**LUMA Exhibit 74.0**



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

| **IN RE:** | **CASE NO.:** NEPR-AP-2023-0003 |
|---|---|
| PUERTO RICO ELECTRIC POWER AUTHORITY RATE REVIEW | |

Surrebuttal Testimony of

Pedro A. Meléndez-Meléndez

Chief Capital Programs & Grid Transformation Officer

LUMA Energy ServCo, LLC

November 3, 2025

**Summary of Surrebuttal Testimony of**
**PEDRO A. MELÉNDEZ-MELÉNDEZ**
**ON BEHALF OF**
**LUMA ENERGY LLC AND LUMA ENERGY SERVCO, LLC**

Mr. Pedro A. Meléndez-Meléndez ("Mr. Meléndez"), Chief Capital Programs & Grid Transformation Officer at LUMA Energy ServCo, LLC, presents this Surrebuttal Testimony on behalf of LUMA Energy LLC and LUMA Energy ServCo, LLC (collectively, "LUMA"). The purpose of Mr. Meléndez's surrebuttal is to address and correct material criticisms in the answering testimonies of Anthony Hurley and Patrick Hogan, witnesses appearing on behalf of National Public Finance Guarantee Corporation, GoldenTree Asset Management LP, Syncora Guarantee, Inc., Assured Guaranty Inc., and the PREPA Ad Hoc Group (collectively, the "Bondholders"), in Case No. NEPR-AP-2023-0003, *In Re: Puerto Rico Electric Power Authority Rate Review*. Moreover, Mr. Meléndez also responds to observations in the Expert Reports of Energy Bureau consultants Guímel Cortés and Kathryn Bailey/Harold Judd.

Mr. Meléndez's testimony focuses on five principal areas: formulation and prioritization of the capital portfolio; the reasonableness of LUMA's reliability modeling; the appropriate use and interplay of federal versus non-federally funded capital (NFC) dollars; and the executability of LUMA's capital plan.

First, as to capital portfolio formulation and prioritization, Mr. Meléndez explains that LUMA's strategy is grounded in a Recovery and Transformation Framework that organizes bottom-up engineering proposals into a coherent investment plan aimed at customer-centric reliability, resilience, safety, and sustainability. Mr. Meléndez rejects the premise that near-term reliability restoration should displace other statutory and regulatory priorities.

Second, with respect to reliability modeling, Mr. Meléndez defends LUMA's use of structured engineering methods supported by reasoned assumptions and available historical data. Importantly, he presents empirical evidence that targeted interventions are producing measurable gains, which outcomes are consistent with the model's directional predictions.

Third, Mr. Meléndez disputes the assertion that LUMA should "exhaust federal funds first" and that many NFC activities can simply be reclassified as federally reimbursable. He explains that not all activities within otherwise FEMA-eligible projects qualify for reimbursement; the timing and cash flow realities of obligation, environmental and historic preservation review, and reimbursement; and that opportunities to reassign NFC to federal grants are finite and subject to program rules.

Fourth, Mr. Meléndez rebuts proposals to reduce or eliminate programs such as Fleet, Workforce Management, or other enabling investments.

Fifth, Mr. Meléndez rebuts assertions that LUMA's capital plan is not executable. He cautions that combining NFC and federal capital when evaluating past execution distorts conclusions, since LUMA has consistently utilized essentially all of its budgeted NFC capital, while federally funded execution has been constrained by obligation timing, environmental review

sequencing, and working capital mechanics. He details corrective actions already implemented to support execution in the rate case period.

Mr. Meléndez also addresses comments by Mr. Hurley concerning the Consolidated Project Plan. He explains that Tier 1of said Plan comprises projects essential to system stabilization and those already in flight where pausing would jeopardize federal reimbursement and that Tier 2 comprises the balance of federally funded projects within the Long-Term Infrastructure Plan. He disagrees with proposals to remove projects from Tier 1, including microgrids for Vieques and Culebra and specified transmission restorations.

Finally, Mr. Meléndez concurs with Mr. Cortés's description of key elements of the FEMA Framework (i.e., FAASt Program, Working Capital Advance Program, and Direct Administrative Costs), and the challenges that lead to suboptimal outcomes and adverse impacts to ratepayers are accurate.  and discusses the impact of environmental and historic preservation reviews, and how future plans incorporate lessons learned over the past four years. Mr. Meléndez explains LUMA's two-step approach for Transmission Line 8700 – immediate restoration to mitigate high system risk now, preserving the opportunity to pursue a more comprehensive, code-compliant solution. With respect to the Kathryn Bailey and Harold Judd's renewable integration report, Mr. Meléndez clarifies that, through FY2028, transmission upgrades associated with new generation will predominantly be funded privately by developers or through existing riders, while LUMA's near-term investment focus in this rate case appropriately prioritizes system stabilization and reliability.

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# I. INTRODUCTION

**Q.1 Please state your name, business address, title, and employer.**

A. My name is Pedro A. Meléndez Meléndez. My business address is LUMA Energy, PO Box 363508, San Juan, Puerto Rico 00936-3508. I am the Chief Capital Programs & Grid Transformation Officer for LUMA Energy ServCo, LLC ("LUMA ServCo").

**Q.2 On whose behalf are you submitting this Surrebuttal Testimony?**

A. My surrebuttal testimony is provided on behalf of LUMA Energy, LLC, and LUMA Energy ServCo, LLC (jointly referred to as "LUMA").

**Q.3 What is the purpose of your surrebuttal testimony?**

A. To respond to several portions of the answering testimonies of Anthony Hurley, NPFGC Exhibit 51 and Patrick Hogan, NPFGC Exhibit 52, as filed in the captioned proceeding by National Public Finance Guarantee Corporation, GoldenTree Asset Management LP, Syncora Guarantee, Inc., Assured Guaranty Inc., and the PREPA Ad Hoc Group (collectively, the "Bondholders"), on September 8, 2025; and Expert Reports of Energy Bureau Consultants Guímel Cortes, PC Exhibit 65.0; and Kathryn Bailey / Harold Judd of the Accion Group, LLC (on Integration of Renewable Generation and Battery Storage), PC Exhibit 63. The main purpose of my surrebuttal testimony is to respond to criticisms and mischaracterizations of my testimony and / or explain and place into context specific statements made in the areas of Capital Portfolio Formulation and Prioritization, Use of Federal and NFC Funds, and Executability.

**Q.4 Are there any exhibits attached to your testimony?**

A. Yes.

**Q.5 Please identify and enumerate those exhibits.**

A. The following LUMA responses to Information Requests during discovery and additional documents provide more detail on the information presented throughout my surrebuttal testimony:

i. LUMA Exhibit 74.01, PC-of-LUMA-DST-34: Percentage of Planned Capital across the programs that define the majority of the System Stabilization Plan.

ii. LUMA Exhibit 74.02, NPFGC-of-LUMA-CAPEX-11: Lists programs, that though they do not directly impact reliability, are deemed essential to LUMA's operational strategy.

iii. LUMA Exhibit 74.03, NPFGC-of-LUMA-CAPEX-10, 10.1 (redacted public version and confidential version), and 10.2: Describes underlying models used to project reliability improvements.

iv. LUMA Exhibit 74.04, SESA-of-LUMA-DST-7: Further describes LUMA's approach in performing locational reliability assessments.

v. LUMA Exhibit 74.05, NPFGC-of-LUMA-CAPEX-8: Further information on how LUMA calculates reliability benefits.

vi. LUMA Exhibit 74.06, SESA-of-LUMA_ALL-5: Further information on LUMA's calculation of reliability benefits.

vii. LUMA Exhibit 74.07, NPFGC-of-LUMA-CAPEX-17: Describes the rationale and process for classifying programs that will improve system reliability.

viii. LUMA Exhibit 74.08, PC-of-LUMA-DST-39: Differentiates between Operations and Capital Programs the use of NFC.

ix. LUMA Exhibit 74.09, NPFGC-of-LUMA-FEMA-6: Provides listing of 22 work projects that comprise Grants Portal for repairs to Distribution, Substation, and

Transmission infrastructure from the impacts of Hurricane Fiona.

x. LUMA Exhibit 74.10, NPFGC-of-LUMA-OTH_OPEX-52 and _OPEX-52_Attchment 1: Describes the state of the aging electric T&D infrastructure with a focus on failure rates by across Distribution Overhead, Transmission Lines, and Substations.

xi. LUMA Exhibit 74.11, PC-of-LUMA-DST-41: Presents Optimal and Constrained with respect to their anticipated impacts on reliability.

xii. LUMA Exhibit 74.12, PC-of-LUMA-CAPEX-43: In responding to the second question of the request, places the claim of "over-collection" in proper context

xiii. LUMA Exhibit 74.13, ROI-LUMA-AP-2023-0003-20250712-PREB-PROV-010: Implementation of a Work Management and Execution Readiness Framework.

xiv. LUMA Exhibit 74.14, ROI-LUMA-AP-2023-0003-20250712-PREB-PROV-009: Provides perspective on supply chain and labor constraints.

xv. LUMA Exhibit 74.15, PC-of-LUMA-OTH_OPEX-72 / OPEX-72_Attachment 1: Describes activities assigned to the Electric System Priority Stabilization Plan and how they are being funded.

xvi. LUMA Exhibit 74.16, PC-of-LUMA-DST-36 and 36.1: Presents more detailed information on the scope of major Distribution Programs and their estimated impact on reliability.

xvii. LUMA Exhibit 74.17, PC-of-LUMA-DST-37: Provides information related to methods, calculations, and historical data used to estimate investment needs for the major Distribution Programs.

xviii. LUMA Exhibit 74.18, PC-of-LUMA-DST-65: Provides additional information on

the Distribution Grid Reliability and Automation Programs.

xix. LUMA Exhibit 74.19, PC-of-LUMA-TRS-10: Provides additional information on the purchase of transformers.

xx. LUMA Exhibit 74.20, SESA-of-LUMA-RATE_DES-37: Provides a breakout of the projects related to the DOE funding initiative.

xxi. LUMA Exhibit 74.21, NPFGC-of-LUMA-CAPEX-7 and 7.1: Provides more clarification regarding the breakout of projects eligible for DOE funding.

xxii. LUMA Exhibit 74.22, NPFGC-of-LUMA-CAPEX-9: Description of model or tool or used to measure reliability impacts.

xxiii. LUMA Exhibit 74.23, NPFGC-of-LUMA-CAPEX-13 and 13.1: Description of mathematical model used to estimate impact of programs on reliability.

xxiv. LUMA Exhibit 74.24, NPFGC-of-LUMA-CAPEX-45: Explanation and supporting data for calculating estimated reliability impacts.

xxv. LUMA Exhibit 74.25, PC-of-LUMA-OTH_OPEX-53 and Attachment: Anticipated effect of constrained budget on reliability.

xxvi. LUMA Exhibit 74.26, NPFGC-of-LUMA-CAPEX-23: Reasonableness of cost estimates for federally and NFC funded projects.

xxvii. LUMA Exhibit 74.27, Project Delivery Lifecycle Playbook

xxviii. LUMA Exhibit 74.28: List of 99 Projects that Comprise the Tier 1 portion of the Consolidated Project Plan

xxix. LUMA Exhibit 74.29 LUMA Recovery and Transformation Framework

**Q.6 Did you consider any documents for your rebuttal testimony?**

A. Yes, I did.

**Q.7 Which documents did you consider for your rebuttal testimony?**

A. I considered the following documents to better understand context in preparing my surrebuttal testimony:

i. The Puerto Rico Transmission and Distribution System Operation and Maintenance Agreement executed by PREPA, the Puerto Rico Public-Private Partnerships Authority ("P3A"), and LUMA, dated as of June 22, 2020 ("T&D OMA")

i. Resolution and Order Establishing Scope and Procedures for Rate Case, Case No. NEPR-AP-2023-0003 (Feb. 12, 2025) ("February 12th Order")

ii. Resolution and Order Initiating the Unbundling of the Assets of the Puerto Rico Electric Power Authority, Case No. NEPR-MI-2023-0001 ("Retail Wheeling")

iii. Resolution and Order Amendment Petition and Reprioritization of FAASt Funding for Case No. NEPR-MI-2021-0004, dated October 24, 2025, directing PREPA and LUMA to reinstate the 224 FAASt projects that had been deactivated and re-establish the original $1.2 billion of FEMA projects for FY2026

iv. Energy policy objectives of the Puerto Rico Energy Public Policy Act No. 17 of April 11, 2019, as amended

v. Answering Testimony of Anthony Hurley dated September 8, 2025, NPFGC Exhibit 51.0

vi. Answering Testimony of Patrick Hogan dated September 8, 2025, NPFGC Exhibit 50.0

vii. Expert Report of Guímel Cortes on the Matter of Federal Spending dated October 10, 2025, PC Exhibit 65.0

viii. Expert Report of Kathryn Bailey and Harold Judd of Accion Group, LLC on

Integration of Renewable Generation and Battery Storage dated October 10, 2025, PC Exhibit 63.0

ix. Direct Testimony of Pedro A. Meléndez-Meléndez, Chief Capital Programs and Grid Transformation Officer, LUMA Energy ServCo, LLC dated July 3, 2025, LUMA Exhibit 5.0

x. Direct Testimony of Kevin Burgemeister for Operations, Senior Vice President Operations (Acting), LUMA Energy ServCo, LLC dated July 2, 2025, LUMA Exhibit 6.0

xi. Direct Testimony of Kevin Burgemeister for Fleet, Senior Vice President Operations (Acting), LUMA Energy ServCo, LLC dated July 2, 2025, LUMA Exhibit 18.0

xii. Rebuttal Testimony of John M. Shearman, Chief Executive Officer, ISL Analytics, dated November 3, 2025 LUMA Exhibit 75.0

xiii. Build Back Better – "Reimagining and Strengthening the Power Grid of Puerto Rico Report", dated December 2017, submitted to the Governors of New York and Puerto Rico in December of that year

xiv. Sargent & Lundy Consulting, Independent Engineering Report – PREPA Transmission and Distribution System SL-014468.TD, dated June 2019

xv. February 2025 Fiscal Plan for the Puerto Rico Electric Power Authority

## II. OVERVIEW

**Q.8 In reviewing Hurley's and Hogan's Testimonies are there any thematic recommendations that you are rebutting and objecting?**

A. Yes. My objections and recommendations fall under the following categories:

i. Formulation and prioritization of the Capital Investment Portfolio consistent with the restoration process and based solely on reliability improvement,

ii. Challenging the mathematical modeling and approach used to calculate reliability impacts,

iii. Exhausting of all Federal Funding before budgeting NFC funds along with the incorrect presumption that many of the non-Federally funded (NFC) activities can be recategorized as Federally funded,

iv. Incorrect interpretation of the Constrained Budget as sufficient to meet the overall needs of the system, and the mistaken conclusion that any differences between it and the Optimal Budget constitute an unnecessary, over-funded, or potentially federally funded investment,

v. Mistaken assignment of motives relating to use of NFC funds which may ultimately be recategorized for federal reimbursement and presumption that such recategorization equates to a reduction to the NFC budget or the absence of such reduction constitutes "over-collection," and

vi. Misuse of historical trends to project future performance, particularly pertaining to executability of the proposed plan.

**Q.9 Please expand upon your objection to Hurley's characterization of formulation and prioritization of the Capital Investment Portfolio.**

A. I will address specific statements made by Hurley regarding this topic later in my testimony. Hurley is incorrect in proposing that investments should be focused solely on their impact on near-term system reliability and / or Transmission and Distribution System (T&D system) restoration before allocating and utilizing funding resources for other

priorities. LUMA considers reliability improvement and restoration of out-of-service assets primary drivers in developing its investment portfolio. Achieving system stabilization, however, includes addressing not only outages that affect customers, but also addressing the electric T&D system's vulnerability to / risk of an outage should another failure occur that serves these same customers, or portion thereof, thus reducing the risk of catastrophic, region, or island-wide outages. As Hurley states within his response to question 50 in his Answering Testimony, "restoring the grid to its normal operating condition," the essence of LUMA's system stabilization plan), and as expanded upon in my response to question 11 in this surrebuttal testimony, there are other regulatory and legislative mandates that must be addressed over the next three years.

**Q.10 Please explain the interrelation between stabilization and LUMA's mandate to provide improved reliability to its customers.**

A. System stabilization[1] forms the backbone for sustainably improving reliability and, given the state of the electric T&D system, is a necessary first step towards achieving this objective. Though, in the short-term, it will not prevent many of the daily outages that customers experience, it will provide the long-term benefit of a more solid foundation on which to build. Focusing on an investment's contribution to SAIFI / SAIDI and restoration of out-of-service assets as the sole criteria for investment, although perhaps relevant for systems like those operated by FirstEnergy, would lead to suboptimal outcomes in improving LUMA's overall electric T&D system resiliency. In other words, without a strong foundation on which to build, adopting Hurley's recommendations for capital investment based solely on contributions to SAIFI / SAIDI and restoration of out-of-service

[1] *See* LUMA response to PC-of-LUMA-DST-34 for the programs that largely comprise the System Stabilization Plan and the percentages of which are included (LUMA Exhibit 74.01).

assets, would be like repainting rotten wood—it would look good for a short time, but would not last. Further, adherence to Hurley's recommendations (addressed later in this surrebuttal testimony) to defer or otherwise eliminate investments because they do not improve SAIFI / SAIDI, will place LUMA in a compromising position relative to its other mandates.

**Q.11 What are those other mandates?**

A. The Puerto Rico Energy Policy Act[2] lists several objectives, not all which center around reliability, but that clearly define duties and responsibilities of LUMA, including (1) facilitating the interconnection of distributed renewable energy, (2) developing microgrids, and (3) promoting demand response and energy efficiency programs[3]. Further, my colleague, Kevin Burgemeister attests in his Direct Testimony[4] to the requirement for a Retail Wheeling (RW) program[5], designed to create a system where retail electricity suppliers (RES) can sell energy directly from eligible private generators to eligible end-user customers.

**Q.12 Does Hurley's overview of capital spending prioritization described in his response to question 8 of his Answering Testimony provide for this broader range of strategic objectives?**

[2] Section 1.6 of Act No. 17-2019, as amended. 22 LPRA § 1141e (2025).

[3] The Report on Integration of Renewable Generation and Battery Storage, prepared by PREB Consultants Kathryn Bailey and Harold Judd of the Accion Group, LLC, PC Exhibit 63.0, confirms that electricity generation must be 100% renewable before 2050. LUMA has adopted a position that straddles between these two perspectives, placing an appropriate level of emphasis on reliability improvement while maintaining momentum towards the renewable vision outlined in Act No. 17.

