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UNITED STATES DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

The Puerto Rico Department of Housing Could Improve its Community Energy and Water Resilience Installations Program

Audit Report Number: 2026-FW-1003

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Office of Audit and Evaluation | Office of Inspector General
U.S. Department of Housing and Urban Development

Highlights

The Puerto Rico Department of Housing Could Improve its Community Energy and Water Resilience Installations Program| Report Number 2026-FW-1003

What We Audited and Why

We audited the Puerto Rico Department of Housing's (PRDOH) Community Energy and Water Resilience Installations (CEWRI) Program who provides its participants with photovoltaic (PV) systems with battery backup for critical loads, and water storage systems (WSS) to address the energy and water system vulnerabilities and promote resilience. We selected the CEWRI program for review based on our risk assessment, which included the potential for excessive contract costs, applicant eligibility concerns, and vague program and household assistance guidelines. To determine the extent to which the CEWRI program addressed energy and water system vulnerabilities, we reviewed a statistical sample of CEWRI cases that closed between December 1, 2021, and May 9, 2024.

What We Found

We found that the photovoltaic systems (PV) and water tanks installed in participant's homes had deficiencies. Such deficiencies included inverters and batteries with signs of rust; water intrusion that could lead to electrical shorts; electrical conduits that were degrading due to direct exposure to the sun; electrical conduits with water; and water tanks that were leaking, overflowing, or both. Based on statistical projections, at least 57 percent of installations had at least one deficiency. In addition, we noted that almost 33 percent of inverters and battery storage systems were not installed in accordance with the installer agreements and manufacturers' specifications. The contractors who installed the batteries and inverters exposed them to the elements and direct sunlight, contrary to the terms of the agreements and manufacturer specifications. In addition, we determined that PRDOH's installation oversight was inadequate. PRDOH disregarded its own contract terms and the equipment manufacturers' guidelines, which required the equipment to be protected from direct sunlight and the elements. Although quality control inspections were performed, the inspections did not identify that the installations were improperly completed. PRDOH's actions could lead to manufacturers voiding equipment warranties, equipment lasting less than the required timeframe, and malfunction of improperly installed equipment. Further, PRDOH spent more than $19 million on installation services that do not comply with the agreements and manufacturers' specifications.

We also found that PRDOH did not provide adequate support to justify its contract amendments with installers to perform additional subtasks. PRDOH provided a memorandum to support its contract amendment, which cited that 99 percent of repair cases needed corrections to electrical components to install the PV system. However, PRDOH could provide support for only 2 percent of the repair cases, which significantly contradicts the 99 percent figure. This condition occurred because PRDOH's original scope of work and contract was vague and did not specifically list the preliminary electrical work and three subtasks that PRDOH's installers completed as part of the installations. By making these contract amendments, rather than clearly including the work in the original scope of work and contracts, PRDOH lost bargaining power and likely spent more than was necessary. As a result, PRDOH did not assist as

many disaster recovery program participants as it could have without the costly $31 million contract amendments. Finally, we also found that the methodology PRDOH used when calculating household income for eligibility purposes of the CEWRI program led to inconsistent eligibility determinations among program participants with similar income amounts. This occurred because PRDOH incorrectly interpreted and applied the IRS 1040 methodology when determining the participant's household income. As a result, PRDOH could not ensure that it adequately or appropriately distributed disaster recovery funds among low- and moderate-income program participants to whom the program is meant to benefit.

What We Recommend

We recommend that the Director of the Office of Disaster Recovery instruct PRDOH to (1) remediate all outside installations that are directly exposed to sunlight and the elements or repay HUD more than $19 million from non-Federal funds, (2) submit supporting documentation so HUD can evaluate the basis of the contract amendments and determine the eligibility of more than $31 million in disaster recovery funds, (3) structure future contracts to ensure the scope of work is clearly defined so that all parties understand the agreement, and (4) re-evaluate the methodology used to determine income eligibility to ensure a consistent application that improves the outcomes of the program.

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Background and Objectives

In September 2017, Hurricanes Irma and Maria caused catastrophic damage to Puerto Rico. Although Hurricane Irma's eyewall did not hit Puerto Rico directly, it caused significant damage to the island. Two weeks later, Hurricane Maria, a Category 4 hurricane, struck the island directly. It caused flooding and wind damage that destroyed the power grid.

From September 2017 to June 2019, Congress appropriated more than $37 billion[1] to assist with the recovery of major declared disasters in the Continental United States, U.S. Virgin Islands, and Puerto Rico. From February 2018 to June 2021, the U.S. Department of Housing and Urban Development (HUD) allocated more than $20 billion[2] in Community Development Block Grant Disaster Recovery and Mitigation (commonly known as CDBG-DR and CDBG-MIT) funds to Puerto Rico to help it recover from the hurricanes.

PRDOH was created on June 10, 1972, to implement the government's policy related to public housing. The governor of Puerto Rico also named PRDOH as the agency responsible for administering the disaster recovery and mitigation program funds.

The Community Energy and Water Resilience Installation Program

As part of its disaster recovery efforts, the Puerto Rico Department of Housing (PRDOH) developed the Community Energy and Water Resilience Installations (CEWRI) program to address the energy and water system vulnerabilities. It provides single-family homeowners energy and water efficiency improvements to promote resilience by installing photovoltaic (PV) systems[3] with battery backup for critical loads and water storage systems. The PV system with battery backup will be capable of running some household appliances (refrigerators, water pump, etc.), life-support devices, and permit shelter-in-place options during power outages.

PRDOH launched the CEWRI program in November 2021. The program provides these benefits solely to homeowners who were participants in the PRDOH's Repair, Reconstruction or Relocation (R3)[4] Program. The CEWRI program's total budget is $395 million, as shown in table 1 below.

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1 Public Law (P.L.) 115-56 appropriated $7.4 billion on September 8, 2017. P.L. 115-123 appropriated $28 billion on February 9, 2018. P.L. 116-20 appropriated $2.4 billion on June 6, 2019.

2 HUD allocated more than $20 billion to PRDOH through the following Federal Register (FR) Notices: 83 FR 5844, 83 FR 40314, 85 FR 4676, 85 FR 4681, and 86 FR 32681.

3 A photovoltaic (PV) system is composed of one or more solar panels combined with an inverter and other electrical and mechanical hardware that use energy from the sun to generate electricity. It is also commonly referred as a solar power system.

4 The R3 program provides disaster recovery assistance to eligible homeowners to repair damaged homes or rebuild substantially damaged homes in non-hazardous areas. Eligible homeowners with damaged homes in hazardous areas will be offered relocation assistance.

Table 1: Funding for CEWRI[5]

Purpose	Budget	Obligated	Disbursed
CEWRI – low -and moderate- income	$395,000,000	$327,680,131	$178,918,376

Our objective was to determine the extent to which the CEWRI program addressed the energy and water system vulnerabilities.

[5] Information retrieved on August 21, 2025, from HUD's Disaster Recovery Grant Reporting System (DRGR). The DRGR system is primarily used by grantees to access grant funds and report performance accomplishments for grant-funded activities

Results of Audit

The CEWRI Program's Photovoltaic Systems and Water Storage Systems Installations Had Deficiencies

Program participants indicated that they were mostly satisfied with the program and stated that the program improved their quality of life by providing backup energy for critical loads, such as home appliances or medical devices, and water storage systems during power outages. However, we found that 67 percent of properties visited with the photovoltaic systems (PV) and water tanks installed in participant homes had at least one deficiency. In addition, we noted that inverters and battery storage systems were not installed in accordance with the installer agreements and manufacturers' specifications. This occurred because PRDOH's installation oversight was inadequate. PRDOH disregarded its own contract terms and the equipment manufacturers' guidelines, which required the equipment to be protected from direct sunlight and the elements. PRDOH's actions could lead to manufacturers voiding equipment warranties, equipment lasting less than the required timeframe, and malfunction of improperly installed equipment. As a result, PRDOH spent more than $19 million on installations that did not comply with the agreements and manufacturers' specifications.

Participants Were Mostly Satisfied with the CEWRI Program

Overall, CEWRI participants reported that the program had improved their quality of life by providing backup energy for critical loads and water storage systems during a power outage.

We interviewed 66[6] CEWRI program participants[7]. Based on the statistical sample projection, 96 percent of the participants stated that the program improved their overall quality of life, and almost 83 percent were satisfied with the program. In addition, almost 89 percent of participants reported that their PV system provided backup energy for critical loads and water storage systems during a power outage. This means that participants' homes had a working refrigerator, basic lighting, and functional life-saving medical devices during power outages. As a result, according to our projection, the program has addressed its objective of providing energy resilience to at least 2,299 households. See Appendix C for the responses to all interview questions for all 66 participants.[8]

Photovoltaic Systems and Water Storage Systems Installations had Deficiencies

We statistically selected 66 cases from a universe of 2,593 CEWRI closed cases between December 1, 2021, and May 9, 2024.[9] This sample was selected to verify that the contractors properly installed the stipulated equipment and that the installations were performed according to the manufacturers' requirements. PRDOH's contractors installed the equipment between May 27, 2022, through December

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6 Sample statistically selected from a total universe of closed cases of 2,593 for the period of December 1, 2021, through May 9, 2024. See details in the Scope and Methodology section of this report.

7 Appendix C highlights all interview questions and responses provided by the program participants. See Appendix D of the report for information on statistical projections.

8 Percentages for the numbers interviewed and the numbers projected can be different. See Appendix D for an explanation of the methodology used for projections.

9 Our methodology for the statistical sample is explained in Appendix D of this audit report.

21, 2023. We inspected the equipment from October 28 to November 14, 2024, throughout 44 of 78 municipalities in Puerto Rico. Figure 1 below provides a visual of the site visits performed.

Figure 1: Site Visits Locations

Each colored circle represents the location of the site visits.

Of the statistical sample of 66 installations, we found that 44 had at least one deficiency.[10] Projecting these results to the universe,[11] at least 1,489 CEWRI installations (57 percent of the installed equipment) had at least one or more deficiencies. Table 2 provides a summary of the deficiencies we found during the site visits, organized into 8 categories:

Table 2: Summary of Deficiencies[12]

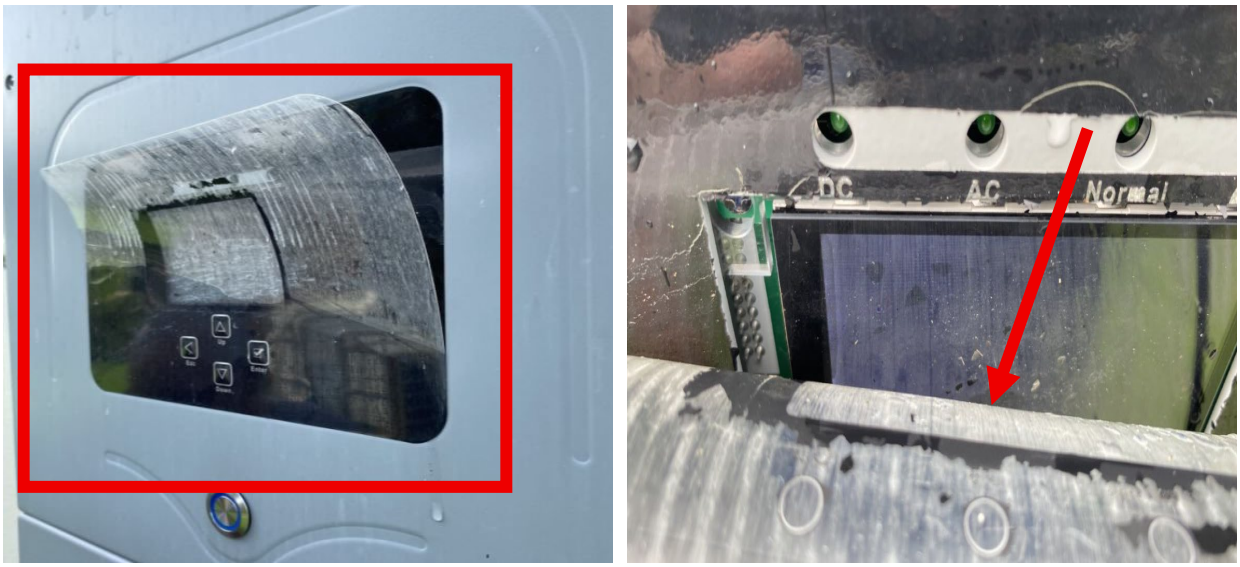
Type of Deficiency	# of Installations with the Deficiency
Inverters	32
Battery Storage System	32
Performance Testing	14
Electrical Wiring and Connections	12
Water Tanks	7
Solar Panels Modules	2
Roof Conditions	2
Safety Systems	2

[10] Of the 44 installations with deficiencies, 35 had more than one deficiency.
[11] After deducting for a statistical margin of error.
[12] Refer to Appendix E for a summary of all deficiencies found per installation.

