

**GOVERNMENT OF PUERTO RICO
PUBLIC SERVICE REGULATORY BOARD
PUERTO RICO ENERGY BUREAU**

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**IN RE: INTERCONNECTION
REGULATIONS**

**CASE NO.: NEPR-MI-2019-0009
CEPR-MI-2018-0008**

SUBJECT: Fourth Supplementary
Comments on Distributed Generation and
Microgrid Interconnection Regulation - Case
No. NEPR-MI-2019-0009

**FOURTH SUPPLEMENTARY COMMENTS OF ROBERT A. GARCIA COOPER ON
THE DRAFT PROPOSED LANGUAGE FOR SYSTEMS LESS THAN 25 KW, COST
ALLOCATION OF ELECTRIC SYSTEM UPGRADES, AND METER SOCKET
ADAPTERS, ISSUED BY THE PUERTO RICO ENERGY BUREAU ON SEPTEMBER
16, 2026**

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

Attention: Edison Avilés Deliz, Chairman

COMES NOW Robert A. Garcia Cooper, in his individual capacity as state-certified Engineer in Training (EIT, Certificate No. 28591), licensed Expert Electrician (Perito Electricista, License No. 10971), PhD student in electrical engineering at the University of Puerto Rico at Mayaguez, published researcher in energy systems and resilience economics, Senior Member of the Institute of Electrical and Electronics Engineers (IEEE), and former electricity metering technician, Probador Especial de Contadores by its official Spanish title, at PREPA's Electricity Metering Research Center, Centro de Estudios de Medición, and Wholesale Metering Districts of San Juan and Bayamón, and respectfully submits these fourth supplementary comments in response to the Resolution and Order of September 16, 2026, which provided draft proposed language for the topics of interconnection requirements for systems less than 25 kW, cost allocation of electric system upgrades, and Meter Socket Adapters, pursuant to the Resolution and Order issued in the above-captioned proceeding.

The undersigned commends the Energy Bureau for the draft provisions issued on September 16, 2026, which represent meaningful progress on two of the three topics on the agenda for the September 21, 2026 Virtual Stakeholder Workshop. The meter socket adapter chain of custody provisions now establish utility responsibility at the meter point in a manner consistent with the

existing regulatory framework and with the position LUMA Energy's own representatives placed on the record during the Workshop 2 Continuation Session of August 28, 2026. The reserve fund structure for systems under 25 kW correctly establishes that no individual residential customer shall bear the full cost of a distribution upgrade alone, and that all cost allocation must be consistent with the proportionality and benefit received principles of Joint Resolution 5-2026. Both represent movement in the right direction.

These fourth supplementary comments identify six specific concerns about the current wording of the draft language, propose alternative language for the Bureau's consideration, and place on the record the technical and legal basis for each proposed modification.

I. SIMPLIFIED INTERCONNECTION PROCESS - ARTICLE 3, SECTION B.4

A. Progress Recognized

The undersigned commends the Energy Bureau for adopting in Section B.4 the proportionality and benefit received language of Joint Resolution 5-2026 as the governing principle for cost allocation under the simplified process. This language, supported in the record by multiple participants including the Office of the Independent Consumer Protector, SESA, and the undersigned's filings of July 18, August 27, and August 30, 2026, represents a significant departure from the cost-causer-pays default and reflects the Bureau's commitment to aligning the interconnection framework with its statutory mandate.

B. Concern with Current Wording

Section B.4 currently provides that the EPS Operator "shall not assign the full cost of a Distribution System Upgrade to an individual Interconnection Customer solely because that customer's Distributed Generation System, either alone or in combination with other Distributed Generation Systems of 25 kW or less, causes or contributes to the need for the upgrade."

The qualifier "solely because" introduces a specific and identifiable interpretive gap. Under this language, the prohibition applies only when interconnection causation is the exclusive basis for full cost assignment. If the EPS Operator identifies any additional basis alongside causation, the full cost assignment is no longer prohibited by this provision.

