

# NY-Sun

## Quality Assurance Policies and Procedures

### For Residential and Nonresidential

May 2022



NY-Sun

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## Overview

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NYSERDA maintains the integrity of the NY-Sun Program through an independent Standards and Quality Assurance, SQA, team. This team manages the Quality Assurance, (QA), platform for the program. This manual covers NY-Sun Residential and Nonresidential inspection process. NYSERDA offers another SQA Policy and Procedure manual for NY-Sun Commercial and Industrial.

**Quality Control, QC:** “control of the process, prior to and during the process.”

Planned and systematic activity implemented to ensure quality requirements are met and non-conformances documented in a Quality Assurance inspection are corrected. Contractors/Builders/installers should have their own QC resources to confirm their work.

**Quality Assurance, QA:** “assuring the work is done properly, at the end of the process”.

Field and photo evaluations to verify compliance of key milestones within projects to assess compliance with industry standards and Program requirements; identify corrective action necessary to comply with said standards and requirements.

**Quality Assurance Services Provider, (QSP):**

Members of a Quality Assurance Service Provider are responsible for performing field or photo inspections, while also reporting observed findings in accordance with project requirements. These members are also responsible for review and approval of all inspection reports. The QSP is fully separate and independent from the Program Implementer.

NYSERDA’s SQA team provides 3<sup>rd</sup> party Quality Assurance and monitoring. The quality assurance system has several components, including a review of qualifications and credentials, paperwork audits, establishment of program standards, and comprehensive field and photo inspections. QA inspections involve verification of the contracted scope of work, accuracy of site analysis, comparison of installation to submitted design drawings, and compliance with New York State Uniform Building Code, including references to the International Building Codes and National Electrical Code, NFPA 70, as they relate to the overall quality of the installation.

NYSERDA or its representatives may make a reasonable number of visits to the customer site before, during, and/or after installation of a solar electric system to assess overall compliance.

## Corresponding with NYSERDA’S Standards and Quality Assurance Team

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All correspondence with NYSERDA’s SQA team should be sent to: [inspections@nyserda.ny.gov](mailto:inspections@nyserda.ny.gov). A member of the SQA team will reply in a timely manner.

# Program Roles and Responsibilities

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The program relies on Contractors and Builders to implement new solar electric systems for customers seeking incentives through the program. The Contractors and Builders have roles and responsibilities in the program, including the following:

## Contractor Roles and Responsibilities

- Holds the agreement, contract, with the customer
- Responsible for Builder performance, including subcontractors
- Receives incentive payments unless payment assignment is identified
- Agrees to terms of the NY-Sun Program’s participation agreement
- Agrees to terms of Contractor and Builder relationship agreement
- Responsible for resolution of customer complaints, warranties, and production guarantees for the entire system

## Builder Roles and Responsibilities

- Responsible for installation and quality of project
- Responsible for maintaining a credentialed person on-staff
- Agrees to terms of Contractor and Builder relationship agreement

Inspections will primarily focus on the quality of the Builder’s installation, and average inspection scores will be calculated. The Builder will be included in any correspondence related to project inspections.

# NYSERDA Portal

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Contractors and Builders can review all their projects by going into Salesforce, also known as the NYSERDA Portal, by going to [portal.nyserderda.ny.gov/login](https://portal.nyserderda.ny.gov/login). Within the NYSERDA Portal, open the dashboard and clicking on **Project Inspections** tab. To review average inspection score by year, by quarter, and program related data, go into the dashboard, and click on the **Dashboards** tab.

NY-Sun Builders and /Contractors can view inspection scores and reports in their Salesforce portal in two ways:

- Even though the SQA Inspection Workflow includes automated email communications to Builders and Contractors/Builders with a link to help the Builders and Contractors/Builders navigate to the correct area of Salesforce, it can be helpful to understand how to access these records from within Salesforce. After logging into Salesforce, click the **Project Inspections** tab, which shows a table of all inspection records. Click the drop-down list and select either **Field Inspections** or **Photo Inspections** to toggle the list of inspection records between the two inspection types. To open the inspection record, click the Project Inspection ID relevant to the record.

