy that qualifies for an SREC; registration requirement

.....(c)...

....1. The submittal of an initial registration package under (f)1 below shall occur no later than:

i. Ten business days after execution of the contract for purchase or installation of the photovoltaic panels to be used in the solar facility;

<u>http://www.lexisnexis.com/njoal</u>



SRP Registration Process for Complete and Incomplete Registrations

| | SRP Registration | Contract | Compliant | Non-Compliant |
|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Complete SRP 10 Day Rule (Compliant) | Complete SRP received –All documents listed on the SRP Registration Checklist have been submitted | Most recent executed contract signature date is within 10 business days of SRP submittal date – Received by Market Manager (date stamped) | Yes- <u>COMPLIANT</u> SRP Acceptance Letter issued | |
| Complete SRP 10 Day Rule (Non-Compliant) | Complete SRP received- All documents listed on the SRP Registration Checklist have been submitted | Most recent executed contract signature date is <u>NOT</u> (exceeds) within 10 business days of the SRP submittal date – Received by the Market Manager (date stamped) | No | Yes- <u>NON-COMPLIANT</u> SRP Acceptance Letter issued |
| Incomplete SRP | SRP received that is missing items off the SRP Registration Checklist and/or missing dates on contract | | No | SRP Registration is returned to the registrant with a letter identifying missing items. A new SRP Registration is required to be submitted and the new registration date is based on the date the new SRP Registration is submitted |

Non-Compliance: The SRP Registration submittal is received more than 10 days past the contract execution date.
 Non-Compliance: When the Final As-Built packet is received, it is determined that the EDC Notification occurs on or before the date of the SRP Acceptance letter and/or after the project expiration date.
 Compliance: The SRP Registration submittal is received within 10 days of the contract execution date and when the Final As-Built packet is received, it is verified that the EDC Notification occurs after the SRP Acceptance letter and before the project expiration date.

| | Steps | Information | |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| BPU BPU Rev Arrays Clean Energy Rever to Save Ajclean energy.com | STEP 1Use SRP Registration Checklist to ensure aNew SRPComplete SRP Registration submittedRegistrationsubmitted | | SRP Registration Steps |
| Share process with your customer | STEP 2 SRP Acceptance letter Status-Accepted | A <u>Complete</u> SRP Registration has been submitted and an SRP Acceptance letter is addressed to the system owner and copies are sent to all parties listed on the SRP Registration form | Ensure all document included in SRP packet and contact information is correct |
| | <u>STEP 3</u> Final As Built | A <u>Complete</u> Final As-Built Packet is required to be submitted on or before the project expiration date noted on the SRP Acceptance letter | Complete Final As-Built packet submitted prior to expiration |
| Inform customer that on-site verification or waiver of verification may occur | STEP 4SRP Verification Status-QA Selected (Verification Waiver)Status-QC Selected (On-Site Verification Scheduled) | Randomly Selected SRP Verification: An on-site verification will be performed by the Program inspector SRP Verification Waiver: A letter will be issued to the site host and installer | |
| | STEP 5 NJ Certification Number Issued | Once the project is <u>Complete</u> the NJ Certification number will be issued to the system owner This number is required in | NJ Certification Number given only to System Owner |

order for the system owner

to register their SRECS

Status-Complete

NJCleanEnergy.com



 \checkmark

 \checkmark

 \checkmark

 \checkmark

SRP Registration Checklist

SRP Registration Form-Include correct contact information and signatures

SRP Technical Worksheet

A one-page Site Map (overhead view drawing or a single line electrical diagram)

- Clearly indicate the location of the generator(s), batteries
 (if any), lockable disconnect switch (unless otherwise approved by the electric utility,), and point of connection with the utility system
- Installation address
- Current electric utility account number at the address
- Installers name and telephone number

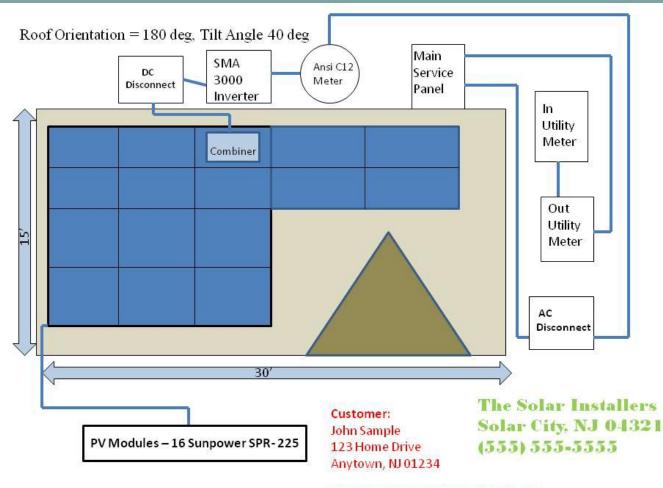
<u>Copy of one recent EDC bill</u> for site host facility to include account number, customer name and installation address

Executed Contract – A full copy of the contract is not required. Provide the key elements of the contract, including contract execution date, host site address and facility owner, system owner, installer, equipment summary information, total project costs, total system capacity **and dated signatures.** If the site host contact and the system owner are the same, submit key elements of a contract signed by the site host contact and the installer. If the site host contact and system owner are different, submit either the key elements of one contract signed by all three parties or the key elements of two signed contracts; one between the system owner and site host contact and one between the system owner and installer. **Public projects must comply with this requirement**. To satisfy the contract requirement, **self installations** must include the purchase order or invoice for the solar equipment. In order for a self install registration to be deemed compliant with **N.J.A.C. 14:8-2.4** the purchase order or invoice must be dated within 10 business days of the date the SRP Registration is received by the Market Manager.