[4] Direct Testimony of Kevin Burgemeister for Operations, LUMA Exhibit 6.0, question 65 and Table 6. *See also* LUMA Exhibit 6.04 (Retail Wheeling Program Brief).

[5] Puerto Rico Energy Bureau, Regulation No. 9374, Regulation on Electric Energy Wheeling of April 20, 2022.

A. No. Although Hurley speaks to several such objectives (e.g., levels of reliability, resilience to severe events, meeting regulatory requirements, and extension of asset life), his recommendations regarding what he terms as unnecessary and imprudent investments (addressed later in this surrebuttal testimony) do not consider legal and regulatory requirements such as those summarized above in my response to question 11 as appropriate. They also do not reflect a full understanding of investments required to achieve resilience, or acknowledge programs essential to modernizing the infrastructure, improving asset management, and ensuring sustainability of LUMA's operations[6].

**Q.13 Briefly describe the approach taken by LUMA to formulate its proposed investment plan.**

A. LUMA started with the well-documented Recovery and Transformation Framework, supporting its mission to recover and transform the utility to deliver customer-centric reliable, resilient, safe, and sustainable electricity at reasonable prices.

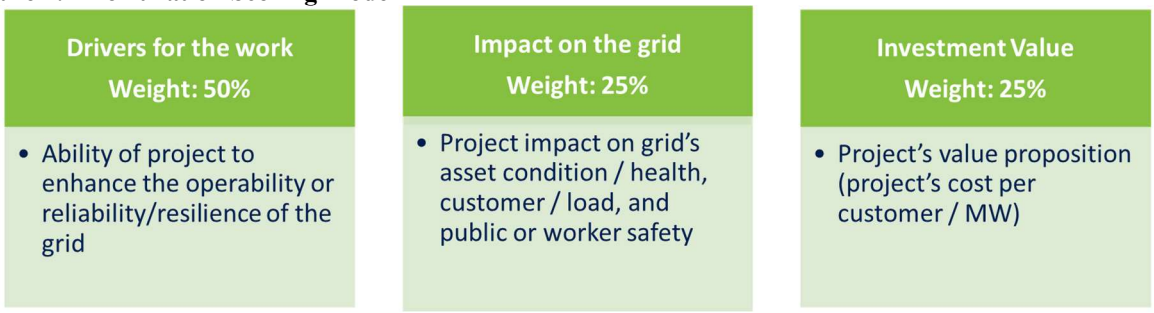
**Figure 1. LUMA Recovery and Transformation Framework[7]**

[6] *See* LUMA response to NPFGC-of-LUMA-CAPEX-11 that identifies programs that may not directly impact traditional reliability metrics but are essential to LUMA's operational strategy (LUMA Exhibit 74.02).

[7] *See* LUMA Exhibit 74.29.


Applying the bottom-up approach described in my Direct Testimony,[8] the Recovery and Transformation Framework, which drove the creation of LUMA's Improvement Programs, assisted in the creation of a listing of candidate investments. Then, for those Programs (and associated projects) that fall under my purview, we applied a scoring framework to facilitate the ranking of these investments, based primarily on operability, reliability, and resiliency.

**Figure 2. Prioritization Scoring Model**




These scores were then used to arrive at what constitutes the investment portfolio presented as the Capital Programs Optimal Budget, adjusted to ensure that we included the initiatives required to support advancement in meeting regulatory and legal requirements, particularly

[8] Direct Testimony of Pedro A. Meléndez-Meléndez for Capital Programs and Grid Transformation, questions 47 and 48, LUMA Exhibit 5.0.

those relating to achieving a sustainable energy transformation.[9]

**Q.14 Hurley speaks to prioritization of capital spending relevant to this rate case (see his response to question 10 in his Answering Testimony), stating that the focus should be on "spending that maximizes the impact on system reliability …. before diverting those resources to other priorities." How do you respond to this statement?**

A. The inference that system reliability should be the entire focus on LUMA's spending ignores (1) key elements of system stabilization addressed in my responses to questions 9 and 10 above, and (2) the realities of various legal and regulatory mandates, some of which are mentioned in my response to question 11 above. System reliability was a primary focus in the formulation and ultimate prioritization of LUMA's proposed investment portfolio, in alignment with our focus on system stabilization to ensure long-term improvement. This approach, combined with the fact that a comparatively small amount of investment must be included in the investment plan to advance progress on a series of mandates, is not indicative of failure "to prioritize and properly coordinate projects consistent with prudent industry practice," as Hurley states in response to question 10 in his Answering Testimony. Rather, it is reflective of adherence to an asset management best practice of ensuring alignment between organizational strategy and spending decisions.[10]

**Q.15 Please expand upon your responses to Hurley's challenging of LUMA's mathematical modeling and approach used to calculate reliability impacts.**

[9] This reflects a summarization of LUMA's process. Jack Shearman, an independent third-party expert, will provide testimony regarding the extent to which LUMA's approach comports to industry standards.

[10] ISO 55001:2024, a quality framework that specifies requirements for any asset management system. The framework is designed to standardize effective asset management practices.

A. As stated in LUMA responses to various RFIs[11], and consistent with guidance provided by the Institute of Electric and Electronics Engineers (IEEE) 1366, "Guide for Electric Power Distribution Reliability Indices," LUMA calculated the contribution of improvements on distribution circuits, transmission lines, and substations programs to reliability, using as inputs structured engineering judgment to calculate the expected reliability benefits (i.e., reductions in CI's and CMI's) from the estimated work scope on each program and a mathematical model that takes LUMA's experience over the past 3 years (i.e., fiscal years 2022 through 2024) and translates cumulative costs incurred over the specified period of each program to calculate expected improvements in Customer Minutes Interrupted (CMI) and Customers Interrupted (CI). This is important because the individual reliability impacts of specific upgrades or asset replacements within a program cannot be simply added together, as there are usually dependencies or overlaps between initiatives that can cancel out some benefits or introduce double counting. The mathematical model used by LUMA accounts for this and avoids such overestimates of benefits[12].

Hurley focuses only on the formula and overlooks the application of structured engineering judgement within each program to identify expected reliability impacts. He contends that LUMA's approach does not recognize the order of capital spending in presenting the reliability benefits to the customer, citing its importance as on equal footing with the total amount invested and goes further to recommend in the response to question

[11] *See* LUMA responses to NPFGC-of-LUMA-CAPEX-10, 10.1 and 10.2, SESA-of-LUMA-DST-7, NPFGC-of-LUMA-CAPEX-8, NPFGC-of-LUMA-CAPEX-9, SESA-of-LUMA-COST_ALL-5, NPFGC-of-LUMA-CAPEX-13 and 13.1, NPFGC-of-LUMA-CAPEX-17, NPFGC-of-LUMA-CAPEX-45, and PC-of-LUMA-OTH_OPEX-53 with Attachment regarding the Reliability Model and Calculation of Reliability Benefits (Exhibits LUMA's Exhibits 74.03, 74.04, 74.05, 74.06, 74.07, 74.22, 74.23, 74.24 and 74.25).

[12] Jack Shearman, an independent third-party expert expands upon the appropriateness of the model used by LUMA in his expert testimony.

11 in his Answering Testimony, that "LUMA should be directed to correct its flawed modeling approach." I do not agree.

**Q.16 Why not?**

A. LUMA's current approach to prioritizing capital investments is the best that LUMA can apply at this point, due to significant data limitations in both the details of outages captured in the Outage Management System (OMS) (e.g., outage cause codes, restoration times and customer counts for partial restorations, outage locations and specific equipment involved, etc.), and the low level of confidence in the connectivity model, resulting in what can be substantive errors in the customer count for each outage. These factors preclude the level of precision in modeling and analysis suggested by Hurley. However, in applying structured engineering judgement, LUMA is able to normalize the results, thus avoiding the pitfall of assuming any spending will automatically have a benefit to customers, while addressing Hurley's concerns regarding (1) the order of spending, and (2) correctly accounting for reliability improvements when investing to create a state-of-the-art substation with degraded / poorly performing transmission lines supplying that substation.

**Q.17 If the mathematical modeling and structured engineering approach used by LUMA to calculate reliability impacts is appropriate, then explain current system-wide reliability results.**

A. While LUMA's system-wide reliability metrics, such as SAIDI and SAIFI have been frustratingly slow to show improvement since LUMA stepped into the Grid Operator role in late 2021, per my experience, turning around core T&D reliability results following a long period of neglect and capital starvation requires major capital investments and takes many years to accomplish. In LUMA's case, capital investment aimed at improving

reliability has continued to be constrained (addressed throughout this rebuttal testimony), which has limited the scope of reliability improvement work LUMA could complete.

**Q.18 Is there empirical evidence that LUMA's approach, an outcome of the mathematical modeling and structured engineering approach, is beginning to produce benefits in system reliability?**

A. Yes. Early performance data show some observable improvements in a few key reliability metrics. For example, over the past 4 years, since LUMA took over T&D operations, electric distribution average outage duration has declined by ~18%, from 422 to 344 minutes per outage. Human error caused outages have dropped by 81%, from 5.2 million CMI's, to less than 1.0 million. And the average length of vegetation caused Distribution outages has fallen by 16% from 428 minutes (i.e., ~7 hours) to 358. These and other emerging results of LUMA's efforts to improve reliability look promising, although still modest overall, due to the limited availability of capital.

Nevertheless, where we have been able to make investments, there has been reliability improvement and increasing resilience. For example, LUMA started its reliability improvement investments with Distribution Automation (DA), sectionalizing by increasing the number of reclosers on the system. Our modeling and structured engineering approach projected that this strategy would offer the quickest results and the highest yield on reliability investments (i.e., the most benefit per dollar invested), particularly since electric distribution CMIs represented approximately 75% of the CMIs system wide. As of the end of FY2025, we have installed more than 900 reclosers (i.e., 317 three phase units and over 600 single phase units) across the electric distribution network, starting in FY2022 with the installation of at least one 3-phase recloser on the most troublesome circuits. We

then determined which circuits warranted multiple reclosers, through analysis of multiple factors, such as length of the line(s), load density, number of feeder branches and number of lateral feeders, historical reliability of the line and section, presence, location, and configuration of critical customers, constructability, and fault current and protection coordination. On the 144 circuits where we installed at least one 3 phase recloser (only a portion of the overall 1,128 distribution circuits i.e., 12.7%), the average improvement in SAIDI on that circuit has been about 21%.

**Q.19 Please explain how LUMA calculated the results indicated in your response to the previous question.**

A. LUMA's reliability department tracks interruptions through our IDB (Interruptions Database). The database stores historical interruption data, which the department uses to analyze trends and drivers in reliability performance and to generate insights which can be used to guide Engineering in Capital Improvement Program development and Project Design.

Reliability performance is tracked in detail, including key metrics such as interruption durations, and changes over time in interruption events associated with various causes, CIs and CMIs. In doing so, we can determine the split between interruptions and CMI's caused by Generation and Load shedding, and within T&D, we can identify those interruptions caused by problems in the Transmission System and / or Substations as compared to those initiating from Distribution-related failures. In conducting these comparisons, we were able to quantify most of our non-major storm event CMIs (in this case 75%) as emanating from the Distribution system.

We can also filter the IDB results to see what changes have occurred in the

reliability of specific circuits following actions like the installation of a new recloser and can iteratively monitor the impacts that capital improvements are having on the system. The insights gleaned from these analyses guide us on issues such as which distribution feeders warrant additional reclosers to drive further improvements in reliability.

These capabilities provide us with ad hoc reports that outline results such as those cited in my answers above.

**Q. 20 Please expand upon your objection to Hurley's contentions that all Federal Funding must be exhausted before budgeting NFC funds and that many of LUMA's NFC funded activities can be recategorized as Federally funded.**

A. Objections to specific statements within Hurley's Answering Testimony will be addressed later in this surrebuttal testimony, but from an overall perspective, Hurley's response to question 27 within his Answering Testimony that "PREPA, LUMA, and Genera should first exhaust outside sources of federal funding before requesting that ratepayers cover such expenses," ignores (1) the fact that not all activities within an otherwise FEMA-qualified project qualify for reimbursement[13], (2) timing and cash flow realities of the FEMA reimbursement processes related to the identification and performance of work, and (3) the potential to reassign funding for NFC activities to one of the federal funded grants / programs is not unlimited. These topics are further discussed in the Surrebuttal Testimony of my Colleague Andrew Smith (LUMA Exhibit 79).

[13] *See* LUMA response to PC-of-LUMA-DST-39 providing some definition of NFC from both Operations and Capital Programs perspectives and clarifying that Capital Program NFC is designed for planned activities to restore the highest priority out-of-service facilities and remediate the most degraded facilities identified in the course of inspection that demonstrate incipient failure modes but have not yet actively failed (LUMA Exhibit 74.08). Further explanations regarding funds not qualified for FEMA reimbursement are discussed in the Surrebuttal Testimony of my Colleague Andrew Smith.

**Q.21 Could you explain the issues around timing and cash flow realities of the FEMA reimbursement processes related to the identification and performance of work?**

A. Certainly. The realities of a poorly maintained electric T&D system over several decades and resulting focus on reactive maintenance and repair activities, and often urgent replacements is well-understood and documented. Although progress in transitioning to a more proactive and planned approach is noted, the challenges inherent to an aged and rapidly deteriorating infrastructure will remain until system stabilization is achieved. Therefore, in responding to system emergencies related to critical unplanned equipment failures, and to electric service interruptions or situations representing unacceptable risks (i.e., loss of contingencies, designed to mitigate the effect of high-consequence unplanned outages), the process to obtain obligations and funding aptly described in Hurley's Answering Testimony (and further opined upon in the surrebuttal testimony of my colleague Andrew Smith) does not support the urgency required in these situations. And, as LUMA does not have access to any other source of funds to bridge the gap between the performance of this work and receiving appropriate authorization for federal funding, NFC funds which are otherwise budgeted for non-federally funded activities, must be temporarily used to pay for equipment and contractors, and later reclassified once federal funds are received. This is an unfortunate byproduct of PREPA's bankruptcy and its consequent inability to raise long-term debt or secure other sources of capital. Note that, contrary to Hurley's Answering Testimony, this reclassification does not equate to a reduction in the NFC budget, rather it allows for the performance of planned capital work that does not qualify under federal reimbursement guidelines.

**Q.22 Were the FAASt program and revised cost-sharing model conceived to streamline the**

**process leading to receiving the proper authorizations and being reimbursed for work?**

A. I will defer to the surrebuttal testimony of my colleague Andrew Smit to address specific objections to Hurley's Answering Testimony regarding the mechanics around the various FEMA and other government programs and cost-sharing models conceived to assist Puerto Rico with its electric T&D system restoration efforts. But from the perspective of Capital Programs Department project execution, even though the ability to group funding requests for similar projects and more easily reallocate any unspent funds on one project to another eases the use of these funds, and relaxing the local cost share policy from 25% to 10% starts to address the capital funding gap[14], the overall process leading to reconciliation averages 100 days. Given the absence of sufficient working capital caused primarily by the failure of PREPA to fund at least 4.5 months of expected federally funded capital investments every month in compliance with the T&D OMA, LUMA is constrained in its ability to execute as planned on long-term projects.

**Q.23 In the response to question 28 of his Answering Testimony, Hurley points to the Working Capital Advance (WCA) program as the solution to "address liquidity issues and to expedite Puerto Rico's disaster recovery efforts." Do you agree?**

A. No.

**Q.24 Please explain.**

A. Again, I will defer to the surrebuttal testimony of my colleague Andrew Smith to address specific objections to Hurley's Answering Testimony regarding the mechanics around the

[14] The Expert PREB Consultant Report of Guímel Cortes dated October 10, 2025, speaks to the critical liquidity gap that threatens project viability. PC Exhibit 65.

WCA program. But from the Capital Programs Department's execution perspective, the absence of sufficient working capital caused by the failure of PREPA to fund at least 4.5 months of expected federally funded capital investments every month in compliance with the T&D OMA and the time required for COR3 to reconcile the depleted advances at each 25% interval, place LUMA in the position of either (1) imposing pauses during project execution (thus causing disruption in workflow, turnover of project staff, schedule delays, and extra costs[15]), or (2) temporarily drawing on other funds, thus deferring planned capital work not otherwise addressed by federal funds[16].

**Q.25 What are the financial limits on the potential to reassign funding for NFC activities to one of the federal funded grants / programs?**

The total amount of FEMA funds available to LUMA, under constant fluctuation, totals approximately $12 billion (which includes the $1.6 billion for vegetation clearing), and though there is no limit to FEMA 406,[17] any project so authorized must be coupled to a FEMA 428 qualified initiative. To place this amount in proper context, estimates ranging greater than $21 billion have been calculated as needed to first stabilize the system and then bring LUMA's electric T&D system up to the standards of a typical North American

[15] *See* LUMA response to RFI NPFGC-of-LUMA-CAPEX-23 regarding the reasonableness of cost estimates for federally and NFC funded projects (LUMA Exhibit 74.26).

[16] PREB Consultant Guímel Cortes' Expert Report on the Matter of Federal Funding dated October 10, 2025, PC Exhibit 65 at p. 8, confirms this statement, stating that the reconciliation process for the WCA program "transforms a program meant to provide liquidity into a 'stop-and-go' funding cycle marked by lengthy time gaps – gaps during which projects can stall for lack of available cash."

[17] LUMA response to NPFGC-of-LUMA-FEMA-6 provides a listing of Current Permanent Work Projects for Section 406 funding (LUMA Exhibit 74.09).

utility.[18] And once these standards are achieved, ongoing spending levels commensurate to those proposed for FY2028 will be required to properly maintain the electric T&D system.[19]

**Q.26 Please expand upon your objections to Hurley's interpretations of the Optimal and Constrained budgets as rationale for categorizing specific investments as either unnecessary, over-funded, or potentially eligible for federal funding.**

A. Objections to specific statements within Hurley's Answering testimony will be addressed later in this surrebuttal testimony, but from an overall perspective, it appears that Hurley uses the distinction between Optimal and Constrained budgets to distinguish between a program (or portion thereof) being essential and non-essential to the restoration of the grid. That is incorrect. The actual distinction is outlined in the Resolution and Order establishing the scope and procedures for this rate case[20]:

- "The *Optimal Budget* means the budget that is necessary to provide to electricity customers the quality of service required by (a) the Puerto Rico statutes, and (b) the contracts under which LUMA and Genera provide service."

[18] *See* Sargent & Lundy Consulting, Independent Engineering Report – PREPA T&D System SL-014468.TD, dated June 2019, at pp. 17, 85, which estimates a $1 to $2 billion range annually over a 10-year timeframe, which adjusted for inflation equates to $1.3 to $2.7 billion annually (which does not address the effect of tariffs and significant increases in equipment costs). Therefore, the $21 billion over a 10-year timeframe represents a conservative estimate to first stabilize the system and then bring the electric T&D system up to industry standard.

