IRA HOME ENERGY REBATES: DATA & TOOLS REQUIREMENTS GUIDE

VERSION 2

Published on January 7th, 2025

This document replaces the Version 1.2 document published on May 2nd, 2024.

Please note the following principal changes from Version 1.2 to Version 2:

- Rebate transaction data elements (additions, removals, changes and clarifications captured throughout the document) are updated to align with the development of the Rebate Tracking and Reporting Tool (API), updates made to the Program Requirements and Application Instructions document, and other program resources such as the Multifamily Requirements Guidance for Modeled Savings and Quality Installation in the Home Energy Rebates Program.
- Clarifies when states opt to report transaction data after-the-fact, using the reporting end-point of the API or via spreadsheet, data must be submitted monthly by the last day of the subsequent month.
- Program pre-launch data details (previously Table 1) are removed and replaced with a web link.
- Programmatic Data (previously Table 4 and Table 8) is removed and replaced with reference to Federal Assistance Reporting Checklist (FARC).
- Safety checks (previously in Table 3 and Table 7) are moved to Appendix C.
- Supporting rebate transaction documentation for proof of quality installation and pre- and post- install photographs are required to be retained by the states and no longer regularly reported to DOE (except when requested).

Modifications adopted in Version 2 are listed in the following table and highlighted in yellow throughout the document.

Item No.	Description of Modification	Location(s)
1	Modifies the structure of the document and descriptions of the updated content, including clarified reporting timelines.	Section 1.0, pp. 1-2
2	Adds clarifying language about data collection, retention, and reporting.	Section 1.1, p. 2
3	Adds Section 1.2 to summarize quarterly reporting requirements for FARC compliance, removes previous Sections 2.3 and 3.3.	Section 1.2, p. 2
4	Clarifies pre-launch information reporting method and requirements, deletes tables, and refers to online spreadsheet template.	Section 2.1, p. 3 Section 3.1, pp. 15-16
5	Clarifies rebate transaction reporting requirements.	Section 2.2, pp. 3-4 Section 3.2, pp. 16-17
6	Table 1 (previously Table 3): • Removes "suggested" from the 4th column title • Adds: o Row 3 (Homeowner name) o Row 21 (If MF, number of occupied units in building) o Row 24 (Vendor ID) o Row 30 (Geotagged photos) o Row 32 (Post-Retrofit Inspection Passed) o Row 33 (See Appendix C – Safety Checks) o Row 36 (Amount of disadvantaged community incentive paid) o Row 49 (External Rebate ID) • Modifies: o Row 8 (Applicant ID) o Row 9 (Unique project identifier) o Row 10 (Unique portfolio identifier) o Row 11 (State attestation) o Row 14 (Income bucket)	Section 2.2, Table 1, pp. 4-15

	◦ Row 18 (Building address ID) ◦ Row 19 (Building type) ◦ Row 22 (If MF, percent of occupied units <80% AMI) ◦ Row 25 (Contractor name) ◦ Row 26 (Company name) ◦ Row 27 (Is contractor eligible?) ◦ Row 28 (Home component(s) to be upgraded) ◦ Row 29 (Rebate reservation amount) ◦ Row 31 (Proof of quality installation) ◦ Row 34 (Total amount of rebate payout) ◦ Row 37 (Equipment & materials cost) ◦ Row 38 (Installation costs) ◦ Row 39 (Project completion date) ◦ Row 40 (Project invoices) ◦ Row 41 (Signature) ◦ Row 42 (Modeling software used) ◦ Row 47 (Output files) ◦ Row 50 (Consumer Satisfaction) • Removes (previous row numbers): ◦ Rows 28-37 (Safety Testing) ◦ Row 40 (Amount of rebate paid to aggregator)	
7	Table 2 (previously Table 7): • Removes "suggested" from the 4th column title • Adds: ◦ Row 4 (Emergency replacement) ◦ Row 5 (Claimant name) ◦ Row 24 (If MF, number of occupied units in building) ◦ Row 32 (Limited Home Assessment) ◦ Row 43 (Installation Vendor ID) ◦ Row 46 (Amount of disadvantaged community incentive paid)	Section 3.2, Table 2, pp. 17-28

	○ Row 47 (Amount of incentive paid to the installer) ○ Row 48 (Project completion date) ○ Row 51 (See Appendix C – Safety Checks) ○ Row 52 (Post-Retrofit Inspection Passed) ○ Row 53 (External Rebate ID) • Modifies: ○ Row 6 (Claimant mail) ○ Row 10 (Applicant ID) ○ Row 11 (State attestation) ○ Row 12 (Unique project identifier) ○ Row 13 (Permission to share) ○ Row 19 (Income bucket) ○ Row 21 (Unique address ID) ○ Row 22 (Building type) ○ Row 29 (Is contractor eligible?) ○ Row 33 (Upgrade type) ○ Row 38 (Product Vendor ID) ○ Row 39 (Amount of rebate deducted) ○ Row 40 (Purchase date) ○ Row 41 (Purchased item(s) description) ○ Row 42 (Equipment & materials cost) ○ Row 44 (Installation costs) ○ Row 45 (Project invoice) ○ Row 49 (Geotagged photos) ○ Row 50 (Proof of quality installation) ○ Row 54 (Consumer Satisfaction) • Removes (previous row numbers): ○ Row 34 (Vendor name) ○ Rows 45-54 (Safety Testing)	
8	Adds details on API capabilities.	Section 4.2, pp. 29-30

9	Clarifies data submittal options.	Section 4.3, p. 30
10	Adds Section 4.4 about modifying previously submitted data.	Section 4.4, p. 30
11	Clarifies HPXML file requirements.	Section 5.1, p. 31

12	Table 3 (previously Table 9):
	• Modifies:
	  ○ Rows 12-14 (Modeled electricity/gas/other fuel use)
	  ○ Row 15 (Monthly utility usage data)
	  ○ Rows 68-70 (Weather Normalized Usage)
	  ○ Rows 71-75 (Detailed Model Calibration Error)
	  ○ Rows 76-79 (Simplified Model Calibration Error)
		Section 5.1, Table 3, pp. 32-36

13	Clarifies data requirements for multifamily buildings.	Section 5.2, p. 37
14	Clarifies use of PNNL's Quality Install Tool and safety testing requirements.	Section 6.0, p. 47
15	Modifies footnote 33 to clarify how states handle additional data points.	Section 6.0, p. 47

16	Table 5 (previously Table 11):
	• Modifies the table name to include original component data
	• Modifies:
	  ○ Row 13 (Foundation type)
	  ○ Row 24 (Existing water heater fuel type/type)
	  ○ Row 27 (Existing heating distribution type)
	  ○ Row 29 (new CFM flow rate)
	  ○ Row 33 (new stovetop/oven/range type)
	• Removes (previous row numbers):
	  ○ Row 25 (existing water heater type)
		Section 6.0, Table 5, pp. 48-56

17	Clarifies requirements for limited assessments.	Section 6.0, p. 56

18	Table 6 (previously Table 12):
	• Adds columns "Drop-Down Options or Coding" and "Notes" and populates rows as needed
	• Adds rows 19-23 on project eligibility
	• Not considering new columns, modifies:
	  ○ Row 1 (Address)
	  ○ Row 4 (Percent conditioned floor area served)
	  ○ Row 7 (Type of ceiling/attic insulation)
		Section 6.0, Table 6, pp. 57-61

19	Adds Appendix C – Safety Test Results.	Section 7.0, pp. 62-64
20	Table 7 (rows removed from previous Tables 3 and 7): • Adds additional notes to rows 1-8 • Modifies rows 6-10	Section 7.0, Table 7, pp. 62-64
21	Adds detail about API use and clarifies additional IT system photo functionality.	Section 8.0, pp. 65-66
22	Adds footnotes: • 6 (p. 4, table numbering) • 8 (p. 6, income verification) • 9 (p. 7, Address API) • 10 (p. 10, geotagging) • 11 (p. 11, QI tool) • 12 (p. 11, aggregators) • 14 (p. 15, file format) • 15 (p. 17, table numbering) • 16 (p. 20, Address API) • 17 (p. 23, limited home assessments) • 18 (p. 27, project completion date) • 19 (p. 27, geotagging) • 20 (p. 27, pre-existing equipment) • 21 (p. 27, quality install)	Throughout

	• 22 (p. 27, QI tool) • 23 (p. 29, Main API) • 24 (p. 30, Requirements reference) • 28 (p. 32, table numbering) • 29 (p. 32, column explanation) • 31 (p. 33, blower door tests) • 32 (p. 38, table numbering) • 36 (p. 48, table numbering) • 37 (p. 57, table numbering) • 38 (p. 62, safety testing) • 39 (p. 62, combustion safety testing)	
23	Changes the name of the “DOE/PNNL Rebate Tracking System” to “DOE Rebate Tracking and Reporting Tool”	Throughout
24	This version makes clerical fixes, including formatting updates	

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Tables

1.0 Introduction

This guide delineates the data and information that states must collect, retain, and/or report to the U.S. Department of Energy (DOE) prior to launch as well as throughout the course of the two residential rebate programs authorized by Sections 50121 and 50122 of the Inflation Reduction Act (IRA) of 2022. It provides details related to requirements noted in the DOE Program Requirements & Application Instructions (Program Requirements)[1] for the IRA Home Energy Rebates Program. Relevant portion(s) of the Program Requirements are listed as references in footnotes.[2]

The guide is organized as follows:

- **Sections 2.0 and 3.0 describe data collection, tracking, and reporting requirements** for the Home Efficiency Rebates (Section 50121) and the Home Electrification and Appliance Rebates (Section 50122), respectively.[3] Each section is broken out into two parts:
  1. Questions that states must answer at least 60 days prior to program launch
  2. Data requirements associated with individual rebate transactions[4]
- **Section 4.0 introduces the DOE/Pacific Northwest National Laboratory (PNNL) workflows and application programming interfaces (APIs).**
  - States are required to either use the DOE/PNNL workflows OR receive DOE approval of alternative workflows submitted at least 60 days prior to launch.
  - States are required to submit rebate transaction-level data via the API (in real-time or using a reporting endpoint) or a DOE/PNNL standardized spreadsheet. States that use the DOE/PNNL workflows will fulfill this requirement utilizing the real time API. States that use their own workflows must submit all transaction data for the prior month ~~on the first of each month~~ by the last day of the subsequent month.