Milestone Reporting Form-For Net Metered Facilities Greater than 1MW



Site Map Requirements



Can be an overhead-view drawing or a single line electrical diagram

- Clearly indicates:
 - RE Technology
 - Inverter(s)
 - Batteries (if any)
 - Disconnect switch
 - Point of connection with utility system
- Includes customer installation address and utility account number
- Includes installer's name and telephone number

NJ Utility Company Acct: 123456789



- To streamline SRP Registration process
- Work toward a more electronic process using writable forms and auto calculations within the forms
- Reduce paperwork required to be submitted
- Ensure SRP Program changes align with the Chapter 8 rules N.J.A.C. 14:8-2.4 governing the SRP Registration submittal requirements
- Installer trainings will be conducted



FY15 Changes to Final As –Built Requirements

The following back up <u>documents</u> will no longer be required:

- PV Watts
- PV Commissioning Form
- Shading Analysis

The NJCEP reserves the right to request a complete copy of production estimates, a full shading analysis or any relevant documentation from the installer at any time.

A date for the Implementation of these changes is <u>tentatively</u> scheduled for December 1st to allow for trainings to take place



FY2015 SRP Program Changes for Final As-Built

(Defined under N.J.A.C. 14:8-2.4 (j) Post-Construction Certification Packet)

| 2013-2014 Requirements | FY2015 New Requirement |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Final As-Built Technical Worksheet | Revised writable Final As-Built Technical Worksheet with auto calculations. Detailed Instructions separate document |
| A Complete Shading Analysis Report and Summary Page. Each array plane must submit separate Shade Analysis and Summary Page | Shading Analysis must be performed and data entered into appropriate field on the new Final As-Built Technical Worksheet. Eliminate requirement for print out of Shading Analysis Report and Summary Page |
| PV Watts-Actual system print outs showing system production, derate factor calculations and copies of equipment specs Each array plane must have a PV Watts report coordinating with the shading analysis. | Productions estimates must be performed and the data entered into the appropriate field on the Final As-Built Technical Worksheet. Eliminate PV Watts print outs. |
| PV Commissioning Form | Eliminate Form |
| Digital Photos (Upload) EDC Authorization to Operate Notification ANSI C-12 Meter Worksheet Site Map (If changes to original system) | No Change |

The SRP Processing Team reserves the right to request a copy of the full shading report and copies of all production estimation paperwork from the installer at any time.



Addendum to Contract

Chapter 8 rule Re-Adoption Effective date June 2012: N.J.A.C. 14:8-2.4 Energy that qualifies for an SREC; registration requirement ...

1. The submittal of an initial registration package under (f)1 below shall occur no later than:

i. Ten business days after execution of the contract for purchase or installation

of the photovoltaic panels to be used in the solar facility;...

<u>Presented at April, June, September and October 2014 RE Meeting -</u>The SRP Program will <u>no longer</u> accept an addendum to be submitted to revise a non-compliant or incomplete SRP Registration. A revised executed contract must be submitted with the appropriate dates and signatures together with a new SRP Registration and will be subject to the 10 day rule governing SRP Registration submittals.

Public comment period ended on September 29th- No comments submitted



 \checkmark

Revised Final As- Built Checklist

- Completed and signed SRP <u>Final As-Built Technical Worksheet</u>. The authorized representative for each party listed at the bottom of the Technical Worksheet must sign the form in the designated space. The parties are defined on the SREC Registration Program Form. The total installed cost requested in Section E of the Technical Worksheet <u>must</u> be updated to reflect that actual value. For detailed instructions on how to accurately complete this form please refer to the SRP Final As-Built Instructions which are available at njcleanenergy.com . The SRP Processing Team reserves the right to request a complete copy of the shade report including the summary page and the complete copy of the production estimate paperwork from the installer/developer at any time.
- Representative <u>digital photographs</u> of the system affixed to the template in the <u>SRP Final As-Built Technical Worksheet</u>. The photos shall be a minimum of 5" x 7" at 300 DPI and must include 1) the solar array 2) inverter(s), 3) site changes if any from original registration (for example tree removal) and 4) Revenue Grade kWh Production Meter that has been certified to the ANSI C12.1-2008 standards. Please ensure that the photos are in focus and the serial numbers are legible.
- If there are changes to the installation of the solar system from the information supplied in the initial SRP Registration packet, include a <u>one-page final site map</u>. This document can be an **overhead view drawing or a single line electrical diagram** and must clearly indicate the specific location of the renewable energy technology, the inverter, batteries (if applicable), lockable disconnect switch, and the point of connection with the utility system. The installation address, current electric utility account number at that address, and the installer/developer's name and telephone number must also be included on the site map.
- **EDC Authorization to Operate Notification** the written notification that the system is authorized to be energized from the utility. Per the *N.J.A.C.* 14:8-5.8 Requirements after approval of an interconnection, once the electric Distribution Company (EDC) performs an inspection or determines that no inspection is needed and has received an executed interconnection agreement from the customer-generator; the EDC shall notify the customer-generator in writing that the customer-generator is authorized to energize the customer-generator facility.
- ANSI C12.1-2008 Certified Meter Worksheet. A revenue grade kWh production meter that has been certified to the ANSI C12.1-2008 standards is required for all SRP systems.