[19] This projection is based on reviews of other similarly sized utilities, and an assumed mandate to ensure LUMA's electric T&D system is properly maintained, meeting the initial objectives outlined in Section 1.6 of the Puerto Rico Public Policy Act No. 17-2019, as amended.

[20] *See* Resolution and Order, Case No. NEPR-AP-2023-0003, dated February 12, 2025, at pp. 5-6, *available at* https://energia.pr.gov/wp-content/uploads/sites/7/2025/02/20250212-AP20230003-Resolution-and-Order.pdf. Said Resolution and Order also provides that the Optimal Budget "must include the full-Service Fee (which includes the Fixed Fee and the performance incentive fee). The Optimal Budget also must include the costs necessary to give each operator, if it performs prudently, a reasonable opportunity to earn its respective incentive fee."

- "The *Constrained Budget* means, for a particular Fiscal Year, a budget whose total cost is less than the Optimal Budget by the amount that the Energy Bureau deems necessary to provide a customer-sensitive transition from the status quo (Fiscal Year 2025) to an Optimal Budget in FY 2028."[21]

There is no mention of relative merit of one program or portion thereof over another, and except for retail wheeling (a regulatory mandate[22] reflected only in the Optimal Budget) certainly no indication of how essential one program or portion thereof is to LUMA's overall strategy. The scaling back of these programs certainly is indicative of a prioritization process given the requirement to reduce the budget, but one must remember that the Optimal Budget already reflects those programs (and projects therein) deemed necessary to meet total system needs, adjusted for executability, placing high priority on the restoration of out-of-service equipment[23] and system stability (and by inference reliability).[24] By contrast, the Constrained Budget is *less* than the amount needed to provide adequate service delivery.

**Q.27 Please expand upon your objection to Hurley's and Hogan's statements on LUMA's alleged motives relating to funds that may ultimately be recategorized as federally funded.**

[21] *Id.*, at p. 6. The Resolution and Order also provide that "The difference between the proposed Optimal Budget and the proposed Constrained Budget must reflect PREPA's, LUMA's, and Genera's recommendations about which costs and activities in the Optimal Budget should be deferred.

[22] *See supra* note 5.

[23] *See* LUMA response to NPFGC-of-LUMA-OTH_OPEX-52 regarding effect of the Constrained Budget on out-of-service equipment (LUMA Exhibit 74.10)

[24] *See* LUMA response to PC-of-LUMA-DST-41 regarding effect of the Constrained Budget on reliability (LUMA Exhibit 74.11)

A. Throughout Hurley's and Hogan's Answering testimonies, they make incorrect statements regarding LUMA's motives around the use of NFC Funds. They allege and imply that LUMA has some sort of liquidity maintenance strategy or that LUMA has deliberately failed to prioritize the federal resources available for capital investment, or even that LUMA has some sort of plan to burden customers with higher rates without commensurate improvement in service (referred to in Hogan's Answering Testimony as "over-collecting"). These assertions are all incorrect. As described in this surrebuttal testimony, the dynamics regarding the temporary use of NFC funds (prior to recategorization as federally funded) is an outcome of factors beyond LUMA's control, namely:

- Lack of sufficient working capital caused primarily by the failure of PREPA to fund at least 4.5 months of expected federally funded capital investments every month in compliance with the T&D OMA, and
- Misalignment between (1) the FAASt reimbursement and WCA cash management protocols and (2) the natural flow of work within a capital project, which was discussed briefly above.

Further, the issue of "over-collection[25]" is unfounded as the NFC budgets are developed to address activities that do not qualify for federal funding, and to the extent that the recategorization to federal funding does occur, these dollars would be then freed up and immediately deployed to address additional corrective maintenance backlogs, restore out-of-commission equipment, and if urgent, support emerging in-flight capital programs.

**Q.28 Please expand upon your objection to Hogan's rationale and characterization that**

[25] *See* LUMA response to PC-of-LUMA-CAPEX-43 disputing the claim that approving NFC budgets will result in "over-collection from ratepayers." (LUMA Exhibit 74.12)

**LUMA's plan is inexecutable.**

A. In sum, the (1) combining of NFC and Federal Capital distorts the analyses, conclusions, and implications of capital portfolio execution, and (2) reliance only on historical trends to project future performance discounts the impact of any remedial actions and lessons learned that will be applied to future planning and execution.

**Q.29 How does combining NFC and Federal Capital distort the analyses, conclusions, and implications of capital portfolio execution?**

A. In combining NFC and Federal Capital, one gets an inaccurate view of performance to budgets and any possible implications on executability. In reviewing LUMA's performance on NFC projects, LUMA has demonstrated effective execution in "consistently utilizing the entirety of its budgeted non-federally funded capital expenditures each year."[26] This demonstrates that when unencumbered by the processes and uncertainties endemic to federally funded work, LUMA has the project management practices in place to meet investment plans. Yet, when one looks at executing the federally funded plan, despite these demonstrated capabilities, the challenges in receiving funding obligations and timely reimbursement are shown to be the primary cause of LUMA's underspending in this area. Only by viewing these separately can one isolate on root cause and appropriately focus on removing any obstacles to future executability.[27]

**Q.30 Please describe LUMA's project management practices.**

A. LUMA's Project Delivery Lifecycle Playbook, LUMA Exhibit 74.27, supporting training

[26] Refer to Mr. Hurley's response to question 37 in his Answering Testimony.

[27] These points and others are further explained by Jack Shearman, an independent third-party expert who has reviewed LUMA's plan while bringing an industry wide perspective to the subject of executability

program, and Work Management and Execution Readiness process addressed in LUMA's Exhibit 74.13, provide the necessary guidance to ensure well-equipped Project and Site Managers. The work management team plays a leading role in this process by coordinating and scheduling all planned activities across the execution of resources. This includes proactively coordinating and prioritizing tasks based on project criticality and resource availability.

**Q.31 Please explain more regarding LUMA's ability to manage capital projects.**

A. LUMA has established industry standard project management processes via its Project Delivery Lifecycle Playbook (LUMA Exhibit 74.27), consistent with the Project Management Institute's ("PMI")[28] Project Management Book of Knowledge ("PMBOK") to drive execution across several performance domains viewed as key to effective project management (including schedule, cost, and resource planning, project risk management quality management, supply chain logistics, and intra-organization coordination and communication). The Playbook provides a framework that presents an industry accepted Stage Gate Process across five Project Management Domains (Initiate, Plan, Detailed Design, Execute, and Close-out) with defined deliverables and quality checkpoints at each stage, all supported by detailed process flows. All Project Managers are trained to this guideline and evaluated based on their adherence to requirements specified therein.

**Q.32 Notwithstanding impacts the funding obligation process can have on project execution, are there other factors relevant to executing capital work and pace of capital spending?**

[28] The Project Management Institute ("PMI") is the world's leading association for those who consider project, program, or portfolio management their profession. For more information *see* https://www.pmi.org/about.

A. Two areas come to mind, as LUMA has considered the importance of having projects in "shovel-ready" status well in advance of their scheduled construction start dates:

- **Architecture and Engineering (A&E) Support:** Since commencement LUMA has executed a little over $1B in A&E contracts, utilizing approximately 30% of the overall contract values, leaving approximately $700M for future engineering work. There are 10 active A&E MSA contracts, currently set to expire in FY2027, but all with a provision for two (2) one-year extensions, thus providing coverage through FY2029.

- **Long-Lead Equipment:** For long lead equipment like transformers, breakers, and switchgear, equipment on site / contracts in place to address requirements for the next 3 years. All required equipment is in various stages of procurement, from initial purchase orders, to under construction in factories, in factory acceptance stages, out for deliveries, or on site. Further MSAs are in effect for the next three years, all with two (2) one-year extensions.

**Q.33 Please explain your statement that reliance only on historical trends to project future performance discounts the impact of any remedial actions and lessons learned to be applied to future planning?**

A. LUMA views the two portions of its capital investment portfolio separately and has been able to narrow in on actions to preclude recurrence of past issues: namely, falling short of its federal capital plan. If LUMA were to rely solely on historical trends in developing its capital investment portfolio and not have a clear picture on the root causes of previous shortfalls, the timeframe for achieving system stabilization would easily double, and our customers would continue to experience larger and more extended service interruptions

well past 2035. With that in mind, LUMA has:

i. Reduced the size of its federal capital plan, assuring that specific projects are either obligated or well along in the process,

ii. Confirmed that major equipment is either on site or designated with contracted delivery dates (e.g., 82 transformers, 534 transmission breakers, and over 18,500 poles are either on-hand or under contract, and

iii. Established a path for performing engineering and construction[29]. For engineering, contracts supporting work to be performed over the next 10 years are in place.

## III. CAPITAL PORTFOLIO FORMULATION AND PRIORITIZATION

**Q.34 What is the purpose of this section, entitled "Capital Formulation and Prioritization?"**

A. The purpose is to rebut specific comments made by Hurley around the topic of Capital Portfolio Formulation and Prioritization.

**Q.35 In his response to question 20 of the Answering Testimony, Hurley claims that the federal government and FEMA have eased the use of federal funding to support Puerto Rico's disaster recovery, including for remediation and improvements to the electrical system. In your experience as head of the Capital Programs Department at LUMA, have FEMA processes promoted ease of use of federal funding? Please explain your response.**

A. As I stated in my response to questions 20 through 25 of this surrebuttal testimony the ability to group funding requests for similar projects, the relaxing of the local cost share

[29] *See* LUMA's response ROI-LUMA-AP-2023-0003-20250712-PREB-PROV-009 regarding long lead-time equipment, limited on-island labor, and contracting constraints when estimating the T&D NFC budgets (LUMA Exhibit 74.14).

policy from 25% to 10% and the modifications to the WCA program all represent positive steps in easing the use of federal funding. However, they do not completely bridge the gap caused by absence of sufficient working capital caused primarily by the failure of PREPA to fund at least 4.5 months of expected federally funded capital every month, a stipulation in the T&D OMA, and the pauses implicit within the 25% interval are not compatible with flow of work in executing projects. And, though the FAASt program, in theory, should expedite the process leading to actual obligation of funds during construction, we have learned that the time required to receive these obligations is still long, particularly when environmental reviews are required. These factors, the primary contributors to our failure to meet schedules for federally funded work, have been incorporated into LUMA's Long Term Investment Plan (LTIP).

**Q.36 In his response to question 27 of the Answering Testimony, Hurley claims that LUMA's proposed budgets do not prioritize exhaustion of outside sources of federal funding before requesting that expenses be paid through rates and that therefore, the Energy Bureau should not approve LUMA's NFC budget. Do you agree that LUMA must first exhaust federal funding before budgeting NFC funds?**

A. No.

**Q.37 Please explain your response.**

A. First, as explained in my response to question 20 in this surrebuttal testimony, there are activities even within federally funded projects that do not qualify for federal reimbursement. Additionally, there are the realities of urgent replacements for critical equipment (either in response to unplanned outages or serious deficiencies discovered during inspection and testing activities), where the timeframe to attain obligation, let alone

perform any necessary engineering, extends well beyond an acceptable response time. This latter situation can be reconciled later, up until the federal funds allocated to Puerto Rico have been exhausted, but until the situation with the lack of working capital owing to PREPA's bankruptcy has also been resolved, there is no recourse but to apply NFC funds to these activities. Again, I want to emphasize that this is not indicative of a proactive plan to use federal funds as a financial mechanism, rather in response to the depleted working capital fund.

**Q.38 In his response to question 36 of the Answering Testimony Hurley states that after conferral, LUMA, PREPA, and Genera released a Consolidated Project Plan on August 8, 2025, detailing projects to be funded by FAASt. Are you familiar with the Consolidated Project Plan?**

A. Yes.

**Q.39 What is the Consolidated Project Plan and how was it formulated?**

A. The Consolidated Project Plan consists of PREB-approved projects, presented in two tiers: 99 projects linked to the LUMA System Stabilization Plan and / or federally funded projects that are already in flight where an extended pause / termination was deemed imprudent, identified as Tier 1, and Tier 2, and additional 224 projects that define a major portion of the remaining federally-funded projects contained within the LTIP.[30] It was submitted to PREPA in response to a request to provide a list of LUMA's highest priority projects (e.g., Tier 1), but as a consolidated list (i.e., added Tier 2) to present a total view of all PREB-approved projects.

[30] Refer to Consolidated Project Plan list providing Project Description, FEMA Allocations, Process Step (Obligated, Pending), Cost Information and Project Status (LUMA Exhibit 74.28)

**Q.40 In his response to question 36 and Section VII of the Answering Testimony Hurley states "projects in the Consolidated Project Plan are not necessary or prudent." What is your response?**

A. I disagree. The list to which Mr. Hurley refers are those projects categorized Tier 1, consisting of projects required and approved by PREB for system stabilization (including addressing system resilience during major storm events) and / or projects that were already in flight that if delayed, could place at risk the opportunity to receive federal reimbursement.

**Q.41 Does the Consolidated Project Plan alter the requested funding for capital work of the Capital Programs Department in the Rate Review Petition?**

A. If the Consolidated Project Plan is left intact, there would be no impact. However, unbeknownst to and without consulting LUMA, FAASt numbers for projects categorized as Tier 2 were deactivated, thus delaying reimbursement for A&E work already performed and limiting work that can be done to assure "shovel-ready" projects in future years. If the deactivated FAASt numbers are not restored per a recently received Order and Resolution[31], the 224 PREB-approved projects, many of which are necessary to stabilize the electric T&D system and improve reliability, will need to be funded in the future through NFC.

## IV. USE OF FEDERAL AND NFC FUNDS

**Q.42 What is the purpose of this section, entitled "Use of Federal and NFC Funds?"**

[31] Refer to recently issued Resolution and Order Amendment Petition and Reprioritization of FAASt Funding for Case No. NEPR-MI-2021-0004, dated October 24, 2025, directing PREPA and LUMA to reinstate the 224 FAASt projects that had been deactivated and re-establish the original $1.2 billion of FEMA projects for FY2026. *Available at* https://energia.pr.gov/wp-content/uploads/sites/7/2025/10/20251024-MI20210004-Resolution-and-Order.pdf.

A. The purpose is to rebut specific comments made by Hurley around the topic of the use of Federal and NFC Funds**.**

**Q.43 In his response to question 37 of the Answering Testimony Hurley states that LUMA has significantly underspent its federally funded capital expenditures budget in recent years. He claims that LUMA's persistent underspending of federal funds indicates a failure to prioritize federal resources and that LUMA seeks to shift costs to customers. What is your response to this statement?**

A. I vehemently disagree. There is no question that both FEMA and LUMA have gone through a learning curve in understanding how best to reach the point where funds are obligated for specific projects, and realizing the timeframes required to attain such obligations. These learnings have been incorporated into the programs that constitute the Optimal and Constrained Budgets as LUMA developed its Capital Investment portfolio for the three-year period addressed by this rate case. Thus, the issue is not one of failing to prioritize federal resources, but in accounting for the realities of attaining federal funds amidst other real-world constraints (e.g., supply chain and resources). With respect to shifting costs to customers, as inferred throughout this surrebuttal testimony, the proposed levels of NFC spending are reflective of required revenue to fund activities that do not qualify for federal funds. Thus, to the extent that specific activities, initially funded by rates are recategorized as federally funded, these adjustments allow for the performance of work as originally planned. In either case, the customer interests are met as expedited actions on critical assets is essential to advancing the stabilization plan[32] and improving reliability.

[32] *See* LUMA response to PC-of_LUMA-OTH_OPEX-72_Attachment 1 describing scope and how the activities assigned to the Electric System Priority Stabilization Plan are being funded (LUMA Exhibit 74.15)

**Q.44 In his response to question 38 of the Answering Testimony Hurley claims that LUMA's rate petition includes expenses already covered by federal funding and goes further to state "the eligibility of such expenses for federal funding came to light through the diligence and discovery of the Energy Bureau, its consultants, and intervenors, rather than through LUMA disclosures in the rate petition. Would you comment on that?**

A. I strongly disagree with any implication that this situation is indicative of an attempt to conceal information from the Energy Bureau, its consultants, and intervenors, and the premise that the presence of expenses in both the NFC and federal accounts is improper. As stated throughout this surrebuttal testimony, there are circumstances in which a project may involve a mix of NFC and Federal Funds. For example, portions of projects that will likely qualify for FEMA public assistance or hazard mitigation, but if submitted for such funding, could preclude the opportunity to use these funds for a more comprehensive fix, as there are instances where the focus of an investment is to restore an asset to service (often driven by urgency related to unacceptable safety or reliability risk levels), when in fact, the ultimate objective is to bring the asset up to code and standard. If LUMA were to request federal funds for the restoration activities (a less costly activity), the higher cost to then bring the asset up to code and standard could be deemed to exceed baseline restoration, and would therefore, need to be funded by ratepayers. There are also instances where activities within a federally funded project do not qualify for federal funds, thus showing budgets in both NFC and Federal accounts for the same project. This interplay between NFC funds requested and the availability of federal funds was acknowledged in my direct testimony, where I stated that NFC funds will be used to enhance the benefits derived from

federally funded projects, and that LUMA is committed to the appropriate use of federal funds to both stabilize the grid and make it more resilient.

**Q.45 In his response to question 39 of the Answering Testimony, Hurley avers that LUMA's alleged reliance on ratepayer collections for capital projects is based on maintaining liquidity to advance federal projects but overlooks other available sources. What is LUMA's position with regard to this claim?**

A. Throughout this surrebuttal testimony, I have explained that the temporary use of NFC to fund capital projects is caused by the absence of working capital (a responsibility assigned to PREPA via the T&D OMA) often amidst the need to spend on immediate repairs / replacements (1) in a timeframe that cannot be supported by the obligation process, nor (2) within the workflow constraints imposed by the WCA process. With respect to rebutting the overlooking of other available sources (including those relating to the 10% cost share included for FEMA spending) I direct your attention to the surrebuttal testimony of my colleague Andrew Smith.

**Q.46 In Question 40 and throughout his Answering Testimony, Hurley claims that LUMA has underspent federal funds. In connection with the Capital Programs federally funded budget, do you have a response to the claim of underspending?**

A. As indicated in my response to question 43 of this surrebuttal testimony, FEMA and LUMA's joint learnings regarding the process to attain obligations has been factored into the LTIP that underlies this rate case, and all near-term projects are supported by equipment / materials that are either on site or have contracted delivery dates, along with a resource plan to support execution.