Type of Deficiencies

Inverters

A solar inverter converts the energy output from solar panels into a usable electricity form that can be used to power appliances in a home or be exported to the electrical grid. We found that 32 of the 66 sampled installations had deficiencies related to the inverters. For example, we found instances in which the inverter's touchscreen display was not working, and showed signs of rust, water intrusion, and damage due to ultraviolet (UV) rays, which are not normal wear and tear because the inverters are supposed to last at least 10 years.



The pictures above show the inverter's screen was cracked. This allowed rainwater to enter inside the inverter. Specifically, water intrusion into the inverter could lead to electrical shorts and equipment malfunction.

Battery Storage System

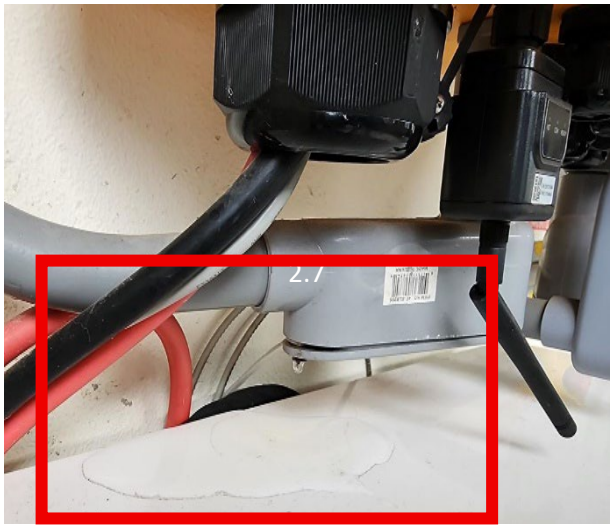
A battery storage system is a device that stores electricity to be used during power outages. The CEWRI program's battery backup systems can run some household appliances (refrigerators, water pump, etc.), lighting and life-support devices. We found that 32 of the 66 sampled installations had deficiencies related to the battery storage system. For example, we found instances in which the batteries that were rated for indoor use only were installed outdoors, showed signs of rust, had display screens with water damage, were in direct contact with foliage, and were not properly configured to be used as backup.

The picture above shows a battery with signs of rust around the battery hinges. This is an indoor use only battery installed outside that cannot handle the elements.

The picture above shows a battery in direct contact with foliage and precipitation. Batteries exposed to moisture or liquids pose a risk of electric shock.

Electrical Wiring and Connections

We found that 12 of the 66 sampled installations had deficiencies related to electrical wiring and connections. For example, we found instances in which water was leaking through the conduits, pooling on top of the batteries and inside the junction box and causing rust on conduits and critical panels.



The picture above shows water leaking through the conduit and pooling on top of the battery. Specifically, water intrusion into electrical components could lead to electrical shorts and equipment malfunction.

The picture above shows the water that was accumulated inside a conduit. The water poured out when we opened it. Specifically, water intrusion into electrical components could lead to electrical shorts and equipment malfunction.

Water Tanks

We found that 7 of the 66 sampled installations had deficiencies related to the water tank installation. For example, we found instances in which water tank pipes were leaking and the tanks were overflowing because the float valve was not working.

The picture above shows a water tank leaking.

The picture above shows water stains on the tank due to the overflow.

Inverters and Battery Storage Systems Were Not Installed in Accordance with the Installer Agreements and Manufacturers' Specifications

Inverters and battery storage systems were not installed in accordance with the agreements between PRDOH and the installers and did not follow the manufacturers' specifications. Specifically, we noted that almost 33 percent[13] of the battery storage systems and inverters were not installed in a covered and shaded location, which exposed the equipment to direct sunlight and the elements, contrary to the contract terms and manufacturers' specifications. We found that equipment installed outside showed signs of rust, cracked or nonfunctioning screens, and other degradation caused by constant direct exposure to the elements (such as UV rays, rain).

According to PRDOH's agreement with the installers, "inverters and batteries shall be installed in a shaded location and shall not be exposed to direct sunlight." Further, the agreement between PRDOH and the installers stipulated that the contractors shall adhere to the manufacturers' requirements and guidelines and refrain from installing equipment in a manner that would void its warranty. In addition,

[13] According to our projections based on the statistical sample, see Appendix D for more details.

various manufacturers' guidelines indicated that inverters and batteries installations should avoid direct exposure to sunlight and the elements.

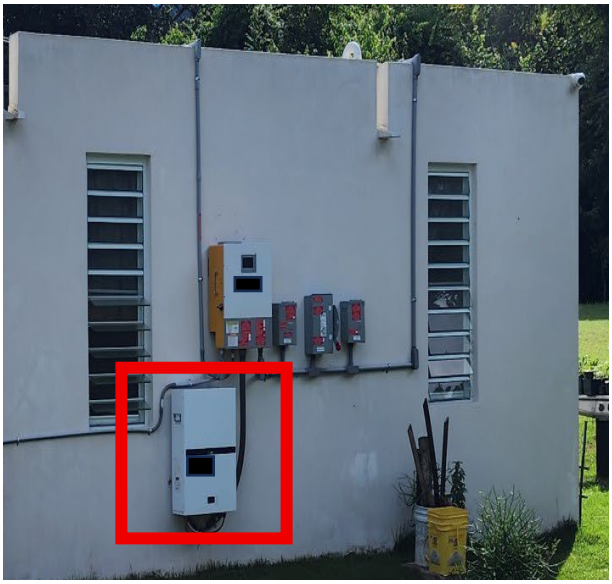
Of the statistical sample of 66 installations, we found that 28 installations were improperly installed outside. We determined that the CEWRI program paid an average of $7,398.86 per unit improperly installed. Projecting this amount to the universe of 2,593 CEWRI installations yields at least $19.18 million in improper installation costs.[14]

Equipment installed outdoors

The pictures above show inverters and batteries in direct exposure to sunlight and the elements. This placement contradicts contract terms and manufacturer specifications.

[14] See Appendix D for details on the statistical sample projection.

The picture above shows a battery directly exposed to temperatures of over 97 degrees Fahrenheit.



The picture above shows a battery that is rated for indoor use only installed outdoors.

This condition occurred because PRDOH's oversight of the installers was inadequate and disregarded its own contract terms as well as the equipment manufacturers' guidelines and requirements. Although quality control inspections were performed, the inspections did not identify that the installations were improperly completed. In PRDOH's opinion, the batteries and inverters were rated for outdoor use and could be installed outside and exposed to the elements, even though as shown above some batteries clearly state they are for indoor use. PRDOH's position could have multiple negative effects on the equipment. For example, manufacturers could void warranties on both the batteries and inverters, which means that equipment expected to last at least 10 years would not be covered if it is damaged due to abnormal wear and tear. Some manufacturers do not honor the warranty if the equipment is damaged by corrosion (inappropriate environmental exposure), lightning, excessive heat, water damage, and continued use in temperatures above 90 degrees Fahrenheit (which are all common in Puerto Rico's tropical climate). Further, the batteries, as warned by one of the manufacturers, could catch fire or create electrical shocks if they are exposed to direct sunlight, which could result in unnecessary and avoidable hazards to the program participants. Finally, exposing the equipment to extreme conditions, such as high temperatures and high relative humidity, could result in shorter equipment service lifespans.

Conclusion

The CEWRI program has addressed energy and water system vulnerabilities by providing single-family homeowners photovoltaic systems with battery backup for critical loads and water storage systems. Participants were mostly satisfied with the program as it improved their quality of life. As of August 21, 2025, more than 5,700 households[15] have been positively impacted by the CEWRI program. However, our inspections disclosed multiple issues with the installation of the photovoltaic systems and water tanks which diminishes the effectiveness of the program's intent and goals. The deficiencies ranged from

[15] From PRDOH's public Transparency Portal at https://recuperacion.pr.gov/en/transparency-portal/transparency-reports/cdbg-dr/housing-reports/community-energy-and-water-resilience-installations-dashboard/. The information on this dashboard is automatically updated daily by PRDOH.

installers improperly installing inverters and batteries exposed to direct sunlight and the elements to leaky water tanks and faulty electrical wiring and connections, among other issues. Further, PRDOH did not enforce its own contract terms with its installers and did not follow the manufacturers' installation guidelines. PRDOH's lack of enforcement could lead to manufacturers voiding equipment warranties, equipment lasting less than the required 10 years, and unnecessary hazards such as batteries catching fire due to their exposure to direct sunlight. As a result of the incorrect installation of the batteries and inverters we determined that PRDOH should look for alternatives to remediate or correct the outside equipment installations that totaled at least $19,185,244. Addressing the issues found during our inspections would benefit the CEWRI program's participants, PRDOH, and the taxpayers.

Recommendations

We recommend that the Director of the Office of Disaster Recovery:

1A. Instruct PRDOH to remediate all outside installations that are directly exposed to sunlight and the elements or repay HUD $19,185,244 from non-Federal funds.

1B. Instruct PRDOH to enforce its contract terms and conditions, which requires installers to install batteries and inverters outside of direct sunlight and exposure to the elements.

1C. Instruct PRDOH to address and correct all the deficiencies noted for the properties inspected.

Management Response

HUD generally agreed with all three recommendations. Regarding Recommendation 1A, HUD's Office of Community Planning and Development (CPD) will request that OIG share documentation with PRDOH and CPD from the samples inspected including cases totaling $19,185,244 to facilitate case identification and follow-up. HUD CPD's Office of Disaster Recovery (ODR) had no comments for Recommendations 1B and 1C, with the expectation that PRDOH will correct identified deficiencies.

However, PRDOH's management did not agree with our finding and recommendations. PRDOH stated that our finding was not supported by the contractual and technical documentation and that we misinterpreted the program's requirements. PRDOH stated the assertion that its actions could lead to voided warranties, shortened equipment lifespan, or malfunctions resulting from improper installations is unsubstantiated. In addition, PRDOH provided its own analysis for the 66 sample cases reviewed by HUD OIG. PRDOH also provided examples of its contractor oversight initiatives. Further it stated that all photovoltaic system installations were performed in accordance with the executed contracts, manufacturers' specifications, and applicable industry standards.

Management's full comments are included in Appendix B.

OIG Evaluation of Management Response

We acknowledge HUD's comments and appreciate their receptiveness to our recommendations. We will provide the requested information to ODR and PRDOH. Further, we will continue to work with ODR during the audit resolution process to ensure that the recommendations are appropriately addressed.