Photo Requirements

- Each photo should be a minimum of 5 x 7 of at least 300 DPI
- If there are multiple orientations and tilts, photos should be provided of each array
- Provide **separate** photos of panels, inverters and meters
- Meter serial number should be visible and legible in photo
- Working to enable photo to be uploaded into new forms





Clean Energy

BPU

Final As-Built Technical Worksheet Page #1

Detailed instructions on separate document

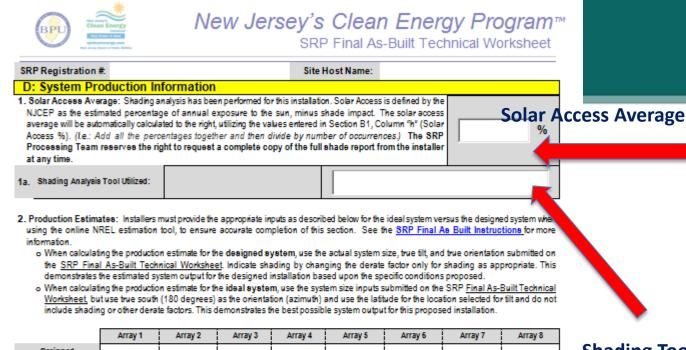
Equipment Information Inverter Data

| Install Address: 3: Equipment Information – PLEASE SUBMIT ADDITIONAL MODULE ARRAY AND INVERTER DATA ON AN ATTACHMENT. 1. SOLAR ELECTRIC MODULE & ARRAY DATA # Manufacturer D. Model Number C DC Power (D Quantity (D C) Uppt (D C) | . Date (Please Select Month) | Day/Year): | 2.3 | SRP Registratio | on #: | | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------|---------------|-------------------------|
| Site Host Information Restandandanda Structure Structur | Site Host Name: | | 4.3 | Site Host Comp | any Name: | | | |
| | . Install Address: | | | | | | | |
| Attanufacturer D. Model Number C. DC Power Raing (w) d. Quantity extrant 0 upublicy f. Azimuth g. Tit Access %, d. Council (extrant 1) f. Azimuth g. Tit Access %, d. Council (extrant 1) f. Azimuth g. Tit Access %, d. Council (extrant 1) f. Azimuth g. Tit Access %, d. Council (extrant 1) f. Azimuth g. Tit Access %, d. Council (extrant 1) f. Azimuth g. Tit Access %, d. Council (extrant 1) f. Azimuth g. Tit Access %, d. Council (extrant 1) f. Azimuth g. Tit f. Solar f. Azimuth g. Tit f. Solar f. Access %, f. Azimuth g. Tit f. Solar f. Access %, f. Azimuth g. Tit f. Solar f. Access %, f. Azimuth g. Tit f. Solar f. Access %, f. Azimuth g. Tit f. Solar f. Access %, | 3: Equipment Infor | mation – PLEASE SUBMIT A | ADDITIONAL MODUL | E ARRAY AND | INVERTER D | ATA ON AN ATT | ACHMENT. | Site Host information |
| Image: Section of the section of t | 1. SOLAR ELECTR | IC MODULE & ARRAY DA | ATA | | | | | |
| a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a a b b fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Output = (DC Power Rafing) x (Module Quanthy) fotal Array DC Power Rafing) x (Module Quanthy) fotal Array DC Power Rafing) x (Module Quanthy) fotal Array DC Power Rafing) x (| a. Manufacturer | b. Model Number | | | Output(w) | f. Azimuth g. ' | | Equipment Informatio |
| | | | | | | | | Module data |
| Image: Section of the section of t | | | | | | | | |
| Image: Second | | | | | | | | |
| Image: Second | | | | | | | | |
| Image: | | | | | | | | |
| Totals: KW ofs: (s) <u>Total Array DC Output</u> = (DC Power Rafing) x (Module Quantity) (f.) New Jersey "brue" Orientation in "True" degrees (i.e., <u>True Azimuth</u> = (Magnetic Azimuth *) – (Magnetic Declination *)) (g.) Titlin degrees (i.e., fat horizontal mount = 0*; vertical mount = 90*) (n.) Enter the Solar Access (%) associated with the shading analysis for each array plane, without decimal places. (see section D1) 2. INVERTER DATA a. Manufacturer b. Model Number C. Rated AC Watta d. Quantity f. Peak Output (w) f. Peak Efficiency % c. a. Manufacturer b. Model Number C. Rated AC Watta d. Quantity e. Inverter AC Output (w) f. Peak Efficiency % | | | | | | | _ | - |
| ote: (a) <u>Total Array DC Output</u> = (DC Power Rating) x (Module Quantity) (f.) New Jersey "true" Orientation in "True" degrees (i.e., <u>True Azimuth</u> ° = (Magnetic Azimuth°) - (Magnetic Declination°)) (g.) Titlin degrees (i.e., fat horizontal mount = 0°; vertical mount = 90°) (h.) Enter the Solar Access (%) associated with the shading analysis for each array plane, without decimal places. (see section D1) 2. INVERTER DATA a. Manufacturer b. Model Number c., Rated d. Quantity e. Inverter AC Output (w) (c x d) a. Manufacturer b. Model Number c., Rated d. Quantity e. Inverter AC Output (w) (c x d) a. Manufacturer c. Inverter AC Output (w) (c x d) (c x d | | | Totala: | + + | | PIA | | |
| (cxd) (cxd) | (f.) New Jera (g.) Tiltin d (h.) Enter th | sey "true" Orientation in "True" de sgrees (Le., flat horizontal mount : e Solar Access (%) associated with | g) x (Module Quantity) legrees (Le., <u>True Azim</u> = 0°; vertical mount = 9 | 90°) | Azimuth°) – (Ma | gnetic Declination | | |
| Anderse Anderse Anderse Anderse Anderse | (f.) New Jera (g.) Tiltin d (h.) Enter th 2. INVERTER DATA | sey "true" Orientation in "True" de sgrese (Le., flat horizontal mount : e Solar Access (%) associated with | g) x (Module Quantity) egrees (I.e., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis | e for each array pi | Azimuth°) – (Ma Iane, without de | gnetic Declination scimal places. (see | e section D1) | |
| Andrew Mathematical Andrew Mathematical Andrew Mathematical Andrew Mathematical Andrew Mathematical <td< th=""><th>(f.) New Jeri (g.) Tilt in d. (h.) Enter th 2. INVERTER DATA a. Manufacturer</th><th>sey "true" Orientation in "True" de sgrese (Le., flat horizontal mount : e Solar Access (%) associated with</th><th>g) x (Module Quantity) egrees (I.e., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis</th><th>e for each array pi</th><th>Azimuth°) – (Ma Iane, without de</th><th>gnetic Declination crimal places. (see e. Inverter AC Output (w)</th><th>e section D1)</th><th></th></td<> | (f.) New Jeri (g.) Tilt in d. (h.) Enter th 2. INVERTER DATA a. Manufacturer | sey "true" Orientation in "True" de sgrese (Le., flat horizontal mount : e Solar Access (%) associated with | g) x (Module Quantity) egrees (I.e., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis | e for each array pi | Azimuth°) – (Ma Iane, without de | gnetic Declination crimal places. (see e. Inverter AC Output (w) | e section D1) | |
| Image: second | (f.) New Jeri (g.) Tiitin d (h.) Enter th 2. INVERTER DATA a. Manufacturer | sey "true" Orientation in "True" de sgrese (Le., flat horizontal mount : e Solar Access (%) associated with | g) x (Module Quantity) egrees (I.e., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis | e for each array pi | Azimuth°) – (Ma Iane, without de | gnetic Declination crimal places. (see e. Inverter AC Output (w) | e section D1) | |