- To access other reports associated to the project(s), log into Salesforce and click the **Reports** tab. Then, click the **Go to Dashboard List** link, following with selecting the **Program** folder to access the report list. Once clicked, the reports will show to the right. Use the **Filters** at the top of the page to define how the information in the report should be displayed. Click any underlined link in a report to open the corresponding project record.
- To view visual charts, click the **Dashboards** tab to access the Dashboard. Use the dropdown menu to navigate between them. These charts show, for example, average score by quarter over time. Clicking on a specific chart will open the underlying data, that can also be exported into a spreadsheet.

## Inspection of Completed Projects

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The purpose of the QA inspection is to provide NYSERDA with an opportunity to evaluate the accuracy of the site analysis, design paperwork and to verify the Residential and Nonresidential Systems were installed according to all program requirements. The QA inspection also includes selected health and safety, performance items, and specific compliance items per applicable code.

## Field Inspections

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Field inspections are conducted by a qualified independent third party, using comprehensive field inspection QA checklists and processes.

In general, QA field inspections are scheduled at the system owner's convenience. If the system owner is not the same as the Builder, the owner may request the Builder not to attend. This is an exception, not the rule. System owners are encouraged to allow the Builder to attend the inspection to answer questions and perform minor fixes on site. If the system owner agrees, the Builder will be notified between 5 and 14, days of the upcoming inspection. Every effort will be made to accommodate the schedule of the Builder, but the system owner's convenience and efficient scheduling of inspections take precedence. System owners have the right to request that the Builder not attend the QA field inspection. In these situations, the Builder will not be notified of the scheduled inspection, but they will receive the results within 15 business days.

For Community Distributed Generation projects, the Builder will be the primary contact for scheduling the inspections.

NYSERDA may select any completed project at any point in the future for a field inspection based on system owner complaints, warranty-related issues, or a review of the work done by the Builder under status review or program disciplinary action. All Builders are encouraged to perform in-house quality control of their projects.

# Solar Plus Storage Incentive Field Inspections

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QA field inspections will be conducted on each project applying for the Solar Plus Energy Storage incentive. In addition to the components of the standard QA field inspection, Solar Plus Energy Storage project inspections will also confirm that the installed storage equipment is as approved by the program, ensure general quality of the storage installation complies with codes, follow standards and industry accepted practices, and inspect appropriate metering and data logging that are in place.

QA field inspections will be conducted after the Builder submits the invoice for the Solar Plus Energy Storage Incentive. This inspection may also include review of up to one-week post-commercial operational data to check proper operation of the energy storage system and any automated controls operating the charge and discharge functions of the storage system.

The storage system must be commissioned in accordance with manufacturer specifications, and a commissioning report must be available at the time of invoicing to NYSERDA. The commissioning report should document the specific parameters within which the system was fully charged and discharged to determine its usable energy in accordance with manufacturer requirements.

## Inspections

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The Builder is required to take construction photos for each project built. NYSERDA expects that Builders take photos throughout the installation process. It is not the intention for Builders to obtain photos after each request for photo is received.

NYSERDA SQA may request construction photos for the purpose of conducting a photo inspection at any time. A photo documentation sample is available at [nyserd.ny.gov/solar-contractor-resources](https://nyserd.ny.gov/solar-contractor-resources). This sample document is not an all-inclusive list of required photos. Taking multiple pictures of everything installed will help ensure a smooth photo inspection process.

If photos are requested, the Builder will be notified and provided with a link to the NYSERDA Portal for submission. **The Builder must provide pictures within seven days of the request.** The NYSERDA Portal will only allow a single submission. All photos must be submitted at the same time.

If the inspector finds there are photos missing or not clear enough to make a determination, a Can Not Verify (CNV) notice will be issued via email. The Builder will have seven days to resubmit required photos through the CNV request. If the CNV is not responded to within seven days, a non-conformance for each CNV will be documented. There are no extensions granted for photo requests or CNVs.

The Authority Having Jurisdiction (AHJ) local code official, or third-party electrical inspector may also request copies of these photos for their records.

## How to Upload a Photo Request

The Construction Photo Resource can be used to assist Builders to understand what inspection items are reviewed during the Photo Inspection process. This can be found with the [Resources for Contractors](#) Quality Assurance Reference Guides.

