

Supporting Statement (Part B)

Statistical Methods

U.S. Department of Housing and Urban Development Office of Policy Development and Research

Information Collection to Establish a Baseline Assessment of the Renewable Energy Capacity within HUD's Public Housing and Multifamily-assisted Housing Stock

Note: This submission is presented as an application for a new collection of information.

B.1 Potential Response Universe

The universe of public housing agencies (~3,100 PHAs) and multifamily-assisted housing properties (~30,000 MFHs) will be the targeted participants in the study of Baseline Assessment of Renewable Energy Capacity within HUD's Public Housing and Multifamily-assisted Housing Stock. Specifically, the survey will target conventional (low-income) public housing agencies, and FHA-insured, HUD-assisted (subsidized), and Section 202/811 multifamily properties.

In an effort to minimize the overall burden placed on targeted participants and increase response rate, the proposed collection effort will be administered through a two-phase approach. The Department anticipates that only a small percentage (~ 1%) of the HUD housing stock will have installed renewable energy systems. The primary focus of this data collection effort is to gather information related to the installed renewable energy systems with the Department's housing stock.

The initial phase will consist of a brief questionnaire that will be sent to all targeted participants while the second phase will be more in-depth and target the participants who specified that they have (or there is informal evidence indicating that they have) installed renewable energy systems.

In total, approximately 33,100 entities will be targeted to participate in the phase one survey. It is anticipated that approximately 400 parties will participate in the phase two survey.

B.1.1 Study Participants

The primary respondent from each PHA and MFH entity will be the Executive Director and Property Manager (or Property Owner), respectively; however, in many instances we anticipate that multiple respondents may participate in completing the surveys. Particularly in larger agencies and properties, it is likely that the Executive Director or Property Manager (or Property Owner) will complete some parts of the surveys while agency or property staff may need to complete more technically related parts of the surveys. Thus, it is possible that multiple respondents per agency or property will be working on the surveys. The nature of the questions is such that they would be easily answered based on the knowledge of the Executive Director, Property Manager (or Property Owner), or other staff.

B.2 Statistical Methods

B.2.1 Sampling Plan

The study of Baseline Assessment of Renewable Energy Capacity within HUD's Public Housing and Multifamily-assisted Housing Stock will not require a sampling plan, as the universe of public housing agencies and multifamily-assisted housing properties will be invited to participate in the initial survey. The initial survey invitation will be sent to the Executive Directors of approximately 3,100 PHAs and Property Managers (or Property Owners) of approximately 30,000 MFHs using contact information provided by HUD.

Results from the initial survey, along with informal evidence, generated by the Department, of agencies and properties that have renewable energy systems will be combined to develop a list of participants that will be administered the more in-depth, phase two survey. It is anticipated that the second survey will consist of approximately 400 parties.

This study is designed to send a survey invitation to each entity (PHA and MFH) within the respective datasets. For both the phase one and phase two surveys, the research team is aware that many Executive Directors and Property Managers (or Property Owners) may be associated with more than one agency and federally-assisted property, respectively. Those who fall into this category will receive multiple invitations to participate in the respective surveys because, as mentioned earlier, every entity within the respective datasets will be sent an invitation. Thus, in an effort to minimize the response burden placed on this subset of individuals, the research team has constructed the surveys so to provide participants the option of responding to one survey for multiple agencies or properties.

The research team cannot guarantee that every Executive Director and Property Manager (or Property Owner) who is associated with more than one agency and property, respectively, will only respond to the respective survey once thus, the estimated hour burden, for the phase one survey, is based upon a response from every entity within the respective datasets (~33,100). For the second phase survey, it is anticipated that the estimated hour burden is based upon 400 parties.

The approach to maximizing response is presented below in Section B.3.

B.2.2 Justification of Level of Accuracy

The study will report on the survey results mainly using analytic techniques such as descriptive statistics and cross-tabulations that describe the extent and types of renewable energy systems currently installed within HUD's PHA and MFH stock. For this study, the research team anticipates a high response rate from the participants that have (or there is informal evidence that they have) installed renewable energy systems and thus, expects the results will have a high level of accuracy.

In an effort to achieve the desired level of accuracy; non-response bias will be conducted to determine if the results need to be weighted in order for the data to be representative of the universes of PHAs and MFHs. The non-response analysis will focus on agency and property

characteristics (e.g., size, geographical location, and program type) that are anticipated to affect the extent to which the respective agencies and properties install renewable energy systems.

B.2.3 Unusual Problems Requiring Specialized Sampling Procedures

There are no unusual problems associated with this sample. The study seeks responses from the entire population of Public Housing Agencies – conventional (low-income) properties – and Multifamily-assisted Housing Properties – FHA-insured, HUD-assisted (subsidized), and Section 202/811 multifamily properties – rather than sampling from the respective populations.

B.2.4 Any Use of Periodic (less frequent than annual) Data Collection Cycles to Reduce Burden

Not applicable to this study as this is a one-time collection effort.

B.3 Maximizing Response Rates

In an effort to increase response rate and minimize the overall burden placed on targeted participants, the proposed collection effort will be administered through a two-phase approach.

The initial phase will be a brief questionnaire sent to all targeted participants and is intended to get a snapshot of the agencies and properties that have, do not have, and/or plan to install renewable energy systems in the future. It will also inquire about any barriers and/or challenges that may have been faced regarding these systems. The second phase will be more in-depth and target the participants who specified that they have (or there is informal evidence indicating that they have) installed renewable energy systems.