[1] Program Requirements can be accessed at: https://www.energy.gov/scep/articles/home-energy-rebate-programs-requirements-and-application-instructions
[2] DOE/PNNL expect that clarifications and revisions will be needed to address questions and comments that arise as states and implementers begin to design and launch their programs. Once these issues are resolved, DOE/PNNL will strive to keep changes and updates to a minimum. Throughout the course of the rebates, DOE/PNNL will alert states prior to making any changes to this document, workflows, or the APIs and provide appropriate lead time for states to make any required changes (unless there's a critical system problem that needs to be fixed immediately).
[3] While this guide breaks out requirements for each of the two rebate programs, some states may elect to build one system to implement both types of rebate programs.
[4] See Program Requirements Sections 3.1.2; 3.1.3; 3.1.5; 3.2.2; 3.2.4; 4.1.3; 4.1.5; 4.1.6; 4.2.4

- **Appendices A and B provide requirements for data collection, documentation, and quality installation** for Sections 50121 & 50122 rebate projects, respectively.[5]
- **Appendix C is intended to capture the results of safety checks that are performed for Sections 50121 & 50122.**
- **Appendix D is intended to serve as a reference checklist** of the primary functions required to carry out the rebate programs.

1.1 Meeting the Data & Tool Requirements

In meeting the reporting requirements outlined in this guide, states must adhere to the data security requirements described in the Program Requirements. **States must report the required data elements identified in this document, at minimum, once a month. For data points identified in this document that states must collect and retain, but not include in their regular submissions to DOE, there is a standing obligation for states to report those additional data points to DOE when instructed. In the event DOE requests data subject to privacy rules, states should discuss data transfer methods with DOE prior to sending.** All requirements are consistent with and will be included on the Federal Assistance Reporting Checklist (FARC) as part of the award package.

1.2 Additional Data Reporting Requirements

In addition to the reporting requirements outlined in this guide, states are obligated to report program level data on a quarterly basis in accordance with the Federal Assistance Reporting Checklist (FARC) as part of the award package.

1.3 Additional Information & Assistance

The DOE/PNNL team is committed to working with states and their program implementers to ensure that data collection, reporting, and tracking—as well as rebate processing—are simple and effective.

If you have any questions about the content in this document, please feel free to reach out to the data and tools team at RebateTools@pnnl.gov.

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[5] A state's program design should incorporate quality assurance and enforcement mechanisms to verify the quality of contractor work. States are encouraged to develop methods that efficiently but effectively use resources. Some examples include using less highly trained personnel (e.g., technical college or recent high school graduates) to carry out basic quality review (e.g., checking that all vents are working and connected to ducts); or, conducting more frequent in person inspections for certain types of projects (e.g., those that include HVAC, those completed by new contractors or by contractors that haven't demonstrated consistently high quality work, those completed in low-income homes and/or with greater levels of public investment).

2.0 Home Efficiency Rebates (Section 50121)

2.1 Section 50121 Rebates: Pre-Launch Information (Required)

DOE requires pre-launch information to understand how PNNL's IT team will need to engage with the state and/or its implementer. ~~States can provide this information in any format; however,~~ DOE/PNNL is providing a standardized spreadsheet in the section labeled "Pre-Launch Data Details" on https://www.pnnl.gov/projects/rebate-tools/pre-program-launch to provide this information.

States must:

- Provide all ~~of the following~~ pre-launch information to their project officer at least 60 days BEFORE launching their Section 50121 Program.
- Notify the Project Officer at least 30 days prior to making any changes in relevant program designations (e.g., low-income allocations, rebate amounts) over the course of implementing the rebate programs, so that DOE can request for PNNL to update the system accordingly.

2.2 Section 50121 Rebates: Rebate Transaction Data Collection & Reporting (Required)

The table below lists all the data that is required to be collected by the state or a third party for each rebate transaction associated with the Section 50121 rebates.

- All of the following data elements must be collected and retained by the state or its implementer.
- ~~Some~~ Most of the following data elements must ALSO be reported to DOE through the API or a DOE/PNNL standardized spreadsheet. These are marked with an X in the column titled "Required to Report to DOE".
- ~~Unless otherwise noted, a state can elect to share any of the following data elements with DOE via the Main API or a DOE/PNNL standardized spreadsheet.~~
- States need to refer to the API documentation defined in a living document and located on this webpage: https://www.pnnl.gov/projects/rebate-tools.

Methods of Reporting:

- For states that elect to use the ~~DOE/PNNL~~ Rebate Tracking ~~System~~ and Reporting Tool in real-time, the DOE will automatically receive this data via the DOE/PNNL Main API at the time of each transaction.

- For states that elect NOT to use the DOE Rebate Tracking and Reporting Tool in real-time, states must submit this data monthly (~~on the last day of the month~~ by the last day of the subsequent month) via the DOE/PNNL ~~Main~~ API reporting endpoint or a DOE/PNNL standardized spreadsheet.

Any data components not designated as "Required to Report to DOE" must be retained and provided to DOE upon request.

Table 1[6]: Required Transaction Data Components for Section 50121

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
1	Initiate Rebate Request	Rebate type	• Modeled savings • Measured savings	X	
2	Initiate Rebate Request	Claimant type	• Homeowner • Multifamily building owner • Contractor • Aggregator • Other	X	
3	Initiate Rebate Request	Homeowner name			Do NOT report this data point to DOE.
4	Initiate Rebate Request	Claimant email			Do NOT report this data point to DOE.
5	Initiate Rebate Request	Claimant phone number			Do NOT report this data point to DOE.
6	Initiate Rebate Request	Homeowner email (if claimant is not the building owner)			Do NOT report this data point to DOE.

[6] Previously labeled Table #3 in the Data and Tools Requirements Guide v1.2.

[7] Data categories listed refer to components of the workflows listed in Section 4.0 of this document.

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
7	Initiate Rebate Request	Homeowner phone number (if claimant is not the building owner)			Do NOT report this data point to DOE.
8	Initiate Rebate Request	Applicant ID		X	PNNL provides a separate API endpoint which will create a unique applicant identifier from data points collected about the homeowner or building owner that is receiving the benefit of the upgrade or in the case of New Construction, the property development company. The Applicant ID is used for the duration of the rebate processing, tracking, and reporting. For users that are not connected to DOE/PNNL API, instructions on how to obtain applicant IDs are available at https://www.pnnl.gov/projects/rebate-tools.

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
9	Initiate Rebate Request	Unique project identifier		~~X~~	This is a unique string supplied by the API user that is used to associate one or more reservations to a single project. Note: It is recommended that a universally unique identifier (UUID) be used to avoid duplication, but the API user can use any other system that they find convenient, provided that it is unique for the state.
10	Initiate Rebate Request	Unique portfolio identifier (if applicable)		X	Required when claimant type is aggregator.
11	Initiate Rebate Request	State attestation	Yes / No ~~(or Checkbox)~~	X	The state attests that we have required proof of identify, proof of ownership, and proof of income[8] for this rebate.
12	Household Eligibility	Methods used to establish income qualification	• Link to IRS 1040 request form • List of Categorical Eligibility Programs • Pay stubs • Other		Only for applicants requesting income-qualifying rebate levels. See list of categorically eligible programs here: https://www.energy.gov/scep/articles/ira-50121-50122-home-energy-rebates-categorical-eligibility-list.

[8] For rebates provided for ≥80% AMI income bucket, the state is not required to verify proof of income.

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
13	Household Eligibility	Number of people in household			Only for applicants requesting income-qualifying rebate levels.
14	Household Eligibility	Income bucket	• <80% AMI • ≥80% AMI	X	See Address API[9]. Address Service will provide the user the AMI band based on the number of occupants.
15	Household Eligibility	Disadvantaged community	Yes / No	X	If the state uses the DOE map (CEJST) for designating disadvantaged communities, this additional data field is optional. If the state uses a different method for designating disadvantaged communities, the state must provide their map with designated disadvantaged communities to DOE/PNNL and/or include this data field separately in their data collection and reporting.
16	Household Eligibility	New or existing construction	New / Existing	X	

[9] Address API is provided on https://www.pnnl.gov/projects/rebate-tools.

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
17	Household Eligibility	Building address			While the address field appears to a user to be in the same API as the rest of the rebate information, the address data point actually gets sent to a separate "address API" on a separate server than the "main API" and does not get sent to DOE.
18	Household Eligibility	Building address ID		X	Address must be entered in the separate Address API, which will create the unique address identifier for the Main API. The Address ID is used for the duration of the rebate processing, tracking, and reporting. For users that are not connected to DOE/PNNL API, instructions on how to obtain address IDs are available at https://www.pnnl.gov/projects/rebate-tools.
19	Household Eligibility	Building type	• Detached Single-Family • Attached Single-Family • Manufactured Home • Multifamily In-Unit • Central Multifamily	X	Central Multifamily is used for whole building projects. Multifamily In-Unit is used for individual unit projects within a multifamily building.
20	Household Eligibility	If MF, number of units in building		X	

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
21	Household Eligibility	If MF, number of occupied units in building		X	Applicable only for Central Multifamily.
22	Household Eligibility	If MF, percent of occupied units that meet <80% AMI bucket	Between 0 and 100%	X	Only required for Central Multifamily (whole building projects).
23	Household Eligibility	Unique identifier(s) for utility account(s)			
24	Contractor Information	Vendor ID		X	This is a unique ID assigned by the state to a primary contractor performing the work who will receive the rebated funds.
25	Contractor Information	Contractor name	First and last name of contractor	X	This is the contractor name associated with the reported Vendor ID.
26	Contractor Information	Company name ~~(if different from contractor name)~~		X	This is the contractor company name associated with the reported Vendor ID.
27	Contractor Eligibility	Is contractor eligible?	Yes / No	X	This field captures if the contractor completing the project is on the state's Qualified Contractor list.

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
28	Measure Information	Home component(s) to be upgraded (check all that apply)	Wall insulation, ceiling insulation, duct insulation, floor insulation, foundation insulation, window replacement, window attachment, air sealing, duct sealing, water heater, heating equipment, cooling equipment, ventilation, appliance, lighting, pump, motor, VFD, thermostat	X	
29	Measure Information	~~Current rebate request amount~~ Rebate reservation amount		X	Only applicable for Measured. Not required when reporting via reporting endpoint or via spreadsheet.
30	Post-Installation Photographs	Geotagged[10] photos of all home components that were upgraded		~~X~~	Photographs of the upgraded equipment must be used by the states to verify the equipment installed was eligible for rebate and installed at the address identified for the project at the time the project was completed.

[10] Geotagging metadata includes both geolocated coordinates and GPS date and time stamps.