That additional basis exists and is currently in force. The Reglamento para Determinar y Cobrar las Aportaciones de Personas o Instituciones en Proyectos de Desarrollo, Regulation 6030, promulgated by PREPA's Board of Directors through Resolution 2769 on July 6, 1999, and confirmed as legally active under LUMA Energy's operational administration, defines in Section P the projects subject to proportional load contributions as including any building or development project with requested load greater than 50 KVA. A distributed generation system above 25 kW nameplate, which is the population the supplemental review process is designed to evaluate, is in

most configurations at or above 50 KVA at unity power factor. That places it squarely within the 50 KVA trigger threshold of Regulation 6030 as a project connecting to the distribution system. LUMA Energy could therefore argue, consistently with both Regulation 6030 and the "solely because" qualifier in Section B.4, that full cost assignment is warranted not solely because of DG interconnection causation but also because Regulation 6030 independently requires an allocation for any project above 50 KVA connecting to the distribution system. This is not a hypothetical mechanism. The instrument exists, carries specific KVA threshold tables in Annex A, and remains active. The "solely because" qualifier, as currently worded, creates a documented pathway through which existing regulatory instruments can be cited to circumvent the proportionality protection Section B.4 is intended to establish.

A second concern follows. Section B.4 does not delineate its scope relative to the pre-existing cost allocation frameworks that remain in force alongside this proposed regulation. The absence of explicit delineation creates risk of conflation, where cost allocation determinations that should be governed separately under Regulation 6030 or other existing instruments are combined with or substituted for the proportionality analysis required by Section B.4. Regulatory clarity requires that the boundaries between these frameworks be stated explicitly.

C. Proposed Remedy

The undersigned respectfully proposes that Section B.4 be revised to read, or to the equivalent effect:

"The EPS Operator shall not assign to an individual Interconnection Customer a share of the cost of a Distribution System Upgrade that exceeds that customer's proportional causal contribution to the need for such upgrade, as determined under the methodology established in the Technical Interconnection Requirements. Cost allocations arising under the Reglamento para Determinar y Cobrar las Aportaciones de Personas o Instituciones en Proyectos de Desarrollo, Regulation 6030, or any other pre-existing regulatory instrument governing developer or customer contributions to electric system infrastructure, shall be governed exclusively by those instruments and shall not be combined with, substituted for, or cited as supplementary justification for cost assignments under this Section."

The undersigned further notes that Regulation 6030 itself already contains a proportional cost formula. Section III.A.5 of that regulation establishes, for projects with loads of 10,001 KVA or more, that the allocation equals the total construction cost multiplied by the requested load divided by the total capacity to be installed. That is a proportional cost allocation model based on load contribution, embedded in PREPA's own pre-existing regulatory framework. The Bureau is therefore not importing a novel principle through Section B.4. It is extending an established institutional precedent to the distributed generation interconnection context. Acknowledging this continuity in the regulation's recitals or findings would strengthen the legal foundation of the proportionality requirement and reduce the risk of challenge.

II. SIMPLIFIED INTERCONNECTION PROCESS - ARTICLE 3, SECTIONS B.1 AND B.5: FEE AMOUNT AND ATTRIBUTION METHODOLOGY

A. Progress Recognized

The undersigned commends the Energy Bureau for establishing the reserve fund as the payment mechanism for distribution upgrades attributable to simplified process interconnections. Pooling fees rather than assigning individual upgrade costs directly is the correct instrument for a residential population with average installation sizes well below the 25 kW threshold, as the net metering compliance data in this proceeding confirms. The reserve fund structure acknowledges that no individual new prosumer created the cumulative feeder conditions that upgrading is intended to remedy.

B. Concern with Current Wording

Two related gaps in the current draft require attention.

First, the fee amount is deferred entirely to the TIR with no floor, no ceiling, and no formula. Section B.5 provides that the fee shall be based on aggregate upgrade costs and adjusted annually, but it does not specify how the initial fee is to be established, what methodology the EPS Operator must use to propose it, or what information the Bureau requires to evaluate it. A reserve fund mechanism with an undefined initial fee is a structural instrument without an operational foundation. Stakeholders cannot evaluate the regulatory framework without knowing what the fee will be, and the Bureau cannot discharge its consumer protection mandate without a basis for evaluating the fee's reasonableness before approving it.

Second, Section B.7 requires the EPS Operator to report reserve fund collections and distribution upgrade costs by circuit or feeder. This reporting requirement implies that someone must determine which installations on a given feeder contributed to the need for each upgrade. Without a specified attribution methodology, that determination is at the EPS Operator's discretion with no standard for the Bureau or any party to evaluate. A reserve fund with a reporting obligation but no technical attribution foundation produces transparency in form but not in substance.