We respectfully disagree with PRDOH's assertion regarding the finding and comments. PRDOH's contract with its installers was clear that batteries and inverters must not be exposed to direct sunlight. In addition, manufacturer's installation manuals and specifications also indicated that the equipment must not be exposed to the elements. Moreover, our inspections revealed deficiencies concerning batteries and inverters resulting from exposure to direct sunlight and the elements. Finally, PRDOH's position that installations were performed in accordance with its installers and manufacturers' specifications is a contradiction as both the contract and manufacturers' specifications explicitly prohibit exposure to direct sunlight for both batteries and inverters. Therefore, we did not revise the report or recommendations. PRDOH should work with ODR during the audit resolution process to address the recommendations.

PRDOH Did Not Provide Adequate Support to Justify the Amendments of the Photovoltaic Systems Installation Contracts

PRDOH did not provide adequate support to justify its contract amendments with installers to perform additional subtasks. This occurred because PRDOH's original scope of work and contract was vague and did not specifically list the preliminary electrical work and three subtasks that PRDOH's installers completed as part of the installations. By making these contract amendments, rather than clearly including the work in the original scope of work and contracts, PRDOH lost bargaining power and likely spent more than was necessary. As a result, PRDOH did not assist as many disaster recovery program participants as it could have without the costly $31 million contract amendments.

PRDOH Amended Installer Contracts to Include Costs Related to Unforeseen Conditions

The original contract between PRDOH and its installers required the installation of the PV systems in accordance with all project requirements and in compliance with the National Electrical Code[16] (NEC®). Specifically, the original contract stated that pricing must include all expenses, including incidentals, taxes, handling, and delivery costs, as well as any other administrative costs associated with installation of the PV system as PRDOH will not consider any additional costs. In addition, the contract stated that the selected installer was responsible for verifying the existing condition of the installation site before installations began. As part of the installation process, the installers had to complete a Pre-Installation Assessment (PIA) to evaluate the property's eligibility, among other requirements. The contract also required the installer to coordinate with the CEWRI program manager during the PIA to determine what remediations will be needed for the installation if problems are found. If the property does not meet the eligibility requirements the property would be deemed ineligible for installation of the PV system. Once the PIA was completed, the contractor was responsible for providing all labor, materials, tools, equipment, and services required to complete the project as specified in the contract. As a result, the contractor was also responsible for the cost of all items required for a complete operating system.

Between January and August 2023, PRDOH amended ten installers' contracts to add an allowance of more than $31 million to perform three subtasks, which according to PRDOH, were necessary for contractors to remediate the unforeseen conditions[17] at the time of the original contract. According to PRDOH, these subtasks were necessary to install the PV systems in compliance with NEC. Based on our sample cases, we noted that the additional subtasks[18] added on average almost $4,300 per installation, increasing the average installation costs from $26,123.80 to $30,423.06.

PRDOH amended the contracts to include the following three unforeseen conditions subtasks:

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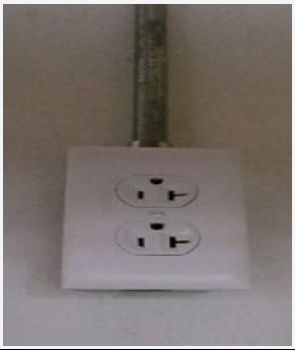
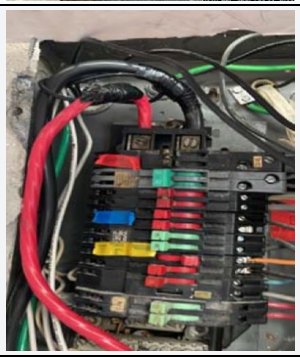
[16] The National Electrical Code® serves as the foundational code for electrical system applications and is the benchmark for safe electrical design, installation, and inspection. Compliance with the NEC helps to protect people and property from electrical hazards. The National Fire Protection Association® publishes the NEC®.

[17] "Unforeseen conditions" refer to events or circumstances that were not and could not have been reasonably anticipated by the parties involved, which significantly impact the contract's performance, cost, or completion time.

[18] Amended Scope of Work, Subtasks: 3.5.1 New Exposed Branch Circuits Installation, 3.5.2. Meter Base Grounding System, and 3.5.3. Panelboard Grounding System.

Amended Contract	Original Contract	Additional Subtask Cost	Example of Additional Subtask
Install new exposed branch circuits for a refrigerator outlet and one user-selected outlet (reserved for a medical device if needed).	Required that outlets were needed for critical loads in case of power outages. (This included refrigerators, medical devices and some lightning)	$2,730	
Install grounding systems at the meter base if missing or incomplete to meet code requirements.	Bidder must install solar system equipment in compliance with the National Electric Code (NEC). NEC Article 250 specifies the requirements for grounding and bonding of electrical installations.	$1,390	
Install missing/faulty ground wire between the main distribution panel and existing meter base to meet code requirements.	Bidder must install solar system equipment in compliance with the National Electric Code (NEC). NEC Article 250 specifies the requirements for grounding and bonding of electrical installations.	$2,081	

To support the position that the amendment was needed, PRDOH provided a memorandum[19] that stated 99 percent of repair cases with completed PIAs[20] were on hold due to NEC compliance issues, and that an amendment (with additional costs per subtask) was needed to remediate these issues.

PRDOH provided 250 completed PIAs as support for the amendments, of which 16 PIAs were dated before the date of the memorandum, with the remaining 234 PIAs (93.6 percent) being completed after the date of the memorandum. After reviewing the 250 PIAs, we noted that 9 of them (4 percent) documented NEC issues related to the subtasks mentioned by PRDOH prior to the date of the

[19] Memorandum titled "Recommendation for Amendment B to Service Vendors' Contract" dated December 8, 2022.

[20] The PIA is used by installers to conduct an assessment before performing the PV installation and it would disclose any issues with the electrical components and describe any NEC compliance issues found during the inspection.

memorandum. This significantly contradicts the 99 percent figure cited in PRDOH's memorandum justifying the need for the amendments that added additional costs. However, PRDOH could have avoided these costly contract amendments by specifically listing the three additional subtasks in the original scope of work and contract.

Conclusion

PRDOH did not provide adequate support to justify contract amendments between it and the photovoltaic system installers, totaling $31 million in additional unsupported costs. However, PRDOH provided limited documentation to support its claim that there was a remediation need justifying the additional allowance costs and contract amendments. As a result, PRDOH's lack of a clear scope of work and its subsequent contract led to costly contract amendments that limited the use of disaster recovery funds for other possible participants or disaster recovery programs.

Recommendations

We recommend that the Director of Disaster Recovery:

2A. Require PRDOH to submit supporting documentation so HUD can evaluate the basis of the contract amendments and determine the eligibility of more than $31 million in disaster recovery funds. If HUD determines that the contract amendments were not supported, PRDOH must reimburse HUD from non-Federal funds.

2B. Require PRDOH to implement a review process to better structure its future contracts to ensure that the scope of work is clearly defined so that all parties understand the agreement. This includes, but is not limited to, ensuring that the basic subtasks needed to complete projects are considered and included only as necessary in future contracts.

Management Response

HUD agrees with recommendation 2A in concept. However, HUD requested that OIG share its documentation and final assessment of the eligibility basis of the cited $31 million in CDBG-DR funds to review eligibility of the use of funds efficiently. This multi-year information will be a critical resource for HUD and PRDOH to implement this draft recommendation. HUD agrees with Recommendation 2B.

However, PRDOH's management did not agree with our finding and recommendations. PRDOH stated that our finding did not accurately reflect the contractual framework and factual circumstances underlying the contract amendments. PRDOH further stated the amendments were made in accordance with Federal regulations (specifically, 2 CFR §§ 200.403 - 200.404 and 200.318 – 200.327) and sound construction management principles, following the identification of unforeseen site conditions that could not have been reasonably anticipated at the time of bidding. Further, PRDOH explained that its actions were both legally justified and operationally necessary to achieve the CEWRI program's intended outcomes. In addition, PRDOH discussed its assumptions at the time of the invitation for bids (IFB) and its scope of work under the IFB. PRDOH also discussed the Pre-Installation Assessments (PIA) repository access it provided to HUD OIG and HUD OIG's review of the PIAs.

Management's full comments are included in Appendix B.

OIG Evaluation of Management Response

We acknowledge HUD's comments and appreciate their receptiveness to our recommendations. We will provide the requested information to ODR. Further, we will continue to work with ODR during the audit resolution process to ensure that the recommendations are appropriately addressed.

We respectfully disagree with PRDOH's assertion regarding the finding and comments. PRDOH's memorandum[21] supporting the contract amendments was unsupported. During the audit, we requested the PIAs used to support the contract amendments. However, PRDOH provided only 16 PIAs dated before the memorandum's date, of which 9 had concerns regarding the electrical issues. This figure is significantly below PRDOH's assertion that 99 percent of PIAs had documented electrical issues before the memorandum's date.

In addition, PRDOH's memorandum indicated that the unforeseen conditions were not discoverable until the installers completed the PIAs and prior to the installation of the PV systems. PRDOH further stipulated that the unforeseen conditions may be due to the phenomenon termed "informal construction," in which construction or repairs to a structure were performed without following applicable regulations. According to PRDOH, conducting a thorough investigation of all applicant homes would have required the partial demolition of homes to assess the situation, resulting in an unreasonable waste of public funds, and it assumed that the homes complied with applicable codes and regulations.

However, it is publicly known that the average repair-eligible home in Puerto Rico is nearly 50 years old,[22] and PRDOH's own system of record includes the year of construction for each property. Furthermore, PRDOH required installers to have a minimum of five years of experience in the renewable energy sector. Installers with this level of experience, especially within Puerto Rico, would be reasonably expected to be familiar with the typical conditions of the homes they served. PRDOH's assumption and lack of a clear scope of work, led to a costly $31 million in unsupported contract amendments.

We did not revise the report or recommendations. PRDOH should work with CPD ODR during the audit resolution process to address the recommendations.

[21] See footnote 19.

[22] HUD's "Housing Damage Assessment and Recovery Strategies Report" (which PRDOH was a part of), indicated that the median year of construction for homes in Puerto Rico was 1978.

PRDOH Made Inconsistent Eligibility Determinations

PRDOH's used a methodology when calculating household income for eligibility purposes of the CEWRI program, which led to inconsistent eligibility determinations among program participants with similar income amounts. Specifically, PRDOH treated participants with incomes from wages differently than those with income from retirement sources, such as Social Security and pensions. In addition, in some instances, PRDOH incorrectly used the Puerto Rico Tax Code provisions to determine eligibility for higher income applicants. This occurred because PRDOH incorrectly interpreted and applied the IRS 1040 methodology when determining the participant's household income. As a result, PRDOH could not ensure that it adequately or appropriately distributed disaster recovery funds among low- and moderate-income program participants to whom the program is meant to benefit.

PRDOH Treated Income Sources Differently When Determining Eligibility

PRDOH selected the Internal Revenue Service (IRS) Form 1040 Adjusted Gross Income (AGI) methodology to calculate household income and determine participant's CEWRI program eligibility. This methodology considers only the taxable portions of Social Security income benefits and other taxable income sources (such as wages, pensions and annuities) when determining a participant's household income. While the IRS Form 1040 AGI methodology is a HUD-approved method for determining income eligibility, its applicability to U.S. citizens living in Puerto Rico is different than U.S. citizens living in other states and localities because U.S. citizens residing in Puerto Rico are generally exempt from filing an IRS Form 1040.[23]

For the income eligibility determination, grantees may select between two income definitions:

i. "Annual income" as defined under Section 8 program at 24 C.F.R. § 5.609;

ii. Adjusted gross income as defined for the purposes of reporting under the Internal Revenue Service (IRS) Form 1040 for individual Federal annual income tax purposes.