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
31	Quality Assurance	Proof of quality installation at designated address at time of project completion		~~X~~	DOE/PNNL QI tool https://www.pnnl.gov/projects/quality-install-tool is recommended.[11] States are required to document their QI processes within their Consumer Protection Plan (CPP) for DOE review and approval.
32	Inspection	Post-Retrofit Inspection Passed	Yes / No / N/A	X	State attests that if a post-retrofit inspection was conducted and failed that the issues were remedied before the rebate was provided to the claimant.
33	Safety Checks	See Appendix C –Safety Checks.	See Appendix C – Safety Checks.	X	
34	Total Rebate Payout for the project	Total amount of rebate payout		X	This is the total rebate amount that was paid by the state to the claimant[12] for this project and does not include disadvantaged community incentive.

[11] PNNL partnered with industry experts to create quality installation procedures for a large variety of technologies. The Home Energy Rebates program does not require use of the PNNL QI Tool, but DOE encourages states to consider its use as it does meet the requirements of the program. The QI tool is also capable of capturing geotagged photographs of both the pre-existing conditions and the installed equipment.

[12] Claimants can be aggregators. See DOE aggregator Fact Sheet for more details: https://www.energy.gov/scep/articles/using-aggregators-deliver-home-efficiency-rebates.

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
35	Final Rebate Payout to the Household	Amount of rebate deducted or paid to the household		X	This is the amount of money that the homeowner received for the rebate for modeled or measured; it maybe the same as the Total Rebate Payout if there is no aggregator involved.
36	Final Rebate Payout for Disadvantaged Community Incentive	Amount of disadvantaged community incentive paid		X	This is the amount of money that was paid to an entity that was incentivized for executing projects in a disadvantaged community.
37	Project Cost	Equipment & materials cost		X	When a breakdown between equipment & materials and installation costs is available, report the cost of equipment & materials in this field. When a breakdown is not available, states should report $0 in this field and report the total cost in the Installation Costs field.
38	Project Cost	Installation costs		X	When a breakdown between equipment & materials and installation costs is available, report the cost of installation in this field. When a breakdown is not available, states may report a total combined cost in this field.

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
39	Project Completion	Project completion date		X	States have the flexibility to define project completion date but should ensure consistency. The project completion date cannot be a date after the redemption is completed.
40	Project Invoice	Project invoices			Total project cost on the invoice should equate to the reported equipment, materials, and installation costs associated with the rebated equipment. If non-rebated items are also on the invoice, those must be separately accounted for on the invoice (both equipment and materials and installation costs).
41	Building Owner Signature	Signature or electronic signature confirming that the improvements were made at the address on the reservation			

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
42	Modeled Energy Use	~~BPI 2400 compliant, DOE approved~~ Modeling software used		X	For single-family homes, a list of DOE approved software can be found here: https://www.energy.gov/scep/single-family-modeling-solutions-home-efficiency-rebates-program#. For multifamily buildings, a list of approved modeling methods is listed here: https://www.energy.gov/scep/articles/home-efficiency-rebates-ira-sections-50121-multifamily-requirements-guidance-modeled.
43	Modeled or Measured Energy Use	Total site (modeled or measured) kWh equivalent[13] before retrofit energy use		X	
44	Modeled or Measured Energy Use	Total site estimated kWh equivalent after retrofit energy use		X	
45	Measured Energy Use	Total site actual kWh equivalent after retrofit energy use		X	
46	Measured Energy Savings	Software used to estimate energy savings		X	

[13] KWh equivalent is a metric that reflects the energy savings of all fuels in the project using the energy conversion of non-electric fuels to kWh on a BTU-equivalent basis as defined in section 4.3.2 of BPI 2400-2015. See section 3.2.4.2 of the Program Requirements and Application Instruction documents for how to calculate kWh equivalent. https://www.energy.gov/scep/articles/home-energy-rebate-programs-requirements-and-application-instructions

	Data Category[7]	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
47	Measured Energy Savings	Output files from open-source advanced M&V software as approved by DOE		X	Files must be submitted in .csv or JSON format.[14]
48	Home Assessment Data	HPXML file (single-family)/BuildingSync file (multifamily)	See Appendix A – Section 50121 HPXML and BuildingSync Field Requirements.	X	See Appendix A – Section 50121 HPXML and BuildingSync Field Requirements.
49	State Tracking	External Rebate ID		X	A unique ID created by the state for each rebate transaction. Reporting the ID is optional if state system is connected to the PNNL API in real-time.
50	Consumer Satisfaction	Refer to Appendix B of the Program Requirements and Application Instructions for a list of questions states must ask consumers.			States can include additional questions, but at minimum must include those listed in the Program Requirements and Application Instructions.

[14] To request consideration for supporting additional file formats, please email RebateTools@pnnl.gov.

3.0 Home Electrification & Appliances Rebates (Section 50122)

3.1 Section 50122 Rebates: Pre-Launch Information (Required)

DOE requires pre-launch information to understand how PNNL's IT team will need to engage with the state and/or its implementer. ~~States can provide this information in any format; however,~~ DOE/PNNL is providing a standardized spreadsheet in the section labeled "Pre-Launch Data Details" on https://www.pnnl.gov/projects/rebate-tools/pre-program-launch to provide this information.

States must:

- Provide all ~~of the following~~ pre-launch information to their project officer at least 60 days BEFORE launching their Section 50122 Program.
- Notify the Project Officer at least 30 days prior to making any changes in relevant program designations (e.g., low-income allocations, rebate amounts) over the course of implementing the rebate programs, so that DOE can request for PNNL to update the system accordingly.

3.2 Section 50122 Rebates: Rebate Transaction Data Collection & Reporting (Required)

The table below lists all the data that is required to be collected by the state or a third party for each rebate transaction associated with the Section 50122 rebates.

- All of the following data elements must be collected and retained by the state or its implementer.
- ~~Some~~ Most of the following data elements must ALSO be reported to DOE through the API or a DOE/PNNL standardized spreadsheet. These are marked with an X in the column titled "Required to Report to DOE".
- ~~Unless otherwise noted, a state can elect to share any of the following data elements with DOE via the Main API or a DOE/PNNL standardized spreadsheet.~~
- States need to refer to the API documentation defined in a living document and located on this webpage: https://www.pnnl.gov/projects/rebate-tools.

Methods of Reporting:

- For states that elect to use the DOE Rebate Tracking and Reporting Tool in real-time, the DOE will automatically receive this data via the DOE/PNNL Main API at the time of each transaction.

- For states that elect NOT to use the DOE Rebate Tracking and Reporting Tool in real-time, states must submit this data monthly (~~on the last day of the month~~ by the last day of the subsequent month) via the DOE/PNNL ~~Main~~ API reporting endpoint or a DOE/PNNL standardized spreadsheet.

Any data components not designated as "Required to Report to DOE" must be retained and provided to DOE upon request.

Table 2[15]: Required Transaction Data Components for Section 50122

	Data Category	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
1	Initiate Rebate Request	Rebate type	• Electrification	X	
2	Initiate Rebate Request	Claimant type	• Homeowner • Multifamily Building Owner • Contractor • Tenant • Other	X	
3	Initiate Rebate Request	Installation type	• Do-It-Yourself (DIY) • Contractor installed	X	
4	Initiate Rebate Request	Emergency replacement	Yes / No		States that have offered emergency replacement as an option for HVAC or water heating must retain records for each rebate that was authorized under emergency replacement circumstances.
5	Initiate Rebate Request	Claimant name			Do NOT report this data point to DOE.

[15] Previously labeled Table #7 in the Data and Tools Requirements Guide v1.2.

	Data Category	Specific Data Element	Suggested Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
6	Initiate Rebate Request	Claimant email			Do NOT report this data point to DOE.
7	Initiate Rebate Request	Claimant phone number			Do NOT report this data point to DOE.
8	Initiate Rebate Request	Homeowner email (if claimant is not the building owner)			Do NOT report this data point to DOE.
9	Initiate Rebate Request	Homeowner phone number (if claimant is not the building owner)			Do NOT report this data point to DOE.
10	Initiate Rebate Request	Applicant ID		X	PNNL provides a separate API endpoint which will create a unique applicant identifier from data points collected about the homeowner or building owner that is receiving the benefit of the upgrade or in the case of New Construction, the property development company. The Applicant ID is used for the duration of the rebate processing, tracking, and reporting. For users that are not connected to DOE/PNNL API, instructions on how to obtain applicant IDs are available at https://www.pnnl.gov/projects/rebate-tools.

	Data Category	Specific Data Element	Suggested Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
11	Initiate Rebate Request	State attestation	Yes / No ~~(or Checkbox)~~	X	The state attests that we have required proof of identify, proof of ownership, and proof of income for this rebate.
12	Initiate Rebate Request	Unique project identifier		X	This field is required only when the building type is "MF-In Unit (part of whole building)".
13	Occupant Basic Info	Permission to share energy data with state and DOE for evaluation purposes	Yes / No	X	Energy data sharing is not required to be eligible for a HEAR rebate.
14	Occupant Basic Info	Owner or renter-occupied			
15	Household Eligibility	Methods used to establish income qualifications	• 1040 Form • List of Categorical Eligibility Programs • Pay stubs • Other		See list of categorically eligible programs here: https://www.energy.gov/scep/articles/ira-50121-50122-home-energy-rebates-categorical-eligibility-list.
16	Household Eligibility	Disadvantaged community	Yes / No	X	If the state uses the DOE map (CEJST) for designating disadvantaged communities, this additional data field is optional. If the state uses a different method for designating disadvantaged communities, the state must provide their map with designated disadvantaged communities to DOE/PNNL and/or include this data field separately in their data collection and reporting.

	Data Category	Specific Data Element	Suggested Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
17	Household Eligibility	New or existing construction	New / Existing	X	
18	Household Eligibility	Number of people in household			See Address API[16].
19	Household Eligibility	Income bucket	• <80% • 80% AMI ≤ X < 150% AMI	X	See Address API[16]. Address Service will provide the user the AMI band based on the number of occupants.
20	Household Eligibility	Building address			While the address field appears to a user to be in the same API as the rest of the rebate information, the address data point actually gets sent to a separate "address API" on a separate server than the "main API" and does not get sent to DOE.

[16] Address API is provided on https://www.pnnl.gov/projects/rebate-tools.

	Data Category	Specific Data Element	Suggested Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
21	Household Eligibility	Unique address ID		X	Address must be entered in the separate Address API, which will create the unique address identifier for the Main API. The Address ID is used for the duration of the rebate processing, tracking, and reporting. For users that are not connected to DOE/PNNL API instructions on how to obtain address IDs are available at https://www.pnnl.gov/projects/rebate-tools.
22	Household Eligibility	Building type for the project	• Detached Single-Family • Attached Single-Family • Manufactured Home • Multifamily In-Unit • Multifamily In-Unit (part of whole building project) • Central Multifamily	X	Multifamily In-Unit must be used when a single unit in a multifamily building is applying for the rebate. Multifamily In-Unit (part of whole building project) must be used when more than one unit in a multifamily building is applying for the rebate within a single project. Central Multifamily must be used when the reservation is for shared building upgrades that benefit more than one unit in a multifamily building.