**Q.47 Also, in his response to Question 40 of the Answering Testimony, Hurley goes on to say that LUMA's multi-year underspending on federal funds has likely contributed to maintaining ratepayer-funded O&M costs at levels higher than would otherwise be necessary. Hurley also states that as the budgeted capital expenditures are implemented, O&M costs should decline. What is your response?**

A. For a normal utility, his statement has merit. But, within the timeframe of this rate case, LUMA will continue to address the large volume of reactive maintenance (more costly from a unit cost perspective than normal planned maintenance) endemic to its aged and deteriorated electric T&D infrastructure, while simultaneously implementing a full-fledged preventive maintenance program (refer to LUMA Exhibit 6.0 – Mr. Burgemeister's Direct Testimony). The amount of O&M dollars available to support these activities since commencement have not allowed for this two-dimensional approach, as the effort to urgently address unplanned equipment failures absorbed any funding that could have been committed to establishing a more balanced plan. Therefore, O&M costs above current levels, costs that do not qualify for recovery by federal funds, will be required to implement a maintenance program that aligns with prudent and standard industry practice.

**Q.48 Should the Energy Bureau consider historical trends in spending of federal funds to inform its analysis of LUMA's proposed NFC budgets? Please explain your response.**

A. Historical trends serve the purpose of identifying challenge that if addressed as LUMA has, hold little or no relevance to future outlooks. More specific information is provided in the expert testimony on executability by Jack Shearman, an independent third-party expert.

**Q.49 In his response to question 44 of the Answering Testimony, Hurley states that under the revised Stafford Act provisions as stated in the Bipartisan Budget Act of 2018,**

**damaged distribution system equipment could be replaced or restored "to industry standards without regard to the pre-disaster condition," including "components of the facility or system not damaged by the disaster where necessary to fully effectuate the replacement or restoration of disaster-damaged components to restore the function of the facility or system to industry standards." Hurley opines that this standard gives a wide scope for eligibility of distribution repair projects for FEMA permanent work funding. Does LUMA agree?**

A. I tend to agree with Hurley regarding his interpretation of the standard. However, there are constraints that preclude using this to assign all such work to federal accounts, namely budget. As stated in my response to question 25 in this surrebuttal testimony, the total amount of FEMA funds available to LUMA total approximately $12 billion, of which $4 billion is allocated to distribution (including $1 billon to distribution automation). This is significantly less than the total funding required to return the electric distribution system to standard operation.

**Q.50 Further in response to question 44 of the Answering Testimony, Hurley identifies the Distribution Pole & Conductor Repair program, representing $283.2 million, as an example of proposed NFC costs that may be reallocated to federal funding. Do you have a response on federal funding eligibility for this program?**

A. First, not all of the funds assigned to the Distribution Pole & Conductor Repair Program represent activities that qualify for federal funding, namely upgrades that come from preventive maintenance. The LTIP that underlies this rate request incorporates the lessons learned from our experiences since commencement (e.g., time required to attain obligations from FEMA, supply chain challenges, and resource constraints), and thus takes a measured

view of how much federally funded distribution work can be accomplished over a 10-year period. It is not merely the shifting of numbers from one account to another, rather a well-planned approach that considers these lessons learned in shaping a realistic and executable cost profile, where the time required to attain obligations is the controlling factor.

**Q.51 Is LUMA proposing that Distribution Pole & Conductor Repair be funded through rates as opposed to through federal funding?**

A. No. The Distribution Pole & Conductor Program also includes federal funding. The $4 billion allotted by FEMA to electric distribution also includes Distribution Line Rebuilds, Distribution Streetlighting, and Distribution Automation[33], and over $750 million (assuming COR3 funding levels) of federal capital has been assigned to the Distribution Pole & Conductor Program. The ramp up in federal spending on this program, which shows lower levels early on, is indicative of where we are in the obligation process and expected deliveries of major equipment. It is our intent to maximize the use of any available federal funds, but as indicated in my response to the previous question, there is a significant difference between the availability of these funds and the capital required to restore the distribution system to that of a normal operating electric utility. In the absence of any additional federal funds, this difference will have to be funded through rates.

**Q.52 And continuing onto his response to question 44 of the Answering Testimony, Hurley claims that existing poles and conductors would effectively all have been affected by the 2017 hurricanes. Do you agree?**

[33] *See* LUMA responses to PC-of-LUMA-DST-36, PC-of-LUMA-DST-37, and PC-of-LUMA-DST-65 for more definition of the programs that define the electric distribution NFC portfolio (LUMA Exhibits 74.16, 74.17, and 74.18).

A. That is difficult to answer as the records following Hurricane María (pre-LUMA) are incomplete and inaccurate. However, it is a moot point as the funding limits for these federal funds are well below those needed to address all deficient poles and conductors[34].

**Q.53 Hurley goes on to claim that capital funding for Distribution Pole & Conductor Repair could even be eliminated if not needed to bring the system to industry standard. What is your response?**

A. I cannot conjure a scenario where such a statement would be correct or reasonable. I believe the intent behind this statement was merely a hypothetical. Significant shortfalls to system stabilization, the number, location and impact of distribution related outages and preliminary data from high-level assessments suggest that a total distribution system rebuild is in order.

**Q.54 In his response to question 45 of the Answering Testimony, Hurley lists the "Guánica TC - Transformer Replacement" and "Maunabo - Transformer Replacement (Energize)" as examples of projects that have the hallmarks of federal funding eligibility. Does LUMA have a response?**

A. Yes.

**Q.55 Please state and explain LUMA's response.**

A. Almost 75% of the total budgets for these projects ($10.6 million) are budgeted for federal funds. The remaining 25%, currently contained within the NFC budget, is required to start these projects while LUMA and FEMA jointly manage through the obligation process. These are both considered urgent as they are key in stabilizing the 38kV portion of the grid

[34] The LTIP calls for $3.4 billion to address all Distribution Pole and Conductor deficiencies, leaving only $600 million to address the Distribution Streetlighting, Distribution Automation, and Distribution Line Rebuild Programs.

in both the Southwest and Southeast portions of the island, providing the necessary resiliency should a major event (e.g., storm) occur. Should any portion of this balance be deemed eligible for federal funding, appropriate adjustments will be made.[35] As stated throughout this surrebuttal testimony, reclassification does not constitute a reason to reduce the NFC budget, rather it affords the opportunity for LUMA to redirect its resources towards myriad of NFC activities, the costs for which far exceed the NFC budget.

**Q.56 Further in his response to question 45, Hurley contends that the five projects totaling $19.0 million (for FY2026 only) that were reallocated to the federal funding pipeline as part of the Provisional Rate Order should remain so designated. Please respond.**

A. I do not agree. LUMA maintains its request that those projects be funded through base rates as part of the permanent rate order. The urgency (i.e., the embedded system risk should the lines that rely on these transformers and lines for backup fail) assigned to these projects far exceeds the time it will take to receive obligations, the five projects being (1) Factor – Transformer Replacement), (2) Caguas TC-Transformer Replacement, (3) Costa Sur-Transformer Replacement, (4) Fajardo-Transformer Replacement, and (5) Transmission Line 8700 Rebuild. And as stated throughout this surrebuttal testimony, should federal funds be obligated to these projects, appropriate adjustments will be made, but not to the detriment of the established NFC budget.

**Q.57 In his response to question 46 of the Answering Testimony Hurley deemed that reductions were appropriate in the areas of Fleet Capital Purchases ($103.6 million), Retail Wheeling ($34.1 million), Workforce Management ($14.9 million), and Employee Ergonomic Chairs ($1.8 million), citing the difference between the Optimal**

[35] *See* LUMA response to PC-of-LUMA-TRS-10 for more context regarding the replacement of power transformers over the three-year period covered by this rate case (LUMA Exhibit 74.19)

**and Constrained Budgets as the rationale for these reductions. Do you agree?**

A. No

**Q.58 Please explain.**

A. As stated in my response to question 26 of this surrebuttal testimony, with the possible exception of retail wheeling (which is driven by a PREB mandate[36]), reductions between the Optimal and Constrained Budgets are not indicative of how essential one program (or portion thereof) is to LUMA's overall strategy, rather the outcome of difficult decisions of where best to trim to meet a constrained budget as required by the Energy Bureau.[37]

- With respect to Fleet, 57% of our fleet assets (i.e., 1,237 of 2,161) are past their expected service life that if left unaddressed will increase by 69 fleet units in FY2027 and an additional 82 fleet units in FY2028. Besides the obvious adverse effect of this trend on personnel productivity (e.g., will limit the number of workgroups that can be deployed, thus rendering individuals unavailable to perform work due to lack of vehicles and heavy equipment) and safety (e.g., brake failures, difficulties in steering, tire malfunctions, poor suspension and handling, and absence of functioning safety features such as airbags, collision alerts, and braking assistance), unplanned repair activities and continuance of rental strategies to fill critical fleet-related gaps will have adverse effects on O&M costs[38], and
- A fully functional Workforce Management capability is required to accommodate

[36] *See supra* note 5.

[37] Resolution and Order, Case No. NEPR-AP-2023-0003, dated February 12, 2025.

[38] For more details refer to the Direct Testimony of Kevin Burgemeister for Fleet, Senior Vice President Operations (Acting), LUMA Energy ServCo, LLC dated July 2, 2025, LUMA Exhibit 5.0

809 the increased workload attributed to the anticipated increase in O&M and NFC
810 activities to (1) work down the ever-expanding list of corrective maintenance, thus
811 reducing the number of unplanned service interruptions to customers resulting from
812 failed equipment, and (2) bringing more stability and significantly reducing the risk
813 of large-scale outages resulting from major equipment failures.

814 **Q.59 In his response to question 47 of the Answering Testimony Hurley suggests that**
815 **several proposed NFC transmission projects in the Constrained Budget totaling**
816 **almost $9 million warrant further scrutiny because they are incremental to the 51**
817 **transmission lines that contributed to most transmission-related outages.**

818 **Q.60 Do you have a response?**

819 A. Yes

820 **Q.61 Please state and explain your response.**

821 A. I do not agree. Failure to execute these projects presents significant risk to the T&D system,
822 should issues occur where their backup or redundancy would be required; backup meaning
823 having extra capacity or alternative supply available to keep power flowing when a
824 problem arises, and redundancy meaning having multiple paths or sources to deliver
825 electricity so that if one fails, others can take over. From an overall system perspective, it
826 is important to (1) maintain interconnection and resource sharing, (2) maintain grid
827 reliability and resilience, and (3) support emergency operations and restoration. These lines
828 remaining out-of-service means that the loss of any single major component on the lines
829 they backup, can result in an unplanned outage, far larger than that experienced on the
830 electric distribution system.

831 • Line 16800 ($4.0 million): This is an out-of-service underground line, posing risk

to the 38kV system in the Dorado area. In the event of a failure to the 115kV / 38kV transformer at the Dorado TC, this line provides the necessary backup / contingency to avoid or minimize load shedding.

- Line 9100 ($1.5 million): This line is out-of-service, thus preventing the interconnection between Bayamón Pueblo and Guaraguao Sect., and posing risk to the 38kV system in the Bayamon region.
- 4500-Canas TC-LA Rambla Sect. ($1.4 million): This line is out-of-service and provides the necessary backup to the 38kV loop in the southern zone, acting as a power backup to distribution substations that serve hospitals.
- 1700-Guanica TC-Yauco 2 HP ($1.2 million): This line is out-of-service, providing backup for transmission to the Yauco HP generation bus.
- 800-Comsat Sect-Cidra Sect" ($0.7 million): Similarly, this line is out-of-service and is required to back up the 38kV system.

**Q.62 In his response to question 48 of the Answering Testimony, Hurley states that LUMA has recently applied for $54.8 million in DOE Puerto Rico Energy Resilience funding (DRF) for projects that are also included in its NFC revenue requirement request and argues it is not reasonable to request ratepayer funding for projects already being developed with DOE funds. He then goes on to state that LUMA's revenue requirement should then be reduced by $54.8 million. What is your response?**

A. Pending finalization of the Terms and Conditions governing the available DOE[39] DRF funds(including establishment of working capital allowances during construction), of the

[39] *See* LUMA responses to NPFGC-of-LUMA-CAPEX-7.1 (LUMA Exhibit 74.21) and SESA-of-LUMA-RATE_DES-37 (LUMA Exhibit 74.20) that explains the reconciliation to $54.8 million of projects that comprise the scope of this DOE funded initiative.

eight projects that comprised LUMA's portion of the original request for $153 million, four projects (Transformer Pre-Installation Work, Transmission Repairs, Switchgear Replacements, and Relay Protection Upgrades) totaling $47 million (note that the previously provided $54.8 million has been revised to $47 million) have been identified as no longer requiring ratepayer funds. But, consistent with my responses to previous questions in this surrebuttal testimony, the NFC funds originally committed to these projects, should be redirected to other NFC activities in the form of emergency replacements for out-of-service equipment or other critical deficiencies.

**Q.63 In his response to question 50 of the Answering Testimony, Hurley recognizes that LUMA expresses a goal of achieving a "future state" with smart grid technologies and renewable energy but argues that such projects are not an appropriate use of funds when resources are limited and core transmission and distribution lines remain out of service. What is LUMA's response to this assertion?**

A. We are obligated to pursue these parallel paths to remain in compliance with Puerto Rico Energy public policy mandates and the T&D OMA.[40]

**Q.64 In his response to question 51 of the Answering Testimony, Hurley identifies additional projects from LUMA's Consolidated Project Plan that he assesses as unnecessary to the restoration of the pre-existing energy grid, arguing that these projects may restrict the use of federal funds that could otherwise be allocated to projects with a more immediate impact on system operations and reliability. What is LUMA's response to the claim that some projects are unnecessary for grid restoration and may restrict federal funds from being used for more urgent reliability**

[40] This point if further supported in the Report on Integration of Renewable Generation and Battery Storage issued by PREB Consultants Kathryn Bailey and Harold Judd of Accion Group.

**improvements?**

A. Consistent with my responses to questions 9 and 10 in this surrebuttal testimony, restricting investments to projects that will have an immediate impact on system operations and reliability extends the timeline for executing the more critical system stabilization plan where improved system resiliency is the goal, and reliability though still viewed as important, is more of a by-product of the plan than LUMA's sole focus.

**Q.65 With respect to Hurley's response to question 51 of the Answering Testimony, Hurley goes on to identify specific projects for removal from the federally funded pipeline in deference to other projects that would have a more immediate impact on system operations and reliability. What is your response?**

A. Looking at these specific projects, I offer the following explanation as to why these should remain within the federally funded pipeline:

- Microgrid System for the island of Vieques ($105.5 million) and the island of Culebra ($40.0 million): Following María, both islands were out of power for an estimated 15 months due to network failures on the mainland in PREPA's network. If either of the submarine cables had failed, it is estimated that the outage could have extended an addition nine months or more (submarine cable replacements have exceedingly long lead times). LUMA contends that this vulnerability is too great to sustain going forward and has decided to install a microgrid with wind and solar renewable energy sources with diesel generators on each island. Hurley is correct that these projects will not have as much beneficial impact on reliability.

But the purpose of these projects is not to improve reliability. It is needed to bolster resiliency for the residents of those islands.[41]

- Consolidation of six control centers ($131.2 million though has been undergoing EHP review since June 2024)[42]: LUMA's control centers form the nerve center of Puerto Rico's electrical grid. The current distributed and aging facilities pose an existential risk to reliable grid operation. Consolidating into a modern, secure, and integrated facility will provide: (1) a single, resilient hub for all transmission, generation, and distribution control, (2) the foundation for automation and future ADMS deployment, and (3) a long-term safeguard for Puerto Rico's energy resilience and modernization efforts. Thus, this investment is essential—not discretionary—for ensuring the grid's stability, safety, and efficiency for decades to come.
- The return of three Transmission Lines to pre-disaster conditions – Dos Bocas to America Apparel, 1900 Caguas to Lares TO, and 1900 Lares TO to San Sebastian ($120.2 million): Investment in these lines will mitigate risks / improve resiliency related to limited contingency in the event of other failures in the system (e.g., San Sebastián TC has only one 115kV source such that a failure will require the only reliable 38kV line to mitigate the effects of an event)

[41] The Build Back Better – "Reimagining and Strengthening the Power Grid of Puerto Rico Report" submitted to the Governors of New York and Puerto Rico in December of that year, at pp. 31, 35, recommended 75 microgrids across the Island, including one each on the islands of Vieques and Culebra.

[42] *See* LUMA response to PC-of-LUMA-OTH_OPEX-67, LUMA Exhibit 162, providing any evaluation LUMA has conducted comparing the measurable costs and benefits of continuing to retrofit existing control centers versus construction of the new control center.

**Q.66 In Hurley's response to question 51 of the Answering Testimony, Hurley states that, with the descoping of the projects that he deems unnecessary for grid restoration from LUMA's consolidated project plan, at least $330.6 million of additional federal funds under the Constrained Budget should be considered available for higher-priority projects, and at least $76.2 million of projects may be considered unnecessary upon further review. What is LUMA's response to this assertion?**

A. As these totals include projects (or portions thereof) addressed in my response to the previous question in this surrebuttal testimony, and considering that Tier 1 of the Consolidated Project Plan includes projects linked to LUMA System Stabilization Plan and / or federally funded projects that are already in flight, where an extended pause / termination would be deemed imprudent, I see no basis for their removal.

## V. EXECUTABILITY

**Q.67 What is the purpose of this section entitled "Executability?"**

A. The purpose is to rebut specific comments made by Hogan around the topic of executability and his characterization of an alleged plan to over-collect. It is LUMA's position that if the cash limitations described above are addressed promptly, the federal plan, though not part of the rate case, is achievable. And similarly, for the NFC Plan, subject to the same cashflow considerations, a resource plan that includes contractor personnel and where necessary, seconded staff, has been put in place, and the framework for an industry standard maintenance plan, summarized in Burgemeister's Operations Direct Testimony, is ready to go into effect. Contrary to the statements made by Hogan in his Answering Testimony, there are examples in the industry where similarly expanded plans have been successfully

executed[43].

**Q.68 Before delving into the specific portions of Hogan's testimony around executability, please summarize your experience with ramp ups in capital spending in electric power utilities.**

A. During my 20+ years of experience in the electric power industry, I have had the opportunity to successfully manage major capital programs for two utilities that involved ramp ups like that which is proposed in this rate case:

1. Jacksonville Electric Authority (JEA): Charged with the responsibility of 8 a 10-year plan calling for $10+ billion in capital improvements. During the initial 18 months of the plan, we increased our capital spending from $400 million to $800 million (i.e., doubled), and then doubled it again over the ensuing 18 months.
2. ITC Holdings: Addressing high-voltage transmission facilities across Midwest U.S., I built the organization and executed a ramp up of capital investment from $80 million to $800 million, with most of the growth occurring over a four-year period. This included converting the 34.5kV system in Iowa to 69kV over a 10-year period and rebuilding the electric transmission system across Michigan, Minnesota, Wisconsin, Kansas, and Oklahoma.