For each phase, HUD will introduce the respective survey through an e-mail message to the PHA Executive Directors and MFH Property Managers (or MFH Property Owners). HUD maintains and frequently updates the e-mail address lists for these representatives. The introductory e-mail will include a signed memorandum – by the Assistant Secretary (A/S) of PIH and Deputy Assistant Secretary (DAS) of MFH – and frequently-asked-questions (FAQs) page. These two supplementary documents will provide background information and justification as to why HUD is conducting this study. Following the introductory message, a separate e-mail invitation will be sent to the respective agencies and properties with a link to the web-based survey. This separate invitation will include the URL for the web-based survey and a deadline date. If a respondent has questions regarding the survey, a phone number and e-mail address will be provided.

The research team is aiming for an overall response rate of 80 percent, and considers this to be achievable based upon recent experience with similar studies that PD&R has administered; however, the Department anticipates that only a small percentage (~ 1%) of the HUD housing stock will have installed renewable energy systems. Thus, the research team's primary focus is to obtain an 80 percent response rate from the participants (approximately 400 parties) who are administered the phase two survey.

In the initial phase, the questionnaire will be administered to all targeted participants and group response rates will be monitored on a weekly basis. To maximize response, participants who fail

to respond within 7 days of commencement will receive an initial reminder e-mail. For participants who do not respond within 14 and 21 days of survey commencement, respectively, will also receive second and third email reminders. After 28 days of commencement, the research team will analyze the phase one results to determine the agencies and properties that have, do not have, and/or plan to install renewable energy systems in the future. Positive responses from the initial phase, along with informal evidence, generated by the Department, of agencies and properties that have renewable energy systems, will formulate the list of participants who will be administered the more in-depth, phase two survey.

For the second phase, the research team will utilize a dynamic follow-up protocol, which is intended to allow for quick reaction and adoption of effective methods aimed at raising the overall response rates. This approach includes monitoring group response rates on a weekly basis and making any necessary alternations based on the collected data. In order to minimize the amount of time burden placed on agency and property staff during phone calls, the caller's discussion points will be brief and concise.

Similarly, to maximize phase two response, agencies and properties who fail to respond to this survey within 7 days of commencement will receive an initial reminder e-mail and those that do not respond within 14 and 21 days of the survey commencement, respectively, will receive email and phone call reminders. After the third set of reminders, phase two targeting will be adjusted on a weekly basis, depending on which agency and property groups have relatively low response rates.

To encourage response for both phases, the research team will enlist assistance from the PHA Field Offices (FO) and MFH Hubs. These staff will be asked to develop a letter, email, and/or newsletter article in support of the survey, which is intended to encourage the Executive Directors and Property Managers (or Property Owners) to participate at various stages throughout the recruitment process. The messages sent out by these staff will echo and supplement the research team's efforts. It is believed that strategically timed invitations from FO and Hub staff that are familiar with the invited participants will be more effective than repeated invitations from the same source. The Field Office and Hub staff will be asked to time their efforts at 10 days after the start of the respective surveys, and/or at any other time throughout the data collection periods that is convenient for them.

For each phase, the research team will perform up to four sets of reminders for the targeted agencies and properties who fail to respond after the first invitation.

- After the 2nd email attempt, all non-responders will receive a reminder phone call from the FO and Hub staff.
- After the 3rd email attempt, all remaining non-responders will receive another reminder phone call from the FO and Hub staff.
- A 4th email reminder will be sent to all agencies and properties.

Using these techniques, along with encouraging emails from the research team and FO and Hub staff, it is anticipated that a response rate of at least 80 percent from the phase two survey and overall study will be achieved.

Recent experience in prior recruitment efforts, overseen by HUD, has proven to be successful in achieving high response rates. HUD conducted a study of PHA's Engagement with Homeless Households wherein the census survey was administered in a similar approach relative to this proposed research effort. The contact protocol for this study consisted of a multifaceted approach consisting of emails, and follow-up phone call reminders. During this study, up to four e-mail invitations were sent to non-responders, and support groups (PHA industry organizations) contacted the targeted participants in an effort to echo and supplement HUD's efforts. A response rate of 79 percent or higher was achieved in most subgroups based on certain PHA characteristics and an overall response rate of 80 percent was achieved for the study.

B.4 Tests of Procedures or Methods

HUD personnel from the Office of Economic Resilience (OER), Office of Public and Indian Housing (PIH), Office of Multifamily Housing (MFH), and Office of Policy Development and Research (PD&R), and external, residential energy-related subject matter experts reviewed the survey instruments and their comments are reflected in the surveys included in this this package.

During the review period of the request for OMB clearance, the research team intends to pretest the survey instruments with a combined total of nine PHAs and MFHs. The selected pretest candidates will be solicited to provide feedback on the questionnaire in general, any questions or sections that were challenging and need further clarification or to be reworded, length of time needed to complete the survey, and any suggested improvements. In addition, these pretest candidates will be asked to provide feedback on the usefulness of the signed memorandums and FAQ page in relation to helping the respondent to prepare and complete the survey.

B.5 Statistical Consultation and Information Collection Agents

HUD's Office of Policy Development and Research will work with HUD's Office of Economic Resilience (OER) to conduct the proposed data collection. Michael Early, an Energy Engineer in HUD's Office of Policy Development and Research (PD&R), Affordable Housing Research and Technology (AHRT) Division, serves as the lead for conducting the study. In addition, Trisha Miller (Senior Advisor and overall HUD POC for the Climate Action Plan) and Crystal Bergemann (Energy Program Analyst) from OER, and David Lipsetz (Deputy Assistant Secretary) from PIH contributed to the review of the survey instrument and coordination of the supplemental activities to support this data collection effort.