| Image: second | (f.) New Jer (g.) Tiitin d (h.) Enter th 2. INVERTER DATA a. Manufacturer | sey "true" Orientation in "True" de sgrese (Le., flat horizontal mount : e Solar Access (%) associated with | g) x (Module Quantity) egrees (I.e., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis | e for each array pi | Azimuth°) – (Ma Iane, without de | gnetic Declination crimal places. (see e. Inverter AC Output (w) | e section D1) | |
| | (f.) New Jer (g.) Tiitin d (h.) Enter th 2. INVERTER DATA a. Manufacturer | sey "true" Orientation in "True" de sgrese (Le., flat horizontal mount : e Solar Access (%) associated with | g) x (Module Quantity) egrees (I.e., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis | e for each array pi | Azimuth°) – (Ma Iane, without de | gnetic Declination crimal places. (see e. Inverter AC Output (w) | e section D1) | |
| | (f.) New Jer (g.) Tiitin d (h.) Enter th 2. INVERTER DATA a. Manufacturer | sey "true" Orientation in "True" de sgrese (Le., flat horizontal mount : e Solar Access (%) associated with | g) x (Module Quantity) egrees (I.e., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis | e for each array pi | Azimuth°) – (Ma Iane, without de | gnetic Declination crimal places. (see e. Inverter AC Output (w) | e section D1) | |
| Totals: kW | (f.) New Jera (g.) Tiltin d (h.) Enter th 2. INVERTER DATA | sey "true" Orientation in "True" de sgrese (Le., flat horizontal mount : e Solar Access (%) associated with | g) x (Module Quantity) egrees (I.e., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis | e for each array pi | Azimuth°) – (Ma Iane, without de | gnetic Declination crimal places. (see e. Inverter AC Output (w) | e section D1) | |
| | (f.) New Jer (g.) Tiitin d (h.) Enter th 2. INVERTER DATA a. Manufacturer | sey "true" Orientation in "True" de sgrese (Le., flat horizontal mount : e Solar Access (%) associated with | g) x (Module Quantity) egrees (I.e., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis | e for each array pi | Azimuth°) – (Ma Iane, without de | gnetic Declination crimal places. (see e. Inverter AC Output (w) | e section D1) | |
| | (f.) New Jeri (g.) Tilt in d (h.) Enter th 2. INVERTER DATA a. Manufacturer | ey "true" Orientation in "True" de egrese (Le, flat horizontal mount : e Solar Access (%) associated with b. Model f b. Model f | g) x (Module Quantity) egrees (I.e., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis Number | 00°) c. Rafed AC Watte Totale: Invertere) | Azimuth®) – (Ma lane, without de d. Quantity | gnetic Declination crimal places. (see 0 utput (w) (c x d) | Efficiency % | |
| Inverter's Peak Efficiency is entered as a percent without decimal (I.e.: 97%). Refer to manufacturer's peak efficiency rating. | (f.) New Jeri (g.) Tiit in d (h.) Enter th a. Manufacturer a. Manufacturer b. b. b. b. b. b. b. b. b. b. b. b. b. | ey "true" Orientation in "True" de egrese (Le, flat horizontal mount - e Solar Accese (%) associated with b. Model f b. Model f b. Model f c | g) x (Module Quantity) egrees (I.e., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis Number | 00°) c. Rafed AC Watte Totale: Invertere) | Azimuth®) – (Ma lane, without de d. Quantity | gnetic Declination crimal places. (see 0 utput (w) (c x d) | Efficiency % | |
| : Installation Information | (f.) New Jeri (g.) Tiitin d (h.) Enter th 2. INVERTER DATA a. Manufacturer a. Manufacturer b. b. b. b. b. c. c. c. c. c. c. c. c. c. c. c. c. c. | ey "true" Orientation in "True" de egrese (Le, flat horizontal mount - e Solar Access (%) associated with b. Model 1 b. Model 1 c. ar <u>Output</u> = (Continuous AC Watta eak Efficiency is entered as a perco prmation | g) x (Module Quantity) egrees (Le., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis Number Number | 00°) c. Rated AC Watta C. Rated AC Watta C. Rated AC Watta C. Rated AC Watta | Azimuth®) – (Ma lane, without de d. Quantity | gnetic Declination crimal places. (see 0 utput (w) (c x d) | Efficiency % | |
| Installation Information Array Location(8): Rooftop Pole Mount Ground Mount: Installation Informati | (f.) New Jeri (g.) Tilt in di (h.) Enter th 2. INVERTER DATA a. Manufacturer a. Manufacturer b. b. cote: <u>Total Inverter</u> inverter's P C: Installation Info Array Location(e): | ey "true" Orientation in "True" de egrese (Le, flat horizontal mount - e Solar Access (%) associated with b. Model 1 b. Model 1 c | g) x (Module Quantity) egrees (Le., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis Number Number | 00°) c. Rafed AC Watta AC Watta Totals: Inverters) c. #7%). Refer to Ground Mc | Azimuth®) – (Ma lane, without de d. Quantity | gnetic Declination crimal places. (see 0 utput (w) (c x d) | Efficiency % | Installation Informatio |
| C: Installation Information . Array Location(#): Rooftop Pole Mount Ground Mount: . Tracking: Fixed Single-axis Dual-axis | (f.) New Jeri (g.) Tiitin di (h.) Enter th 2. INVERTER DATA a. Manufacturer a. Manufacturer b. b. b. c. c. c. c. c. c. c. c. c. c. c. c. c. | ey "true" Orientation in "True" de egrese (Le, flat horizontal mount - e Solar Access (%) associated with b. Model 1 b. Model 1 c | a) x (Module Quantity) egrees (Le., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis Number Number Rating) x (Number of f sent without decimal (/ ole Mount | 00°) a for each array pi c. Rated AC Watta Totale: Inverters) c. e?7%). Refer to Ground Mc Dual-axis | Azimuth®) – (Ma lane, without de d. Quantity | gnetic Declination crimal places. (see 0 utput (w) (c x d) | Efficiency % | |
| Installation Information Array Location(a): Rooftop Pole Mount Ground Mount: Installation Informati | (f.) New Jeri (g.) Tiit in di (h.) Enter th 2. INVERTER DATA a. Manufacturer | ey "true" Orientation in "True" de egrese (Le, flat horizontal mount = e Solar Access (%) associated with b. Model 1 ar Output = (Continuous AC Watta eak Efficiency is entered as a perco prmation Rooftop Pro Fixed Si Indoor O | a) x (Module Quantity) egrees (Le., <u>True Azim</u> = 0°; vertical mount = 5 h the shading analysis Number Number Rating) x (Number of f sent without decimal (/ ole Mount | ADP) a for each array p C. Rated AC Watte AC Watte Totale: Invertere) e.: 97%). Refer to Ground Mo Dual-axis Location: | Azimuth®) - (Ma | gnetic Declination crimal places. (see Output (w) (0 x d) (0 x d) | Efficiency % | |