NY-Sun Builders can refer to this step-by-step process to upload photos within the NYSERDA Portal:

1. Login into the NYSERDA Portal.
2. Go to the **Project Inspection** within the NYSERDA Portal.
3. At the top of the **Project Inspection** page click on the **Inspection Checklist** tab.
4. For each **Category** and **Measure** upload the appropriate images. There may be instances where the same image will be submitted more than once.
  - a. For a **Category** and **Measure** that is not applicable, on the middle of the page is a box to select **N/A**.
5. When finished with the specific Category and Measure click on Save and **Next** to go to the next task.
6. After all images are uploaded, click on **Submit**.
  - a. PLEASE NOTE: Clicking on **Submit** before finishing uploading photos, the system will prevent any additional photos from being uploaded.

## Bulk Upload

NY-Sun Builders can refer to this step-by-step process to upload when uploading photos as a bulk upload within the NYSERDA Portal:

7. Click the **Project Inspections** tab to access the records. After accessing the correct **Project Inspection Record**, click on the **Project Inspection Number** link to open the record.
  - a. Change the drop-down menu to **Photo Inspections** for easier access to the correct record.
8. In the **Project Inspection Details** page, click the **Upload Files** link under the **Custom Links** section to open the **SQA File Upload** page.
9. In the **SQA File Upload** page, drag and drop all of the applicable images into the **Drop Zone**.
10. The list of images uploaded will display under the **Uploaded Photos** section. After reviewing the list of images, click the **Submit** button to finish uploading.
  - a. Make sure all of the applicable images are added as the system will not allow the upload of additional photos after clicking the **Submit** button.
11. A notification will pop up, click the **OK** button to proceed.
12. The page will redirect to the **Bulk Image Gallery**. The results or additional actions required will be emailed within 15 days.

## QA Inspection Report

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The QA inspection report will provide a list of all non-conformances identified. The report will provide an overall score of the project inspection and identify a pass or fail.

The report will be made available to the Builder within approximately 15 days after the inspection. The report will be made available to the system owner upon request directly to NYSERDA. The report will contain a score, based on the scoring criteria, and a list of any non-conformances observed during the inspection.

## Scoring Criteria

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The scoring criteria characteristics will be used as a guideline for inspectors to gauge relative installation quality but cannot predict every possible situation. These QA scores will:

- Allow NYSERDA to track trends in installation quality over time
- Allow NYSERDA to gauge the relative quality of installations across installers, regions, or other screening criteria
- Provide valuable feedback to contractors, local code officials, and inspectors

## Classification of Program Non-conformances

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Prior to issuing an overall QA score, it is important to understand the magnitude of non-conformances observed during the onsite and photo inspections. A high-quality solar electric system will:

- Comply with the Uniform Code Supplement as published by the NYS Department of State
- Comply with the National Electric Code (NEC)
- Meet all NYSERDA program requirements and standards
- Generate safe, reliable electricity consistent with pre-installation estimates

Table 1 contains the definitions of non-conformances.



**Table 1: Non-conformance definitions**

	<b>Energy Impact</b>	<b>Non-Energy Impact</b>
<b>Incidental</b>	May result in a savings shortfall, but the impact will be small and may not be measurable.	Not expected, on its own, to pose a substantial risk of system failure or hazard.
<b>Minor</b>	Will result in a savings shortfall, but the impact will be small and may not be measurable.	Requires modifications to address but not expected to pose a substantial risk of system failure or hazard.
<b>Major</b>	Will result in a measurable shortfall in energy savings.	Presents an increased risk of system failure or hazard but not determined to be in imminent danger of failure or hazard.
<b>Critical</b>	N/A	Presents an imminent hazard and/or probability of system failure.

## Incidental

Examples of Incidental non-conformances include the following:

- Grounded (neutral) conductor is not properly identified
- Equipment installed does not match Program records, but is considered equivalent
- Missing/incomplete labels

## Minor

Examples of Minor non-conformances include the following:

- Poor wire management that is not expected to cause a fault condition
- Insufficient clearance around boxes
- Not adequately protecting conductors from accidental contact by unqualified personnel
- Unused openings of electrical equipment are not properly sealed

## Major

Examples of Major non-conformances include the following:

- Allowing circuit conductors to be in contact with abrasive surfaces or sharp edges
- Improper system or equipment grounding
- Conductor insulation type is not properly rated for temperature and environmental conditions
- Noncontinuous grounding electrode conductor

## Critical

Examples of Critical non-conformances include the following:

- Observed inverter ground fault conditions
- Lack of or oversized overcurrent protection
- Oversized array strings that could lead to DC voltage in excess of inverter limits
- Use of non-DC rated equipment in DC circuits

This list is not intended to be exhaustive, and inspectors will fully evaluate each installation on a case-by-case basis.