**Q.69 Given this experience, what is your view as to achievability of the plan put forward in this rate case?**

A. As with every major undertaking of this magnitude there are challenges, but as I reflect on my experience, I attribute LUMA's ability to execute to five main factors:

[43] Jack Shearman, an independent third-party expert cites specific examples of successful execution of ramped up Capital Plans.

1. Well-conceived plan that is aligned with the mission and objectives of the organization, with a strong focus on the needs of our customers and requirements specified by key external stakeholders,
2. Staff of professionals that possess a mastery of the technical competencies required to execute the plan, ranging from practical knowledge of Power Systems to effective application of core project management fundamentals,
3. Contract mechanisms to manage the inevitable ebb and flow of work over an extended period without disrupting the core function of the utility,
4. Use of well-targeted industry experts on an as-needed basis, and
5. Access to capital that is conducive to the overall long-range schedule.

As presented in my previous Direct Testimony (LUMA Exhibit 5.0) and this Surrebuttal Testimony, the first four items are in place, and as we collaborate to facilitate access to capital, I am confident that the plan, as presented, is achievable.

**Q.70 In his response to question 7 of the Answering Testimony, Hogan presents the notion of over-collection from ratepayers should LUMA fall short of its NFC plan. He believes that LUMA will not be able to reasonably and efficiently execute within this timeframe, thus burdening customers with higher rates without a commensurate improvement in service. Do you agree with his position?**

A. No.

**Q.71 Why not?**

A. LUMA's NFC Plan addresses:

i. Corrective maintenance emanating from a more robust maintenance plan,

ii. Portions of potentially federally funded projects, that if submitted for federal funds, would compromise the possibility of using federal funds for a more comprehensive fix,

iii. Projects that will likely qualify for federal funding (and subsequently reclassified) but due to the timeline required to receive obligations prior to construction, for sake of urgency, must be executed immediately, and of course,

iv. Activities that do not qualify for federal funds.

Except for corrective maintenance, by its very nature undefined where a placeholder has been inserted into the plan, the Project Delivery Lifecycle Playbook (LUMA Exhibit 74.27), introduced earlier in this surrebuttal testimony, will be deployed, accounting for the availability of major equipment and materials and a properly mobilized workforce. Therefore, from both a historical and future looking perspective, I view the NFC plan as achievable, as evidenced by the fact that we have always executed and achieved our NFC budgets. Further, as stated in my response to question 27 of this surrebuttal testimony, the issue of "over-collection" is unfounded as the NFC budgets are developed to address activities that do not qualify for federal funding, and to the extent that the recategorization to federal funding does occur, these dollars will then be freed up and immediately deployed to address any corrective maintenance backlogs, restore out-of-commission equipment, or if urgency requires, support other in-flight capital programs.

**Q.72 In his response to question 9 of the Answering Testimony, Hogan paraphrases your Direct Testimony (LUMA Exhibit 5.00) and concludes that "items omitted from the Optimal Budget to produce the Constrained Budget are items that should not be**

**included in the current rate ….” He then focuses his assessment on the Constrained Budget. Do you concur with this approach?**

A. No.

**Q.73 Why not?**

A. As noted above in this surrebuttal testimony, with the possible exception of retail wheeling (which is driven by a PREB mandate), in comparing optimal and constrained budgets, reductions are not indicative of how essential one program (or portion thereof) is to LUMA’s overall strategy, but rather the outcome of decisions of where best to trim to meet a constrained budget as stipulated in the Resolution and Order[44] that establishes the scope and procedure for this rate case. Therefore, to use this as a criterion for reducing NFC budgets, particularly when the scope of NFC related requirements exceeds any reasonable budgetary limits, does not align with sound asset management principles.

**Q.74 In his response to question 13 in the Answering Testimony, Hogan combines the federally funded and NFC budgets, states that LUMA’s actual spending on the combined budgets was approximately 38% less than budgeted, and states that LUMA was unable to execute planned activities for almost three-quarters of its capital programs. How do you respond to this statement?**

A. As stated in my response to questions 28 and 29 of this surrebuttal testimony, the combining of federally funded and NFC budgets presents a distorted view in looking at historical performance and projecting future outcomes. With few exceptions the scopes and effort and complexity in obtaining funding for the federally funded programs dwarf those within the NFC plan. LUMA’s performance in executing on these two categories of capital

[44] Resolution and Order, Case No. NEPR-AP-2023-0003, dated February 12, 2025

spending varies significantly. As Hurley states in the response to question 37 of his Answering Testimony, "LUMA consistently utilizes the entirety of its budgeted non-federally funded capital expenditures each year," the portion of the capital investment portfolio that is funded by rates (i.e., no over-collection), whereas there have been challenges with executing the federally funded plan. Thus, although we have fallen short of our original plans related to federally funded programs, a situation that has been remedied moving forward, the presenting of 38% as representative of LUMA's inability to execute on its NFC plan is misleading and based on measures also summarized in my response to question 32 in this rebuttal testimony, no longer relevant in projecting future performance even on federally funded projects. In fact, availability of working capital remains the critical component in meeting either the NFC or federally funded budgets, a circumstance that has been presented throughout this testimony.

**Q.75 In his response to question 14 in the Answering Testimony, Hogan then goes on to summarize LUMA's past performance, again looking at the combination of federally funded and NFC budgets, and concluding that the existing backlog of capital projects will impede LUMA's ability to ramp-up spending on additional projects during the three-year rate case period. What is your response to this statement?**

A. I do not agree. Once again, combining of federally funded and NFC budgets presents a distorted view. The existing backlog of capital projects has been factored into the planning process, and for the federally funded projects, a re-prioritization has occurred based on learnings around the complexities of performing this category of work. Notwithstanding an undefined and ever-changing backlog of corrective maintenance where a well-structured prioritization framework is in place (typical across the industry), the practices that

characterized our ability to use the entirety of our NFC budget to the benefit of our customers are in place.

**Q.76 In his response to question 15 in the Answering Testimony, Hogan references LUMA's performance on the Distribution Line and Transmission Line Rebuild programs, again presenting the numbers (significantly underspending in both programs) as combined federall4y and NFC funded programs. Please provide your perspective around this discussion.**

A. As explained previously in this testimony, the issues that caused these variances revolve mainly around the federally funded portion of these programs and thus should be viewed as two separate categories when discussing significant underspending. This allows for meaningful and relevant discussion around the issues and remedial action that has been taken to assure proper execution of the three-year plan represented in this rate case. Expanding upon my response to question 33 in this surrebuttal testimony, these changes include:

- Reducing the size of the federal capital plan,
- Confirming that specific projects in the plan are either obligated or well along in the process,
- Verifying that major equipment is either on site or designated with contracted delivery dates (e.g., 82 transformers, 534 transmission breakers, and over 18,500 poles are either on-hand or under contract),
- Defining a clear path for performing engineering (contracts addressing the next 10 years are in place) and construction, and

- Should unplanned delays occur, ensuring that LUMA has a list of "shovel-ready" projects to substitute, such that customers are receiving value commensurate to their rates.

**Q.77 Also in response to question 15 in his Answering Testimony, Hogan cites LUMA's acknowledgement of the "difficulty of obtaining skilled workers to implement even the much-lower level of past projects and otherwise meet the needs of the T&D system." He goes on further to state that "LUMA's own reporting demonstrates an increasing gap in the number of full-time electrical field workers required to complete its projects, and the number of workers employed by LUMA at the end of the fiscal year." How do you respond to these statements?**

A. LUMA has a plan to address the scarcity of skilled workers (i.e., Transmission Qualified Electrical Workers and Protection and Control Engineers) in Puerto Rico, an issue that is endemic across the industry:

- Continue to leverage our upskilling and apprenticeship structure to ensure that employees have the necessary skills and qualifications to support operations, emergency preparedness, service restoration, maintenance and repair, and replacement of critical infrastructure.
- Execute the contracts that are in place to bring in sufficient resources, with the proper skills to augment our capabilities and support execution of the projects planned over the next 3 years,
- And, as a last contingency, mobilize seconded staff from our parent companies, Quanta Services and ATCO Electric.

Thus, the gap to which Hogan refers is not related to scarcity of these resources on the island (i.e., the plan as presented is ready for execution), rather reflective of (1) the cash flow limits described above in this surrebuttal testimony and (2) the longer than originally anticipated timeline to obtain obligations (addressed throughout this surrebuttal testimony). To have executed the plan without consideration of these factors would have imprudently reduced whatever cash reserves we had on hand, while incurring costs without providing commensurate value for our customers.

**Q.78 In his response to question 16 in the Answering Testimony, Hogan looks at the considerably higher levels of proposed CAPEX spending than that previously approved and actual spend in FY2025 and extrapolates this historical trend and comparisons to raise doubts about executability and opens the door for possible over-collection. Are these valid concerns?**

A. At the surface, these concerns are certainly understandable, but only within the realm of the federally funded capital portfolio. For reasons stated throughout this surrebuttal testimony, over-collection is not a concern as our only constraint to performing more NFC-funded work has been budget and cash constraints. As things relate to the federally funded capital, the steps summarized in my responses to questions 33 and 65 of this surrebuttal testimony reflect lessons learned since commencement.

**Q.79 In response to question 17 in the Answering Testimony, Hogan cited his experience in stating that operators are frequently overly optimistic about how much work can be accomplished when budgeting for a significant ramp-up in capital projects from one year to the next, and summarized LUMA's acknowledged challenges around supply chain constraints, finding qualified individuals to do critical work on the**

**electric T&D system, and competing with other utilities for resources and equipment / materials, and thus, expressed doubts about LUMA's ability to execute the NFC budgets in a manner that will allow customers to experience improvement in service commensurate to the higher rates proposed in this rate case. How do you respond to Hogan's position on these matters?**

A. There are certainly examples of utilities that have been overly optimistic in their ability to effectively and efficiently ramp up their capital plans. But there are also examples where such a ramp up has been well-executed. Mr. Jack Shearman, an independent third-party expert, identified the key factors that drove these successes, and the extent to which they are incorporated into LUMA's plan. As noted above, I have confidence in LUMA's ability to execute.

**Q.80 In response to question 18 in the Answering Testimony, Hogan refers to public research relevant to LUMA's ability to execute on its proposed spending. Do you have a response?**

A. I do not take the information lightly. My view is not one of concern, rather motivation to ensure that the issues raised have been accounted for in our planning:

- The disruptions in the global supply chain are real and have been accommodated for through the planning of projects to which major equipment is either on site or are contracted with firm delivery dates (refer to my responses to questions 31 and 32 of this surrebuttal testimony).
- Similarly, the lack of specialized labor which poses challenges to all utilities, will be addressed through outside contractors, and on a very targeted and select basis,

seconded staff (refer to my response to question 77 in this surrebuttal testimony for more detail regarding the plan)

- The requirement to significantly expand the construction workforce over the next 10 years is understood, and contracts are staged to be awarded as capital funds are obligated, and
- The various barriers raised in Hogan's testimony are realities that we have and will continue to deal with in executing this plan.

**Q.81 In response to question 19 in the Answering Testimony, Hogan opines that LUMA's "NFC projections in its Optimal and Constrained Budgets are overestimated and likely not executable within the applicable three-year timeframe" … that LUMA's Constrained Budget "should accordingly be scaled back," and LUMA … "should focus on executing the federal funded capital projects." How do you respond?**

A. I believe I have addressed these concerns in my responses to previous questions in this surrebuttal testimony, and object to any notion that either budget should be scaled back. The Optimal Budget reflects that which is needed to provide our customers with the level of service required by Puerto Rico statutes and the T&D OMA, and the Constrained Budget represents a measured reduction, while maintaining the key elements outlined in the System Stabilization Plan and ensuring that our customers receive as much benefit as possible in the form of improved reliability while minimizing the size of a year-on-year rate increase. Concerns around executability, also addressed by Jack Shearman, an independent third-party expert, are understandable. I remain confident that the measures we have taken and factors we have considered in developing the capital plan effectively addresses the challenges we have encountered over the past four years.

## VI. EXPERT REPORTS OF ENERGY BUREAU CONSULTANTS

**Q.82 What is the purpose of this section of your surrebuttal testimony?**

A. To provide my view on two Expert Reports dealing with the Matter of Federal Funding and the Integration of Renewable Generation and Battery Storage and highlight any areas of disagreement.

**Q.83 Looking first at the Expert Report of Guímel Cortés on the Matter of Federal Funding, what is your initial view of the points raised regarding the FEMA framework and its operational challenges?**

A. The framework Cortes presents aligns with our understanding of key elements of the FEMA Framework (i.e., FAASt Program, Working Capital Advance Program, and Direct Administrative Costs), and the challenges he presents that lead to suboptimal outcomes and adverse impacts to ratepayers are accurate. There are, however, portions of his report that require additional discussion and clarification.

**Q.84 What are the matters that require additional discussion and clarification?**

A. The dynamics around the Environmental and Historic Preservation (EHP) compliance review, the unintended consequences / additional insights regarding his recommendation that the Transmission Line Rebuild of Line 8700 be targeted for funding under the FAASt program, and concerns regarding the recommended Restricted Federally Funded Capital Account (RFFCA).

**Q.85 What points do you want to make regarding the dynamics around the Environmental and Historic Preservation (EHP) compliance review?**

A. I agree whole-heartedly with the statement that "the most challenging step in the workflow is the mandatory Environmental and Historical Preservation (EHP) compliance and

review," a required condition to the start of construction that can take as long as two years to satisfy. In adhering to what Cortés terms, the "jeopardy clause," suboptimal approaches have been deployed. For example, the vegetation clearing program has had to initially focus on addressing areas that would have minimal, if any impact on reducing tree-caused outages, as areas with densely populated trees (i.e., greatest potential to improve reliability) pose the highest risk that an EHP review will not yield favorable results, and should that occur, the work would be deemed non-recoverable. My point is to emphasize the timeframe of "as long as two years," when presenting the realities around the restriction.

**Q.86 Please provide your comments regarding Cortes' recommendation that the Transmission Line Rebuild of Line 8700 be targeted for funding under the FAASt program**

A. This project falls under the category of one that will likely qualify for federal funds, but if submitted for such funding now (where the scope is to restore service rather than bring the line up to code and standards), we will likely lose the opportunity to use federal funds for the more comprehensive solution as these additional costs could be deemed in excess of those required for baseline restoration. Proceeding with the narrower scope now reflects the priority (currently ranks third on the list of out-of-service transmission lines) assigned to the line in addressing a high-risk situation:

- An output line for the Costa Sur Power Plant,
- Interconnected to one of the hydroelectric power plants which, in case of emergencies, can supply reactive power and stabilize voltage,
- Backs up Line 500 that feeds two substations (greater than 7 MW), and

- The line is interconnected at two generation centers, which when in service, could play a role in avoiding / reducing load shedding.

In taking this two-step approach, we would immediately improve overall system resiliency, while accounting for challenges around receiving obligations vis a vis EHP review. If upon further review, the longer-term solution is not adopted, these funds can then be reclassified. Given the reality of an extended period of unmitigated risk and initial plans to return this line to code and standard, our current approach offers the best risk reduction and least cost option to LUMA's customers.

**Q.87 Shifting to the Expert Report of Kathryn Bailey and Harold Judd on the Integration of Renewable Generation and Battery Storage, what is your initial view of the points raised and resulting conclusions and recommendations?**

A. In general, I agree with the report and the vision it casts for the integration of renewable generation and battery storage. My only issue is relevance to the timeframe addressed in this rate case.

**Q.88 Could you please explain your concern regarding relevance of the Expert Report of Kathryn Bailey and Harold Judd and the timeframe of this rate case.**

A. As was concluded in the recently filed Integrated Resource Plan (IRP), transmission planning for renewables is an important function that LUMA must address. In the near term, however (i.e., through FY2028), LUMA's transmission work *vis á vis* renewables and new thermal generation, is already committed and will be funded privately by IPPs and/or with revenues from the Purchase Power Clause Adjustment Rider. The transmission planning (Facility Upgrades/Network Upgrades) has either taken place or will take place using private (IPP) funds and given the state of the electric T&D system, the three-year

period represented in this rate case, must necessarily remain weighted towards system stabilization and near-term reliability improvement. That said, the budgets allotted to renewables and battery storage in the proposed plan and related revenue requirement are intended to establish momentum towards grid transformation, such that future planning can reflect solutions that achieve the vision articulated in this report by 2050.

**Q.89 Does this complete your surrebuttal testimony?**

A. Yes.

# ATTESTATION

Affiant, Pedro Ángel Meléndez-Meléndez, being first duly sworn, states the following:

The foregoing Surrebuttal Testimony and the attached exhibits, constitute my Surrebuttal Testimony filed in the captioned proceeding before the Puerto Rico Energy Bureau. I would give the answers set forth in the Surrebuttal Testimony if asked the questions that are included in the Surrebuttal Testimony. I further state that the information provided herein is based my personal knowledge, as well on information provided to me by my staff, and information obtained from relevant documents. The information provided herein is true and correct to the best of my knowledge.

_____
Pedro Ángel Meléndez-Meléndez

Affidavit No. _____

Acknowledged and subscribed before me by Pedro Ángel Meléndez-Meléndez, in his capacity as Chief Capital Programs and Grid Transformation Officer of LUMA, of legal age, married, and resident of San Juan, Puerto Rico, who is personally known to me.

In San Juan, Puerto Rico, this ___ day of November 2025.

_____
Notary Public

**LUMA EXHIBIT 74.01**

**PC-of-LUMA-DST-34**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: PC-of-LUMA-DST-34

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### SUBJECT

Permanent Rates – Distribution

### REQUEST

Refer to LUMA Ex. 5.0, Q.49. What fraction of each of the listed programs' budgets (PBUT6-Distribution Line Rebuilds, PBUT7-Substation Reliability, PBUT13-Transmission Priority Pole Replacements, PBUT30- Distribution Pole Replacement and Conductor Repair, PBUT33-Transmission Line Rebuild, and PBIT1-Telecom Systems and Networks) are directly part of the System Stabilization Plan? Provide a breakout of any costs in these programs that are not directly part of the approved System Stabilization Plan. Where applicable, provide your response in a live, unlocked Excel spreadsheet with all links, and formulas intact.

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA hereby provides its response to the Request and includes herewith the information and/or documents responsive to the Request that were identified and are available at this time. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

For the requested programs, please refer to table 34-1 below percentage associated with the System Stabilization Plan activities.