New Jersey's Clean Energy Program™



Final As-Built Technical Worksheet Page #2





| | | Array 1 | Array 2 | Array 3 | Array 4 | Array 5 | Array 6 | Array 7 | Array 8 | |
|-------------|----------------------------|---------|---------|---------|---------|---------|---------|---------|---------|--|
| 2 a. | Designed estimate (kWh) | | | | | | | | | |
| 2b. | ldeal estimate (kWh) | | | | | | | | | |
| | | | | | | | | | | |

Shading Tool

- 3. Disclaimer: It is acknowledged that this production estimate is for SREC calculation only and may not be a true representation of annual system production. The installer certifies that the estimated production calculation has been completed and is accurate to the best of their technical and administrative ability. The SRP Processing Team reserves the right to request a complete copy of the production estimate paperwork from the installer at any time.
- 4. Over-Flow Data: Table B1, B2, and D2 must be used to provide information for up to eight unique array planes. If there are more than eight, please use the supplemental forms and transfer only the totals to the Array "A" boxes above. <u>Click here</u> to locate and download the supplemental overflow forms for Sections B-1 and/or B-2.

The SRP Processing Team reserves the right to request complete copies of all estimation paperwork to support the data on the SRP Final As-Built Technical Worksheet.





New Jersey's Clean Energy Program™ SRP Final As-Built Technical Worksheet

Final As-Built

| | SRP Registration # | Site Host Name: | |
|----|--------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-------|
| | E: System Cost Information | | _ Ins |
| et | Total Installed System Cost: (Eligible installed system cost includes interconnection costs.) | all equipment, installation, and applicable \$ | |
| | Registrants must supply cost information that is accurate and current | as of the registration date. SRP Registrations will not be processed witho | ut |

system cost information. Cost can be submitted for protection under OPRA by following the Board's procedures found at www.nj.gov/bpu.

F: Certification (Signatures Required)

The undersigned by signing below attest to the accuracy and completeness of the above and any information provided with this submittal. If the SRP Processing Team determines through an evaluation process of either on-site inspection or audit that the system has been misrepresented or that the paper work submittal is found to have violated program procedures then the contractor may be subject to corrective action as described in the Contractor Remediation Procedures specified in the Board Order dated October 15, 2010, Docket No. EO07030203.

The signature for the installer shall be an Officer, Principle or Executive of the company that has signing authority for the company.

| System Owner: | | installer/ Company: | Applicant/ Site Host: | |
|------------------|----------------------------------------|------------------------|--------------------------|--|
| Signature: | | Sgnature: | Signature: | |
| ognotore. | | agnotare. | agnotate. | |
| Print Name: | | Print Name: | Print Name: | |
| Date: | | Date: | Date: | |
| Registran | t (only needed if different from above |): | | |
| Print Name: | | Sgnature: | Date: | |