## Overall QA Inspection Scoring Criteria

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Each inspection will receive a score, on a five-point scale. This score is an indicator of the overall quality and compliance with Program requirements, based on the number and type of non-conformances observed. Projects receiving an inspection score of 1-2 are considered failures whereas projects receiving an inspection score of 3-5 are passing scores.

Projects with an inspection score of 5 represents a fully compliant project that employs best practices. Projects with an inspection score of 3 signifies a fully acceptable project. Receiving a 1 or 2 on an inspection represents a project with major or critical failure.

Projects which have non-conformances related to critical, health and safety, or major, system performance, attributes will automatically fail. Specific criteria for each score are given in the following table:

**Table 2. Inspection Score Criteria**

QA Scoring Matrix				
Score	Incidental	Minor	Major	Critical
5	Up to 3	Up to 2	0	0
4	More than 3	Up to 3	0	0
3	N/A	More than 3	0	0
2	N/A	N/A	Up to 1	0
1	N/A	N/A	More than 1	More than 0

When assigning a QA score, the SQA Salesforce module will automatically generate a score based on the inspection results. For example, a system with two major non-conformances will receive a score of 1, even if there were no minor or incidental non-conformances. Systems with any critical non-conformance will automatically receive a score of 1. The passing scores of 3, 4, and 5 may depend on the number of incidental and minor non-conformances found in the inspection report. In this case, a system with up to 3 minor non-conformances will receive a score of 4 since it does not quite meet the requirements for a 5 but exceeds the thresholds of a score of 3.

# QA Score Descriptions

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## 5: System Meets All Program Criteria

A system receiving a score of 5 is generally well-installed, with no noticeable defects in workmanship, code compliance, or expected energy output. These systems are examples of best practices in Residential Nonresidential solar electric installation.

## 3: System Meets Key Program Requirements

A system achieving a score of 3 meets basic program requirements, but it may require some modification to be considered fully compliant.

## 1: System Does Not Meet Program Requirements

Systems receiving a score of 1 have failed to meet key program requirements and are not expected to safely generate electricity consistent with program records. These systems may require urgent attention to address safety concerns.

# Procedure for Handling Non-conformance and Corrective Action

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The QA inspection report will list any non-conformances identified. The report will provide an overall score of the project and identify a pass or fail. Projects that have non-conformances related to critical, health and safety, or major system performance attributes will automatically fail. Projects that have minor or incidental non-conformances may pass or fail based on their overall merits.

All identified non-conformances from the Inspection Report, and in future work conducted in the program, are expected to be addressed and corrected. Acknowledgment and plans for preventing future problems may be requested with the report. Non-conformances can be corrected post-installation through corrective action to the documentation, incentive applied to the project, or remediation of the installation or its components.

Builders are required to respond to NYSERDA with proof of corrective action for those projects that received a failed inspection report with a score of 1 or 2. A failed inspection report must be either disputed within 15 days by responding to the Salesforce Project Inspection record or remedied within 30 days. Sufficient evidence of remediation must be provided to NYSERDA via Salesforce, documenting the completion of required actions. NYSERDA may, at its discretion, conduct a field verification of the remediated installation.

NYSERDA has the right to provide a copy of the QA report, or specific information from the inspection, directly to the site operator, AHJ, or the interconnecting utility based on health, safety, and compliance concerns. In an emergency, NYSERDA or its representatives may shut down the system and will notify the Builder of such action as soon as is possible.

NYSERDA may communicate with any Builder or site operator on any matter relevant to a project. Such communications may be in reply to an inquiry from a site operator or at NYSERDA's initiation. It is the Builder's responsibility to notify the local authority that has jurisdiction of any changes made to the installation and coordinate any required reinspection as needed.

## Procedure for Contesting an Inspection Score

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A Builder may contest the findings of an inspection report by responding to the Salesforce Project Inspection record within 15 days of receiving the inspection report.