**Table 34-1. Stabilization Plan Percentage Activities**

| Programs | Percentage (%) |
|---|---|
| PBIT1-Telecom Systems and Networks | 100% |
| PBUT13-Transmission Priority Pole Replacements | 7% |
| PBUT30- Distribution Pole Replacement and Conductor Repair | 100% |
| PBUT33-Transmission Line Rebuild | 22% |

| | |
|---|---|
| PBUT6-Distribution Line Rebuilds | 70% |
| PBUT7-Substation Reliability | 10% |

Please refer to *PC-of-LUMA-DST-34_Attachment 1* for details on the activities not directly approved as part of the System Stabilization Plan for the constrained budget.

*Attestation*

I, Pedro Melendez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Melendez

**LUMA EXHIBIT 74.02**

**NPFGC-of-LUMA-CAPEX-11**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-11

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### SUBJECT

Permanent Rates – Capital Expenditures

### REQUEST

Refer to LUMA Ex. 5.00 (Melendez) Q&A #71, and Ex. 5.01 (Impact on the Grid – Reliability System Improvements). Please specifically identify any expense items, in both the Optimal and Constrained Budgets, that LUMA estimates to have zero reliability impact.

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

The following programs are essential to LUMA's operational strategy. While they may not directly impact traditional reliability metrics such as system average interruption duration index (SAIDI) or system average interruption frequency index (SAIFI), it is a misconception to view them as having no effect on system reliability. In fact, no expense program is without reliability implications. These initiatives are foundational to building a safer, more resilient, and efficient grid. Their primary objectives include enhancing long-term system safety, operational efficiency, and enabling data-driven decision-making.

These programs are critical to modernizing infrastructure, improving asset management, and ensuring the sustainability of our operations. By investing in these capabilities, LUMA strengthens its ability to proactively manage risks, adapt to emerging challenges, and drive continuous improvement. Accordingly, these initiatives must be recognized as strategic enablers of reliability that complement direct reliability-focused efforts and are vital to achieving long-term performance and service excellence.

**Table 11-1. Critical Programs to Modernize Puerto Rico Infrastructure**

| Program | Name |
|---|---|
| PBIT1 | IT OT Telecom Systems & Network |
| PBUT1 | Compliance & Studies |
| PBUT27 | Asset Data Integrity |

| | |
|---|---|
| PBUT32 | Transmission Line Inspections |
| PBUT34 | Distribution Line Inspection |
| PBUT36 | AMI Implementation Program |
| PBUT37 | Microgrid Installation and Integration |
| PBUT38 | New Business |
| PBUT5 | Distribution Streetlight |

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.03**

**NPFGC-of-LUMA-CAPEX-10, 10.1, and 10.2**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-10

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### SUBJECT

Permanent Rates – Capital Expenditures

### REQUEST

Refer to LUMA Ex. 5.01 (Impact on the Grid – Reliability System Improvements). In order to generate the estimates of total impact on reliability metrics in Ex. 5.01, LUMA necessarily had to consider the reliability impact of particular projects that comprise such totals. Please provide LUMA's estimates of reliability impact as to each particular project that comprises such totals.

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

As part of the development of the aggregate estimates included in LUMA Ex. 5.01, LUMA considered the anticipated reliability benefits of individual portions of the portfolio. LUMA is providing below the estimated reliability impact for portions of the portfolio that contribute to the totals reflected in LUMA Ex. 5.01.

**Table 10-1. Individual Projects Anticipated Reliability Benefits**

| Program Brief | Description | SAIDI Improvement* | SAIFI Improvement* |
|---|---|---|---|
| PBOP7 | Vegetation Maintenance | 287 | 1.19 |
| PBUT6 | Distribution Line Rebuild | 219 | 1.08 |
| PBUT4 | Distribution Automation | 270 | 1.67 |
| PBUT7 | Substation Reliability Improvements | 175 | 0.89 |
| PBUT8 | Substation Rebuilds | | |
| PBUT30 | Distribution Pole and Conductor Repair | 265 | 1.10 |

# Rate Review

| Program Brief | Description | SAIDI Improvement* | SAIFI Improvement* |
|---|---|---|---|
| PBUT39 | Reliability | | |
| PBUT33 | Transmission Line Rebuild | 70 | 0.64 |
| PBUT13 | Transmission Priority Pole Replacement | | |

*Minimum improvements

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-10.1

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**SUBJECT**

Permanent Rates – Capital Expenditures

**REQUEST**

Please provide the underlying mathematical models (including historical training data, projection output data, documentation, computer codes, Excel workbooks, and other related files) used to project the reliability improvements from all projects for which a SAIDI and SAIFI impact was calculated. Please provide documentation sufficient to reconcile to the values of SAIDI and SAIFI impact by project, as listed in your response to NPFGC-of-LUMA-CAPEX-10 and Exhibit 5.01.

**RESPONDER**

Pedro Meléndez

**RESPONSE**

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

As stated in response *NPFGC-of-LUMA-CAPEX-9*, LUMA does not currently rely on a commercial software tool to estimate the impact of all projects on reliability metrics such as System Average Interruption Duration Index (SAIDI) or System Average Interruption Frequency Index (SAIFI). Instead, LUMA employs a structured engineering judgment approach supported by historical performance data.

As established in *NPFGC-of-LUMA-CAPEX-8* response, a mathematical model was developed where program costs serve as input and the expected improvements in Customer Minutes Interrupted (CMI) and Customers Interrupted (CI) are the outputs.

To better reflect the reliability improvements of each proposed project, a rational function was used due to its ability to model asymptotic behavior, approaching a constant value as the independent variable tends towards infinity, effectively modelling long-term stability. For each proposed project, a rational function is fitted with optimization techniques using historical reliability data to represent the anticipated time-dependent improvement in reliability, under the assumption that targeted caused codes are impacted by the investment.

$$Metric = \frac{ax^2 + bx + c}{dx^2 + ex + f}$$

Where x is a positive number representing the amount of investment, with the outputs being SAIDI and SAIFI. Mathematically, asymptotic behavior is observed as the limit approaches infinity. In other words, with an infinite amount of investment, the improvement will converge to a maximum.

$$\lim_{x \to \infty} \frac{a x^2 + bx + c}{d x^2 + ex + f} = \frac{a}{d}$$

As described, LUMA uses historical outage data as provided to the Puerto Rico Energy Bureau (PREB) to develop the baseline of expected reliability improvement. Please refer to NPFGC-of-LUMA-CAPEX-10.1_Attachment 1.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-10.2

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**SUBJECT**

Permanent Rates – Capital Expenditures

**REQUEST**

Please explain (i) why LUMA forecasts the SAIDI degradation rate to decline over time; and (ii) what it means for LUMA to forecast that the degradation rate will be negative in years 13-16.

**RESPONDER**

Pedro Meléndez

**RESPONSE**

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

LUMA's forecast indicating a negative degradation rate in years 13–16 reflects an expectation that operations and maintenance (O&M) improvements will outpace the natural degradation of assets during that period.

In asset performance modeling, the degradation rate typically represents the decline in asset condition or performance over time. A negative value in this context does not imply that assets are deteriorating in reverse, but rather that O&M strategies such as preventive maintenance, asset replacements, or system upgrades are projected to improve overall system performance beyond the rate of expected degradation.

No This projection is based on historical data and assumptions deemed reasonable at the time of analysis. However, as noted in the forecast disclaimer, these models are informational and do not guarantee future outcomes. The negative degradation rate should therefore be interpreted as a modeling outcome reflecting assumptions about future O&M effectiveness, rather than a guaranteed improvement.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief. I would give the same response orally if asked under oath.

# Rate Review

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.04**

**SESA-of-LUMA-DST-7**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: SESA-of-LUMA-DST-7

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### SUBJECT

Permanent Rates – Distribution

### REQUEST

Does LUMA perform locational reliability assessments to identify areas with chronic reliability deficiencies within its service territory to identify specific areas of low reliability? If so, please provide any such studies or results from the past three years.

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers the information requested is relevant or could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

Yes, LUMA performs locational reliability assessments on its grid. LUMA relies on industry standards, specifically Institute of Electrical and Electronics Engineers ("IEEE") 1366, "Guide for Electric Power Distribution Reliability Indices", as a consistent and robust methodology for calculating reliability performance. Following industry standards, LUMA considers the reliability of distribution circuits, transmission lines, and substations contributions to system reliability. Many of the current focus areas for improvement on the grid include worst-reliability performers, including work on the System Stabilization Plan, and in Distribution Feeder Rebuild program.

LUMA has also provided the monthly System Average Interruption Duration Index ("SAIDI") and System Average Interruption Frequency Index ("SAIFI") values to the Puerto Rico Energy Bureau ("PREB" or "Energy Bureau"), both at a System level and an Operational District level. The values at both System and Operational District level are provided in the following tables for the previous three fiscal years. These values are presented as the overall contribution of each district towards system SAIDI and SAIFI.

**Table 7-1. SAIDI and SAIFI Fiscal Year 2023**

| District | SAIDI | SAIFI |
|---|---|---|
| Aguadilla | 103.81 | 0.42 |

| | | |
|---|---|---|
| Arecibo | 31.09 | 0.19 |
| Barranquitas | 64.25 | 0.31 |
| Bayamón | 215.19 | 1.18 |
| Caguas | 69.47 | 0.41 |
| Canóvanas | 61.79 | 0.47 |
| Fajardo | 20.02 | 0.13 |
| Guayama | 20.92 | 0.20 |
| Humacao | 61.03 | 0.37 |
| Mayagüez | 122.04 | 0.57 |
| Ponce | 48.62 | 0.34 |
| San Juan | 215.57 | 1.43 |
| Utuado | 42.27 | 0.20 |
| Vega Baja | 79.65 | 0.45 |
| Yauco | 62.28 | 0.31 |
| **Total** | **1,218.00** | **6.96** |

**Table 7-2. SAIDI and SAIFI Fiscal Year 2024:**

| District | SAIDI | SAIFI |
|---|---|---|
| Aguadilla | 78.80 | 0.42 |
| Arecibo | 70.28 | 0.31 |
| Barranquitas | 86.40 | 0.38 |
| Bayamón | 118.49 | 0.62 |
| Caguas | 103.63 | 0.50 |
| Canóvanas | 83.38 | 0.63 |
| Fajardo | 20.50 | 0.14 |
| Guayama | 31.69 | 0.23 |
| Humacao | 50.35 | 0.29 |
| Mayagüez | 145.47 | 0.67 |
| Ponce | 69.05 | 0.49 |
| San Juan | 297.46 | 1.68 |
| Toa Baja | 96.62 | 0.56 |
| Utuado | 46.28 | 0.24 |
| Vega Baja | 78.16 | 0.46 |
| Yauco | 55.31 | 0.30 |
| **Total** | **1,431.88** | **7.93** |

**Table 7-3. SAIDI and SAIFI Fiscal Year 2025:**

| District | SAIDI | SAIFI |
|---|---|---|
| Aguadilla | 85.23 | 0.40 |
| Arecibo | 108.81 | 0.54 |
| Barranquitas | 87.07 | 0.39 |
| Bayamón | 146.55 | 0.78 |
| Caguas | 122.05 | 0.57 |
| Canóvanas | 108.92 | 0.67 |
| Fajardo | 23.34 | 0.17 |
| Guayama | 35.46 | 0.30 |
| Humacao | 64.24 | 0.33 |
| Mayagüez | 141.79 | 0.58 |
| Ponce | 66.39 | 0.41 |
| San Juan | 313.83 | 1.42 |
| Toa Baja | 109.75 | 0.63 |
| Utuado | 58.12 | 0.27 |
| Vega Baja | 86.38 | 0.48 |
| Yauco | 43.96 | 0.18 |
| **Total** | **1,601.87** | **8.11** |

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.05**

**NPFGC-of-LUMA-CAPEX-8**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-8

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**SUBJECT**

Permanent Rates – Capital Expenditures

**REQUEST**

Refer to LUMA Ex. 5.00 (Melendez) Q&A #71, and Ex. 5.01 (Impact on the Grid – Reliability System Improvements). Please explain in detail LUMA's methodology for estimating the impact of projects on reliability metrics (e.g., SAIDI, SAIFI).

**RESPONDER**

Pedro Meléndez

**RESPONSE**

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

The cumulative costs associated throughout the specified period of the program brief are translated into reliability benefits. Each program brief has an improvement based on the tasks executed and the historical causes of the outages represented. To forecast future benefits, a statistical analysis (see NPFGC-of-LUMA-CAPEX-10) was conducted using historical reliability data from fiscal year 2022 to fiscal year 2024 to create a mathematical model where inputs are the costs, and outputs are the expected improvements in Customer Minutes Interrupted (CMI) and Customer Interrupted (CI). These results were categorized by Substation, Distribution and Transmission and normalized by year and mile/asset correspondent to program brief. In addition, improvements include a diminishing return based on the worst performing circuits and assets.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.06**

**SESA-of-LUMA_ALL-5**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: SESA-of-LUMA-COST_ALL-5

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### SUBJECT

Permanent Rates – Cost Allocation

### REQUEST

Does LUMA incorporate values for improved reliability when evaluating distribution or transmission upgrades in internal or external benefit-cost analyses? If so, please provide these reliability values and explain how they were derived.

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers the information requested could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

In the program briefs that were filed as part of the direct testimony of Pedro Melendez[1] , it describes the investments being made at the program level. Additionally, *LUMA Ex 5.01* demonstrates how LUMA incorporates values to forecast reliability improvement across all investments in aggregate highlighting both Non-Federal Capital individual contribution, and Non-Federal Capital + Federal Capital. As described in *SESA-of-LUMA-DST-7*, reliability values are calculated using industry standard methodologies and practices For LUMA's rate case, the cumulative costs incurred over the specified period of each program brief are translated into measurable reliability benefits. Each brief reflects improvements based on the specific tasks executed and the historical causes of outages addressed.

To forecast future benefits,  analysis was performed using historical reliability data from fiscal years 2022 through 2024. This analysis produced a mathematical model in which program investment serve as inputs, and the expected annual improvements in Customer Minutes Interrupted (CMI) and Customers

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[1] LUMA Ex. 5.0 Direct Testimony of Pedro A. Melendez Meléndez – Capital Programs and Grid Transformation

Interrupted (CI) are the outputs. These results were categorized by Substation, Distribution and Transmission improvements.

Using the rate case optimal NFC and FEMA budget, the programs are expected to achieve a minimum improvement of 226 minutes in the System Average Interruption Duration Index (SAIDI) and a minimum improvement of 1.17 interruptions in the System Average Interruption Frequency Index (SAIFI) by the end of fiscal year 2027.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/Pedro Meléndez

**LUMA EXHIBIT 74.07**

**NPFGC-of-LUMA-CAPEX-17**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-17

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### SUBJECT

Permanent Rates – Capital Expenditures

### REQUEST

Refer to LUMA Exs. 5.02-5.14. These exhibits describe certain NFC programs, and some explicitly reference impact on "system reliability." Please explain (i) LUMA's rationale and process for classifying programs that will purportedly improve system reliability, and (ii) if and how that process relates to LUMA Ex. 5.01 (Impact on the Grid – Reliability System Improvements).

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers the information requested could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

LUMA's rationale and process for classifying programs that will improve system reliability are directly attributed to industry standard approaches for calculating reliability metrics, which are then used to predict the impact of a mitigating solution. As an example, if a distribution circuit experiences outages, 50% of which are attributed to vegetation contact, then the impact of vegetation clearing would be to reduce or eliminate a substantial portion of 50% of outages on that circuit. Similar projection methodologies are established for the placement of distribution automation devices such as fuses and reclosers (PBUT4), rebuilding of a distribution line (PBUT6), or other investment categories.

LUMA Exhibit 5.01 provides the estimated impact of non-federal capital programs to mitigate the negative impact on reliability that results from end-of-life assets and system failures through inspection and maintenance programs, and then adds the impact of the federally funded project portfolios that aim to provide additional improvement in reliability performance by hardening and rebuilding assets across all classes, and investments in enabling technologies.

*Attestation*

# Rate Review

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.08**

**PC-of-LUMA-DST-39**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: PC-of-LUMA-DST-39

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### SUBJECT

Permanent Rates – Distribution

### REQUEST

Refer to LUMA Ex. 5.0, Table 5 and to LUMA Ex. 6.0, Table 6. Describe the difference in purpose between the program budgets which appear in both Capital Programs' NFC and Operations Department's NFC, and demonstrate that the accounting of these programs does not double count any utility activities.

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

In creating both budgets, emphasis is placed on the type of costs that will be spent. Costs incurred by the Operations Department are focused primarily on emergent and routine maintenance, whereas the Engineering Department is focused primarily on the rebuilding and restoration of the T&D Grid assets.

As stated in the response by Kevin Burgemeister ROI-LUMA-AP-2023-0003-20250709-OIPC-PROV-003, the Operations Department NFC is focused on immediate repairs that are high priority repairs (not planned) and corrective maintenance that is required to occur in the course of outage restoration and immediate safety remediations. Capital Program NFC is designed for planned activities to restore the highest priority out-of-service facilities and remediate the most degraded facilities identified in the course of inspection that demonstrate incipient failure modes but have not yet actively failed. With respect to Program PBUT38 (New Business Connections) the Capital Programs portion pertains to the more programmatic aspects of the process (evaluating, endorsing, and inspecting connections to ensure alignment with relevant standards) and that performed by Operations represents the actual physical work. In the preparation of both budgets, historical trending of actual costs incurred based on the type of costs as defined above, review of those costs and appropriate accounting protocols are in place to ensure there is no double counting of utility activities in these programs.

*Attestation*

**RESPONSES TO PERMANENT RATE REQUEST**

# Rate Review

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.09**

**NPFGC-of-LUMA-FEMA-6**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFCG-of-LUMA-FEMA-6

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### SUBJECT

Permanent Rates – FEMA

### REQUEST

Refer to LUMA Exhibit 5.0 (Meléndez testimony), Q&A #42. Mr. Meléndez states in full, "Yes. LUMA is formulating projects [for Section 406 funding] to complete repairs associated with disasters such as Hurricane Fiona and Tropical Storm Ernesto using the Public Assistance program." Please identify what specific projects and repairs are vaguely referred to here.

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

There are currently 22 permanent work projects (see below) created and formulating in Grants Portal for repairs to Distribution, Substation and Transmission infrastructure from the impacts of Hurricane Fiona. In addition to those projects, LUMA is collaborating with Federal Emergency Management Agency (FEMA) on validating damages and creating additional permanent work projects for Fiona for the approximately 800+ remaining damaged facilities from the impacts from Fiona. The repairs will be to return the facilities to pre-disaster condition and include hazard mitigation measures to harden the infrastructure and prevent future and similar damages.