In addition, for the CEWRI program, PRDOH used Puerto Rico Tax Code provisions, which are not a HUD-approved method, for some of its higher income participants while using the IRS Form 1040 AGI methodology for others. PRDOH stated that using the Puerto Rico Tax Law exclusions for pensions is a more accurate representation of the participant's financial status. The Puerto Rico Tax Code allows taxpayers to deduct up to $11,000 for each annuity or pension of individual taxpayers below 60 years of age and up to $15,000 for taxpayers above 60 years of age. In addition, the Puerto Rico Tax Code treats Social Security benefits as non-taxable income in its entirety, differing from the IRS Form 1040 AGI calculation which considers a portion of Social Security benefits as taxable.

These two income treatments resulted in different household income calculations for participants with similar incomes, thus affecting the eligibility determination of participants. This resulted in determining those higher income participants to be eligible while participants with similar incomes, but with no

[23] Income earned from Puerto Rico sources by U.S. citizens who are bona fide residents of Puerto Rico during the entire taxable year are exempt from U.S. income tax under section 933 of the U.S. Internal Revenue Code (except salaries and pensions received as a civilian or military employee of the United States Government).

beneficial tax provisions, as ineligible. See Table 3 below for a comparison of two CEWRI program participants.

Table 3: Comparison between an eligible and non-eligible PRDOH participant

	Participant A	Participant B
Source of income	Two State pensions	Social Security and Wages
Total income	$45,775	$47,359
Income deducted by PRDOH	($30,000)*	($6,655)**
Income (used for eligibility by PRDOH)	**$15,775**	**$40,704**
Household size	2	2
Household income limit for 2022	$35,550	$35,550
Eligibility determination	**Eligible**	**Ineligible**

***** *Includes Puerto Rico Tax provisions, which are not a HUD-approved method for determining program eligibility. PRDOH deducted $15,000 for each household member because both were over 60 years of age and received a state pension.*
******** *PRDOH deducted only the participant's $6,655 Social Security income.*

PRDOH incorrectly interpreted and applied the IRS 1040 methodology when determining the participant's household income. PRDOH stated that if they applied the IRS 1040 instructions literally, it would mean that many participants would be artificially classified as Low-to-Moderate Income (LMI) since many sources of income from Puerto Rico are deducted from the federal taxable income, which could lead to an inaccurate representation of the participants' financial status and eligibility for the program. However, PRDOH's use of the IRS Form 1040 AGI methodology in conjunction with the non-applicable Puerto Rico Tax code provisions appears to be an ineffective and limiting choice for U.S. citizens living in Puerto Rico. As a result, program participants with similar income amounts received different eligibility determinations due to PRDOH's improper hybrid application of the IRS 1040 methodology.

In contrast, the income calculation methodology defined under the Section 8 program[24] treats retirement income[25] in the same manner as wages and salaries, where the entire amounts count towards the household income calculation. For example, using the methodology defined under the Section 8 program, both participants in Table 3 above would have been deemed ineligible because PRDOH would not have applied any income deductions.

[24] 24 Code of Federal Regulations § 5.609.
[25] For example, social security benefits, pensions, and annuities.

Table 4: Example of eligibility determinations using the Section 8 program methodology

	Participant A	Participant B
Source of income	Two State pensions	Social Security and Wages
Total income	$45,775	$47,359
Income deducted by PRDOH	--	--
Income (used for eligibility by PRDOH)	**$45,775**	**$47,359**
Household size	2	2
Household income limit for 2022	$35,550	$35,550
Eligibility determination	**Ineligible**	**Ineligible**
Without PRDOH's hybrid income deductions, Participants A & B (tables 3 and 4) would be ineligible for the program.		

If PRDOH adopted the Section 8 program methodology, which is used in other HUD programs, it could be a more appropriate methodology to ensure consistent eligibility determinations for the distribution of disaster recovery funds.

Conclusion

Participants in the PRDOH CEWRI program with similar household size and income were treated differently for eligibility purposes solely based on the source of their respective income (i.e., wages, pension, annuity, etc.). This resulted in higher income applicants deemed eligible for the program while low- and moderate-income applicants, whom the program is meant to benefit, could have been determined as ineligible for the program. By treating income sources differently, PRDOH distorted eligibility determinations and did not properly assist the people the program is intended to benefit.

Recommendations

We recommend that the Director of the Office of Disaster Recovery:

3A. Instruct PRDOH to re-evaluate its use of the IRS Form 1040 AGI calculation methodology to assess participants' income compared to the income calculation methodology defined under Section 8 program at 24 CFR § 5.609 and determine whether it ensures consistent eligibility determination for the program.

Management Response

HUD agrees with Recommendation 3A in concept. HUD agrees with the OIG that current CEWRI policies and procedures should be revised to clearly delineate which income definition the grantee is using. Whether PRDOH applies the Form 1040 method or the Section 8 method, HUD agrees with the OIG that PRDOH must have procedures in place to ensure a consistent review of beneficiary income levels. HUD noted that under the CDBG-DR program, Puerto Rico is subject to the state CDBG program regulations established in the Housing and Community Development Act of 1974 and Part 570, along with applicable waivers published in the Federal Register. Therefore, Puerto Rico is not subject to the two income

definitions in 24 Code of Federal Regulations 570.3 for grant programs and may establish its own income definition. Consequently, PRDOH has full authority from the Secretary to establish an income definition.

However, PRDOH's management did not agree with our finding and recommendation. PRDOH stated that our finding did not accurately reflect the flexibility afforded to State grantees. PRDOH further stated its application of the IRS Form 1040 AGI methodology, appropriately adapted to local legal and fiscal conditions, resulted in equitable and consistent eligibility determinations across all program participants.

Management's full comments are included in Appendix B.

OIG Evaluation of Management Response

We acknowledge HUD's comments and appreciate their receptiveness to our recommendations. In addition, we will continue to work with ODR during the audit resolution process to ensure that the recommendation is appropriately addressed.

We respectfully disagree with PRDOH's assertion regarding the finding and comments. As acknowledged by PRDOH and HUD, States may develop their own income definition. PRDOH chose to use the IRS Form 1040 AGI methodology, which does not include any of the Puerto Rico Tax Code deductions. This fact is further validated by PRDOH's own written policies and procedures as those policies and procedures do not mention the Puerto Rico Tax Code deductions or this hybrid methodology. As a result, this unwritten hybrid methodology allowed higher income participants to benefit from this program, which is detailed in the report. In addition, generally, most U.S. citizens living in Puerto Rico do not file their taxes on the IRS Form 1040, which means that PRDOH is using a form that while valid and allowed, almost no one uses in Puerto Rico, further complicating income determinations. Finally, a strict interpretation of the IRS Form 1040 AGI methodology as PRDOH stated in its response, could also mean that almost every U.S. citizen living in Puerto Rico could technically qualify for the program since income earned from Puerto Rico sources is exempt from U.S. income tax, thus lowering their income concerning the program's income definition. Such an approach undermines PRDOH's ability to benefit low- and moderate-income program participants.

We did not revise the report or recommendations. PRDOH should work with CPD ODR during the audit resolution process to address the recommendations.

Scope and Methodology

We conducted our audit work between September 2024, and August 2025 at our office in San Juan, PR. The onsite work consisted of face-to-face interviews with CEWRI participants, as well as on-site property inspections throughout 44 municipalities in Puerto Rico. In addition, our work included reviewing case files which were performed remotely. The audit covered the period of December 1, 2021, through August 26, 2025.

To accomplish our objective, we:

- Reviewed relevant criteria, including public laws and Federal Register notices.
- Reviewed relevant CEWRI policies, guidelines, procedures, and agreements, which included but were not limited to the following:
    - Program Guidelines of the CEWRI Program;
    - Puerto Rico Disaster Recovery Action Plan for the Use of CDBG-DR Funds in Response to 2017 Hurricanes Irma and Maria.
    - Contracts between PRDOH and its installers.
- Interviewed PRDOH officials responsible for the CEWRI program.
- Interviewed HUD officials overseeing the CEWRI program.
- Interviewed CEWRI program participants.
- Reviewed PRDOH's Canopy report containing the universe of cases with an overall status of closed the CEWRI program from December 1, 2021, through May 9, 2024.
- Reviewed the most recent Independent Public Accountant's report for the period ending June 30, 2024.
- Reviewed HUD monitoring reports.
- Reviewed internal PRDOH audit reports.
- Reviewed financial reports from HUD's DRGR system to obtain grant drawdown information for the audit period.

To determine the program's intended benefits, we selected a statistical sample of 66 cases from the population of 2,593 CEWRI cases closed between December 1, 2021, and May 9, 2024, from PRDOH's Canopy system, and performed the following:

- Reviewed files to assess whether all relevant data from PRDOH's Canopy system to support the participant's eligibility.
- Conducted interviews with program participants to assess the level of customer satisfaction with the service provided by the program. We projected the results of these interviews to the universe of cases. These projections are included as appendix D of this report.
- Conducted site visits to corroborate information from PRDOH's Canopy system and participant interviews. Specifically, we verified that the contractors installed the contract stipulated equipment and verified the equipment was installed properly and according to the requirements.

We relied in part on computer-processed data contained in PRDOH's Canopy system to achieve our audit objective. Although we did not perform a detailed assessment of the reliability of the data, we performed a minimal level of testing and found the data to be adequately reliable for our purposes. The tests for reliability included but were not limited to comparing computer-processed data to the supporting documents and interviews with PRDOH.

We conducted the audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objective(s). We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objective(s).

Appendixes

Appendix A – Schedule of Questioned Costs

Table 4. Schedule of Questioned Costs

Recommendation Number	Unsupported 1/
1A	$19,185,244
2A	$31,275,000
Totals	$50,460,244

1/ Unsupported costs are those costs charged to a HUD-financed or HUD-insured program or activity when we cannot determine eligibility at the time of the audit. Unsupported costs require a decision by HUD program officials. This decision, in addition to obtaining supporting documentation, might involve a legal interpretation or clarification of departmental policies and procedures.

Appendix B – Management Response

HUD Management's Response

OFFICE OF COMMUNITY PLANNING AND DEVELOPMENT

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-7000

MEMORANDUM FOR: Kilah S. White, Assistant Inspector General for Audit and Evaluation, Office of Inspector General U.S. Department of Housing and Urban Development, GA

FROM: Gerilee W. Bennett, Acting Director, Office of Disaster Recovery, DGR GERILEE BENNETT Digitally signed by GERILEE BENNETT Date: 2026.02.19 14:04:01 -05'00'

SUBJECT: Department of Housing and Urban Development (HUD) Comments for Office of Inspector General (OIG) Draft Audit Report – PR Community Development Block Grant, Disaster Recovery (CDBG-DR) Community Energy and Water Resilience Installations (CEWRI) Program Inspection

The HUD Community Planning and Development (CPD), Office of Disaster Recovery (ODR) has reviewed the draft audit report of the Puerto Rico Department of Housing (PRDOH) Community Development Block Grant, Disaster Recovery (CDBG-DR) Community Energy and Water Resilience Installations (CEWRI) program inspection and offers the following comments for consideration.

The HUD OIG conducted an audit with the purpose of determining to what extent did the CEWRI Program address the energy and water system vulnerabilities of its low-and-moderate income participants. The OIG draft report outlined deficiencies in PRDOH contract oversight and the contracted installations, contract amendments, and eligibility determinations. The OIG report indicated that overall, CEWRI participants reported that the program had improved their quality of life by providing backup energy for critical loads and water storage systems during a power outage. In addition, the draft report states these results are an indicator that the program has addressed its objective of providing energy resilience to at least 2,299 households. The OIG's survey of participant households indicated almost 89 percent of participants reported that the installed measures provided backup energy for critical loads and water storage systems during recent power outages. That is, the homes had a working refrigerator, basic lighting, and functional life-saving medical devices during power outages.