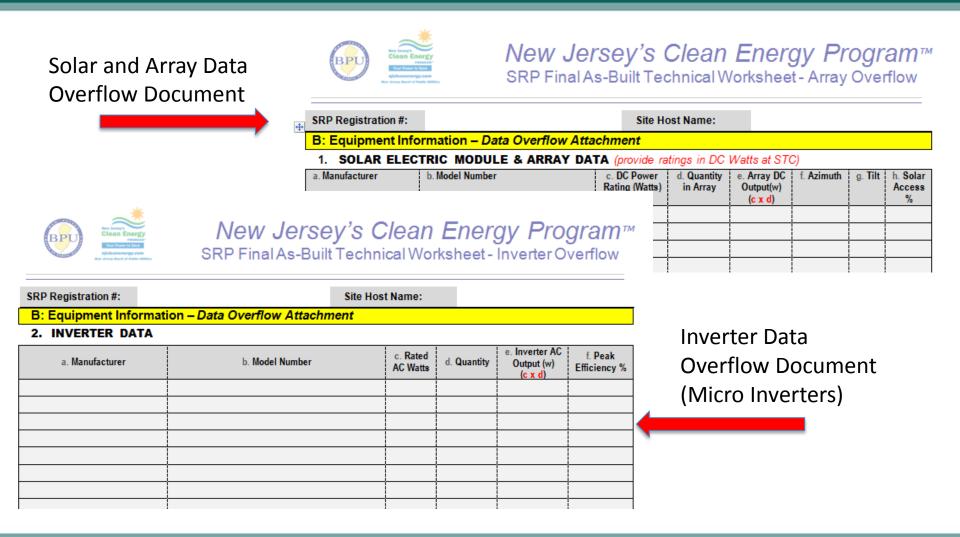
Signatures

Installed Cost

NJCleanEnergy.com



Overflow Data







Enter the Solar Access percentage associated with the completed shading analysis for each array plane, with a maximum of two decimal places.

| a. Manufacturer | b. Model Number | c. DC Power | d. Quantity | e. Array DC | f. Azimuth | g. Tilt | h. Solar |
|-----------------|-----------------|----------------|-------------|----------------------------------|------------|---------|----------|
| | | Rating (Watts) | in Array | Output (w) <mark>(c x d</mark>) | | | Access % |
| 1. Prism Solar | PSM-245-PA05 | 245 | 50 | 12250 | 175 | 24 | 96.25% |
| 2. Prism Solar | PSM-245-PA05 | 245 | 150 | 36750 | 180 | 0 | 89.60% |
| 3. Prism Solar | PSM-245-PA05 | 245 | 10 | 2450 | 265 | 35 | 91.30% |
| 4. Prism Solar | PSM-245-PA05 | 245 | 20000 | 4900000 | 180 | 39 | 99.00% |
| | | Totals: | 20210 | 4951.45 KW | | | |

Solar Access %: Solar Access is defined by the Market Manager as the estimated percentage of annual exposure to the sun, minus shade impact. A shading analysis shall be performed using a minimum sampling of two lower corners and two upper corners of each distinct array plane. The system installation information supplied in this section must coincide with the SRP program verification within an accuracy of **+/- 3 degrees** of that reported on this form.

The SRP Processing Team reserves the right to request a complete copy of the full shading analysis from the installer at any time.



NJCEP Requirements

<u>Mandatory</u>

- "Ideal" PVWatts
 - DC System Size (kW)
- "As-Built" PVWatts
 - DC System Size (kW)
 - Array Type (fixed, 1-axis, 2-axis, etc.)
 - System Losses % (DC-to-AC Derate Factor)
 - o Tilt (°)
 - \circ Azimuth (°)
- "As-Built" Loss (Derate) Calculator
 - (Module) Nameplate (DC) rating (%)
 - Inverter Efficiency (%)
 - Shading (%)

Optional

- "Ideal" PVWatts
 - "Draw Your System"
- "As Built" PVWatts
 - "Draw your System"
- Do not alter any further values or options when submitting to the NJCEP.

The rules will change requiring hard-copy submittals, **BUT...** The NJCEP reserves the right to request a complete copy of production estimates, a full shading analysis or any relevant documentation from the installer at any time.



Shading Analysis Requirements

- Require a minimum of four (4) skyline photos per array plane (i.e. 4 corners of a rectangular array per each roof level)
- For an asymmetrical array layout: capture semi-symmetrically opposite skyline photos (an even number of skylines), in order to obtain a balanced shading percent average.

Residential System



Flat roof and ground-mounted **Commercial systems**



Shading Analysis-Installation Considerations

"Short of outright physical destruction, hard shadows are the worst possible thing you can do to a PV module output." - <u>The Solar Living Source Book</u>

Shade Analysis is Critical to Determine Solar Array Performance

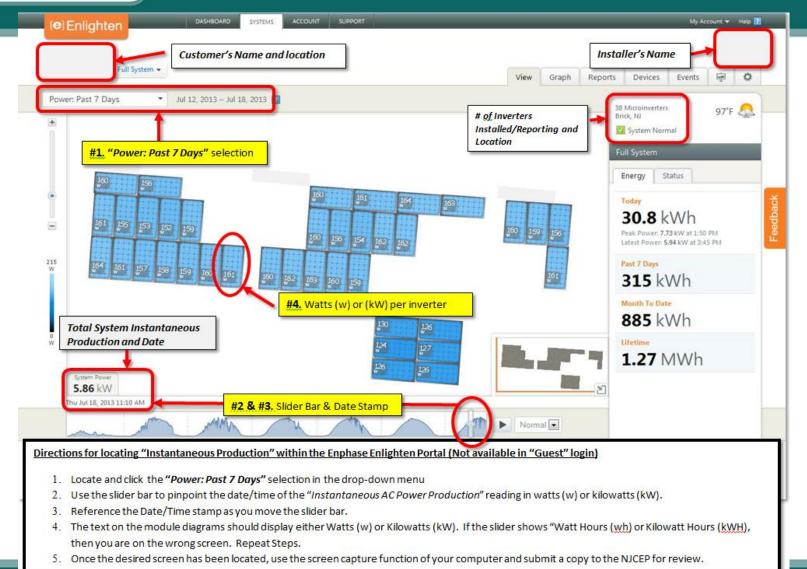




- "Instantaneous kW AC Production" and "Lifetime kWh Production (ANSI c.12.1-2008)" screen capture or photo required for all on-site Verifications
- If data is unavailable, Inspector will request from Contractor or site host contact (if present and available during site visit)
- Proactive delivery of kW AC and/or kWH reading
- Data represent the **Date of Site-Verification**
- Enphase Enlighten 7-day window for data vs. Response Time
- (RARE: Case-by-case) Inoperable Enphase Envoy EMU = submit a PV Commissioning Form with actual (not rated output) VOC & IMP branch circuit measurements.

