
California Solar Initiative Thermal Program

Performance Based Incentives User Guide for Performance Data Providers

Version 1

Prepared by:

Christine Riker and Molly Crowther, Energy Solutions

**On behalf of the California Solar Initiative Thermal Program
Administrators**

September 24, 2013

Table of Contents

1	Introduction.....	1
1.1	Purpose	1
2	PDP Submittal Process.....	1
2.1	Overview	1
	Authentication	1
	Types of Files.....	1
	Uploading Files	1
2.2	Data Submission Timeline.....	2
	Data Collection.....	2
	Data Submission.....	2
	Incentive Processing.....	2
3	Data Format & Standards	2
3.1	Meter Interval Report	2
3.2	Application Interval Report	2
	Application Interval Report Format Specification	3
4	File Validation	4
4.1	Meter Interval Report Files	4
4.2	Application Interval Report Files	4
	Duplicate Files	4
	File Validations.....	4
	Mutually Exclusive Columns	4
	Data Completeness	4
	Rejected Application Interval Report Files	5
	Late Application Interval Report Files	5
	Successful Application Interval Report Files	5
	File Submissions are Final.....	5
	Data Backfill	5

Revision History

Name	Date	Reason For Changes	Version
Christine Riker and Molly Crowther	9/24/13	Creation	1

1 INTRODUCTION

1.1 Purpose

This User Guide outlines the data submission process and format for meter data readings on CSI Solar Thermal projects being paid through Performance Based Incentives. These projects include:

- Commercial process heat
- Space heating
- Absorption chilling
- Multifamily/Commercial combination systems
- Domestic hot water (DHW) systems > 250 kWth
- DHW \leq 250 kWth (not including single-family residential systems) that opt-in to the Performance Based Incentive (PBI) System

The meter data is used to analyze the performance of the installed equipment over a 2-year time frame following approval of the Incentive Claim Form. The results of the analysis will be used to calculate Performance Based Incentives (PBI) on a quarterly basis as per the CSI Thermal Handbook.

1.2 Support

Any technical questions related to uploading performance data should be directed to the CSI Thermal Support team at support@csithermal.com.

Any program-related questions should be directed to the applicable Program Administrator.

2 PDP SUBMITTAL PROCESS

2.1 Overview

Authentication

Approved Performance Data Providers (PDPs) will be given user accounts for the CSI Thermal website at www.csithermal.com. PDPs must sign in to the website to upload data. All performance data must be submitted via the CSI Thermal website. Files that are submitted via e-mail or any other method are not acceptable.

Types of Files

Application Interval Report files are used to calculate PBI payments and must conform to the validations specified later in this document. **Meter Interval Report** files are raw data files that are stored on the website for auditing purposes only, are not subject to validation, and are not used to perform any rebate calculations.

Uploading Files

PDPs use the **File Upload** page on the CSI Thermal website to indicate the application and date range they are uploading for. They also must choose the type of file they are uploading. When an

application interval file has been uploaded, the page provides immediate feedback about whether the file was successfully uploaded. If the file fails validation, the page indicates what needs to be corrected before the PDP can upload the file again.

2.2 Data Submission Timeline

Data Collection

Data collection for PBI must begin on the 1st day of the month following approval of the ICF and continue monthly thereafter. Any modifications to the schedule require PA approval.

Data Submission

Data for an application is submitted in full calendar months. The PDP has until the 1st of the second following month to validate, format, and submit the meter and application interval data files for that application. For example, the data for January 2013 is due on March 1, 2013.

Incentive Processing

PBI payments are processed after every calendar quarter. Most payees will receive 9 payments with the first quarter and final quarter payments being partial payments.

3 DATA FORMAT & STANDARDS

The following section defines the specific data formatting requirements for the Application Interval Report and the Meter Interval Report.

3.1 Meter Interval Report

The Meter Interval Report format will naturally vary by PDP. Each PDP must format their report so that it includes all meter and sensor data recorded for the Application. This report should include unaltered readings in the original units, basis, and frequency as they were recorded. The fields reported may be more granular than those listed above for more complex systems.

There are very basic formatting requirements for this report. At minimum, the Meter Interval Report must contain the following information:

- Application ID that the meter or sensor is associated with
- Meter ID, a unique identifier that matches with the information on the Metering Plan on the associated application
- The recorded/measured value of the reading
- The unit of measure for the reading

If multiple files are generated for one application in one month, PDPs must upload one zipped file for the Meter Interval Report.

3.2 Application Interval Report

The Application Interval Report format is the same for all PDPs and all Applications. The data in this file is automatically validated on upload and is used to calculate PBI payments. Data in this file represents the combined data readings of all meters associated with a particular CSI Thermal application.

Application Interval Report Format Specification

The Application Interval Data report includes the fields in the following table. The file must include a header row that exactly matches the field names and order as listed. If creating the file in Excel, the header row starts in cell A1 and the data rows start in cell A2. All entries are normalized to 15-minute intervals.

In order to provide flexibility in reporting for when there is no production or consumption (such as at night) or when a meter is malfunctioning, PDPs may enter zeros or have empty fields.