	Data Category	Specific Data Element	Suggested Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
23	Household Eligibility	If MF, number of units in building		X	Only applicable for Multifamily In-Unit (part of whole building project) and Central Multifamily.
24	Household Eligibility	If MF, number of occupied units in building		X	Only applicable for Multifamily In-Unit (part of whole building project) and Central Multifamily.
25	Household Eligibility	If entire MF building, what percent of units are in <80% AMI bucket or are in the ≥80% AMI and <150% AMI bucket?	Between 0 and 100% for each bucket	X	
26	Household Eligibility	If single unit in MF building, what's the income bucket of the tenant in that unit?	• <80% AMI • ≥80% AMI and <150% AMI	X	
27	Household Eligibility	If single unit in MF building, what's the unit number?		X	
28	Household Eligibility	Prior IRA rebated amounts	7 digit maximum		
29	Contractor Eligibility (If applicable)	Is contractor eligible?	Yes / No	X	This field captures if the contractor completing the project is on the state's Qualified Contractor list. This is only applicable for HVAC, electrical wiring, electrical load service and air sealing projects.
30	Contractor Information	Contractor name	First and last name of contractor	X	

	Data Category	Specific Data Element	Suggested Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
31	Contractor Information	Company name (if different from contractor name)		X	
32	Limited Home Assessment[17]	If upgrade type is "HVAC", complete the limited home assessment details.	See Appendix B – Section 50122 Components.	X	See Appendix B – Section 50122 Components.
33	Measure Information	Upgrade type	~~• Envelope improvements~~ Insulation, Air Sealing, and Ventilation o Wall insulation o Ceiling insulation o Duct insulation o Floor insulation above unconditioned space o Floor insulation above conditioned space o Foundation insulation o Air sealing o Duct sealing • Electric load service center	X	

[17] For 50122 qualified electrification projects (QEPs) that include an electric heat pump for space heating and cooling, a contractor or the eligible entity representative must complete a limited home assessment of the home before submitting a request for a rebate reservation to the state. At minimum, the limited home assessment must collect the datapoints included in Table 6 of this document.

	Data Category	Specific Data Element	Suggested Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
			• Electric wiring • Heat pump water heater • Heat pump (HVAC) • Ventilation • Heat Pump clothes dryer • Electric stove/cooktop/oven/range		
34	Measure Information	If upgrade type is "envelope improvements" or "heat pump (HVAC)", what is the conditioned floor area of the home or unit?		X	
35	Measure Information	If upgrade type is "heat pump water heater" or "heat pump dryer", how many bedrooms are in the home or unit?		X	
36	Measure Information	Original and upgrade component details	See Appendix B – Section 50122 Components.	X	See Appendix B – Section 50122 Components.
37	Measure Information	Purchased item universal product code(s) (UPC) OR model number OR AHRI reference number		X	For heat pump measures: Only model number(s) or AHRI number will be accepted.

	Data Category	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
38	Retailer or Distributor this specific rebate transaction applies to (if applicable)	Product Vendor ID		X	A unique ID the state has assigned to the vendor who accepted redemption of the product rebate for reimbursement by the state. For retail vendors who submit coupon redemption data directly via the PNNL API, this ID will be coordinated between the vendor and PNNL.
39	Rebate Redemption ~~at Point of~~ for Material or Equipment Purchased	Amount of rebate deducted upon material or equipment purchase		X	
40	Rebate Redemption ~~at Point of~~ for Material or Equipment Purchased	Purchase date		X	
41	Rebate Redemption ~~at Point of~~ for Material or Equipment Purchased	Purchased item(s) description as seen on receipt or invoice		X	
42	Rebate Redemption ~~at Point of~~ for Material or Equipment Purchased	Equipment & materials cost		X	For contractor installed incentives, when a breakdown between equipment & materials and installation costs is available, report the cost of equipment & materials in this field. When a breakdown is not available, states should report $0 in this field and report the total cost in the Installation Cost field.

	Data Category	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
43	Rebate Redemption for Installation	Installation Vendor ID		X	A unique ID the state has assigned to the installation vendor who conducted the installation of the qualified product.
44	Rebate Redemption ~~at Point of~~ for Installation	Installation costs		X	If rebate is used at point of installation. When a breakdown between equipment & materials and installation costs is available, report the cost of installation in this field. When a breakdown is not available, states may report a total combined cost in this field.
45	Rebate Redemption ~~at Point of~~ for Installation	Project invoice			If rebate is used at point of installation. Total project cost on the invoice should equate to the reported equipment, materials, and installation costs associated with the rebated equipment. If non-rebated items are also on the invoice, those must be separately accounted for on the invoice (both equipment and materials and installation costs).
46	Final Rebate Payout for Disadvantaged Community Incentive	Amount of disadvantaged community incentive paid		X	Only applicable if the state is offering incentives for installing equipment in disadvantaged communities.
47	Final Rebate Payout for Installer Incentive	Amount of incentive paid to the installer		X	Only applicable if installer was incentivized to install the product.

	Data Category	Specific Data Element	~~Suggested~~ Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
48	Project Completion	Project completion date[18]		X	
49	Photographs	Geotagged[19] photos of pre-existing[20] appliances and installed products			When a retailer or distributor is being reimbursed with a rebate, a state program can comply with post-install photo requirements by either collecting geotagged photos of product delivery or by requiring an agreement by the household that received a rebate to provide photos upon request.
50	Quality Assurance – Qualified Contractor Install	Proof of quality installation at designated address[21]		~~X~~	DOE/PNNL tool https://www.pnnl.gov/projects/quality-install-tool is recommended.[22] States are required to document their QI processes within their Consumer Protection Plan (CPP) for DOE review and approval.

[18] To be defined by the state and should be consistently applied.

[19] Geotagging metadata includes both geolocated coordinates and GPS date and time stamps.

[20] Pre-existing equipment photos are not required for new construction and building materials (insulation/air sealing, electrical load service panels, and wiring).

[21] Proof of quality installation is required for all QEPs installed by contractors on the state's qualified contractor list. A QI process that includes relevant safety checks is recommended for all other installations, including Do It Yourself (DIY) installations. Everything except heating and cooling/HVAC, electrical wiring, electrical load service panels, and air sealing *can* be DIY.

[22] PNNL partnered with industry experts to create quality installation procedures for a large variety of technologies. The Home Energy Rebates program does not require use of the PNNL QI Tool, but DOE encourages states to consider its use as it does meet the requirements of the program. The QI tool is also capable of capturing geotagged photographs of both the pre-existing conditions and the installed equipment.

	Data Category	Specific Data Element	Suggested Drop-Down Options & Other Information	Required to Report to DOE	Additional Notes
51	Safety Checks	See Appendix C -Safety Checks	See Appendix C -Safety Checks	X	
52	Inspection	Post-Retrofit Inspection Passed	Yes / No / N/A	X	State attests that: Issues that resulted in a failed inspection were remedied before the rebate was provided to the claimant.
53	State Tracking	External Rebate ID		X	A unique ID created by the state for each rebate transaction. This ID must be reported to DOE when utilizing the spreadsheet reporting method and must be unique for every row in the spreadsheet. Reporting the ID is optional if state system is connected to the PNNL API.
54	Consumer Satisfaction	Refer to Appendix B of the Program Requirements for a list of questions states must ask consumers.			States can include additional questions, but at minimum must include those listed in the Program Requirements.

4.0 Rebate Tracking, Processing & Workflows

(Required unless DOE approves alternatives for rebate processing and reporting)

To assist states in completing some of the many IT functions needed to facilitate rebate transactions in accordance with legislative and DOE requirements, DOE/PNNL developed workflows and application programming interfaces (APIs) aimed at **simplifying tracking, reporting, and participation by consumers, contractors, retailers, and others**. The products reflect significant input from external experts including program implementers, states, retailers, IT firms, and other stakeholders.

4.1 Workflows

The workflows outline step-by-step actions that various rebate participants (e.g., state energy offices, implementers, vendors, homeowners, installers, aggregators, eligible entity representatives) undertake, how their actions relate to one another, and what data is collected and/or reported at each step. Each workflow lays out a process that reflects a corresponding use case, including but not limited to who applies for the rebate, whether the rebate is applied at point of sale or installation, among other variables.

States and their program implementers are highly encouraged to use the DOE/PNNL workflows and APIs. The DOE/PNNL team is available to meet with states and/or their designees to ensure that the processes and systems work as effectively within a state's program design.

Given that some states may choose to integrate the rebates with existing programs and processes, states can propose alternative workflows. In such cases, the state is required to submit their alternative workflows at least 60 days prior to launch and attain DOE's approval prior to launch. States are encouraged to meet with DOE/PNNL prior to submitting this information to help ensure that submitted materials are sufficient.

4.2 APIs

DOE/PNNL has developed three (3) application program interfaces (APIs), accessible at https://www.pnnl.gov/projects/rebate-tools, to assist states with rebate data tracking and reporting to DOE.

- The "Main API" accepts data, creates rebate reservations, allows redemptions, and is used for reporting data to DOE.[23]
- The "Address" API converts a building address to a unique address ID, provides AMI values (based on location and household size) for the building location to determine rebate level eligibility, and determines if the address is located in a disadvantaged community.
- This "Applicant ID" API will create a unique applicant identifier from data points collected about the homeowner or building owner that is receiving the benefit of the upgrade or in the case of New Construction, the property development company. The Applicant ID is used for the duration of the rebate processing, tracking, and reporting.
- For each rebate transaction, the Main API requires submission of a unique Applicant ID and Address ID.

[23] Data can be supplied to the Main API utilizing an endpoint for reporting after the fact data only. This endpoint does not utilize the rebate reservations and redemption process. When a state does NOT connect to the API in real time, the state must report data monthly via reporting spreadsheet or use the Main API reporting endpoint for reporting the data.

States need to refer to the API documentation defined in a living document and located on this webpage: https://www.pnnl.gov/projects/rebate-tools. Note: DOE/PNNL will notify all API users of API updates, with the goal of updating the APIs on a pre-scheduled basis (as needed). Interim updates may be required should program requirements be modified or a functional problem is found.