**Table 1. Current Permanent Work Projects**

| Project | Project Title |
|---|---|
| 744413 | LUMA - 4.16 kV Distribution Lines Mayaguez (6401-02, 6401-04) (Distribution) |
| 744420 | Luma-4.16 kV Distribution Line Mayaguez (6501-01, 6501-02, 6501-03, 6501-04) (Distribution) |
| 744422 | FIONA/MARIA/EQ: LUMA - 13.2 kV Distribution Line Mayaguez (6406-02) (Distribution) |

| | |
|---|---|
| 744429 | LUMA - 4.16 kV Distribution Lines Mayaguez 6404-01, 6404-02, 6404-03, 6404-04 (Distribution) |
| 744462 | LUMA - 13.2 kV Distribution Line Mayaguez (6603-01) (Distribution) |
| 744463 | LUMA - 13.2 kV Distribution Line Mayaguez (6704-02, 6704-03) (Distribution) |
| 746355 | LUMA - Permanent Work - Distribution/Transmission/Substations (90% cost share) |
| 749225 | Ponce Area D Dist. 4402-02 (Distribution) |
| 749250 | Ponce Area C Dist. 4502-02 (Distribution) |
| 749251 | Ponce Area C Dist. 4504-02 (Distribution) |
| 749254 | Ponce Area A Dist. 4002-01, 4002-02 (Distribution) |
| 749431 | Arecibo Region-38, 115, 230 kV Sub Transmission Line |
| 749834 | Caguas Area H - Naguabo 2701 (Substation) |
| 751380 | Bayamon Area D- Dist 1706-03 |
| 751383 | Bayamon Area D- Dist 1707-01, 1707-03 |
| 751465 | Bayamon Area F - Cataño 1710 |
| 796595 | FIONA/MARIA/EQ: LUMA - 13.2 kV Distribution Line Mayaguez 6406-04 (Distribution) |
| 813233 | Permanent Works - Substation - Islandwide |
| 813235 | Permanent Projects - Distribution - Islandwide |
| 814229 | Permanent Works - Transmission - Islandwide |
| 817149 | Bayamon Area D-Bayamon TC 1711 (Substation) |
| 817156 | Caguas Area E-Caguas TC 3006 (Substation) |

For Tropical Storm Ernesto, LUMA is currently working with FEMA to formulate 25 emergency work projects for cost recovery and validate damages to those facilities for any proposed permanent work.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.10**

**NPFGC-of-LUMA-OTH_OPEX-52 and _OPEX-52_Attchment 1**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFCG-of-LUMA-OTH_OPEX-52

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### SUBJECT

Permanent Rates – Physical Operations: General

### REQUEST

Refer to LUMA Exhibit 5.0 (Meléndez testimony), Q&A #80. Mr. Meléndez states that under the Constrained Budget, "LUMA will expect to at least keep pace with (possibly improve) the restoration of out-of-service substation assets, [but] we can anticipate an increase in the number of out-of-service distribution assets and, to a lesser extent, transmission assets." What specific facts and/or data, if any, forms the basis for this expectation?

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response

As mentioned in LUMA Ex. 5 Q.29, while LUMA makes significant progress to repair and restore out of service critical assets, the continued wave of failures attributable to an aging and fragile transmission and distribution (T&D) infrastructure continues and, in most cases, outpaces LUMA's ability to restore and repair assets (See Table 1). In FY2025, LUMA's repair and restoration rate trailed behind failure rates for every critical asset category except overhead transmission line segments which have been at break even. Specifically, during FY2025, LUMA restored to service 8 transformers while 10 transformers failed during that same period, restored service to 83 distribution breakers while 89 distribution breakers failed during that same period, restored service to 38 transmission breakers while 39 transmission breakers failed during that same period, restored service to 6 transmission overhead line segment while 6 transmission overhead line segments failed during that same period, and restored to service 15 feeders while 19 feeders failed during that same period. Without significant changes it is unlikely to anticipate a markedly different outcome. Just like with any system, returning a weakened grid to a healthy state is more expensive, time-consuming, and logistically challenging than maintaining an existing baseline for a healthy grid. To arrest and eventually reverse the continued deterioration of the grid, LUMA must increase nonfederal capital (NFC) funding and quicken the pace of federally funded projects to restore grid health and then maintain it. There is no quick fix. This process will extend beyond the period for this rate case.

As further detailed in *NPFCG-of-LUMA-OTH_OPEX-52_Attachment 1*), the T&D infrastructure is severely degraded (see Table 1). This degradation has led to frequent equipment failures, which contributed to over 37% of System Average Interruption Duration Index (SAIDI) during Fiscal Year 2024. These failures create cascading vulnerabilities across the grid, reducing operational flexibility, complicating standard utility testing and maintenance procedures, and shortening the life expectancy of connected assets. As a result, Puerto Rico's electric infrastructure experiences a significantly higher fault rate than comparable utilities.

To quantify this, LUMA uses a standardized failure rate metric, defined as the number of outage events normalized over time and asset base. Three asset classes were analyzed using this methodology:

- Distribution Overhead and Transmission Lines failure rates were normalized by total line mileage.
- Substation failure rates were normalized by total asset count.

The results are summarized in the table below:

**Table 1. Asset Class Failure Rate**[1]

| Asset Class | FY2022 | FY2023 | FY2024 | Unit |
|---|---|---|---|---|
| Distribution Overhead | 2.78 | 2.79 | 3.38 | Events/mi/Year |
| Transmission Lines | 0.21 | 0.17 | 0.22 | Events/mi/Year |
| Substations | 0.78 | 0.91 | 0.86 | Events/Asset/Year |

These data points reinforce the conclusion that, under a constrained budget, LUMA may not be able to keep pace with the rate of asset failures particularly in the transmission and distribution system and that the risk of increased out-of-service assets is both measurable and supported by historical trends.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

[1] *See NPFCG-of-LUMA-OTH_OPEX-52_Attachment 1.*

# Metrics Quarterly Report

# Docket Number: NEPR-AI-2025-0001

## Response: NOTICE-LUMA-AI-2025-0001-20250303-PREB-1

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### REQUEST

**Response to** Notice of Noncompliance **which should include:**

1. A Corrective Action Plan detailing the measures to be implemented to improve SAIDI and prevent further deterioration of service quality.

2. Justification explaining the root causes of the noncompliance and any mitigating factors

3. Information listed in Section 14.03 of Regulation 8543.

### RESPONSE

LUMA emphasizes its commitment to enhancing the reliability of Puerto Rico's electrical grid through strategic initiatives focused on improving service quality, minimizing outage duration, and strengthening the transmission and distribution (T&D) infrastructure. Since commencing operations, LUMA has accelerated critical infrastructure improvements, including replacing over 21,000 deteriorated utility poles capable of withstanding hurricane-class winds and deploying over 9,300 grid automation devices, while clearing over 5,500 miles of vegetation. LUMA has also replaced nine large substation transformers, over 65 transmission substation circuit breakers, and 31 distribution substation circuit breakers. These circuit breakers provide the essential service of quickly detecting and isolating disturbances, while protecting equipment. They are essential devices to maintain public safety by isolating and de-energizing faulty equipment on the grid. LUMA has also replaced over 100 damaged transmission poles and structures to harden the grid. In addition, during the Fiscal Year 2024 (FY2024), LUMA completed over 1,275 insulator replacement projects, more than 165 hot spot repairs, and over 285 switch repairs on the transmission system. These transmission investments have provided hardening and reduced the likelihood of critical equipment failures causing customer interruption. These efforts are vital to modernizing the T&D system and improving customer service.

Notwithstanding, operating in Puerto Rico makes supply chain challenges more impactful than peer utilities in the mainland US. Second, LUMA has experienced funding constraints that have resulted in LUMA receiving insufficient amounts to make the types of repairs, additions, and capital improvements that the system requires.  In addition, the type of funding that LUMA currently primarily relies upon for capital needs – FEMA disaster restoration funding – is not intended to fund a general utility capital program and is not well-suited to that purpose. Instead, it has requirements, limitations, and timelines that serve the goal of ensuring funds are utilized to meet the Federal government’s goals of storm resilience

rather than meet the complex utility objectives of serving customers without discrimination, at reasonable rates, in alignment with the State or Territory's energy goals.

LUMA acknowledges that the T&D system continues to face significant challenges stemming from decades of underinvestment, deferred maintenance, and the impact of major weather events, all of which not only produced damage at the time but created a situation where the system continues to deteriorate without very rapid improvements. In alignment with peer utilities across the United States and the world, LUMA reports its reliability metrics, including the System Average Interruption Duration Index (SAIDI) in accordance with the IEEE Std. 1366-2012[1]. This standard recognizes the substantial influence of external factors on reliability metrics. It emphasizes the importance of assessing performance trends over a minimum five-year period to account for year-to-year variability and the impact of major events, as stated in IEEE 1366-2012 Section 5.3. By following these guidelines, utilities can comprehensively understand reliability trends, set realistic targets, and evaluate progress more effectively. This approach ensures that improvements in reliability metrics are sustainable and meaningful. For this reason, given the variability in weather and other external factors, with sporadic frequency in any one year, that reliability is recommended to be analyzed on a multi-year basis to identify the more meaningful underlying trends resulting from lack of investment and operational performance.

Importantly, as stated in IEEE Std 1782-2014[2] Section 5.2, reliability trends can be developed using various stratification methods. System indices are useful for understanding normal performance levels. A more granular reliability analysis is necessary to discern trends specific to certain geographies, environmental conditions, equipment types, or other stratification criteria. This is important when conducting comparisons, and it is crucial to recognize that random events can potentially lead to misleading conclusions if comparisons are not performed in the right context. The highlighted IEEE standards clearly indicate that using short periods to compare or establish baselines is not recommended. An approach that does not consider these aspects can provide a skewed vision of the system by not considering isolated incidents or anomalies, which may not accurately reflect long-term trends.

For this reason, LUMA considers that focusing on one fiscal year, specifically Fiscal Year 2023 (FY2023), as the basis for comparing reliability performance with FY2024 can be particularly misleading. The catastrophic effects of Hurricane Fiona in FY2023 created an extraordinary impact on the system, excluding major event days from that period from the reliability metrics. As discussed above, this is a standard exclusion per IEEE Std. 1366-2012; however, it can also make comparing the results to FY2024 challenging without considering the impact of Hurricane Fiona on the data. Likewise, the comparison between FY2023 and FY2024 reliability metrics is inherently problematic due to the extraordinary disruptions caused by Hurricane Fiona in FY2023, which led to the exclusion of major event days from reliability calculations, as per IEEE Std. 1366-2012. This exclusion creates a significant disparity in the data, making it challenging to evaluate FY2024 performance without accounting for the catastrophic impact of Hurricane Fiona on system reliability.

With these considerations, and in alignment with the guidance of IEEE Std. 1366-2012, LUMA undertook a comprehensive review of FY2023 that involved the statistical impact of catastrophic events, such as

[1] See Attachment A, IEEE Guide for Electric Power Distribution Reliability Indices, IEEE Std 1366™-2012.

[2] See Attachment B, IEEE Guide for Collecting, Categorizing, and Utilizing Information Related to Electric Power Distribution Interruption Events, IEEE Std 1782™-2014.

Hurricane Fiona, on reliability metrics. The analysis takes into consideration the SAIDI performance trend prior to Hurricane Fiona. The goal of the analysis was to determine an approximate value of SAIDI under normal operations and degradation conditions for the period excluded from the metrics due to Hurricane Fiona. The analysis result provided an approximate SAIDI value of 1,378 minutes for FY2023[3]. While direct comparisons between fiscal years can be inherently complex, this adjustment is crucial for accurately analyzing performance trends and mitigating data skewing due to catastrophic events. As such, the revised SAIDI of 1,378 indicates a 4% deviation between FY2024 and FY2023.

This comparison between FY2023 and FY2024 reveals a complex reality. While the 4% deviation in SAIDI performance might seem minor, it underscores a significant concern: the system is still deteriorating. This deterioration is exacerbated by years of underinvestment and inadequate maintenance practices, which have cumulatively eroded the reliability of our T&D infrastructure. Each piece of failed equipment can impact customers directly and lead to more stress on the grid at large. This deviation between FY2023 and FY2024 indicates the continued need for aggressive T&D investment to counter the current rate of degradation and the effects of years of underinvestment and prior poor maintenance practices.

In light of these challenges, it is crucial to approach performance measurement and target-setting with a nuanced perspective. While baselines are essential for tracking progress and change over time, using them as targets can be misleading and counterproductive. Baselines represent the current state or historical performance, which may not reflect the future state of the system. Moreover, baselines established at the beginning may not account for changes in circumstances or unforeseen challenges during system operation due to weather and grid conditions. More so when the basis for that baseline is dated and does not reflect the current status of the system. For effective target-setting, using a baseline period of approximately five years is recommended, as this timeframe provides a balanced view of historical performance while minimizing the impact of outdated data as recommended per Standard IEEE 1366-2012 Section 5.3. This approach allows a more accurate reflection of current system realities and constraints. Thus, if an objective comparison of performance is to be drawn, it is crucial to establish realistic targets, considering the current system realities rather than relying solely on dated baseline data that does not contemplate current constraints on the system.

In addition, the Puerto Rico Energy Bureau (PREB) on February 11, 2025, Resolution and Order, used an annual baseline and performance to suggest a daily fine for non-compliance on SAIDI, which fails to properly understand the nature of this metric, as explained above. There is neither a daily SAIDI target nor a daily SAIDI metric to perform a daily comparison to determine which range of days was performing and underperforming. Therefore, interpreting that LUMA was underperforming for the 365 days of FY2024 is problematic, and results in an inaccurate measure.

## Direct Root Causes of FY2024 SAIDI Performance

The primary drivers behind the SAIDI for FY2024 are examined in the Customer Minutes Interruption (CMI) root cause analysis[4]. This analysis is crucial for identifying the underlying contributors to the causes of CMI, which enables us to focus our remediation efforts more effectively. By analyzing these, we can pinpoint specific areas where targeted interventions are needed, classifying them using the contributors'

[3] See Attachment C, Excel file named EventNorm_MathModel.

[4] See Attachment D for raw data used for the analysis. Excel file named Master_Log_Python.

categories suggested by IEEE 1782-2014 – another critical standard used by peer utilities internationally for system outages – providing valuable insights that guide the development of corrective action plans. These corrective action plans are designed to address the root causes of interruptions, ensuring that our efforts are aligned with the most critical needs of our system.

By leveraging this data-driven approach, we aim to enhance system reliability, reduce outage durations, and ultimately improve customer satisfaction. We conducted an analysis of the top contributors and indirect root causes affecting SAIDI and response times. As a result of this analysis, several critical areas that warrant further discussion are highlighted below, including equipment issues, vegetation management challenges, and weather-related factors. Additionally, the analysis revealed indirect causes that also impact SAIDI, providing a comprehensive understanding of the factors influencing grid reliability.

- Aging Equipment: A critical factor affecting SAIDI performance is the aging infrastructure. The average age of assets is increasing at a rate that exceeds LUMA's current ability to invest in replacements and upgrades due to funding constraints known to the Energy Bureau. Additionally, a significant portion of our major assets continue operating beyond their designed life expectancy because either LUMA has yet to receive significant quantities of equipment due to supply chain challenges, or LUMA is experiencing issues with receiving sufficient funding for those resources. Over the past fiscal year, this situation has contributed to the increase in unplanned outages, amplified maintenance demands, and further undermined overall system reliability. As the average age of critical assets such as poles, insulation, conductors, transformers, arresters, and switches continue to outpace investment rates, we have faced, and continue to face, increasing risk of equipment failures. This situation leads to longer restoration times, affecting crew availability and ultimately increasing SAIDI. The typical mean time to repair (MTTR)[5] required to restore equipment is notably high, often exceeding several hours due to the complexity of repairs and the need for specialized resources. Specifically, the MTTR for pole replacement is more than 8 hours. Similarly, service transformer MTTR typically requires more than 5 hours, while conductor MTTR generally takes more than 4 hours. These prolonged restoration times highlight the need for efficient maintenance strategies and infrastructure upgrades to reduce downtime and improve overall grid reliability. In context, note that the T&D infrastructure is severely degraded (see Table 1). This degradation has led to frequent equipment failures, contributing over 37% to system SAIDI, which creates cascading weaknesses across the system. These failures reduce the grid's operational flexibility, complicate standard utility testing and maintenance procedures, and shorten the life expectancy of connected assets. As a result, Puerto Rico's infrastructure experiences faults at a rate considerably higher than comparable utilities.

  To better understand and address these issues, it is crucial to analyze the underlying metrics that quantify system reliability. The failure rate is a key statistical measure that quantifies the number of outages or events within a standardized time frame, as normalized by utilities. This metric is essential for evaluating the performance of different asset classes within the system. To provide a comprehensive assessment, we considered three categories for measuring asset class failure rates, these are based on either mileage or asset quantity. Specifically, T&D failure rates were normalized by the total mileage of lines and overhead feeders, respectively. This approach allows for a consistent comparison of failure rates across different network configurations. In contrast, substation failure rates were normalized by the total quantity of assets, as detailed in Table 1 below.

In FY2024, the T&D System equipment-related events increased by 13% compared to FY2023, contributing to 780 million CMIs and adding 531 minutes to the SAIDI. Equipment-related events include any defective or malfunctioning components within the distribution system that cause customer interruptions. These failures accounted for over 37% of total system outages in FY2024, highlighting the urgent need for targeted investments in infrastructure upgrades and proactive maintenance.

In FY2024, LUMA spent fewer federal funds than had originally been budgeted due to a series of challenges, including unforeseen complexities experienced in the procurement process, delays in the design phases, and a new federal funding obligation process for first-of-its-kind projects.

Unless LUMA can access sufficient funds to execute critical repairs, the aging grid will continue to deteriorate, increasing the likelihood of system-wide failures and further compromising reliability[5]. Also, as previously stated in RFI-LUMA-MI-2020-0019-20241029-PREB-003, the current Base Rate, established in 2017, does not reflect the realities and related challenges of grid operation and is neither sufficient to remediate the effects of decades of mismanagement and despair of the system.