While the program has provided benefits to many households, HUD found similar oversight and implementation deficiencies in its monitoring and generally agrees with the OIG's findings and recommendations. The discussion below includes the HUD CPD comments on the specific OIG Recommendations.

www.hud.gov

OIG Finding: CEWRI Program's Photovoltaic Systems and Water Storage Systems Installations Had Deficiencies

OIG Recommendation: HUD's Director of the Office of Disaster Recovery instructs PRDOH to:

1A. Instruct PRDOH to remediate all outside installations that are directly exposed to sunlight and the elements or repay HUD $19,185,244 from non-Federal funds.

1B. Instruct PRDOH to enforce its contract terms and conditions, which requires installers to install batteries and inverters outside of direct sunlight and exposure to the elements.

1C. Instruct PRDOH to address and correct all the deficiencies noted for the properties inspected.

HUD Comment:

HUD generally agrees with all three Recommendations. Regarding Recommendation 1A, CPD will request that OIG share documentation with PRDOH and CPD from the samples inspected including cases totaling $19,185,244 to facilitate case identification and follow-up. ODR has no comments for Recommendations 1B and 1C, with the expectation that PRDOH will correct identified deficiencies.

OIG Finding: PRDOH Did Not Provide Adequate Support to Justify the Amendments of the Photovoltaic Systems Installation Contracts

OIG Recommendation: HUD's Director of the ODR instructs PRDOH to:

2A. Require PRDOH to submit supporting documentation so HUD can evaluate the basis of the contract amendments and determine the eligibility of more than $31 million in disaster recovery funds. If HUD determines that the contract amendments were not supported, PRDOH must reimburse HUD from non-Federal funds.

2B. Require PRDOH to implement a review process to better structure its future contracts to ensure that the scope of work is clearly defined so that all parties understand the agreement. This includes, but is not limited to, ensuring that the basic subtasks needed to complete projects are considered and included only as necessary in future contracts.

HUD Comment:

HUD agrees with recommendation 2A in concept. However, HUD would need the OIG to share its documentation and final assessment of the eligibility basis of the cited $31 million in CDBG-DR funds to review eligibility of the use of funds efficiently. Since the OIG reviewed the contract amendments and performed inspections of the properties over a multi-year period, the OIG documentation and detailed findings will be a critical resource for HUD and PRDOH to implement this draft recommendation. HUD agrees with Recommendation 2B.

OIG Finding PRDOH Made Inconsistent Eligibility Determinations

OIG Recommendation: HUD's Director of the ODR instructs PRDOH to:

3A. Instruct PRDOH to re-evaluate its use of the IRS Form 1040 AGI calculation methodology to assess participants' income compared to the income calculation methodology defined under Section 8 program at 24 CFR § 5.609 and determine whether it ensures consistent eligibility determination for the program.

HUD Comment:

HUD agrees with Recommendation 3A in concept. HUD agrees with the OIG that current CEWRI policies and procedures should be revised to clearly delineate which income definition the grantee is using. Whether PRDOH applies the Form 1040 method or the Section 8 method, HUD agrees with the OIG that PRDOH must have procedures in place to ensure a consistent review of beneficiary income levels. Note, under the CDBG-DR program, Puerto Rico is subject to the state CDBG program regulations established in the Housing and Community Development Act of 1974 and Part 570, along with applicable waivers published in the Federal Register. Therefore, Puerto Rico is not subject to the two income definitions in 24 Code of Federal Regulations 570.3 for grant programs and may establish its own income definition. Consequently, PRDOH has full authority from the Secretary to establish an income definition.

Once the final audit is published, the HUD CPD Office of Disaster Recovery would appreciate collaboration from the OIG with PRDOH to provide the source documentation reviewed to facilitate recommendation closure.

Should you have any questions regarding these draft audit report comments, please do not hesitate to contact Maria del Carmen Figueroa, Community Planning and Development Specialist, Caribbean Region, at (202)716-1498 or MariadelCarmen.Figueroa@hud.gov.

Puerto Rico Department of Housing's Response

DEPARTMENT OF HOUSING
GOVERNMENT OF PUERTO RICO

CDBG-DR FUNDS
CDBG-MIT FUNDS

February 23, 2026

Via electronic mail

Danita Wade
Audit Director
U.S. Department of Housing and Urban Development –
Office of Inspector General
dwade@hudoig.gov

Eduardo Ayala
Assistant Audit Director
U.S. Department of Housing and Urban Development –
Office of Inspector General
eayala@hudoig.gov

Re: PRDOH Response to HUD OIG Draft Audit Report – CEWRI Program

Dear Ms. Wade:

On January 29, 2026[1], the U.S. Department of Housing and Urban Development, Office of Inspector General (HUD OIG), issued its Draft Audit Report on the audit conducted over the Puerto Rico Department of Housing's (PRDOH) Community Energy and Water Resilience Installations (CEWRI) Program.

PRDOH hereby submits its response to HUD OIG's preliminary findings, together with the supporting documentation.

FINDING 1: Inverters and Battery Storage Systems Were Not Installed in Accordance with the Installer Agreements and Manufacturers' Specifications

HUD OIG Conclusion: *[O]ur inspections disclosed multiple issues with the installation of the photovoltaic systems and water tanks which diminishes the effectiveness of the program's intent and goals. The*

[1] On September 30, 2025, PRDOH received a Draft Finding Outline from HUD OIG. PRDOH issued its comments on October 22, 2025.

deficiencies ranged from installers improperly installing inverters and batteries exposed to direct sunlight and the elements to leaky water tanks and faulty electrical wiring and connections, among other issues. Further, PRDOH did not enforce its own contract terms with its installers and did not follow the manufacturers' installation guidelines. PRDOH's lack of enforcement could lead to manufacturers voiding equipment warranties, equipment lasting less than the required 10 years, and unnecessary hazards such as batteries catching fire due to their exposure to direct sunlight. As a result of the incorrect installation of the batteries and inverters we determined that PRDOH should look for alternatives to remediate or correct the outside equipment installations that totaled at least $19,185,244. Addressing the issues found during our inspections would benefit the CEWRI program's participants, PRDOH, and the taxpayers.

PRDOH Response: PRDOH respectfully maintains that this finding is not supported by the contractual and technical documentation available, as the identified deficiencies appear to stem from a misinterpretation of the program's requirements and an incomplete understanding of the applicable installation criteria under the CEWRI Program. All photovoltaic system installations were performed in accordance with the executed contracts, manufacturers' specifications, and applicable industry standards. As detailed below, the observed conditions cited by HUD OIG do not constitute contractual or technical noncompliance.

Contract interpretation

With respect to the Scope of Work under the CEWRI Program agreements with installers, Section 4.1 ("Pre-Installation Assessment") of the contract specifies that, regarding equipment location, the installer shall:

- *Determine the best locations for the PV System and all components as per designer and manufacturer's specification.*
- *In the Pre-Installation Assessment report and Scope of Work, the selected Bidder must clearly define the location of the PV System and all components in accordance with applicable codes.*[2]

Additionally, Section 4.5 ("PV System Installation Service"), states the following:

- *Installation of PV System- selected Bidder shall supply, install, and commission the PV System. Installation costs shall be standardized to accommodate installation across various types of single-family homes. System shall only be installed at sites with at least an 75% solar access, systems shall not be installed on roofs with significant shading. If the site does not have at least an 75% solar access, then, the applicant will be ineligible for the PV System installation. Inverters and batteries shall be installed in a shaded location and shall not be exposed to direct sun light.*
- *Install materials following the manufacturer's requirements.*[3]

Sunlight exposure conditions for each home were evaluated by the installers' licensed and certified professionals performing the site assessments and practical design. Accordingly, both the design and the installations accounted for sunlight exposure while also considering the equipment's rated capabilities to withstand such exposure in accordance with manufacturers' specifications. It bears emphasizing that installation of indoor/outdoor-rated equipment in areas where some level of sunlight exposure is expected does not, by itself, reduce the equipment's useful life or

[2] See **Exhibit 1** - Installer Agreement 2023-DR0053, Scope of Work, p. 7.
[3] See **Exhibit 1** - Installer Agreement 2023-DR0053, Scope of Work, p. 8.

void its warranty, as equipment rated for outdoor use is specifically designed to operate under such conditions.

Furthermore, the installer agreement contains no requirement to avoid "exposure to the elements". Arguably, such a requirement would constitute an unreasonably broad and impractical condition that disregards both the manufacturers' specifications and the equipment's certified capability for exterior installation.

Technical considerations

The recommendation included in the installation agreements to install batteries in shaded locations or areas not exposed to direct sunlight does not imply that the equipment cannot be placed outdoors or subjected to any sunlight at all. Rather, the guidance is intended to minimize prolonged exposure to direct solar radiation, which can elevate surface temperatures beyond optimal operating levels and potentially affect long-term performance and lifespan.

When evaluating the suitability of an outdoor installation, several environmental and architectural parameters are considered to ensure compliance with technical specifications and manufacturer guidelines:

1. Orientation and Solar Path: The direction the building faces (north, south, east, west) significantly influences the intensity and duration of sunlight exposure. For example, southern exposures in the northern hemisphere typically receive the most sunlight throughout the day, while northern exposures are more shaded.
2. Surrounding Structures and Vegetation: Nearby buildings, walls, fences, trees, and other landscape features can provide natural shading during peak sunlight hours. These elements are factored into the site assessment to determine whether the equipment will be shielded from direct sunlight for significant portions of the day.

3. Building Geometry and Overhangs: Architectural features such as eaves, awnings, balconies, and recessed walls can offer passive shading. These design elements are leveraged to reduce thermal stress on the equipment without compromising accessibility or ventilation.
4. Material and Enclosure Specifications: The battery and associated components are designed and certified to operate within specific temperature and environmental ranges. Outdoor-rated enclosures (e.g., NEMA 3R or IP65) provide protection against UV radiation, moisture, and dust, ensuring safe and reliable operation even in exposed environments.
5. Thermal Management and Ventilation: Proper airflow around the equipment is essential to dissipate heat. Outdoor installations are planned to avoid confined or heat-trapping spaces, and to allow for natural convection or, where necessary, active cooling solutions.
6. Compliance with Manufacturer Guidelines: All installation decisions are made in strict adherence to the manufacturer's technical documentation, which outlines acceptable environmental conditions, mounting configurations, and clearances. These guidelines are designed to ensure optimal performance, safety, and warranty compliance.

While continuous exposure to direct sunlight is not preferred, outdoor installation is not only permissible but often favored when the above factors are considered. All installation locations identified by the CEWRI Program have been evaluated with these parameters in mind, ensuring that the equipment will operate within its certified environmental limits and in accordance with all applicable standards.

Case sample observations

After analyzing the concerns raised by HUD OIG for the 66 cases in the inspection sample, PRDOH observed the following:[4]

- Group A: 7 cases had no issues related to photovoltaic system components.
- Group B: 12 cases had actual issues, which were addressed through warranty claims.
- Group C: We have identified a group of 46 cases that do not present any technical or compliance issues. However, HUD OIG flagged these cases solely based on the fact that the systems are installed outdoors. **It is important to note that these installations conform to manufacturer specifications, which explicitly rate the systems as suitable for exterior placement.**
- Group D: 1 case was identified by HUD OIG in which the equipment was installed inside the living room. However, this does not constitute a deficiency, as the installation complies with the manufacturer's specifications, which expressly allow for indoor placement.