Upon review, if NYSERDA agrees with Builder, the non-conformance will be removed. The inspection score may or may not change based on other non-conformances. If NYSERDA agrees with the inspector, the non-conformance will stand, and the score will remain the same.

## Procedure to Resolve a Corrective Action Request (CAR) or Contest the Inspection

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This step-by-step process will assist Builders on how to upload images and documentation for a corrective action or to contest the inspection.

1. Access the **Review Failed Tasks** page, which can be found in the email communication sent to Builders when an inspection uncovers CARs.
2. On the **Review Failed Tasks** page, locate all CAR eligible failed tasks in the navigation bar to the left, which will be denoted with a **Red X** to the right of the task.
3. To contest a failed task, select **Contest Rating** from the **Action** dropdown list, then add a note in the **Notes** section. Finally, click on **Insert** to update the failed task and open the attachment window.
  - a. To resolve a failed task, click on the **Action** dropdown list and select **Mark as Resolved**, then add a note in the **Notes** section. Finally, click on **Insert** to update the failed task and open the attachment window.
4. Click on the **Paperclip** icon in the **Attachment** column to open the **CAR Failure Review Attachment** window, where documents can be attached.
5. Click **Choose Files** in the new window to locate the files on the computer. Choose the appropriate file(s) for upload.
6. After uploading the document, a thumbnail of the file being displayed in the **Attachment** window will be visible. When uploading is completed, click on the **Close** button.

7. After successfully responding to all Failed tasks, click on **Submit** at the bottom of the page to submit the CAR replies for review.
8. Once submitted, the **Contested/Resolved Failed Tasks** will either be **Denied** or **Upheld** by Program Implementers during the review process.
  - a. If the Program Implementer denies the contest, the builder is still responsible for resolving all the failed tasks.

## Inspections Requiring Corrective Action

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1. All non-conformances are required to be addressed within 30 days of issuing report.
2. Critical and major non-conformances require a response through the link sent with the report.
3. Responded Corrective Actions will be reviewed and responded to by NYSERDA staff.
4. If NYSERDA staff accepts the corrective action, the non-conformance will be marked resolved.
5. If NYSERDA does not accept the response, the non-conformance will be marked “resubmit” with a description of why the response was not accepted. The non-conformance will remain open until NYSERDA accepts a response.

## System Shutdowns

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In an emergency, NYSERDA or its representatives may shut down the system. NYSERDA will notify the Builder whenever it takes such action as soon as possible. In the event an inspector feels a solar electric system, as installed, presents an imminent hazard to persons or property, the following procedure will take place:

1. NYSERDA QSP, along with other NYSERDA staff, will review critical issues and confirm shutdown.
2. NYSERDA QSP takes appropriate steps to safely shutdown and secure the system and informs the customer of the decision.
3. If not on site, NYSERDA QSP calls the Builder to notify them of the situation and the shutdown. The Builder is instructed that the system may not be re-energized without corrective action being taken. The Builder may address critical issues before receiving the NYSERDA issued report.
4. The Builder receives the report and must then coordinate any required re-inspection by the local authority having jurisdiction or third-party designee.
5. The Builder is required to provide proof of the corrective action as specified by the NYSERDA QA Inspector.

## Prescriptive Probation and Disciplinary Action

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When a Builder fails to consistently complete projects that pass NYSERDA's QA evaluation or fails to respond to or remedy failed inspections, NYSERDA may review their status in the program and take further action.

A Builder may be issued a prescriptive plan, in which specific results and a timeline for demonstrating those results will be prescribed and monitored. The Builder may be suspended or terminated from the program if determined necessary. Complete details of demonstrating continued project viability are located in region specific NY-Sun Program Manuals:

- [NY-Sun Con Edison Program Manual](#)
- [NY-Sun Upstate + Long Island Program Manual](#)

## Scheduling a call with NYSERDA

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At times NYSERDA QA and Program staff will contact a Builder should they see a negative trend in their performance and see how NYSERDA staff can assist to better performance. Subsequently, a Builder may schedule a call at any time to review their inspection reports, contesting a corrective action, and overall check-in with NYSERDA. Please email [inspections@nyserderda.ny.gov](mailto:inspections@nyserderda.ny.gov) and one of our QA staff will schedule a call.



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