Field #	Field Letter (for Excel)	Field Description	Requirements for 1-Tank Systems*	Requirements for 2-Tank Systems**	Format
1	A	Application ID	Required	Required	AAA-#####. Every row must contain the same application ID.
2	B	Datetime	Required	Required	YYYY-MM-DD HH:MM, 24hr time
3	C	Cumulative gallons of water consumed	Not Required	Not Required	
4	D	Solar BTUs delivered (2-Tank System)	Not Required	Required	Integer
5	E	Total BTUs delivered (1-Tank System)I just looked at it! A	Required	Not Required	Integer
6	F	Back-up Gas Consumption (therms)	Required if backup is gas	Not Required	Floating point
7	G	Back-up Electric Consumption (kWh)	Required if backup is electric	Not Required	Floating point
8	H	Back-up Propane Consumption (therms)	Required if backup is propane	Not Required	Floating point
9	I	Log Data: Alarms	Not Required	Not Required	
10	J	Log Data: System Messages	Not Required	Not Required	
11	K	Log Data: System Events	Not Required	Not Required	
12	L	Log Data: Trends	Not Required	Not Required	

*One-Tank System: A system where the solar and auxiliary heat the same tank or in such a way that the solar contribution cannot be individually monitored.

**Two-Tank System: A system where the solar contribution can be individually monitored, including systems with tankless backup.

4 FILE VALIDATION

4.1 Meter Interval Report Files

Meter Interval Report files are not subject to automatic validation because the format is determined by the PDPs. Meter Interval Report files are accepted and stored by the system for auditing purposes. The data should not be altered unless there are multiple meters at one site for one application – in that case, the readings must be aggregated in one file.

4.2 Application Interval Report Files

The following validations are automatically performed by the system before the file is accepted into the system.

Duplicate Files

- The system allows only one successful upload for a particular month and year for a particular application. If there are multiple meters associated with one application, the PDP must aggregate the data before uploading.
- If for some reason the data provider needs to upload again for an application and month that already has a successful upload, they must contact the CSI Thermal Support team for assistance.

File Validations

- The file must be a valid .CSV (comma-separated values) with the expected number of fields.
- A header row is in the file and matches the given template exactly.
- Required fields contain type of data expected (e.g. integers or text)
- The data file matches a valid CSI Thermal application.
- The data file matches the CSI Thermal application specified by the PDP in the upload form.
- The same time interval does not show up more than once.
- The file is sorted chronologically.
- All dates in the file are valid days (e.g. no time intervals for September 31 or February 30).
- All dates in the file are in the selected month and year.

Mutually Exclusive Columns

- Depending on the tank configuration, there can only be data in one field out of fields 4 and 5 (BTUs delivered).
- Depending on the backup type of the application, there can only be data in one field out of fields 6, 7, and 8 (Backup Consumption).

Data Completeness

- The first interval in the file is YYYY-MM-01 at 00:15 and the last interval in the file is at YYYY-MM(+1):01 00:00. For example, for September 2013, the first interval must be 2013-09-01 00:15 and the last interval must be 2013-10-01 00:00.

- The file contains a complete month of 15-minute intervals. If data is not available but captured in a catch-up row then the intervals above that row should be empty. If the system was not delivering energy, the values for BTU delivered should be zero.
- Files will be accepted even if some fields are zero or empty. No incentives will be paid for periods of lost data.

Rejected Application Interval Report Files

An Application Interval Report file is rejected if any one of the above validations fails for any of the rows in the file. If a file is rejected, the PDP is immediately notified by a “Failure” status on the Performance Data Details page.

The Performance Data Details page includes a description of the errors that must be corrected before the file can be accepted by the system. The PDP must correct the file and upload the revised file.

Late Application Interval Report Files

The PDP has until the 1st of the second following month to validate, format, and submit the Meter and Application Interval data for that application. For example, the reports for February 2013 are due by 11:59pm on April 1, 2013. If files are submitted after the due date, the Performance Data Details and the Performance Date List show that the file as Late. The CSI Thermal Program Administrators may or may not pay incentives on late submissions, which are a violation of the rules as set out in the CSI Thermal Handbook.

Successful Application Interval Report Files

When all validations are passed for the Application Interval file, the status is shown as “Success” on the Performance Data List page and Performance Data Details page.

All uploaded files, whether or not they passed validation, are stored in the system. Data from successfully uploaded Application Interval Report files is used to calculate PBI payments.

File Submissions are Final

Files that have failed validation can be corrected and resubmitted. However, once a file has successfully passed validation, the data cannot be overwritten, revised, or deleted by the PDP for the given application and month. Any attempt to upload additional Application Interval Report files for the month and application result in rejection of the file. The Program Administrators may allow successfully uploaded files to be replaced on a case-by-case basis.

Data Backfill

In the case that a communication issue prevents transmission of energy delivered data for a given time period, any cumulative data that was recorded and stored in the meter’s memory at a 15-minute interval frequency can be submitted in both the Meter and Application Interval Files.

If the system is delivering thermal energy, but the meter is unable to record and store 15-minute interval data, it is possible to know the total BTUs delivered over the period from the cumulative meter. However, it is impossible to know the incremental system performance during the malfunction. If this occurs, for the BTUs delivered or consumption fields, PDPs can enter zeros or have empty fields in the intervals for which no data is available.