C. Proposed Remedy

On the fee amount, the undersigned proposes that the TIR include, or that the Bureau require the EPS Operator to submit concurrently with the TIR, a specific formula and methodology for calculating the initial fee and all subsequent adjustments, including the data inputs required, the time period over which costs are averaged, and the treatment of reserve fund balances in the calculation. If the EPS Operator is unable to propose such a formula, it shall provide the Bureau

with the underlying cost and interconnection data necessary for the Bureau to derive the formula independently. The initial fee shall not take effect until the Bureau has approved the methodology.

On the attribution methodology, the undersigned's Third Supplementary Comments of September 11, 2026 provide a field measurement protocol that produces a per-DER percentage impedance change at each service point on a feeder. Normalized across all interconnected systems, those percentages become directly proportional cost allocation shares that sum to 100 percent regardless of absolute impedance differences between service points. This methodology is executable by a crew of two to four persons in approximately one hour per feeder segment, relies exclusively on utility-controlled measurements, and produces results auditable under utility revenue metering standards. The undersigned respectfully proposes that the Bureau require the TIR to specify the attribution methodology before the fee can be established or adjusted, and to consider the protocol already in the record of this proceeding as one technically sound basis for that methodology or an equivalent.

III. SIMPLIFIED INTERCONNECTION PROCESS - ARTICLE 3, SECTION D.3: CONFLICT WITH SECTION B.4

A. Progress Recognized

The undersigned recognizes that Section D.3 preserves the statutory language of Act 114-2007, as amended, which provides that feeder capacity exceedance shall not constitute an obstacle to the interconnection of photovoltaic or renewable energy systems with a nameplate rating of 25 kW or less, and that necessary improvements shall be defrayed by the requesting company. This preservation reflects the Bureau's obligation to operate within the statutory framework.

B. Concern with Current Wording

Section D.3 and Section B.4 are in direct conflict within the same proposed regulatory instrument. Section D.3 assigns the full cost of necessary improvements to the requesting company by reference to Act 114-2007. Section B.4 prohibits full individual cost assignment and requires proportionality and benefit received. Complying fully with Section D.3 requires assigning the full cost to the requesting company. Complying fully with Section B.4 prohibits doing so. The regulation as drafted does not resolve this conflict and does not indicate which provision governs when they cannot both be satisfied simultaneously. This conflict was identified in the undersigned's post-workshop comments of August 27, 2026, as a legislative gap between Act 114-2007 and Joint Resolution 5-2026 that the Bureau cannot resolve through regulation. Placing both provisions in the same draft regulatory instrument does not resolve the conflict. It preserves it in a form where compliance with one provision constitutes a violation of the other.

Additionally, if Act 114-2007 is subsequently amended by the legislature to align with Joint Resolution 5-2026, the verbatim statutory reference in Section D.3 will become obsolete language within the regulation, requiring a regulatory amendment proceeding solely to remove language superseded by legislation.

C. Proposed Remedy

The undersigned respectfully recommends that the Bureau strike Section D.3 in its entirety from the proposed regulation. The statutory right to interconnect systems of 25 kW or less regardless of feeder capacity exceedance is established by Act 114-2007 and should require no regulatory restatement to remain in force. The cost assignment language in Act 114-2007 conflicts with the proportionality principle the Bureau is establishing through Section B.4 and the reserve fund structure in Section B.3.

In striking Section D.3, the Bureau should explicitly acknowledge in the recitals or findings section of the final regulation that the cost assignment provisions of Act 114-2007 and the proportionality requirements of Joint Resolution 5-2026 create a legislative gap that cannot be fully resolved through regulation, and should carry a formal legislative recommendation to the appropriate bodies identifying this gap and recommending that Act 114-2007 be amended to align its cost assignment provisions with the proportionality and benefit received principles of Joint Resolution 5-2026. This approach is within the Bureau's authority, consistent with the Bureau's role as an expert regulatory body with standing to identify legislative gaps, and already on the record as a recommendation in the undersigned's August 27, 2026 filing.

IV. SIMPLIFIED INTERCONNECTION PROCESS - ARTICLE 3, SECTION C.4: POST-INTERCONNECTION REVIEW

A. Progress Recognized

The undersigned recognizes that the post-interconnection review mechanism in Section C.4 responds to a legitimate operational need. There are foreseeable circumstances where a post-certification review would identify a specific, documentable safety or reliability concern warranting corrective action. The provision's requirement that any restriction or suspension be supported by written notice naming the specific concern and the corrective action required, and that any restriction be limited to what is reasonably necessary to address the identified concern, are baseline procedural protections.