4.3 Data Submittal Options

States can submit all required transaction-level data via the DOE/PNNL API (using a real-time connection with the state's implemented system, or through a reporting endpoint for submission of completed project data) or through a DOE/PNNL standardized spreadsheet uploaded through the PNNL portal.

See Appendix D for recommendations on linking your state's user-facing interfaces to data collection and reporting.

4.4 Modifying Data Previously Submitted to DOE

States are required to develop procedures for handling product returns for equipment that was previously rebated.[24] States are also required to put in place procedures for handling completed projects that are later deemed ineligible for a rebate after the payment has been made.

DOE expects states to report changes to previously reported project data within 30 days of the change being recorded by the state in their records. Within the API documentation states will find procedures on how to mark records for deletion and resubmission. For project data submitted via spreadsheet, the PNNL will provide procedures for corrected records on their website.

4.5 Learn More

Visit the **Home Energy Rebates website** to learn more information about these programs and to sign up to **receive email updates**. Questions about these rebate programs can be **submitted online** or sent to **IRAHomeRebates@hq.doe.gov.**

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[24] See Program Requirements Sections 3.1.1 and 4.1.1. https://www.energy.gov/scep/articles/home-energy-rebate-programs-requirements-and-application-instructions.

5.0 Appendix A – Section 50121 HPXML and BuildingSync Field Requirements

As noted in Section 2.2 of this guide, certain information pertaining to Section 50121 rebates must be provided in HPXML files for single-family upgrades and in BuildingSync files for multifamily upgrades.[25] This Appendix provides guidance on what fields are required to be submitted for both single-family and multifamily projects.

5.1 Single-Family Buildings

Contractors must submit HPXML data that captures pre-retrofit and post-retrofit conditions of the home. Depending on the software utilized, this data can be combined in a single HPXML file or in two HPXML files – the first file must reflect pre-retrofit conditions of the home and the second must reflect post-retrofit conditions. Most software tools[26] will allow contractors to simply amend the first file to avoid the need for double entry; if that is not the case with software approved for use by the state, implementers are encouraged to work with the software provider to make this capability available. The table below lists all data points that can be sent to DOE in HPXML file(s). As noted in the table, data requirements vary depending on whether the project applies the modeled or measured savings approach.

As a best practice, states are encouraged to collect all recommended data points listed in the table, particularly for modeled savings projects. The data points are consistent with those typically collected to create a home energy model, but also reflect the data required by the Home Energy Scoring Tool. To generate official Home Energy Scores and metrics, a Home Energy Score Qualified Assessor must collect the data using specific guidelines (e.g., do not include unconditioned space in the model, derate poorly installed insulation). Note that contracting firms will likely already need Qualified Assessors on staff (or as subcontractors) given that they are likely to use Home Energy Score as a path for complying with BPI 2400 when calibration is not possible.[27] States that require this approach will be able to leverage the outputs provided by the Scoring Tool to improve program delivery and provide additional benefits to participating households. For example, this method will:

[25] Both HPXML and BuildingSync are standardized formats to report building characteristic data.
[26] For single-family projects, the National Renewable Energy Laboratory (NREL) is developing a methodology for evaluating software tools' compliance with BPI 2400 and will provide a list of "approved" tools that will be updated as new software tools are approved. It is expected that the majority if not all of these software tools will have the capability of producing an HPXML file which will allow transmittal of collected information without additional effort.
[27] DOE will work with interested states and their implementers to assist in expeditiously training existing and new workforce. With free training and testing, this entry into the residential energy field may be particularly appealing to current students or recent graduates of technical colleges and high schools.

- Provide states with immediate access to standard metrics generated by a DOE, nationally recognized tool (e.g., the Score, energy use estimate, energy savings estimate, utility bill estimate, recommended improvements) that can be included in upgrade certificates;
- Give states the ability to compare contractor scopes of work with Home Energy Score-generated upgrade recommendations to determine if some contractors are consistently excluding cost-effective upgrades (e.g., air sealing, insulation); and,
- Allow homeowners to include standardized, DOE-labeled information and metrics (recognized by Fannie Mae, Freddie Mac, and the Federal Housing Administration) at point of listing to highlight their investments, drive higher appraisals, and help buyers leverage more favorable loan terms.

Table 3[28]: Single-Family HPXML Inputs for Section 50121

Formatting for all fields is available in HPXML documentation.

	Category	User Inputs	Recommended for Modeled[29]	Required for Modeled	Required for Measured
1	General	Address	X	X	X
2	General	Assessment date	X	X	X
3	General	Building type (single-family detached, single-family attached, manufactured home)	X	X	X
4	General	If manufactured home, single, double, or triple-wide?	X		
5	General	Year built	X	X	X
6	General	Number of bedrooms	X		
7	General	Stories above grade	X	X	X
8	General	Conditioned floor area	X	X	X

[28] Previously labeled Table #9 in the Data and Tools Requirements Guide v1.2.
[29] The fields listed in the Recommended for Modeled column identifies the data fields that would be needed to generate a Home Energy Score. The Home Energy Rebates program does not require the generation of a Home Energy Score.

	Category	User Inputs	Recommended for Modeled[29]	Required for Modeled	Required for Measured
9	General	Floor to ceiling height	X		
10	General	House orientation	X		
11	General	Electrical panel max amps (If adding electrical load)	X	X	X
12	General	Modeled[30] electricity use	X	X	~~X~~
13	General	Modeled[30] gas use	X	X	~~X~~
14	General	Modeled[30] other fuel use	X	X	~~X~~
15	General	Monthly utility usage data for 12 months prior to the upgrade	Pre-retrofit file only	Pre-retrofit file only	X
16	Envelope	Blower door test (yes / no)[31]	X	X	X
17	Envelope	CFM50 reading (if blower door test was completed)	X	X	X
18	Envelope	Professional whole home air sealing (yes / no)	X	X	X
19	Envelope	Attic area (if unconditioned attic)	X		
20	Envelope	Roof area (if conditioned attic or cathedral ceiling)	X	X	X
21	Envelope	Roof type (Unconditioned Attic, Cathedral Ceiling, Below Other Unit, Flat Roof, Manufactured Home Bowstring Roof)	X		
22	Envelope	Roof insulation R-value	X	X	X

[30] For single-family projects, the National Renewable Energy Laboratory (NREL) is developing a methodology for evaluating software tools' compliance with BPI 2400 and will provide a list of "approved" tools that will be updated as new software tools are approved. It is expected that the majority if not all of these software tools will have the capability of producing an HPXML file which will allow transmittal of collected information without additional effort.

[31] Blower door tests are not required by the program to be conducted; however, states must report whether it was performed or not during a project.

	Category	User Inputs	Recommended for Modeled[29]	Required for Modeled	Required for Measured
23	Envelope	Type of attic insulation	X	X	X*
24	Envelope	Attic insulation R-value	X	X	X
25	Envelope	Attic knee wall area	X		
26	Envelope	Attic knee wall R-value	X	X	X
27	Envelope	Foundation type (can be more than one)	X	X	
28	Envelope	Foundation floor area of each foundation type	X		
29	Envelope	Insulation R-value above basement or crawlspace	X	X	X
30	Envelope	Basement wall or slab edge R-value (if basement or slab)	X	X	X
31	Envelope	Wall construction (for each side of the house)	X		
32	Envelope	Which walls are attached to other units or other spaces	X		
33	Envelope	Exterior cladding	X		
34	Envelope	Type of wall insulation	X		
35	Envelope	Cavity R-Value	X	X	X*
36	Envelope	Continuous wall insulation R-Value	X		
37	Envelope	Skylight Area (estimate if necessary)	X		
38	Envelope	Window area front (estimate if necessary)	X		
39	Envelope	Window area back (estimate if necessary)	X		
40	Envelope	Window area left (estimate if necessary)	X		
41	Envelope	Window area right (estimate if necessary)	X		
42	Envelope	Number of panes (windows and skylights)	X		
43	Envelope	Frame type (windows and skylights)	X		

	Category	User Inputs	Recommended for Modeled[29]	Required for Modeled	Required for Measured
44	Envelope	Glazing type OR U-factor and SHGC (windows and skylights)	X	X	X*
45	Envelope	Window has exterior solar screen (yes / no)	X		
46	HVAC	Fraction of conditioned floor area served by each heating/cooling system	X	X	X*
47	HVAC	Heating system fuel (for each system)	X	X	X
48	HVAC	Heating system type (for each system)	X	X	X
49	HVAC	Heating system efficiency or year installed for pre-retrofit (for each system)	X	X	X
50	HVAC	Cooling system type (for each system)	X	X	X
51	HVAC	Cooling system efficiency or year installed for pre-retrofit (for each system)	X	X	X
52	HVAC	Duct location (can be multiple)	X		
53	HVAC	% ducts in each location	X		
54	HVAC	Ducts sealed (yes / no)	X	X	X
55	HVAC	Duct leakage test? (yes / no)	X	X	X
56	HVAC	Duct leakage to outside (CFM25)	X	X*	X*
57	HVAC	Ducts insulated (yes / no)	X	X	X*
58	HVAC	Ventilation system type (supply, exhaust, balanced, CFIS, ERV, HRV)	X	X	X*
59	Fresh Air	Ventilation system rated flow rate (CFM)	Post-retrofit file only	Post-retrofit file only	Post-retrofit file only
60	HVAC	If HP added, does it meet Energy Star's requirement for cold climate HPs?	Post-retrofit file only	Post-retrofit file only	Post-retrofit file only

	Category	User Inputs	Recommended for Modeled[29]	Required for Modeled	Required for Measured
61	Water Heater	Water heater type	X	X	X
62	Water Heater	Water Heater Storage capacity	X	X	X
63	Water Heater	Water heater efficiency	X	X	X
64	Clothes washer	Clothes washer type	X	X	X*
65	Clothes dryer	Clothes dryer type	X	X	X*
66	Clothes dryer	Clothes dryer fuel	X	X	X
67	Stovetop/Oven/Range	Stovetop/Range type	X	X	X*
68	Utility usage	Weather Normalized Heating Usage	X	X	X
69	Utility usage	Weather Normalized Cooling Usage	X	X	X
70	Utility usage	Weather Normalized Baseload Usage	X	X	X
71	Utility usage	Detailed Model Calibration Heating Bias Error	X	X	X
72	Utility usage	Detailed Model Calibration Cooling Bias Error	X	X	X
73	Utility usage	Detailed Model Calibration Cooling Absolute Error	X	X	X
74	Utility usage	Detailed Model Calibration Baseload Bias Error	X	X	X
75	Utility usage	Detailed Model Calibration Baseload Absolute Error	X	X	X
76	Utility usage	Simplified Model Calibration Heating Bias Error	X	X	X
77	Utility usage	Simplified Model Calibration Cooling Bias Error	X	X	X
78	Utility usage	Simplified Model Calibration Baseload Bias Error	X	X	X
79	Utility usage	Simplified Model Calibration Total Bias Error	X	X	X

*For these fields, “don’t know” or “unknown” can be options. All other fields must match HPXML input requirements.