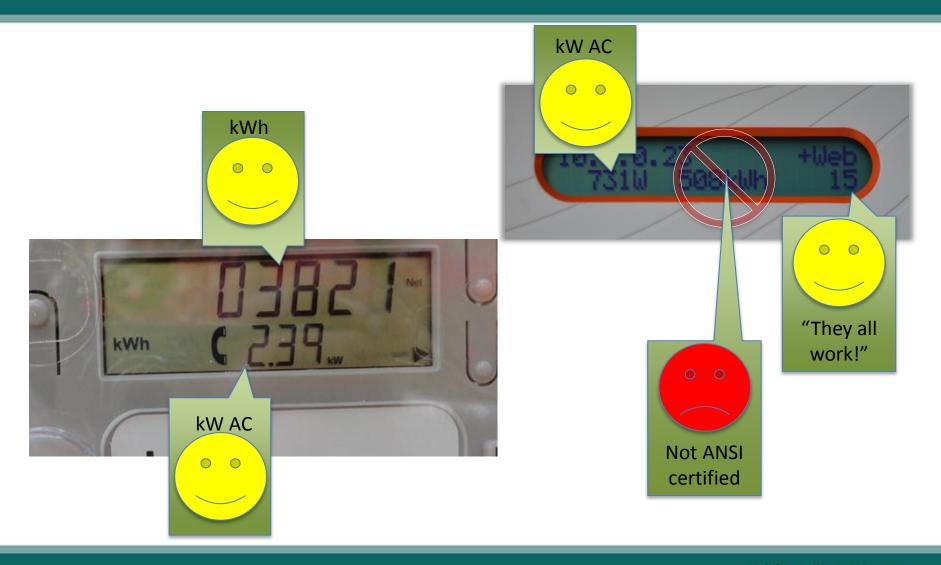


Production Screen Captures





Production Screen Captures



NJCleanEnergy.com





| Trina Model #TSM-240PA05 240 Watt | | | | |
|-----------------------------------------------------------------------------|-------------------|------|----------------------|---------|
| | | | | |
| MAXIMUM OPERATING CURRENT IPMAX | Number of Strings | | Module Max IMP | IPMAX |
| Ipmax of Module x number of strings in parallel | Number of Strings | | 7.89 | |
| | | | | 20.01 |
| MAXIMUM OPERATING VOLTAGE | Quanity | VOC | Correction NEC 690.7 | VPMAX |
| VMax of Module x number of modules | 10 | 37.2 | | 372 |
| Maximum System Voltage | | | | |
| Maximum System Voltage VOC x Number of Mods x Correction Factor NEC690.7 | 10 | 37.2 | 1.13 | 420.36 |
| | 10 | 07.2 | 1.10 | 420.00 |
| Short Circuit Current | Circuits | ISC | | |
| ISC x Number of source circuits in parrallel x 125% | 3 | 8.37 | | 31.3875 |
| | | | | |
| | | | | |
| INVERTER_ | | | | |
| | | | | |
| MAXIMUM OPERATING CURRENT- IPMAX | 23.67 | | | |
| MAXIMUM OPERATING VOLTAGE- VPMAX | 372 | | | |
| | | | | |
| MAXIMUM SYSTEM VOLTAGE | 420.36 | | | |
| | 21 2975 | | | |
| SHORT CIRCUIT CURRENT- ISC | 31.3875 | | | |



Best Practices

- Make sure the system is turned on before the Site Verification
 - Circuit breakers are found "Off"
 - DC Disconnects are found "Off"
 - Inform/contact the Site Host Contact how and when to turn on once utility meter has been changed and verify operation OR
 - Send a representative to turn the system on and verify operation.
 - Site Host Contacts can be unaware of inoperable systems, especially when they don't have a vested interest.
- Communicate with customers about probability of an On-Site Verification
 - Many customers are unaware that there may be an on-site verification performed by Program Inspectors
 - Ensure that the inverter location is properly identified on the technical worksheet



NREL Hyperlinks

- Proposed phase-out within 6 months
 - PVWatts Version 1
 - <u>http://rredc.nrel.gov/solar/calculators/PVWATTS/version1/</u>
 - PVWatts Version 2 <u>http://gisatnrel.nrel.gov/PVWatts_Viewer/index.html</u>

System Adviser Model (SAM)

- <u>https://sam.nrel.gov/</u>
- Consolidated/Updated Version (available 9/8/14)

– NREL's PVWatts Calculator

http://pvwatts.nrel.gov/



EDC Approval to Operate Notification

- EDC Approval to Operate must be included with the Final As-Built packet
- Interconnection applications are <u>NOT</u> acceptable as a final EDC Approval to Operate
- For EDC Approvals that are sent via email, (Ex. JCP&L) the entire e-mail including the date it was sent is required
- If the EDC Approval includes an account number, the account number must match what was on the initial SRP Registration form and the corresponding utility bill
 - If the account number has changed, you will need to submit a revised SRP Registration form with a copy of the new utility bill



Extension, Cancellations and Expirations

When will I receive my SRP Acceptance letter?

Once the SRP Registration has been deemed complete an SRP Acceptance letter will be issued to the system owner and a copy is sent to the registrant, installer and site host. SRP Registrations are reviewed in date order. See SRP Homepage for changes to timeline.

How do I cancel a project?