B. Concern with Current Wording

Section C.4 authorizes the EPS Operator to identify a safety or reliability concern and require corrective action, including restrictions or suspension of export, without providing the

Interconnection Customer the procedural protections available under the Article 4 supplemental review process.

A direct comparison of the two provisions reveals the following procedural gaps in Section C.4 relative to the protections available to an Interconnection Customer under the Article 4 supplemental review process: no right to a customer options meeting; no defined objective criteria specifying what conditions trigger the post-interconnection review; no requirement that the EPS Operator provide the customer with copies of the analysis and data underlying its determination; no customer election right to continue with the interconnection or withdraw upon notice of a concern; no non-binding good faith cost estimate for any required corrective action; no defined timeline within which the EPS Operator must complete its review once initiated; no defined resolution path if the identified concern cannot be addressed through corrective action short of export restriction; no pathway to the Article 5 Study Process if the safety or reliability concern rises to the level requiring a full engineering study; no queue position protection during the review period; no identification of the specific statutory or regulatory authority under which export restriction or suspension is authorized for a system that has already been certified as compliant under Act 114-2007; and no defined timeline within which the export restriction must be lifted once the identified concern has been addressed. The one protection Section C.4 provides that has no direct Article 4 equivalent is the proportionality constraint requiring that any restriction be limited to what is reasonably necessary to address the identified concern. That constraint governs the remedy. It does not constrain the trigger.

The voltage threshold most relevant to a post-interconnection safety or reliability determination in this context is the 1.06 per unit threshold under ANSI C84.1 Class B, which Engineer Alfonso Baretty, Section Manager for Renewable Integration at LUMA Energy, identified during Workshop 2 of August 25, 2026 as the reference point for unsafe voltage conditions on the distribution system. A post-interconnection review that identifies measured voltage at or approaching 1.06 per unit on the feeder serving the new prosumer represents a documentable, engineering-based trigger. Using this threshold, or the equivalent hosting capacity conditions identified in the tier framework developed in the undersigned's August 27, 2026 post-workshop comments, as the defined trigger for post-interconnection corrective action would replace the current open-ended discretion with a standard against which both the EPS Operator and the customer can evaluate the determination.

C. Proposed Remedy

The undersigned respectfully proposes that Section C.4 be revised to include, or that the TIR establish to the equivalent effect, the following protections: a specific list of objective conditions that constitute safety or reliability concerns warranting corrective action under this Section, including at minimum measured line voltage at the Point of Common Coupling at or above 1.06 per unit under ANSI C84.1 Class B during normal operating conditions attributable in whole or in part to the new DER's export; the same customer notification requirements as the Article 4

supplemental review, including copies of the underlying analysis and data; a customer options meeting right upon request within ten business days; a defined timeline within which the EPS Operator must complete its determination and notify the customer; a defined resolution path if the concern cannot be addressed through corrective action short of export restriction; and a clear statement of the regulatory authority governing any export restriction or suspension ordered under this Section. Post-interconnection export restrictions shall be limited to conditions where the identified safety or reliability concern is directly attributable to the new DER's export and cannot be resolved through smart inverter settings adjustments or other operational measures already available to the EPS Operator.

V. SIMPLIFIED INTERCONNECTION PROCESS - ARTICLE 3, SECTION D.1: SUPPLEMENTAL REVIEW TRIGGER CRITERIA

A. Progress Recognized

The undersigned notes that the phrase "at its discretion" which appeared in an earlier version of Section D.1 governing the EPS Operator's authority to conduct a supplemental review of simplified process interconnections has been struck in the current draft. This reflects the Bureau's recognition that unconstrained discretionary authority is inconsistent with the due process protections appropriate for a customer who has interconnected under the simplified process.

B. Concern with Current Wording

Striking "at its discretion" removes the explicit discretionary language but does not replace it with objective criteria. The provision still reads that the EPS Operator "may conduct a Supplemental Review." The absence of "at its discretion" narrows the interpretation but does not eliminate discretion, because the provision still contains no affirmative statement of the conditions under which a supplemental review may be conducted and no requirement that those conditions be documented.