5.2 Multifamily Buildings

States are required to adhere to the following assessment and modeling requirements for large multifamily buildings: An ASHRAE Level II audit based on ASHRAE Standard 211 must be performed for building assessment.

- Contractors must submit the assessment data points via [Audit Template] which converts the data into BuildingSync output format.
- If the Audit Template data fields are not comprehensive, additional data fields can be submitted as an attachment on the "Submit" screen within Audit Template.
- If there are instances where the required data fields are not applicable for the building (example: there is no cooling in the building), those inputs can be marked as "N/A" within the tool and the information does not need to be reported.
- States must choose the modeling methodology that best suits the states and follow the DOE review and approval process as defined in the Multifamily Requirements Guidance for Modeled Savings.
- Modeling data files must be submitted either through BuildingSync or other DOE approved standardized spreadsheet as defined in the *Multifamily Requirements Guidance document for Modeled Home Efficiency Rebates* document. The DOE Audit Template is currently the only tool that automatically converts data into BuildingSync format. Audit Template can be used to submit the approved energy model's output data.

The *Multifamily Requirements Guidance for Modeled Savings* can be found here.

Information about Audit Template and the corresponding BuildingSync files is available at https://buildingenergyscore.energy.gov/.

For small multifamily buildings (generally under 5 units), where an ASHRAE Level II audit and a detailed energy model is not a good fit, the states can choose to follow home assessment and modeling guidelines for single-family buildings listed in Section 5.1.

When a state chooses to follow single-family building modeling guidelines for small multifamily buildings, the audit/assessment data then must be consistent with the single-family buildings' HPXML requirements listed in Section 5.1.

Table 4[32]: Multifamily Data Inputs for Section 50121

	Category	User Inputs
1	General	Modeled or Measured?
2	Building Information	Building Name
3	Building Information	Building ID
4	Building Information	Year Completed
5	Building Information	Gross Floor Area
6	Building Information	Street
7	Building Information	City
8	Building Information	State
9	Building Information	ZIP Code
10	Audit Details	Date of Completion of Level 1 Audit
11	Audit Details	Date of Completion of Level 2 Audit
12	Audit Details	Date of Completion of Level 3 Audit
13	Audit Details	Year of Last Renovation
14	Audit Details	Year of Prior Energy Audit
15	Audit Details	Year Last Commissioned
16	Building Owner, Property Manager, Auditor Details	Auditor Years Experience
17	Building Owner, Property Manager, Auditor Details	Certification Type
18	Building Owner, Property Manager, Auditor Details	Contact Name
19	General Information	Gross Floor Area
20	General Information	Conditioned Floor Area, Heated Only
21	General Information	Conditioned Floor Area, Cooled Only

[32] Previously labeled Table #10 in the Data and Tools Requirements Guide v1.2.

	Category	User Inputs
22	General Information	Conditioned Floor Area, Heated and Cooled
23	General Information	Number of Floors Above-grade, Conditioned
24	General Information	Number of Floors Below-grade, Conditioned
25	General Information	General Building Shape
26	General Information	Building automation system?
27	General Information	Historic building?
28	General Information: Use Type and Operation	Use Type / Space Function / Building Area Type
29	General Information: Use Type and Operation	Original Intended Use
30	General Information: Use Type and Operation	Gross Floor Area (for each use type)
31	General Information: Use Type and Operation	Percent Space Conditioned
32	General Information: Use Type and Operation	Number of Occupants
33	General Information: Use Type and Operation	Use in Hours per Week
34	General Information: Use Type and Operation	Use in Weeks per Year
35	Envelope: Roof	Total Roof Area
36	Envelope: Roof	Roof Construction Type
37	Envelope: Roof	Roof R-value
38	Envelope: Roof	Roof Condition
39	Envelope: Roof	Cool roof?
40	Envelope: Roof	Green roof?
41	Envelope: Roof	Blue roof?
42	Envelope: Wall	Total Exposed Wall Area, Above-grade
43	Envelope: Wall	Wall Area, Below-grade
44	Envelope: Wall	Demising Wall Area, Above-grade
45	Envelope: Wall	Wall Construction Type

	Category	User Inputs
46	Envelope: Wall	Wall Insulation R-value, Above-grade
47	Envelope: Wall	Wall Insulation R-value, Below-grade
48	Envelope: Fenestration	Window to Wall Ratio
49	Envelope: Fenestration	Framing Material
50	Envelope: Fenestration	Window Glass Type
51	Envelope: Foundation	Floor Construction Type
52	Envelope: Foundation	Foundation R-value
53	Envelope: Exterior Floor	Exterior Floor Construction Type
54	Lighting System	Lighting Type
55	Lighting System	Ballast Type
56	Lighting System	Manual controls?
57	Lighting System	Photocell controls?
58	Lighting System	Timer controls?
59	Lighting System	Occupancy sensor controls?
60	Lighting System	Building automation system (BAS)?
61	Lighting System	Advanced controls?
62	Lighting System	Other controls?
63	Lighting System	Space Function Served
64	Lighting System	Quantity Definition
65	HVAC: Heating Plants	Heating Plant Type
66	HVAC: Heating Plants	Fuel Type
67	HVAC: Heating Plants	Venting Type
68	HVAC: Heating Plants	Location of Equipment
69	HVAC: Heating Plants	Approximate Year Installed

	Category	User Inputs
70	HVAC: Heating Plants	Condition
71	HVAC: Heating Plants	Number of Pieces of Equipment
72	HVAC: Heating Plants	Output Capacity
73	HVAC: Heating Plants	Efficiency Units
74	HVAC: Heating Plants	Rated Efficiency
75	HVAC: Heating Plants	Building automation system (BAS)?
76	HVAC: Heating Plants	Direct digital controls (DDC)?
77	HVAC: Heating Plants	Pneumatic controls?
78	HVAC: Cooling Plants	Cooling Plant Type
79	HVAC: Cooling Plants	Fuel Type
80	HVAC: Cooling Plants	Chiller Compressor Type
81	HVAC: Cooling Plants	Chiller Condenser Type
82	HVAC: Cooling Plants	Location of Equipment
83	HVAC: Cooling Plants	Approximate Year Installed
84	HVAC: Cooling Plants	Condition
85	HVAC: Cooling Plants	Number of Pieces of Equipment
86	HVAC: Cooling Plants	Output Capacity
87	HVAC: Cooling Plants	Efficiency Units
88	HVAC: Cooling Plants	Rated Efficiency
89	HVAC: Cooling Plants	Building automation system (BAS)?
90	HVAC: Cooling Plants	Direct digital controls (DDC)?
91	HVAC: Cooling Plants	Pneumatic controls?
92	HVAC: Condenser Plant	Condenser Plant Type
93	HVAC System: Air Handling Unit	Heating Source Type

	Category	User Inputs
94	HVAC System: Air Handling Unit	Heating Plant ID
95	HVAC System: Air Handling Unit	Fuel Type
96	HVAC System: Air Handling Unit	Location of Equipment
97	HVAC System: Air Handling Unit	Approximate Year Installed
98	HVAC System: Air Handling Unit	Condition
99	HVAC System: Air Handling Unit	Number of Pieces of Equipment
100	HVAC System: Air Handling Unit	Output Capacity
101	HVAC System: Air Handling Unit	Efficiency Units
102	HVAC System: Air Handling Unit	Rated Efficiency
103	HVAC System: Air Handling Unit	Cooling Source Type
104	HVAC System: Air Handling Unit	Cooling Plant ID
105	HVAC System: Air Handling Unit	Fuel Type
106	HVAC System: Air Handling Unit	Location of Equipment
107	HVAC System: Air Handling Unit	Approximate Year Installed
108	HVAC System: Air Handling Unit	Condition
109	HVAC System: Air Handling Unit	Number of Pieces of Equipment
110	HVAC System: Air Handling Unit	Output Capacity
111	HVAC System: Air Handling Unit	Efficiency Units
112	HVAC System: Air Handling Unit	Rated Efficiency
113	HVAC System: Air Handling Unit	Central Distribution Type
114	HVAC System: Air Handling Unit	Central Distribution Type (Other)
115	HVAC System: Air Handling Unit	Delivery Equipment Type
116	HVAC System: Air Handling Unit	Delivery Equipment Type (Other)
117	HVAC System: Air Handling Unit	Fan Control Type

	Category	User Inputs
118	HVAC System: Air Handling Unit	Energy Recovery Ventilation Type
119	HVAC System: Air Handling Unit	Outdoor Air Control Type
120	HVAC System: Air Handling Unit	Direct digital controls (DDC)?
121	HVAC System: Air Handling Unit	Pneumatic controls?
122	HVAC System: Air Handling Unit	Manual thermostat?
123	HVAC System: Air Handling Unit	Programmable thermostat?
124	HVAC System: Air Handling Unit	No controls?
125	HVAC System: Air Handling Unit	Space Function Served
126	SHW System	Hot Water System Type
127	SHW System	Location of Equipment
128	SHW System	Approximate Year Installed
129	SHW System	Fuel Type
130	SHW System	Efficiency Units
131	SHW System	Rated Efficiency
132	SHW System	Space Function Served
133	Ownership Details	Percent Owned
134	Ownership Details	Percent Leased
135	Ownership Details	Multi-tenant?
136	Available Energy Supply Sources	Energy Type
137	Metered Energy Supply Source Details	Energy Supply Source
138	Energy Reporting Years and Data Import	Metered Energy Year Start Date
139	Metered Energy	Energy Type
140	Metered Energy	Start Date
141	Metered Energy	End Date