During the audit, some of these sample cases were referred by HUD OIG to PRDOH due to "safety concerns." As a matter of fact, these cases were promptly addressed and resolved. Please refer to the responses provided by PRDOH on December 10, 2024, January 8, 2025, and April 4, 2025. As an example, *Figure 1* shows the resolution of a case identified by HUD OIG and handled through the warranty. This case was included in the Draft Audit Report (page 5).

[4] Refer to **Exhibit 2** - Case Sample Observations, for the classification of each specific case.

Figure 1 - Case PR-CEWRI-00242

Because the equipment was installed outdoors in strict accordance with manufacturers' specifications and because the systems are expressly rated for exterior placement, any resulting failure or damage is the responsibility of the manufacturer and subject to warranty coverage. This position is supported by written confirmations from manufacturers verifying warranty coverage for outdoor installations. [5-6] For all CEWRI cases, PRDOH emphasizes that the warranty provisions established under each of the installer's contract remain available for participants to exercise. If warranty periods have not expired, participants have the opportunity to submit claims to the installer for any covered system defect or malfunction. In addition, participants have the

[5] Refer to **Exhibit 3**- Fortress Outdoor Installation Compliance.
[6] Refer to **Exhibit 4**- Tesla Outdoor Installation Compliance.

responsibility to carry on with the operation and maintenance practices established by the manufacturers. After each completed installation, participants are provided with a set of user and/or operation manuals that detail the means of properly operating and maintaining each photovoltaic system component, including the conditions applicable to the maintenance of exterior-rated, exterior-installed equipment. PRDOH recognizes the respective responsibilities of all parties involved in the Program's installation activities and will enforce the proper corrective actions for any cases identified, ensuring full alignment with applicable regulatory and contractual requirements.

PRDOH respectfully submits that the assertion that its actions could lead to voided warranties, shortened equipment lifespan, or malfunction resulting from improper installations is unsubstantiated. PRDOH, in coordination with qualified personnel, has demonstrated rigorous adherence to manufacturer's installation protocols and strict compliance with industry standards in the deployment of its systems. Although the possibility of other deficiencies cannot be entirely ruled out, including those resulting from improper user maintenance, identified installation issues have been swiftly addressed, demonstrating PRDOH's commitment to accountability and system integrity.

Contractor oversight

As the grantee, PRDOH has implemented oversight initiatives for its programs and contractors to ensure accountability and that the services and assistance provided to the population exceed established quality standards. In continuous coordination with the U.S. Department of Housing and Urban Development (HUD), PRDOH has strengthened these oversight efforts over time.

Specifically, as part of the workflow of the CEWRI Program, PRDOH has been conducting site visits since October 2023 using a

sampling methodology to verify that installations comply with industry standards. These inspections will continue through the conclusion of the program.

On a weekly basis, the Program Manager coordinates with PRDOH to establish the inspection schedule for the following week. From the proposed list of installations, PRDOH selects a sample and designs an inspection route to verify completed work. Following each site visit, PRDOH Associates prepare a report, known as the PRDOH Site Visit Report. These reports are completed immediately after each inspection and are housed in PRDOH's System of Record (Canopy).

The CEWRI Installation and Inspection Process Standard Operating Procedure (SOP) was amended on October 8, 2024 to incorporate HUD recommendations and formally document these processes. Furthermore, the SOP was updated on August 5, 2025, to provide additional details in Section 13 (Inspection Results) and Section 14 (PRDOH Sample Field Monitoring Inspection Visit).[7]

Currently, PRDOH has assigned personnel to validate installations as established in the designed inspection route. These inspections are divided between the CDBG-MIT Community Energy and Water Resilience Installations – Household (CEWRI-HH) Program and the CDBG-DR CEWRI Program. PRDOH Associates oversee the process, which includes visual inspections and load testing to confirm systems are operating. When deficiencies are identified, corrective actions are formally requested.

In addition, to further strengthen oversight, PRDOH has implemented a complementary initiative through its Legal Division. The Legal Division's Vendor Management Standard

[7] Refer to **Exhibit 5** - CEWRI Installation and Inspection Process SOP.

Operating Procedures[8] established a standardized framework for managing vendor relationships across PRDOH's CDBG-DR and CDBG-MIT Programs. The primary objective of this framework is to ensure consistency, transparency, and accountability in vendor oversight and compliance throughout the entire contractual lifecycle. The Vendor Management SOP defines the roles and responsibilities of the Vendor Management Unit and other PRDOH divisions and establishes clear procedures for vendor profiling, monitoring, documentation, and corrective actions to ensure compliance with all applicable federal, state, and program requirements.

Training related to this new unit has been provided to PRDOH programmatic and operational staff. However, this training phase is ongoing and is not limited to a single session.

FINDING 2: PRDOH Did Not Provide Adequate Support to Justify the Amendments of the Photovoltaic Systems Installations Contracts

HUD OIG Conclusion: *PRDOH did not provide adequate support to justify contract amendments between it and the photovoltaic system installers, totaling $31 million in additional unsupported costs. However, PRDOH could provide limited documentation to support its claim that there was a remediation need justifying the additional allowance costs and contract amendments. As a result, PRDOH's lack of a clear scope of work and its subsequent contract led to costly contract amendments that limited the use of disaster recovery funds for other possible participants or disaster recovery programs.*

[8] Refer to **Exhibit 6** - Vendor Management SOP

PRDOH Response: PRDOH respectfully submits that the Draft Finding 2 does not accurately reflect the contractual framework and factual circumstances underlying the CEWRI Program's contract amendments. The amendments in question were executed in accordance with federal regulations and sound construction management principles, following the identification of unforeseen site conditions that could not have been reasonably anticipated at the time of bidding. These adjustments ensured that installations remained safe, code-compliant, and consistent with program objectives, while safeguarding the prudent and efficient use of federal funds. As explained below, PRDOH's actions were both legally justified and operationally necessary to achieve the CEWRI Program's intended outcomes.

Contract interpretation

The interpretation of government contracts rests on established legal principles intended to ascertain the mutual intent of the parties at the time of execution.[9] The analysis begins with the contract's text, which constitutes the primary source of understanding between the parties. Contracts must be interpreted in accordance with the plain meaning doctrine, giving precedence to the ordinary and industry-recognized definitions of terms. Therefore, "terms must be given their plain meaning if the language of the contract is clear and unambiguous".[10] This ensures that the original intent of the parties is preserved and enforceable.

Long-standing contract interpretation methodologies used by federal and local courts require reading the contract as a unified whole, avoiding isolated interpretations, and harmonizing all clauses to reflect a coherent and consistent intent. This ensures

[9] Shell Oil Co. v. United States, 751 F.3d 1282, at 1304; Kogan v. United States, 112 Fed. Cl. 253, at 264.
[10] SUFI Network Services Inc. v. United States, 785 F.3d 585, at 593 (Fed. Cir. 2015).

that interpretations are grounded in practical reality rather than theoretical possibilities.

Furthermore, procurement standards and contract provisions under 2 C.F.R. §§ 200.318 – 200.327 require that contracts be based on clear and accurate descriptions of technical requirements, with defined scopes and conditions to ensure cost reasonableness.

With respect to the installation projects executed under the CEWRI Program, the contractual relationship between the owner and the contractor must rest on conditions clearly defined in the agreement, including a specific scope of work, schedule, and cost parameters, without imposing unreasonable requirements.[11] This relationship assumes that the contractor will perform the work as agreed, provided that the conditions present at the time of contract execution remain unchanged. This ensures fair competition by requiring that all technical requirements be accurately and sufficiently described from the outset, allowing contractors to prepare reasonable and competitive bids. However, when unforeseen circumstances arise during project execution, contract modifications or equitable adjustments constitute the appropriate remedies.

The original Invitation for Bids (IFB) —CDBG-DRIFB-2021-01— and executed contracts under the CEWRI Program were developed with a standardized SOW and cost structure, based on industry norms and available information at the time. The IFB and contract documents required bidders to price their work based on typical and reasonably expected conditions, recognizing that they could not anticipate every potential site-specific condition or code compliance issue that might arise during installation.

PRDOH's decision to execute the contract amendments referenced in HUD OIG's Draft Finding 2 reflects compliance with established federal procurement standards, as well as adherence

[11] 2 C.F.R. § 200.319(c)(1).

to sound contracting principles within the construction industry. At the time of the IFB, PRDOH defined the SOW and performance conditions for the CEWRI installations with sufficient clarity to obtain adequate quotations. However, the SOW was not intended to be "all-inclusive".

All-inclusive or broadly defined contracts for construction and repair projects are not only inconvenient, but also unreasonable and inconsistent with federal procurement standards, as they create uncertainty that prevents contractors from accurately estimating time and cost. Such uncertainty often results in inflated bids intended to account for unknown risks; an outcome contrary to the reasonableness requirement established by 2 C.F.R. § 200.404. This federal regulation states that:

> A cost is reasonable if, in its nature and amount, it does not exceed that which would be incurred by a prudent person under the circumstances prevailing at the time the decision was made to incur the cost.

Unforeseen circumstances, such as differing site conditions, design changes, or third-party delays, constitute new factors outside the original scope and are considered beyond the contractor's control. These events warrant equitable adjustments to the contract price, performance period, or both, through formal change orders, consistent with 2 C.F.R. § 200.403 (allocability and allowability). This regulation provides that, to be allowable under Federal awards, costs must "be necessary and reasonable for the performance of the Federal award and be allocable thereto under these principles". Such adjustments ensure compliance while maintaining fairness, accountability, and fiscal responsibility in federally funded projects.

All CDBG-assisted construction projects must adhere to these Uniform Guidance standards, ensuring that contracts are both

cost-reasonable and reflective of actual project conditions.[12] Therefore, it was both legally supported and fiscally prudent to define the CEWRI installations' SOW with precision while allowing for contractual adjustments when unforeseen site conditions or other uncontrollable factors threatened performance.

PRDOH's assumptions at the time of the IFB

When PRDOH requested cost proposals from bidders, it operated under several assumptions that led it to exclude specific circumstances beyond what could be reasonably expected in a standard photovoltaic (PV) system installation. Among others, PRDOH assumed that (1) existing homes were constructed in accordance with applicable building codes and regulations, and (2) homes with electrical connections complied with applicable electrical codes and regulations. The latter assumption was particularly reasonable, as homes connected to the public utility are required by law to be certified by an authorized professional.

Scope of Work under the IFB

The objective of the CEWRI Program was to install PV systems with battery backup for critical loads in homes previously assisted under the Home Repair, Reconstruction, or Relocation (R3) Program, which had begun implementation earlier. Due to the mismatch between the programs' implementation periods, atypical conditions or issues affecting PV installations could not have been identified or addressed by the R3 Construction Managers, as the R3 Program SOW focused exclusively on damages caused by Hurricanes Irma and María.

Furthermore, the SOW under the CDBG-DRIFB-2021-01 Invitation for Bids was not intended to encompass every possible unforeseen condition. Accordingly, the bids did not include costs or contingencies for such conditions.

[12] See also 24 C.F.R. § 570.200(a)(5).

It is also critically important to address the meaning of Section 3.1 ("Pre-Installation Assessment"), under the CDBG-DRIFB-2021-01 SOW. This section provides that: "The Bidder shall be responsible for the Pre-Installation Assessment of each project site where installation will be performed".[13] However, the Pre-Installation Assessment process was intended to be conducted after contract execution, but before installation. It was during this process, once the contracts had been awarded, that a high incidence of unforeseen conditions emerged which could not have been reasonably identified or quantified at the time of bidding or contract award.