C. Proposed Remedy

The undersigned respectfully proposes that Section D.1 be revised to require the TIR to specify objective, measurable, and feeder-specific conditions that trigger a supplemental review of simplified process interconnections. Recognizing that feeder hosting capacity varies significantly across Puerto Rico's distribution system, as established at Workshop 2 of August 25, 2026, a uniform system-wide percentage threshold is not appropriate. The defined triggers should include at minimum three independently sufficient conditions: first, measured voltage at any service point on the feeder at or above 1.05 per unit during normal export operating conditions, approaching the 1.06 per unit Class B limit under ANSI C84.1, as identified by Engineer Alfonso Baretty of LUMA Energy at Workshop 2 as the reference threshold for unsafe voltage conditions on the distribution

system; second, aggregate Export Capacity of simplified process systems on the feeder or line section exceeding the daytime minimum load, triggering the minimum load screen failure condition under Section 4.04.C(1) of the Fast Track Process; and third, conductor or transformer ampacity violations identified through loading analysis, where aggregate DG export current contributes to exceedance of the rated continuous ampacity of any distribution line segment or service transformer on the feeder. Each of these conditions is feeder-specific, measurable from utility operational data, and tied to an engineering basis already recognized in the regulatory record. A supplemental review shall not be conducted absent documentation that one or more of these defined conditions is present at the time the simplified process notification is received.

VI. METER SOCKET ADAPTERS - SECTION 8.03.B.8: ACCURACY AND COMMUNICATIONS VERIFICATION

A. Progress Recognized

The undersigned commends the Energy Bureau for limiting the EPS Operator's authority to require testing of meter socket adapters beyond NRTL listing to a single additional verification: that the MSA does not impair meter accuracy or meter communications. This limitation is appropriate. NRTL listing under UL 414 establishes the baseline safety and performance standard for MSAs as a class of equipment. The chain of custody provisions of Section 8.03.C, requiring EPS Operator presence for meter removal and reinstallation and prohibiting any unauthorized breach of the meter seal, are consistent with existing obligations under the Reglamento Complementario al Código Eléctrico Nacional and with the position LUMA Energy's own representatives placed on the record during the Workshop 2 Continuation Session of August 28, 2026.¹

The undersigned further notes that Enphase Energy submitted comments in this proceeding dated September 14, 2026, providing product specifications for its IQ Meter Collar, including an integrated consumption meter rated at plus or minus 0.5 percent accuracy, UL 414 listing under Intertek certification number 5034331, ANSI Form 2S compatibility rated at 200 amperes continuous, and approval by 80 electric utilities across the United States. That record is relevant context and confirms that NRTL-listed MSA products with demonstrated multi-utility approval histories exist and are in commercial deployment.

B. Concern with Current Wording

Section 8.03.B.8 does not specify the methodology by which the verification that the MSA does not impair meter accuracy or communications is to be conducted, who bears the cost of that

¹ Puerto Rico Energy Bureau. (2026, August 28). NEPR-MI-2019-0009 Virtual Stakeholder Workshop 2 Continuance [Video]. YouTube. <https://youtu.be/vElbfFpYriM?t=8793> . <https://youtu.be/vElbfFpYriM?t=11307> .

verification, what accuracy standard governs the reference instrument, or to which installation configurations the verification requirement applies. Without these specifications, the provision could be applied inconsistently or structured in a way that makes the cost of verification an obstacle to MSA adoption.

Three considerations warrant specific attention.

1. Installation configuration scope of the verification requirement.

MSA products of the IQ Meter Collar class support two fundamentally distinct installation configurations. Third-party ownership DG installation and leasing companies have used load-side sub-metering on a separate non-utility meter socket as part of their commercial structures since the early distributed generation market. In this configuration the utility revenue meter is not in the circuit path of the MSA. No accuracy verification of the utility revenue meter is triggered, because the utility meter does not interact with the MSA electrically.

In the behind-meter configuration, the MSA is installed in the utility meter socket between the socket and the utility revenue meter, which is then inserted into the front jaws of the MSA. Enphase's own quick installation guide designates Step 4 of this scenario for utility personnel exclusively, stating in bold: "IQ Meter Collar can be installed behind the utility meter only by personnel authorized by the utility." In this configuration the utility revenue meter is physically and electrically present in the circuit path through the MSA. Both the accuracy verification and the communications verification questions are meaningful and necessary here.