	Category	User Inputs
142	Metered Energy	Energy Use in Native Units
143	Metered Energy	Energy Cost
144	Delivered Energy	Energy Type
145	Delivered Energy	Delivery Date
146	Delivered Energy	Delivered Quantity
147	Delivered Energy	Delivered Cost
148	Building Annual Summary for Energy Use and Energy Cost	Energy Type
149	Building Annual Summary for Energy Use and Energy Cost	Annual Energy Use in Native Units
150	Building Annual Summary for Energy Use and Energy Cost	Annual Energy Cost
151	Building Annual Summary for On-Site Renewables	Energy Type
152	Building Annual Summary for On-Site Renewables	Annual Energy Use in Native Units
153	Building Annual Summary for On-Site Renewables	Annual Energy Cost
154	Building Annual Summary for On-Site Renewables	Renewable Energy Output
155	Building Annual Summary for On-Site Renewables	Renewable Energy Annual Cost
156	Building Annual Summary for Exported Energy	Energy Type
157	Building Annual Summary for Exported Energy	Annual Energy Use in Native Units
158	Building Annual Summary for Exported Energy	Annual Energy Cost
159	Benchmarking	Benchmarking Source
160	Benchmarking	Year Benchmarked
161	Benchmarking	Benchmark Site Energy Use Intensity
162	Benchmarking	Benchmark Site Energy Cost Intensity
163	Benchmarking	Target Site Energy Use Intensity
164	Benchmarking	Target Site Energy Cost Intensity
165	Building Energy Use by End Use	Energy Type

	Category	User Inputs
166	Building Energy Use by End Use	End Use
167	Building Energy Use by End Use	Energy Use in Native Units
168	Building Energy Savings Opportunities: Measures	Measure Identifier
169	Building Energy Savings Opportunities: Measures	System Category
170	Building Energy Savings Opportunities: Measures	Measure Category
171	Building Energy Savings Opportunities: Measures	Measure Name
172	Building Energy Savings Opportunities: Measures	Measure Description
173	Building Energy Savings Opportunities: Measures	Measure Status
174	Building Energy Savings Opportunities: Measures	Modeling/Calculation Approach
175	Building Energy Savings Opportunities: Measures	Implementation Year
176	Building Energy Savings Opportunities: Measures	Annual Energy and Cost Savings: Total Cost Savings
177	Building Energy Savings Opportunities: Measures	Annual Energy and Cost Savings: Energy Source 1 (native units)
178	Building Energy Savings Opportunities: Measures	Annual Energy and Cost Savings: Energy Source n (native units)
179	Building Energy Savings Opportunities: Measures	Annual Energy and Cost Savings: Peak Demand Savings
180	Building Energy Savings Opportunities: Measures	Measure Cost and Incentives: Measure Cost
181	Building Energy Savings Opportunities: Measures	Measure Cost and Incentives: Measure Life
182	Building Energy Savings Opportunities: Packages	Packages: Package Name
183	Building Energy Savings Opportunities: Packages	Package: Package Category
184	Building Energy Savings Opportunities: Packages	Package: Energy Savings Package ID
185	Building Energy Savings Opportunities: Packages	Package: Energy Savings Measure ID(s)
186	Building Energy Savings Opportunities: Packages	Package: Total Annual Energy Cost Savings

	Category	User Inputs
187	Building Energy Savings Opportunities: Packages	Package: Annual Energy and Cost Savings Energy Source 1 (native units)
188	Building Energy Savings Opportunities: Packages	Package: Annual Energy and Cost Savings Energy Source n (native units)
189	Building Energy Savings Opportunities: Packages	Package: Annual Energy and Cost Savings: Total Energy Cost Savings
190	Additional Information	Attachment Reference
191	Additional Information	Attachment Reference (Other)
192	Additional Information	Attachment Description
193	Additional Information	Attachment File

6.0 Appendix B – Section 50122 Components

As noted in Section 3.2 of this guide, certain component information and home conditions must be provided for Section 50122 projects. Depending on the type of rebate, this data will either be provided by the homeowner (when they apply for a rebate) or the contractor doing the installation. States can allow "N/A" depending on the rebate type (e.g., envelope improvements – ceiling insulation). In other words, the rebate applicant should ONLY be asked questions relevant to the type of upgrade included in their application.[33] Consistent with latest program requirements, the contractor will be required to provide the relevant information.

All heat pump projects must be installed by a qualified contractor and that contractor must conduct a limited assessment (see Table 6 for more information on limited assessments) to ensure no harm is going to be done to the home due to the retrofit.[34]

Contractors must document the install by capturing geotagged photos of the upgraded products. PNNL's Quality Install Tool[35] is recommended and can support exporting of the data entered in the tool.

Combustion safety testing is required when major atmospherically venting combustion appliances (i.e., HVAC systems and water heaters) remain in place after heat pumps, heat pump water heaters, air sealing, and/or insulation that has an air sealing effect has been installed (note: insulation that has been self-installed ("DIY") by consumers is unlikely to have an air sealing effect). The documentation for these tests is covered in Section 3.2 of this document.

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[33] While the state is only required report those data component details related to the specific improvement being made, a state may elect to request and retain additional data points, particularly if the upgrade is being made by a contractor.

[34] Harm due to retrofit could include creating conditions that lead to increased operational costs, undesirable or unsafe indoor air quality conditions due to pressure imbalances that cause CO issues in homes with gas appliances, or mold and mildew growth for homes with insulation but no air sealing, or homes that are airtight but don't include ventilation, which can lead to CO2 and other buildup in an unhealthy way.

[35] See https://quality-install-tool.pnnl.gov/. Specifically, the workflow should be for ductless heat pump and central ducted split heat pump depending on which system in being installed.

Table 5[36]: Original and Upgrade Component Data Required for Section 50122

	Upgrade Type	Question	Original Component Details	Upgraded Component Details
1	Envelope Improvements – Wall Insulation	What is the existing insulation in the walls?	Dropdown: • None • Cavity insulation (batt or blown-in) • Fanfold insulation • Exterior continuous insulation • Don't know	
2	Envelope Improvements – Wall Insulation	What insulation was added to the walls?		Select one of Cavity Insulation Improvement: • Cavity insulation – R-13 • Cavity insulation – R-19 • Cavity insulation – R-21 • Cavity insulation more than R-21 And/or select one of the following Exterior Insulation Improvements: • None • Exterior continuous insulation – 1 inch

[36] Previously labeled Table #11 in the Data and Tools Requirements Guide v1.2.

	Upgrade Type	Question	Original Component Details	Upgraded Component Details
				• Exterior continuous insulation – 2 inches • Exterior continuous insulation – more than 2 inches Note: This information is available on the box of the product purchased.
3	Envelope Improvements – Wall Insulation	What percentage of wall area received additional insulation (choose the closest)?		Dropdown: • 10% • 25% • 50% • 75% • 100%
4	Envelope Improvements – Ceiling insulation	What is the existing insulation in the ceiling?	Dropdown: • None • Batt insulation • Blown-in insulation • Rigid board insulation • Closed cell spray foam insulation • Don't know	
5	Envelope Improvements – Ceiling insulation	What R-value was added to the ceiling?		Dropdown: • Less than R-30

	Upgrade Type	Question	Original Component Details	Upgraded Component Details
				• R-30 • R-49 • R-60 • more than R-60
6	Envelope Improvements – Ceiling insulation	What percentage of ceiling area received additional insulation (choose the closest)?		Dropdown: • 10% • 25% • 50% • 75% • 100%
7	Envelope Improvements – Duct Insulation	Do the existing ducts run primarily through conditioned or unconditioned space?	Dropdown: • Conditioned • Unconditioned • Don't know	
8	Envelope Improvements – Duct Insulation	What percentage of the duct system received additional insulation (choose the closest)?		Dropdown: • 10% • 25% • 50% • 75% • 100%
9	Envelope Improvements – Floor Insulation Above Unconditioned Space	What percentage of floor area is above unconditioned space (choose the closest)?		Dropdown: • 10% • 25% • 50%

	Upgrade Type	Question	Original Component Details	Upgraded Component Details
				• 75% • 100%
10	Envelope Improvements – Floor Insulation Above Unconditioned Space	What R-value was added?		Dropdown: • Less than R-10 • R-10 • R-13 • R-19 • R-30 • More than R-30
11	Envelope Improvements – Floor Insulation Above Conditioned Space	What percentage of floor area is above conditioned space (choose the closest)?		Dropdown: • 10% • 25% • 50% • 75% • 100%
12	Envelope Improvements – Floor Insulation Above Conditioned Space	What R-value was added?		Dropdown: • Less than R-10 • R-10 • R-13 • R-19 • R-30 • More than R-30
13	Envelope Improvements – Foundation Insulation	What is the foundation type?		Dropdown: • Slab-on-grade

	Upgrade Type	Question	Original Component Details	Upgraded Component Details
				• Vented crawlspace (Unconditioned crawlspace) • Conditioned crawlspace • Unconditioned basement • Conditioned basement
14	Envelope Improvements – Foundation Insulation	What percentage of the foundation perimeter is insulated (consider the perimeter as a line around the edge of the foundation) (choose the closest)?		Dropdown: • 10% • 25% • 50% • 75% • 100%
15	Envelope Improvements – Foundation Insulation	What R-value was added to the foundation perimeter?		Dropdown: • Less than R-5 • R-5 • R-10 • R-13 • R-19 • R-30
16	Envelope improvements – Air sealing	What part of the home are you air sealing?		Checkboxes: • Attic • Walls/Windows/Doors • Floor/Foundation

	Upgrade Type	Question	Original Component Details	Upgraded Component Details
17	Envelope improvements – Air sealing	What is the starting air leakage rate for the home before modification?	Fill in the blank: • CFM at 50Pa: ______ • Don't know	
18	Envelope improvements – Air sealing	What is the air sealing level you have achieved?		Fill in the blank: • CFM at 50Pa: ________ • Don't know
19	Envelope improvements – Air sealing	Is the homeowner aware that combustion safety tests are highly recommended for homes with any gas appliances after air sealing projects are completed?		Dropdown: • Yes • No
20	Envelope Improvements – Duct sealing	What is the starting total duct leakage rate before modification?	Fill in the blank: • CFM at 25Pa: ______ • Don't know	
21	Envelope Improvements – Duct sealing	What is the total duct leakage after air sealing?		Fill in the blank: • CFM at 25Pa: ________ • Don't know
22	Electrical Panel	What are the details about the existing electrical panel?	Fill in the blank: • Max Amps to household: ______	

	Upgrade Type	Question	Original Component Details	Upgraded Component Details
			• Number of open breaker spots: ______	
23	Electrical Panel	What are the details of the new electrical panel?		Fill in the blank: • Max Amps to household: ______ • Number of open breaker spots: ______
24	Heat Pump Water Heater	What is the fuel type and type of your existing water heater?	Dropdown: • Electric Resistance Storage • Electric Resistance Tankless • Gas propane storage • Gas propane tankless • Oil Storage • Oil Tankless • None • Don't know	
25	Heat Pump Water Heater	What is the storage capacity before and after?	Dropdown: • Less than 45 gal • 45 gal • 50 gal • 60 gal • 80 gal	Dropdown: • Less than 45 gal • 45 gal • 50 gal • 60 gal • 80 gal