The system owner/site host must submit a signed letter cancelling the project and referencing the SRP Registration project number, site host contact, installation address and system size.

Can I apply for an extension?

If a project can not be completed within the 12 month timeline, the applicant may be eligible for a 6 month extension. The extension request must be submitted on or before the expiration date established in the SRP Acceptance letter. See extension policy.

Why did I receive a letter deactivating my SRP Registration?

The Final As Built packet was not submitted and the expiration date for your SRP Registration has passed. Pre-expiration emails are sent to the installer 30-45 days prior to the expiration date for each project notifying the of the approaching expiration date.



Adding New Capacity to Existing System

- If capacity is being added to an existing system, a new SRP Registration must be submitted for the add-on capacity regardless of system size.
- The SRP Registration must comply with the Chapter 8 rules governing the SRP submittal requirements and must include all required documents listed on the SRP Registration Checklist.
- The existing system SRP Registration number and capacity should be referenced with the SRP Registration packet.



Adding New Capacity to Existing System (cont.)

Options

- Registrants may elect to add the capacity to the existing NJ Certification Number utilizing the existing ANSI C12.1-2008 SREC generation meter. In these cases, the additional capacity will be subject to the remaining qualification life that is applicable to the original NJ Certification Number and will be issued the same NJ Certification Number from the original system.
- If the add- on SRP Registration has been deemed non-compliant based on the Chapter 8 rules governing SRP submittal requirements, a new ANSI C12.1-2008 SREC generation meter will be required to be installed for the add-on capacity that is noted in the SRP Registration packet. If the add-on SRP Registration is accepted as non-compliant, a distinct NJ Certification Number for the additional capacity will be issued.
- If a new ANSI C12.1-2008 SREC meter is installed for the new capacity and the SRP Registration is deemed compliant, a distinct NJ Certification number will be issued with a new qualification life.
- Registrants may elect to develop their project through one or more project phases with each phase eligible for a unique 15-year qualification life. Each project phase must apply for and obtain a unique SRP Registration number and install a dedicated ANSI C12.1-2008 revenue grade meter recording the system output that will be used to determine SREC generation for that project phase. Each of these project phases will receive a unique NJ Certification Number. If only one ANSI C-12 1-2008 revenue grade meter is installed and all project phases are tied into the same ANSI C-12 1-2008 revenue grade meter, each SRP Registration will received the same NJ Certification Number and the same 15 year qualification life regardless of the EDC notification date.



Changes or Replacements of Major System Components

Major system components consist of; solar electric (photovoltaic) modules, inverters, mounting system, meter, transformers

- If the existing system is being replaced with <u>all</u> new major components, a new SRP Registration must be submitted. (BP Solar)
- If all of the major components are "new", a new NJ Certification Number will be issued and the project will be eligible for a new 15 year SREC qualification life.
- Must comply with all SREC Registration Program requirements
- Include cover letter with SRP Registration referencing project number (BPU, REIP, SRP) of existing project

Individual system components;

- If the existing system is being replaced with individual components, a System Change Form is required to be submitted to PJM-GATS reflecting these changes to the system.
- The Market Manager is not required to be notified of individual component changes.



Changes to System Ownership

For Active SRP Registrations

- If the NJ Certification Number has not been assigned and the SRP Registration is active, a revised SRP Registration form must be submitted together with a contract reflecting the new system owner
- The revised information will be adjusted in the project tracking system and the NJ Certification Number will be assigned to the appropriate system owner

For Completed SRP Registrations

- The original system owner will be required to submit a <u>Schedule A Form</u> to PJM-GATS with the appropriate signatures
- PJM-GATS will transfer the ownership to the new system owner
- If the NJ Certification Number has been assigned the Market Manager is not required to be notified of this change in ownership
- If the original system owner is unable to be contacted, the new proposed owner will be required to submit a <u>System Change Form</u>, Agreement of Sale and/or additional documentation (as requested) to PJM-GATS



SRP Registration Timelines

The SRP Registration Trend graph is updated every two weeks with the SRP Registration timelines for issuing SRP Acceptance Letters

The current timelines for issuing an SRP Acceptance Letter is 6 weeks from the date the SRP Registration submitted to the Market Manager

Timelines



NJCleanEnergy.com

THE REPORT OF THE REPORT OF



Additional Resources

 <u>Project Activity Reports</u> <u>http://www.njcleanenergy.com/projectreports</u>

 <u>Project Status Reports</u> <u>http://www.njcleanenergy.com/status reports</u>

 <u>SREC Pricing</u> <u>http://www.njcleanenergy.com/srecpricing</u>



Contact Information

Melissa Zito- melissa.zito@csgrp.com

Verifications, Inspections and Waiver Notifications and all Renewable Scheduling

Theresa Baker *formerly,* **Theresa Heller**- <u>theresa.baker@csgrp.com</u> Final As-Built, Extensions, Expirations

Michelle Spargifiore- <u>michelle.spargifiore@csgrp.com</u> Initial SRP Registrations, Grid Supply Projects, Initial Registration Deficiencies/Returns

Andrew Lee- <u>andrew.lee@csgrp.com</u> NJ Certification Letters

Cynthia Surman- <u>cynthia.surman@csgrp.com</u> Final As-Built Packet and Certified letters

Program Inspectors:

Jeremiah Diaz- <u>jeremiah.diaz@csgrp.com</u> Robert Menist-<u>robert.a.menist@honeywell.com</u> Paul Avery-<u>paul.avery@csgrp.com</u> General Program Inquiries <u>njreinfo@csgrp.com</u> 1-866-NJSMART





NJCleanEnergy.com





For More Information

Visit NJCleanEnergy.com

Call (866) NJSMART

For the latest updates on program announcements or new incentives, subscribe to the NJ Clean Energy Program **E-Newsletter** at: NJCleanEnergy.com.

NJCleanEnergy.com