The TIR should specify that the accuracy and communications verification requirements of Section 8.03.B.8 apply only to behind-meter installation configurations in which the MSA is installed between the utility meter socket and the utility revenue meter. Load-side configurations on separate non-utility meter sockets require no utility revenue meter accuracy or communications verification.

The TIR should further specify which installation configurations of each approved MSA model are permissible under Article P of the Reglamento Complementario al Código Eléctrico Nacional, which establishes a mandatory installation sequence requiring the meter to precede load-side equipment in the electrical installation order, and shall include only permissible configurations on the approved MSA list.

2. Accuracy verification methodology for behind-meter configurations.

The conventional field method for verifying watt-hour meter accuracy uses a portable watt-hour meter tester, such as the Radian Research RM-17 or the Bantam Plus integrated socket, which applies an internally generated phantom reference load through the meter under test. This method correctly verifies the meter's own accuracy in isolation and is appropriate as a pre-installation baseline under ANSI C12.1, which is the Code for Electricity Metering governing in-service testing of meters already deployed in the field.

However, this method cannot serve as a post-installation accuracy verification for behind-meter MSA configurations. The phantom current generated by the tester flows through the tester's own internal circuit to the meter's current elements directly. It does not flow through the MSA's relay contact, current sensing circuitry, or internal power supply path. The MSA's internal electrical elements are therefore not in the phantom current measurement path, and a phantom load test conducted after MSA installation cannot detect whether real service current flowing through those elements is accurately measured by the meter.

The UL 414 Supplement SA heating tests, which are the primary thermal performance evaluation for MSAs under NRTL listing, use a UL 414 Class 100, 200, or 320 simulated meter, which is a test fixture verifying that the MSA makes proper mechanical and electrical contact with the meter socket. This simulated meter is not an ANSI C12.20 calibrated revenue meter, and the UL 414 test does not evaluate whether actual load current passing through the MSA's internal circuit elements is accurately measured by the utility revenue meter installed on top of it. NRTL listing under UL 414 therefore confirms that the MSA is safe and mechanically compliant as a device. It does not certify that the revenue meter reads within ANSI C12.1 in-service accuracy limits when the MSA is interposed in the measurement circuit under actual service conditions.

A post-installation accuracy verification for behind-meter MSA configurations requires testing conducted with actual service load flowing through the installed MSA, measured by an independent calibrated reference instrument simultaneously with the meter's registered output. Portable single-phase and three-phase meter site source analyzers equipped with clamp-on current transformer inputs provide this capability by measuring actual service current non-invasively while the meter registers the same load. The existing portable watthour meter testing fleet, including the Radian Research RM-17 and Bantam Plus instruments, does not support non-invasive testing with actual site load. A meter site source analyzer with clamp-on CT capability is the appropriate instrument for the post-installation step. Radian Research, which has served as an equipment and training supplier to PREPA and its successors for more than 20 years and whose instrumentation is already deployed in the utility's established procurement relationship, offers instruments of this class.

3. Communications verification: effect on existing AMI power line communication infrastructure.

LUMA's current AMI infrastructure is shifting to use the Itron OpenWay Riva CENTRON meter, which incorporates Adaptive Communications Technology integrating two independent communication paths entirely within the meter. The primary path uses IEEE 802.15.4g/e over the 900 MHz ISM band RF mesh. The alternative path uses IEEE 1901.2 Power Line Carrier technology, through which the meter transmits data through its physical blades and stabs into the socket jaws and out through the service conductors. The meter dynamically selects between paths in real time. Both paths are integrated inside the meter's housing. The MSA functions as a passive electrical pass-through device for communication purposes.

The RF path is not in the MSA's electrical circuit path and is not affected by MSA installation in a behind-meter configuration.

The IEEE 1901.2 PLC path does traverse the MSA's electrical elements in a behind-meter configuration. PLC signals are transmitted through the meter's blades into the MSA's front jaws and through the MSA's relay contact, current sensing circuitry, and internal switching power supply before reaching the service conductors. At IEEE 1901.2 operating frequencies in the kilohertz range these elements exhibit frequency-dependent impedance characteristics not present at the 60 Hz power frequency, which could attenuate the PLC signal. The UL 414 Supplement SB additional requirements evaluate communication circuits built into the MSA. CFR 47 Part 15B addresses radiated electromagnetic emissions from the device itself. Neither evaluation addresses whether the MSA's passive electrical elements in the power line path attenuate IEEE 1901.2 carrier signals at operating frequencies.