	Upgrade Type	Question	Original Component Details	Upgraded Component Details
			• More than 80 gal • Don't know	• More than 80 gal
26	HVAC – Heat Pump	What is the fuel type of your existing heating system?	Dropdown: • Gas • Electric • Oil • None	
27	HVAC – Heat Pump	What is your existing heating distribution type?	Dropdown: • Forced Air (furnace) • Hydronic/Steam (boiler) • Baseboard • Heat Pump • Other	
28	HVAC – Ventilation	Is there an existing whole-house ventilation system?	Dropdown: • Yes • No	
29	HVAC – Ventilation	What is the CFM flow rate of the new whole-house ventilation system?		This is the new ventilation system rating. Fill in the blank (≥ 0)
30	Heat Pump Clothes Dryer	What is the existing dryer fuel type?	Dropdown: • Gas • Electric	

	Upgrade Type	Question	Original Component Details	Upgraded Component Details
			• None	
31	Heat Pump Clothes Dryer	What is the annual energy use estimated on the EnergyGuide label of the new clothes dryer? (kWh/yr)		Fill in the blank (≥ 0)
32	Electric Stovetop/Oven/Range	What is the fuel type of the existing stovetop/oven/range?	Dropdown: • Gas • None	
33	Electric Stovetop/Oven/Range	What is the new stovetop/oven/range type?		Dropdown: • Electric cooktop • Induction cooktop

The following table documents the pre-installation limited assessment requirements for electric heat pump for space heating and cooling installations for existing construction only, associated with Section 50122. The data for the limited home assessment can be supplied to PNNL via the specified API endpoint or through fields captured on the spreadsheet reporting template.

Table 6[37]: Required Limited Assessment Inputs for Section 50122 HVAC

	Category	User Inputs	Drop-Down Options or Coding	Report to DOE	Notes
1	General	Address		~~X~~	
2	General	Assessment date	Date	X	
3	General	Home Year built	Year / Don't Know	X	
4	General	Percent conditioned floor area served	Value / Don't Know	X	Where applicable, this is broken down by heating and cooling and by system if the home has multiple heating and/or cooling systems.
5	General	Electrical panel max amps (If adding electrical load)	Value / Don't Know	X	
6	Envelope	Professional whole home air sealing	Yes / No / Don't Know	X	If a homeowner supplied documentation this was completed by a contractor.
7	Envelope	Type of ceiling/attic insulation	Dropdown:	X	

[37] Previously labeled Table #12 in the Data and Tools Requirements Guide v1.2.

	Category	User Inputs	Drop-Down Options or Coding	Report to DOE	Notes
			• Batt • Blown In • Closed Cell Spray Foam • Rigid Board • None • Don't Know		
8	Envelope	Ceiling/Attic insulation R-value	Value / Don't Know	X	
9	HVAC	Fraction of conditioned floor area served by each heating/cooling system	Value	X	
10	HVAC	Heating system fuel and type (for each system)	Dropdown: • Electric Heat Pump • Electric Resistance Baseboard • Electric Resistance Baseboard • Electric Resistance Boiler • Electric Resistance Furnace • Gas Propane Boiler • Gas Propane Furnace • Oil Boiler • Oil Furnace • Other	X	

	Category	User Inputs	Drop-Down Options or Coding	Report to DOE	Notes
12	HVAC	Heating system efficiency for pre-retrofit (for each system)	Value / Don't Know	X	
13	HVAC	Cooling system type (for each system)	Dropdown: • Central • Heat Pump • Window	X	
14	HVAC	Cooling system efficiency for pre-retrofit (for each system)	Value / Don't Know	X	
15	HVAC	Ducts sealed	Yes / No / Don't Know	X	
16	HVAC	Ducts insulated	Yes / No / Don't Know	X	
17	HVAC	Whole Home ventilation system type	Dropdown: • Balanced • CFIS • ERV • Exhaust • HRV • None • Supply • Don't Know	X	
18	HVAC	Whole Home ventilation system rated flow rate (CFM)	Value / Don't Know	X	

	Category	User Inputs	Drop-Down Options or Coding	Report to DOE	Notes
19	HVAC	Did the qualified contractor provide a recommendation on the properly-sized heat pump unit for the home's HVAC system, if applicable?	Yes / No / N/A		If applicable, states should not proceed with project reservations if the response is "No".
20	HVAC	Did the qualified contractor conduct an onsite visual inspection of the existing condition of the duct sealing for HVAC and envelope?	Yes / No		States should not proceed with project reservations if the response is "No".
21	HVAC	If the upgrade includes a fuel switch, did the contractor complete an estimate of utility bill impacts and collect written acknowledgement by the consumer and provide it to the state?	Yes / No / N/A		States should not proceed with project reservations if the response is "No".
22	HVAC	Did the contractor obtain written acknowledgement from the consumer of the amount they will owe not covered by the rebates?	Yes / No		States should not proceed with project reservations if the response is "No".

	Category	User Inputs	Drop-Down Options or Coding	Report to DOE	Notes
23	HVAC	Does the upgrade fall within one of the state’s pre-defined sets of home pre-condition(s) and/or scope of work scenario(s) that will constitute unacceptable risk of raising utility bills, an estimate of utility bill impacts and written acknowledgment by the consumer?	Yes / No		States should not proceed with project reservations if the response is "No".

7.0 Appendix C – Safety Test Results

States are required to implement Home Energy Rebate Programs that include relevant safety tests. This includes, at a minimum, completion of combustion safety testing when major atmospherically venting combustion appliances (i.e., HVAC systems and water heaters) remain in place after HVAC, water heaters, air sealing, and/or insulation that has an air sealing effect has been installed.

Please note, the DOE API requires states to report a value for each safety testing data element. However, the available reporting values accommodate instances where safety tests were not required to be performed or where safety testing results were not required to be collected (i.e., via an "N/A" option) and will not prevent the redemption of a rebate based on the reported results.

Table 7: Safety Test Results (50121 and 50122)[38]

	Data Category	Specific Data Element	Drop-Down Options or Coding	Report to DOE	Additional Notes
1	Safety Testing	Does the venting test pass?	Passed / Failed / Warning / N/A	X	Reporting of combustion safety testing results is required when applicable and completed by a state qualified contractor.[39]
2	Safety Testing	Does the spillage test(s) pass?	Passed / Failed / Warning / N/A	X	Reporting of combustion safety testing results is required when applicable and completed by a state qualified contractor.[39]
3	Safety Testing	Does the gas leak detection test pass?	Passed / Failed / Warning / N/A	X	Reporting of combustion safety testing results is required when applicable and completed by a state qualified contractor.[39]

[38] Reporting of safety testing results is not required for new construction, nor products installed that are not installed by contractors on the state's qualified contractor list. DOE recommends states provide safety checklists for all installations, where applicable.

[39] Per the Program Requirements and Application Instructions Section 4.2.5, proof of combustion safety testing is required to be collected and retained in all instances where testing is required to be performed. https://www.energy.gov/scep/articles/home-energy-rebate-programs-requirements-and-application-instructions

	Data Category	Specific Data Element	Drop-Down Options or Coding	Report to DOE	Additional Notes
4	Safety Testing	Does the ambient CO test pass?	Passed / Failed / Warning / N/A	X	Reporting of combustion safety testing results is required when applicable and completed by a state qualified contractor.[39]
5	Safety Testing	Does the undiluted CO test pass?	Passed / Failed / Warning / N/A	X	Reporting of combustion safety testing results is required when applicable and completed by a state qualified contractor.[39]
6	Safety Testing	Are there signs of mold or moisture in or outside the home?	Yes / No / N/A	X	An assessment of the roof condition, drainage, and mold/moisture is recommended when air sealing and insulation may be impacted by moisture issues in the work scope area.
7	Safety Testing	What is the roof condition?	Good / Potential issues / N/A	X	An assessment of the roof condition, drainage, and mold/moisture is recommended when air sealing and insulation may be impacted by moisture issues in the work scope area.
8	Safety Testing	For HVAC installations, what is the drainage system condition?	Good / Potential issues / N/A	X	An assessment of the roof condition, drainage, and mold/moisture is recommended when air sealing and insulation may be impacted by moisture issues in the work scope area.

	Data Category	Specific Data Element	Drop-Down Options or Coding	Report to DOE	Additional Notes
9	Safety Testing	Has an ASHRAE 62.2 calculation been performed pre- and post-retrofit to ensure proper indoor air quality?	Yes / No / N/A	X	Completion of an ASHRAE 62.2 calculation is recommended when air sealing and insulation that has an air sealing effect has been installed.
10	Safety Testing	Have the results from the safety checks have been disclosed to the homeowner?	Yes / No / N/A	~~X~~	

8.0 Appendix D – IT System Functions

States, working with implementers and/or other service providers, will need a combination of personnel and IT systems to facilitate rebate transactions authorized in Sections 50121 and 50122 of the Inflation Reduction Act. At a minimum, IT systems are required to provide the functions listed below in full or in part.

The DOE Rebate Tracking and Reporting Tool can help states fulfill some of these functions. For states using the API (using the Real-Time integration or the reporting integration), it is important to consider how these systems must or ideally should be tied directly into the API.

- Provide user interfaces for a variety of stakeholders such as building owners, occupants, contractors
- Apply user-centered design principles, use plain language, meet accessibility requirements, and provide translation options for non-native English speakers.
- Initiate rebate transaction
- Generate unique house ID linked to home address
- Determine home and household eligibility through steps including:
    - Verify address submitted
    - Compare household income to AMI levels associated with zip code and number of occupants
    - Accept and review information regarding a household's enrollment in programs that establish income eligibility
    - Confirm that the individual(s) associated with the income information live at the submitted home address
    - Compare rebate request to data on IRA home energy rebates already applied at that address
    - Determine number of units if multifamily building
- Confirm contractor eligibility if applicable
- Determine eligibility of proposed improvement:
    - product type (e.g., water heater, induction cooktop)
    - home's existing system that will be replaced or displaced
    - product specifications

- Collect virtual signatures from occupants and building owners attesting to accuracy of submitted information
- Confirm if the rebate will be used at point of purchase with a listed or non-listed vendor
- Generate coupons/rebates for national retailers, qualified contractors, and non-listed vendors
- Remit payments to contractors and vendors for used rebate coupons
- Link IT systems via APIs
- Store and report required data

IT systems may also be designed to offer additional functionality such as:

- Accept geotagged photos of installed equipment
- Accept home assessment data
- Accept home energy models
- Accept information regarding measured savings
- Accept utility bills from homes where rebates have been applied