It bears restating that the cost of equipment and installation proposed by the bidders was determined prior to the Pre-Installation Assessment. Therefore, the unforeseen conditions were not discoverable until the provider completed the assessment.

HUD OIG's Draft Report argues that, since the original contract terms indicated that "installers were responsible for verifying the houses' existing conditions before the installations began",[14] the disputed contract amendments for unforeseen circumstances were therefore unwarranted. PRDOH respectfully submits that it is unreasonable to interpret these sections as implying that installers were expected to assume the costs of additional subtasks or that expenses associated with atypical site conditions were already contemplated in the original contracts.

On the contrary, Section 10.1 merely describes one of several tasks that the selected bidder must perform under the SOW. The reference to the "selected bidder" clearly implies that this task is to be carried out after the contract has been awarded. When

[13] See **Exhibit 7** - IFB SOW. The principal activities included in the assessment were: (1) evaluating the property's roof capacity; (2) conducting a shading analysis; (3) assessing the home's interior and exterior elements and determining their condition; (4) performing a structural analysis; and (5) determining the equipment location.
[14] HUD OIG Draft Audit Report, p. 11.

reasonably interpreted, this section simply establishes the contractor's obligation to assess and familiarize itself with the site conditions before initiating installation —not before submitting its cost proposal. Failure to do so would have precluded the contractor from requesting a change order after completing the installation design for each specific location. Moreover, given the number of homes to be assisted, it would have been impracticable and unreasonable to require each bidder to visit all individual homes to assess site conditions prior to submitting their proposals.

Additionally, Section 3.2 ("Design Service") of the SOW provides that: "Design should be standard, with minimal deviation to allow for consistency in cost across various single-family homes". However, anticipating the range of site conditions that could be encountered across the extensive R3 Program housing inventory, Section 3.5 ("PV System Installation Service") expressly instructs contractors not to install any materials that are incompatible with existing conditions. One such incompatibility could arise from the insufficient load-bearing capacity of the structures where the systems would be installed. Technical specifications for PV systems should not be confused with the property's capacity to support the PV System. Therefore, PV system installers should not be penalized for the property's deficiencies that exceed their contractual responsibilities.

The initial contract was a unit price contract containing explicit provisions for written amendments to address additional services or costs not included in the original scope.[15] Accordingly, costs arising from unforeseen conditions required formal written amendments to ensure installations could proceed in homes needing additional work, thereby fulfilling the program's objectives. It would be unreasonable to expect that every possible

[15] See **Exhibit 1** – Installer Agreement 2023-DR0053, Section VI. Additional Services, p. 5.

unforeseen condition could have been anticipated and incorporated into the original SOW or pricing.

As the entity responsible for the proper administration of program funds, PRDOH determined that the most appropriate solution to address the unforeseen site conditions preventing some homes from qualifying for PV system installation was to establish a specific allowance for that purpose. This approach enabled the correction of unexpected conditions without compromising program continuity. PRDOH amended the contracts to include this allowance for specific, well-defined subtasks that were essential to ensure code compliance and safe installation but were not included in the original scope or pricing. In accordance with federal regulations, the amendments were supported by a detailed Independent Cost Estimate (ICE) for each subtask, using unit pricing and market data.

A high incidence of unforeseen conditions would have rendered many homes ineligible for PV system installation, as the work could not have been safely performed. This would have left vulnerable families without the promised backup energy and water resilience, directly undermining the program's purpose of protecting critical loads (such as medical devices and refrigeration) during emergencies. The contract amendments were not only justified but essential to the success and integrity of the CEWRI Program. Without them, the program would have been unable to fulfill its mission, leaving disaster-affected households without the resilience measures they were promised and failing to achieve the objectives for which federal disaster recovery funds were allocated. PRDOH's actions ensured that the program could adapt to real-world conditions, deliver meaningful benefits to households in need, and uphold the highest standards of safety, compliance, and fiscal responsibility.

Additional comments on Finding 2

As a final note, PRDOH draws attention to the following premise set forth by HUD OIG on page 13 of its Audit Report:

> PRDOH provided 250 completed PIAs as support for the amendments, of which 16 PIAs were dated before the date of the memorandum, with the remaining 234 PIAs (93.6 percent) being completed after the date of the memorandum. [...]

Following HUD OIG's request from July 2025,[16] PRDOH provided access to a repository containing documents for 1,124 CEWRI cases for which a Pre-Installation Assessment (PIA) had been requested during 2022. [17] Of these, 273 cases had their PIAs completed within that year. In some instances, PIAs were requested but completed at a later date, as repair cases awaited guidance regarding for the resolution of existing electrical code compliance issues.

After reviewing the activity log for the shared folder "**HUD OIG Audit CEWRI DR 7-28-2025**," the following was observed with regard to usage:

- Out of the 1,124 shared cases, a total of 134 case folders were accessed by HUD OIG personnel.
- Among these 134 cases, 13 had a PIA completed in 2022. Of those, 10 cases involved electric code compliance issues documented in the PIA, which were later categorized as "Subtasks."

Of the 273 cases with PIAs completed in 2022, installers identified several electrical code compliance issues in 223 cases. These issues were subsequently defined as "Subtasks" in contract amendments by PRDOH. It is important to note that the language

[16] In response to a request for information, PRDOH sent HUD OIG, via email on July 29, 2025, a link providing access to PIA reports.
[17] See **Exhibit 8** - ShareFolder Activity Log.

used to identify these issues in the PIA varies, often including technical abbreviations and acronyms, such as: NEC, EGC, GND, ECC, among others.[18]

As the issues were being uncovered by the Program in its origin, they were not always explicitly labeled by installers in the PIAs. However, of the remaining 50 cases where installers did not flag an issue, 47 of those cases were temporarily placed on hold during that year, as a result of the inspector identifying electrical code compliance issues. These cases were subsequently addressed and resolved based on the defined subtasks, allowing them to be removed from their hold status. Taken together, the findings by both installers and inspectors show that 99% of PIAs completed in 2022 involved electrical code compliance issues.

After the Program identified and defined the subtasks, installers were instructed to use this terminology consistently when evaluating and documenting the issues. Following contract amendments, the subtasks section was integrated into the PIA template and incorporated within the Grant Management System.

Lastly, it is important to emphasize that some cases may have multiple PIAs, and that the initial assessment may not always reference existing code compliance issues. In such situations, clarification was requested from the installer during the PIA review process, resulting in the inclusion and proper documentation of these issues in subsequent PIAs.

FINDING 3: PRDOH Made Inconsistent Eligibility Determinations

[18] Abbreviations and acronyms include NEC = National Electrical Code, EGC = Electrical Grounding Conductor, GND = Grounding, and ECC = Earth Continuity Conductor.

HUD OIG Conclusion: *Participants in the PRDOH CEWRI program with similar household size and income were treated differently for eligibility purposes solely based on the source of their respective income (i.e., wages, pension, annuity, etc.). This resulted in higher income applicants deemed eligible for the program while low- and moderate-income applicants, whom the program is meant to benefit, could have been determined as ineligible for the program. By treating income sources differently, PRDOH distorted eligibility determinations and did not properly assist the people the program is intended to benefit.*

PRDOH Response: PRDOH respectfully submits that the preliminary Finding 3 does not accurately reflect the flexibility afforded to State grantees under the CDBG regulations or the rationale behind PRDOH's income determination methodology. The approach adopted for the CEWRI Program was developed in full compliance with 24 C.F.R. § 570.3 and consistent with HUD's interpretive guidance, ensuring both regulatory adherence and contextual accuracy within Puerto Rico's distinct tax framework. As detailed below, PRDOH's application of the IRS Form 1040 Adjusted Gross Income methodology —appropriately adapted to local legal and fiscal conditions— results in equitable and consistent eligibility determinations across all program participants.

Pursuant to 24 C.F.R. § 570.3, for purposes of determining whether a family or household qualifies as low- and moderate-income, grantees may select any of the three income definitions set forth therein. The available alternatives are: (1) annual income as defined under the Section 8 Housing Assistance Payments Program; (2) annual income as reported in the most recent decennial Census long form; and (3) adjusted gross income as defined for purposes of reporting on Internal Revenue Service Form 1040.

These income definition alternatives are set forth in the CDBG Entitlement Program section under 24 C.F.R. Part 570. Because the

CDBG State Program regulations at 24 C.F.R. Part 570, Subpart I, do not address this matter, State grantees —including those administering CDBG-DR funds— are authorized to select any of the three definitions listed in 24 C.F.R. § 570.3, or may even develop their own definition of income. This discretion afforded to State grantees has been reaffirmed and clarified through various HUD official guidance, including the Office of Community Planning and Development (CPD) Notice issued on February 24, 2021 (CPD-21-03).

According to CPD Notice 21-03, State grantees are not bound by a single definition of income under federal regulations. Rather, they may develop their own definition or adopt one of the CDBG Entitlement definitions at 24 C.F.R. § 570.3. Specifically, CPD-21-03 provides that:

> The State CDBG program regulations do not contain a definition of "income." **States are free to develop their own definition of "income"** and can follow the CDBG Entitlement regulations (24 CFR 570.3) and this Notice for interpretive guidance.[19]

PRDOH has elected to use the third option under 24 C.F.R. § 570.3, namely, the IRS Form 1040 Adjusted Gross Income (AGI) methodology, for determining household income in its CEWRI Program.[20] This approach is consistent with federal options and is specifically tailored to Puerto Rico's unique tax and regulatory environment. This methodology, as recalibrated by PRDOH, accounts for local tax exclusions and realities that are not reflected in the standard Internal Revenue System (IRS) instructions. For example, Puerto Rico residents generally do not file federal income tax returns due to the exclusion of Puerto Rico-sourced income under the Internal Revenue Code,[21] although

[19] See **Exhibit 9** – CPD-21-03, p. 3 (emphasis added).
[20] See **Exhibit 10** - CEWRI Program Guidelines, p. 17.
[21] 26 U.S.C. § 933 (2025).

exceptions exist for income sourced outside Puerto Rico and for certain federal employees.

AGI under Form 1040 includes taxable portions of pension income, with considerations based on the type of plan, whether it involves qualified or non-qualified annuities, and the contributions made. Under the Puerto Rico Tax Code, exclusions from AGI include amounts received from pensions or annuities granted, or to be granted, by retirement systems or funds subsidized by the Government of Puerto Rico, the Government of the United States, or their instrumentalities or political subdivisions, as well as certain qualified pension, retirement, or annuity plans granted by private sector employers, up to fifteen thousand dollars ($15,000) annually for persons over the age of sixty (60), and an exemption up to eleven thousand dollars ($11,000) in all other cases.[22] Values in excess of these thresholds represent taxable portions under the Puerto Rico Tax Code. Recognizing Puerto Rico's unique tax and regulatory environment, which may even entitle the application of tailored federal exclusions, the analogous application of local provisions may be necessary to respect legal distinctions in the tax framework and adequately convey the financial capacity of participant households.

Addressing consistency of income determinations

The assertion that PRDOH's methodology for calculating household income under the CEWRI Program has led to inconsistent eligibility determinations among participants with similar income amounts is not accurate. PRDOH applies the same income determination methodology, based on the IRS Form 1040 AGI approach, as tailored for Puerto Rico's unique tax context, to all program applicants.

All eligibility determinations are made consistently and equitably. Applicants with similar financial circumstances receive similar

[22] Puerto Rico Internal Revenue Code of 2011, Section 1031.02 (a)(13), 13 LPRA § 30102.

outcomes, as the methodology is applied uniformly across the board. PRDOH's process ensures that every participant is evaluated according to the same standards and criteria, thereby upholding fairness and program integrity. PRDOH remains committed to maintaining consistency and equity in all eligibility determinations.