In RF mesh environments, which represent the predominant deployment condition for the OpenWay Riva CENTRON meter, communication verification is satisfied by confirmation through the OpenWay Operations Center that the meter has registered on the network and is transmitting following MSA installation. No additional field protocol is required. In locations where the RF mesh path is unavailable and IEEE 1901.2 PLC communication is the only available route to the network, if after MSA installation the meter cannot establish network communication and the failure is confirmed to be attributable to MSA interference rather than a pre-existing network condition, the MSA should not remain installed in a behind-meter configuration at that service point. In such cases the EPS Operator should remove the MSA, restore the meter to direct socket installation, and log and report the incident to the Bureau as part of the MSA model's ongoing performance record.

C. Proposed Remedy

The undersigned respectfully proposes that Section 8.03.B.8 be supplemented in the TIR to specify the following.

The accuracy and communications verification requirements apply exclusively to behind-meter installation configurations. Load-side configurations on separate non-utility meter sockets do not require utility revenue meter accuracy or communications verification.

For behind-meter configurations, verification that the MSA does not impair meter accuracy shall follow a two-step before and after protocol. Step one, pre-installation baseline: before installing the MSA, the EPS Operator shall test the meter using its standard portable watthour meter testing equipment per ANSI C12.1 in-service testing procedures, record the weighted average registration result against the meter identification number and test date, and confirm the meter is accurate in isolation prior to MSA installation. Step two, post-installation verification with actual site load: following MSA installation per the chain of custody requirements of Section 8.03.C, the EPS Operator shall verify meter accuracy using a portable single-phase or three-phase meter site source

analyzer equipped with clamp-on current transformer inputs, measuring actual service current and voltage simultaneously with the meter's registered output without removing the revenue meter from service. Any discrepancy between the clamp-on reference measurement and the meter's registered output for the same actual service load is attributable to the MSA's presence in the metering circuit. A finding that this discrepancy exceeds the ANSI C12.1 in-service accuracy limit shall constitute a failed verification.

This two-step protocol requires the EPS Operator's existing portable watt-hour meter testing fleet for the pre-installation step. The post-installation step requires a meter site source analyzer with clamp-on CT capability, which is distinct from the phantom-load-only instruments currently in the utility's metering operations fleet. The cost of this equipment acquisition is a utility infrastructure characterization expense properly borne by the EPS Operator.

This verification shall be structured as a model-level type approval test. The undersigned notes that PREPA used ANSI/ASQ Z1.4-2008, Sampling Procedures and Tables for Inspection by Attributes, as the governing framework for meter product acceptance and in-house quality control testing. That standard, while rigorous and appropriate for metering equipment procurement, is more stringent than necessary for an MSA model approval context where the device is a passive mechanical pass-through and the concern is limited to potential effects on the measurement circuit. The undersigned respectfully proposes a proportionate alternative. The EPS Operator shall test a sample of 50 behind-meter installations of each MSA model using the two-step before and after accuracy verification protocol. If fewer than 5 units in the sample of 50 show a post-installation accuracy deviation attributable to the MSA that exceeds the ANSI C12.1 in-service accuracy limit, the model shall be approved for continued deployment under normal monitoring. If 5 or more units in the sample of 50 show such deviations, the EPS Operator shall suspend further deployment of that MSA model and take one of the following actions as appropriate: apply a stricter sampling protocol to the existing deployment to identify the scope of affected units; provide the manufacturer an opportunity to identify and resolve the design characteristic causing the deviation and resubmit for approval with a new 50-unit sample; or remove the model from the approved list if the manufacturer cannot demonstrate a resolution within a reasonable timeframe to be specified in the TIR. The EPS Operator shall accept equivalent verification results obtained by the MSA manufacturer or another electric utility for the same model under comparable metering equipment conditions, unless the EPS Operator identifies in writing a specific material difference.

For communications verification, OWOC confirmation that the meter has registered on the network and is transmitting following MSA installation shall constitute sufficient verification in RF mesh environments. In locations where PLC is the necessary communication path, if the meter fails to communicate following MSA installation for reasons attributable to the MSA, that model shall not be installed in a behind-meter configuration at service points requiring PLC communication until the manufacturer demonstrates a resolution.