PRDOH's adoption of the IRS Form 1040 AGI methodology, modified to align with Puerto Rico's Tax Code, ensures a more accurate and equitable determination of income for program participants. Strict adherence to the literal IRS instructions would not accurately capture the financial circumstances of Puerto Rico residents and could result in inconsistent or inaccurate eligibility determinations, as certain Puerto Rico-sourced income would otherwise be excluded. PRDOH's approach is designed to respect both federal guidance and local legal distinctions, thereby supporting the program's core objective of assisting low- and moderate-income households in Puerto Rico.

In summary, PRDOH is operating within its authority as a State grantee to define income in a manner that best serves Puerto Rico residents —as permitted under CDBG regulations and HUD's interpretive guidance— and safeguards the use of federal funds. The methodology employed is both federally compliant and locally appropriate.

Finally, as part of the Draft Audit Report, HUD OIG presented a comparison between participants and their respective income calculations (see Table 3, page 15). However, that example lacks important details necessary to reach the conclusion of an alleged inconsistency in the eligibility determinations. It is important to note that Participant B appears to have additional income beyond Social Security that would in no way be deductible and would have to be counted as part of the income review.

The lack of specific details regarding this case prevents PRDOH from issuing further comments on the adequacy of the income calculation and eligibility determination.

We appreciate the opportunity afforded to respond to HUD OIG's preliminary findings. We are confident that the reasonable concerns raised in the Draft Audit Report stem from miscommunication or insufficient information regarding the design and implementation of the CEWRI Program. Accordingly, we trust the clarifications provided herein will effectively address all identified issues. Should there be any questions concerning this communication, please do not hesitate to contact us.

Sincerely,

Carlos R. Olmedo Álvarez
Disaster Recovery Associate Deputy Chief
Disaster Recovery Office
Puerto Rico Department of Housing

Exhibits

Draft Finding 1
▪ Exhibit 1 - Installer Agreement 2023-DR0053 ▪ Exhibit 2 - Case Sample Observations ▪ Exhibit 3 - Fortress Outdoor Installation Compliance ▪ Exhibit 4 - Tesla Outdoor Installation Compliance ▪ Exhibit 5 - CEWRI Installation and Inspection Process SOP ▪ Exhibit 6 - Vendor Management SOP
Draft Finding 2
▪ Exhibit 1 - Installer Agreement 2023-DR0053 ▪ Exhibit 7 - IFB SOW ▪ Exhibit 8- ShareFolder Activity Log
Draft Finding 3
▪ Exhibit 9 - CPD-21-03 ▪ Exhibit 10 - CEWRI Program Guidelines (V.5)

Appendix C – CEWRI Participants' Interview Questions and Responses

Question	Yes	%	No	%	N/A	%
Was this your primary residence at the time of Hurricanes Irma and Maria?	65	98%	1	2%	-	-
Did the program manager explain to you how you were selected to receive the solar panel system (PVs) and/or water tank?	45	68%	21	32%	-	-
Are you aware of the restrictive conditions of this assistance?	61	92%	5	8%	-	-
Were you aware of this program (solar panel systems and water tanks) before the program manager contacted you?	25	38%	41	62%	-	-
Were you planning on purchasing or renting a solar panel system before your current system was installed?	7	10%	58	88%	1	2%
Were you planning on purchasing a water tank before your current system was installed?	14	21%	35	53%	17	26%
Has your quality of life improved because of this program?	65	98%	1	2%	-	-
Are you satisfied with the program?	59	89%	7	11%	-	-
Were you advised on the use of the solar system and the water tank?	51	77%	15	23%	-	-
Did you have any problems during installation?	7	11%	59	89%	-	-
Did you have any problems after the installation?	47	71%	19	29%	-	-
Do you know how to use your solar panel system?	38	58%	26	39%	2	3%
Do you know how to use your water tank?	33	50%	12	18%	21	32%
Has the solar panel system worked properly during power outages?	60	91%	4	6%	2	3%
Has the water tank worked properly when there was no water service?	39	59%	5	8%	22	33%
If an emergency arises with your equipment, for example a fire, do you know what to do?	45	68%	20	30%	1	2%
Do you know who to contact if you have problems with your systems (solar panel system and/or water tank)?	62	94%	4	6%	-	-
Do you know about the maintenance requirements for solar panels and/or water tank?	36	55%	30	45%	-	-
Has a program official visited your home to check on your equipment after installation?	45	68%	21	32%	-	-
Have you filed any warranty claims?	27	41%	39	59%	-	-

Appendix D – Statistical Projection – Results and Methodology

Audit Universe

The audit universe consisted of 2,593 closed CEWRI cases for the period December 1, 2021, through May 9, 2024.

Sampling Methodology

We employed a stratified random sample of 66 CEWRI installation records for reviewing the audit universe of 2,593 records. We designed the strata to group sampling units by the installation team. The number of records in each stratum varied, and the allocation of the total sample size among the strata was proportional to the size of each stratum.

Methodology for Projections

Findings: Based on a stratified systematic sample designed to minimize error, we can say the following statements:

Improper Outside Installations

Based on the statistical sample of 66, we found 28 installations were improperly installed outside. This amounts to a weighted average of 42.59 percent of CEWRI installations that were improperly installed outside. After deducting for a statistical margin of error, we can say, with a one-sided confidence interval of 95 percent, that 32.97 percent of the CEWRI installations were improper. Extending this to the universe of 2,593 CEWRI installations yields at least 854 CEWRI installations that were improper, and it could be more.

Percentage Calculation: $42.59\% - (1.668 \times 5.75) \approx 32.97\%$ LCL

Total Installation Projection: $2{,}593 \times (42.59\% - (1.668 \times 5.75)) \approx 854.92$ LCL

Improper Outside Installations

Based on the statistical sample of 66, we found 28 installations were improperly installed outside. This equates to CEWRI paying a weighted average of $9,653.71 per unit for improper installations. After deducting for a statistical margin of error, we can say, with a one-sided confidence interval of 95 percent, that the weighted average amount per unit the CEWRI paid for improper installations is $7,398.86. Extending this to amount to the universe of 2,593 CEWRI installations yields at least $19.18 million in improper installation costs, and it could be more.

Per Installation Calculation: $\$9{,}653.71 - (1.668 \times \$1{,}348.57) \approx \$7{,}398.86$ LCL

Universe Projection: $2{,}593 \times (\$9{,}653.71 - (1.668 \times \$1{,}348.57)) \approx \$19{,}185{,}243.54$ LCL

At Least One Installation Deficiency

Based on the statistical sample of 66, we found 44 installations had at least one deficiency. This amounts to a weighted average of 66.89 percent of all CEWRI installations had at least one deficiency. After deducting for a statistical margin of error, we can say, with a one-sided confidence interval of 95 percent, that 57.43 percent of the CEWRI installations had at least one deficiency. Extending this to the universe of 2,593 CEWRI installations yields at least 1,489 CEWRI installations with at least one deficiency, and it could be more.

Percentage Calculation: $66.89\% - (1.668 \times 5.66) \approx 57.43\%$ LCL

Total Installation Projection: 2,593 × (66.89% – (1.668 × 5.66)) ≈ 1,489.16 LCL

Quality of life improved

Based on the statistical sample of 66, we found that for question seven 65 responded 'Yes'. This amounts to a weighted average of 98.50 percent that responded 'Yes'. After deducting for a statistical margin of error, we can say, with a one-sided confidence interval of 95 percent, that 96.03 percent responded 'Yes'. Extending this to the universe of 2,593 CEWRI installations yields at least 2,490 that responded 'Yes', and it could be more.

Percentage Calculation: 98.5% – (1.668 × 1.48) ≈ 96.03% LCL

Total Installation Projection: 2,593 × (98.5% – (1.668 × 1.48)) ≈ 2,490.01 LCL

Satisfied with the program

Based on the statistical sample of 66, we found that for question eight 59 responded 'Yes'. This amounts to a weighted average of 89.25 percent that responded 'Yes'. After deducting for a statistical margin of error, we can say, with a one-sided confidence interval of 95 percent, that 82.86 percent responded 'Yes'. Extending this to the universe of 2,593 CEWRI installations yields at least 2,148 that responded 'Yes', and it could be more.

Percentage Calculation: 89.25% – (1.668 × 3.82) ≈ 82.86% LCL

Total Installation Projection: 2,593 × (89.25% – (1.668 × 3.82)) ≈ 2,148.55 LCL

PV system worked during a power outage

Based on the statistical sample of 66, we found that for question fourteen 62 responded 'Yes' or 'N/A'. This amounts to a weighted average of 93.51 percent that responded 'Yes' or 'N/A'. After deducting for a statistical margin of error, we can say, with a one-sided confidence interval of 95 percent, that 88.69 percent responded 'Yes' or 'N/A'. Extending this to the universe of 2,593 CEWRI installations yields at least 2,299 that responded 'Yes', and it could be more.

Percentage Calculation: 93.51% – (1.668 × 2.88) ≈ 88.69% LCL

Total Installation Projection: 2,593 × (93.51% – (1.668 × 2.88)) ≈ 2,299.79 LCL

Appendix E – Summary of Inspection Results

Sample #	Solar Panel Modules	Inverters	Electrical Wiring and Connections	Battery Storage System	Roof Condition	Safety Systems	Performance Testing	Water Tanks	Total Deficiencies
1	0	1	0	1	0	0	0	0	2
2	0	1	0	1	0	0	0	0	2
4	0	1	0	1	0	0	0	0	2
6	0	0	0	0	0	0	1	0	1
7	0	1	1	1	0	0	0	0	3
8	0	0	0	0	0	0	1	1	2
10	0	0	1	0	0	0	1	0	2
13	0	1	0	0	0	0	0	0	1
14	0	1	0	1	0	0	0	0	2
15	0	1	1	1	0	0	0	0	3
18	0	0	0	0	0	0	1	0	1
20	0	0	0	0	1	0	0	0	1
21	0	1	0	1	0	0	0	0	2
22	0	1	0	1	0	1	0	0	3
23	1	0	0	1	0	0	1	0	3
24	1	0	1	1	1	0	1	0	5
25	0	1	1	1	0	0	0	0	3
26	0	1	0	1	0	0	1	0	3
27	0	0	0	0	0	1	0	0	1
29	0	1	0	0	0	0	0	0	1
30	0	0	0	0	0	0	0	1	1
31	0	0	0	0	0	0	0	1	1
35	0	0	1	1	0	0	1	1	4
36	0	1	1	0	0	0	1	0	3
40	0	1	1	1	0	0	0	0	3
41	0	1	1	1	0	0	0	0	3
42	0	1	0	1	0	0	0	0	2
44	0	1	0	1	0	0	0	1	3
45	0	1	0	1	0	0	0	0	2
46	0	1	0	1	0	0	1	0	3
48	0	1	0	1	0	0	0	0	2
50	0	1	0	1	0	0	0	0	2
52	0	1	0	1	0	0	0	0	2
53	0	1	0	1	0	0	0	0	2
54	0	1	0	1	0	0	0	0	2
55	0	0	0	0	0	0	0	1	1
57	0	1	1	1	0	0	0	0	3
58	0	1	0	1	0	0	0	0	2
61	0	1	1	1	0	0	1	0	4
62	0	1	1	1	0	0	0	0	3
63	0	1	0	1	0	0	1	0	3
64	0	1	0	1	0	0	0	1	3
65	0	1	0	1	0	0	1	0	3
66	0	1	0	1	0	0	1	0	3
Totals	2	32	12	32	2	2	14	7	