The cost of both the accuracy and communications verification shall be borne by the EPS Operator as a utility infrastructure characterization expense.

VII. SIX OBSERVATIONS FOR THE ENERGY BUREAU'S CONSIDERATION

The undersigned respectfully offers six specific observations for the Energy Bureau's consideration as it finalizes the regulation and the Technical Interconnection Requirements.

First, the Energy Bureau may wish to consider whether the proportionality protection in Section B.4 requires explicit language delineating its scope relative to pre-existing cost allocation instruments, particularly the Reglamento para Determinar y Cobrar las Aportaciones de Personas o Instituciones en Proyectos de Desarrollo, Regulation 6030, so that the cited language does not create an unintended pathway for full cost assignment through the invocation of parallel regulatory frameworks. The undersigned notes that Regulation 6030 itself contains a proportional cost formula in Section III.A.5, establishing an institutional precedent that the Bureau's adoption of Section B.4 is extending rather than creating.

Second, the Energy Bureau may wish to consider whether the reserve fund structure in Section B.3 can achieve its consumer protection purpose without a defined formula and methodology for the initial fee and a specified attribution methodology for the circuit-level reporting required under Section B.7. A reserve fund with an undefined fee and an unspecified attribution standard is a structural instrument that cannot be evaluated by stakeholders or audited by the Bureau without those foundational specifications.

Third, the Energy Bureau may wish to consider whether retaining Section D.3's verbatim restatement of Act 114-2007's cost assignment language within the same instrument that establishes the proportionality requirement of Section B.4 creates an internal conflict that neither provision can resolve on its own, and whether explicitly naming the legislative gap in the regulation's findings and carrying a formal legislative recommendation to the appropriate bodies would better serve the regulatory record and reduce the risk of adjudicatory disputes during implementation.

Fourth, the Energy Bureau may wish to consider whether the post-interconnection review authority in Section C.4 requires defined objective trigger criteria, customer procedural protections equivalent to those available under the Article 4 supplemental review process, and explicit identification of the statutory authority under which export restriction is authorized for a system already certified as compliant under Act 114-2007, so that the provision functions as a targeted safety mechanism rather than a broad residual authority whose scope and procedural requirements are undefined.

Fifth, the Energy Bureau may wish to consider whether Section D.1's authority to conduct a supplemental review of simplified process interconnections requires feeder-specific objective conditions in the TIR, including measured voltage at or above 1.05 per unit approaching the ANSI C84.1 Class B limit, aggregate Export Capacity exceeding daytime minimum load on the line section, and conductor or transformer ampacity violations attributable to aggregate DG export, so that the supplemental review authority is bounded by engineering criteria already recognized in the record rather than left to undocumented discretion.

Sixth, the Energy Bureau may wish to consider whether the accuracy and communications verification requirement in Section 8.03.B.8 requires specifications in the TIR addressing the scope of the verification by installation configuration, the methodology for post-installation accuracy verification using actual site load rather than phantom reference load, the applicable in-service accuracy standard under ANSI C12.1, the treatment of IEEE 1901.2 PLC communication path integrity in RF-impaired environments, and a proportionate sampling framework for model-level type approval testing, so that the verification requirement provides meaningful revenue integrity protection without becoming a cost barrier to MSA adoption or a source of inconsistent application across MSA models.

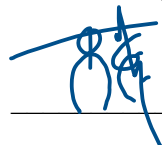
VIII. DECLARATION

In compliance with applicable Energy Bureau procedural requirements, the undersigned declares as follows:

- A) No party or attorney in this proceeding assisted in drafting these comments.
- B) No party or attorney in this proceeding contributed funds or any other type of resource for the preparation or submission of these comments.
- C) No person other than the undersigned contributed funds or any other type of resource for the preparation or submission of these comments.

Respectfully submitted,

In San Juan, Puerto Rico, on September 18, 2026.



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CERTIFICATE OF SERVICE

I hereby certify that on September 18, 2026, a copy of these Comments was filed with the Puerto Rico Energy Bureau under the title Fourth Supplementary Comments on Distributed Generation and Microgrid Interconnection Regulation, Case No. NEPR-MI-2019-0009, addressed to the attention of Edison Avilés Deliz, Chairman, and submitted electronically through the Energy Bureau's electronic filing tool at <https://radicacion.energia.pr.gov/>.

Robert A. Garcia Cooper