**Table 1. Asset Class Failure Rate[6]**

| Asset Class | FY2022 | FY2023 | FY2024 | Unit |
|---|---|---|---|---|
| Distribution Overhead | 2.78 | 2.79 | 3.38 | Events/mi/Year |
| Transmission Lines | 0.21 | 0.17 | 0.22 | Events/mi/Year |
| Substations | 0.78 | 0.91 | 0.86 | Events/Asset/Year |

- Vegetation: The lack of vegetation clearance has significantly contributed to outages during storms and high-wind events. In FY2024, there was a 41% increase in vegetation-related events compared to FY2023, resulting in over 471 million CMIs. This surge directly impacted the SAIDI by adding more than 321 minutes to the overall system performance. The persistent issues with vegetation management can be largely attributed to historical lack of proper planned maintenance programs. Insufficient financial resources have hindered effective vegetation clearance efforts for years, leaving power lines vulnerable to overgrowth. That lack of proactive management exacerbated the frequency and severity of outages, particularly during adverse weather conditions. Since the commencement of operations, LUMA has sought to overcome those significant vegetation challenges and the lack of funding by seeking and obtaining authority for $1.2 billion in federal hazard mitigation funds to reclaim overgrown rights-of-way. The combination of federal funding for clearing and the existing budget for vegetation maintenance was predicted to be adequate for FY2024 and through the subsequent 3-year business planning cycle to allow significant progress on the vegetation problem. However, large-scale federal

[5] See Attachment E, IEEE Recommended Practice for Analyzing Reliability Data for Equipment Used in Industrial and Commercial Power Systems.

[6] See Attachment F, A Review of the Reliability of Electric Distribution System Components_EPRI White Paper; Attachment G, Distribution System Component Failure Rates and Repair Times – An Overview.; and Attachment H, Excel file named System_AssetFailureRate.

funding obligation did not happen in FY2024 as expected. The initial approval for the concept of this first-ever type of program was required. After that, projects that include exacting maps of the individual rights-of-way to be cleared must be reviewed and approved. The first project was approved for distribution lines in the San Juan region, and, on implementation, it was discovered that cost data – which impacted all other projects – had to be revised, taking additional time to gather the data required for this never-before undertaken scope of work. As a result, LUMA had to rely solely on maintenance funds and less effective "hot spotting" techniques to manage the worst vegetation problems for another year.

The initial approved budget for vegetation management for system maintenance purposes has been $50 million per year for professional services (vendors performing vegetation management services). Although this has remained consistently flat at the beginning of each fiscal year, for FY2024, the PREB approved the reallocation of $6 million from the Operational Budget to increase vegetation management. Final spending varied for each year. For the fiscal year 2022 (FY2022), total spending was $50.9 million, FY2023 spending was $62.7 million, and FY2024 spending was $55.7 million. Miles trimmed or cleared (non-federally funded) for each year respectfully was 896 miles, 1,849 miles, and 1,464 miles for a total of 4,209 miles completed in 3 years. With a system of 16,113 overhead line miles, LUMA has been able to trim 26% of the overall system across a 3-year period with the non-federal budget allocation. LUMA has determined that even after completion of the federally funded clearing program, approximately $130 million in Operations & Maintenance funding will be required annually to properly maintain the rights-of-way on a 4-year maintenance cycle to prevent the regrowth of vegetation that would result in the loss of the benefits achieved through the federally funded clearing. These estimated amounts are more than current funding levels and show the large gap between the current state and what would be considered industry standard.

- Deferred Maintenance: Historical underinvestment in maintenance has resulted in a significant backlog of necessary repairs and upgrades within the T&D system. This underinvestment pattern has continued and has affected LUMA's ability to make crucial maintenance, thus leading to the current situation where aging infrastructure is increasingly susceptible to failures, leading to a higher frequency of outages and service interruptions. As assets age beyond their intended lifespan, the likelihood of equipment malfunctions rises, affecting reliability and placing additional strain on operational resources. The backlog of maintenance tasks includes critical repairs to aging utility poles, transformers, and circuit breakers essential for maintaining system integrity. The consequences of deferred maintenance due to underfunded initiatives extend beyond immediate operational challenges and pose long-term financial implications. Increased emergency repair costs can strain budgets further. To address these issues, it is imperative to prioritize investment in maintenance and upgrades. As an example, in our analysis from May 2022, it was noted that 67% of transformers were overdue for maintenance. This issue was exemplified by the fact that during the Fiscal Year 2021, only 13% of the planned transformer and breaker maintenance was completed by February 2021. This significant backlog highlights the need for enhanced maintenance strategies supported with adequate funding, to ensure that critical equipment is properly serviced, reducing the risk of failures and improving overall grid reliability. Currently, maintenance work being completed on the system is on a priority basis and is fully reactive, focused on addressing equipment that has failed or is causing repeat outages. Through analysis, LUMA identifies the "worst performing" equipment and targets our limited

resources to address these critical priorities. LUMA has been able to find efficiencies and enhance existing maintenance programs with year-over-year improvements in the quantities of repairs being completed. For example, transmission line insulator replacements, a common failure point on the transmission system; LUMA completed 824 structures in FY2023 but was able to increase that to 1,275 structures in FY2024. However, even with the improvements in maintenance tasks completed, the overall system continues to degrade at a faster rate than repairs. To make substantive progress in system reliability, LUMA needs to transition to a preventative maintenance program that addresses all areas of the system, not just immediate critical priorities. A full preventative maintenance program that adheres to industry standards has been designed by LUMA; however, it requires funding to implement. The financial needs of this program have been addressed in the future rate case that LUMA is currently preparing.

- Weather Factors: SAIDI is significantly influenced by weather conditions, leading to increased outage durations and frequency. With severe weather events, such as storms, the short-term impact is more noticeable, yet the long-term effects sometimes are not. However, those impacts result in an increase in abnormal circuit configurations, temporary solutions, and reduced inventory that impacts scheduled and non-scheduled work.

  In FY2024, LUMA observed a notable CMI contribution of more than 6% on SAIDI due to adverse weather conditions (Weather and Lightning categories), resulting in prolonged outages across our service area. Weather-related factors, such as heavy rain, strong winds, and frequent lightning strikes, caused significant infrastructure damage, including downed power lines, broken poles, and malfunctioning equipment. These conditions extended restoration times and required extensive efforts from crews to repair or replace damaged components, with the mean time to repair power equipment ranging from 4 to 10 hours. Additionally, the impact of vegetation, such as tree branches and foliage becoming entangled in power lines, further worsened the situation and increased the frequency of outages. Extreme temperatures also added stress to the grid, leading to higher demand and equipment failures, further prolonged outage durations, and intensified severity.

  To better understand these impacts, LUMA analyzed historical outage data in relation to weather patterns. This analysis indicates that specific weather events contribute disproportionately to SAIDI increments. For example, during weather events, outages can extend significantly due to debris removal, equipment repairs, and the need for comprehensive safety assessments before restoring power. Ensuring the well-being of our workforce is paramount, and we take additional measures to safeguard them while they work under challenging conditions. During bad weather conditions, for example, wind and rain, we implement enhanced safety protocols to protect our personnel from hazards such as fallen power lines, flooded areas, and debris. This includes conducting thorough additional risk assessments before each task. We prioritize heat stress prevention in cases of excessive heat by providing regular hydration breaks and shaded rest areas when necessary. Our teams are also trained to recognize the signs of heat-related illnesses and immediately act if any symptoms are observed. These safety measures are essential and cannot be compromised. While they may contribute to longer outage durations, they are critical for ensuring that our personnel return home safely at the end of each day.

  Recognizing the influence of weather on our performance metrics is crucial for developing effective strategies to enhance grid resilience. By investing in infrastructure improvements, such

as upgrading aging assets and enhancing vegetation management practices, we aim to mitigate the effects of severe weather on our system reliability. While weather conditions will always pose challenges to our operations, understanding their effect on SAIDI enables us to take proactive measures that enhance our service reliability and ultimately improve customer satisfaction.

**Indirect Causes of FY2024 SAIDI Performance**

SAIDI provides a comprehensive view of service reliability by quantifying the total average duration of interruptions experienced by customers over a specified period, as discussed above. However, SAIDI performance is also influenced by a range of indirect factors that complicate its improvement. Key among these factors is operational improvement, such as safety, which is essential for ensuring safe operations but indirectly impacts SAIDI performance. For instance, implementing enhanced safety protocols temporarily diverts resources or requires additional time for compliance checks, which influences outage response times. Another indirect factor that affects restoration times is fleet availability, which directly impacts response times to outages. Additionally, as discussed above, budget constraints limit the ability to invest in necessary infrastructure upgrades and maintenance, leading to a higher likelihood of equipment failures and prolonged outages. The procurement process challenges also play a significant role. Delays in acquiring critical materials or equipment due to lengthy procurement cycles hinder timely repairs and upgrades, further exacerbating SAIDI. Moreover, material availability issues stemming from supply chain disruptions or shortages lead to extended delivery times for essential components, complicating efforts to restore service quickly. Understanding these indirect factors is crucial when developing effective strategies to enhance grid reliability and improve SAIDI performance. By addressing these challenges proactively, utilities can better manage operational risks and ensure more reliable service delivery to their customers.

- Safety Improvements: As established in RFI-LUMA-MI-2019-0007-20241226-PREB-Attachment A-4, safety is a top priority for LUMA. From the beginning of our operations, we identified the need to strengthen our capabilities in this vital area, investing significant time and resources in training our field employees and adopting the industry's best practices. These efforts ensure strict adherence to essential safety protocols when working on electrical systems. Examples of processes and practices that have been introduced, enhanced, trained, and compliance-mandated include equipotential bonding and grounding practices, pre-work hazard assessments and mitigation, job site tailgate meetings, safety briefings and stand-downs, and three-way communication. As LUMA implemented these safety-focused changes in both our practices and organizational culture, we experienced some impact on productivity that may have led to longer repair and restoration times. Efforts being driven to improve response efficiency and effectiveness will offset these increases over time.

- Material Shortage: The T&D system faces escalating challenges due to material shortages, exacerbated by lengthy procurement processes, as LUMA's stated in RFI-LUMA-MI-2020-0019-20241029-PREB-005, and a persistent lack of investment. These factors combine to severely hinder the modernization and maintenance efforts essential for a reliable energy supply. Historical underfunding has already created a significant backlog of needed upgrades and repairs, and the current landscape further complicates any attempts to address these issues.

  LUMA, in anticipation of the material shortage challenges, after commencement, aggressively began the processes of ordering long lead material items. LUMA's foresight to this challenge

means that materials that can take 2 years or more to procure are beginning to arrive on the island. LUMA has been able to start replacing critical equipment, such as power transformers and transmission breakers. For example, LUMA has now ordered over 80 Power Transformers, with the first units scheduled to arrive in April 2025. These units will be installed as expeditiously as resources allow to replace transformers that have already failed on the system and have been out of service for months and years, replace transformers that are beyond their reliable service life and condition, and provide hazard mitigation as components in federal projects. These replacement activities are critical for the stability and reliability of the transmission system and to protect customers from widespread and long-duration outages. The reality is that this type of equipment takes significant time to procure, and the related work cannot proceed until the replacement equipment arrives. This long lead element, in conjunction with limited to no critical spares on hand at transition time, has hampered the ability to move forward with critical component replacements.

Another consideration is the shortage of replacement parts for repairs. Due to the aged equipment, restoration times are often extended due to the lack of parts or non-inventory items. Component or auxiliary equipment failures also cause significant reliability issues. These tend to be even more challenging to procure due to age and lack of manufacturer support. Additionally, this situation may even require specialized manufacturing to be able to restore major equipment.

The lack of investment in the T&D system significantly compounds the combination of material shortages and lengthy procurement processes. Without adequate financial resources allocated for upgrades, LUMA continues to be challenged while attempting to acquire necessary materials in a timely manner. Delays in acquiring essential materials and equipment disrupt scheduled maintenance, leading to deferred repairs that further degrade the system. Additionally, prolonged outages directly impact customer satisfaction, economic stability, and public safety. In summary, the combination of these factors creates a self-perpetuating cycle of system degradation, increased outages, and escalating costs.

- Transmission and Distribution Fleet Availability: Table 2, which contains year-to-date data, shows that 57% of fleet assets exceeded their expected service life. The challenge of aging fleet assets significantly impacts our ability to attend to outages promptly and efficiently. With a growing number of vehicles operating beyond their expected service life, our fleet experiences increased maintenance needs and unexpected downtime. The increased downtime of older vehicles directly affects our outage response times. When vehicles are unavailable due to maintenance, it strains our resources and can delay our ability to reach outage locations, especially in critical situations. LUMA is currently behind the capital investment profile outlined in the Fleet Management Plan and related T&D Fleet Program Brief to return the Fleet assets to industry-standard useful lives (e.g., seven years for Light Vehicles, 10 years for Heavy Vehicles, and 15 to 20 years for Offroad Equipment and Trailers). There is a requirement to add 337 units to accommodate the anticipated increase in headcount within operations and to reduce costs related to rental purchase option vehicles and rented equipment. However, the abovementioned constraints have hindered LUMA's ability to invest at the pace needed to align with the capital investment profile for these activities. LUMA continues to enhance vehicle maintenance programs to stretch the life expectancy of existing vehicles as well as rent vehicles to fill equipment gaps. However, both tactics put additional strain on the Operations & Maintenance funding. LUMA has taken steps to

build out the necessary capital funding to meet the fleet needs within the upcoming rate case submission.

**Table 2. Available Fleet Assets**

| Category | Total | Within Expected Service Life | Beyond Expected Service Life | |
|---|---|---|---|---|
| | Quantity | | Quantity | % |
| Bucket Trucks | 349 | 250 | 99 | 28% |
| Diggers | 98 | 75 | 23 | 23% |
| Equipment | 268 | 118 | 150 | 56% |
| Heavy Duty | 247 | 78 | 169 | 68% |
| Light Duty | 966 | 332 | 634 | 66% |
| Trailers | 233 | 71 | 162 | 70% |
| Total | 2161 | 924 | 1237 | 57% |

## Corrective Action Plans

LUMA's Corrective Action Plan is designed to implement comprehensive measures to improve the SAIDI and prevent further deterioration of service quality. This plan addresses the underlying issues contributing to service interruptions by identifying and addressing both direct and indirect root cause factors that impact reliability. Through a deep analysis, we have pinpointed specific areas for improvement and developed targeted programs to address these issues. As already established, LUMA analyzes historical outage data to identify recurring causes of interruptions, such as aging infrastructure, vegetation management issues, and equipment failures. We can significantly reduce the frequency and duration of outages by addressing these root causes through targeted maintenance and upgrades.

**Table 3. Corrective Action Plan Workstreams**

| Impacted Root Cause | Workstream | FY2024 Key Achievements | Timeline for Implementation | Expected Improvement |
|---|---|---|---|---|
| **Vegetation Outages** | **Vegetation Management and Capital Clearing Implementation** | Clearing over 1,500 miles of distribution and transmission lines; completing the fifth round of substation herbicide treatment; completing 70 percent of substations treated on the sixth round; and starting the federally funded vegetation clearing initiative with San Juan Group A obligations. | Vegetation-clearing efforts are planned to occur over the next four years (between FY2025 and FY2028). After the Vegetation Reset program, LUMA will establish and maintain a four-year cycle for power line maintenance. | Vegetation Management and Capital Clearing workstream estimates at the end of the fiscal year 2028 indicate an overall reduction of 400 million in CMI. |
| **Aging Equipment** | **Distribution Line Rebuild** | Submitting one initial Scope of Work (SOW) for distribution underground work; submitting 18 detailed SOWs representing 98 feeders; dividing feeder project groups into individual 151 priority feeder projects to speed up the obligation process; and completing 35 area plans of 71 areas outlined. | Workstream goal is to replace over 200 miles of distribution lines from FY2026 to FY2029. | Workstream Initiative estimates at the end of the fiscal year 2028 indicate an overall reduction of 100 million in CMI and a minimum of 600 million CMI avoided by the end of the program. |

| | | | | |
|---|---|---|---|---|
| **Aging Equipment** | **Distribution Pole and Conductor Repair** | Installation of more than 4,300 poles and submitting six initial SOWs and 12 detailed SOWs to obtain FEMA funding obligation for 3,872 poles. We received funds obligation for two projects totalizing 301 poles. | Workstream goal is to replace up to 24,000 Critical Poles by FY2036. | Workstream initiative estimates at the end of the fiscal year 2028 indicate an overall reduction of 180 million in CMI and a minimum of 320 million CMI avoided by the end of the program. |
| **Aging Equipment** | **Transmission Line Rebuild** | Replacing six transmission structures on one of the worst-performing transmission lines; submitting 20 initial SOWs to address system reliability improvements to the PREB; submitting four detailed SOWs to FEMA; evaluating proposed projects to assess the scopes with the highest impact and dividing those transmission line rebuilds into multiple projects bounded by adjacent substations to drive efficiency and project execution. | Transmission Line Rebuilds efforts are planned to start in FY2027. A total of 15 transmission lines are to be impacted by the end of FY2028. By the end of FY2035, LUMA expects to finalize a total of 49 Transmission Line Segments. | Transmission Line Rebuild and Transmission Line Pole replacement workstreams initiatives estimates at the end of fiscal year 2028 indicate an overall reduction of 18 million in CMI and a minimum of 130 million CMI avoided by the end of the program. |
| **Aging Equipment** | **Transmission Priority Pole Replacement** | Replacing 27 structures, installing seven pole bases, making 164 critical repairs, designing 108 structures, and submitting 10 initial SOWs and nine detailed SOWs to FEMA for an obligation of funds for 53 structure replacements and 52 critical repairs. | Transmission Line Pole Replacement efforts are planned to start in FY2026. LUMA plans to impact over 200 transmission line structures by the end of FY2028. | Transmission Line Rebuild and Transmission Line Pole replacement workstreams initiatives estimates at the end of fiscal year 2028 indicate an overall reduction of 18 million in CMI and a minimum of 130 million CMI avoided by the end of the program. |
| **Aging Equipment** | **Substation Rebuild** | Installation and energizing breakers in Aguirre, Añasco, Daguao, Sabana Llana, Palmer, and Venezuela substations. We also installed transformers in Sabana Llana, Monacillos Aguada, and Venezuela. Submitted eleven detailed SOWs to FEMA for substation rebuild and minor repair project group as well as for the Acacias substation relocation. | Substation Rebuilds efforts are planned to start in FY2026. A total of 38 substations are to be impacted by the end of FY2028. | Substation Rebuild workstream initiative estimates at the end of the fiscal year 2028 indicate an overall reduction of 67 million in CMI and a minimum of 250 million CMI avoided by the end of the program. |
| **Improve Restoration Times and Customer Interrupted Avoidance** | **Distribution Automation** | Installation of 1,381 circuit fault indicators, 212 three-phase reclosers, 407 single-phase reclosers, and 458 cutouts. Additionally, we conducted 3,393 fuse optimizations. We completed protection settings for 190 feeders, performed reliability analysis for more than 500 feeders, completed work order packages for 2,881 devices, and submitted 13 detailed SOWs. | LUMA plans to continue installing more than 11,000 automation devices in the next two years (FY2025-FY2026), including three-phase reclosers, single-phase reclosers, communicating fault current indicators, and distribution protective devices. | Distribution Automation initiative estimates at the end of the fiscal year 2028 indicate an overall reduction of 230 million in CMI and a minimum of 430 million CMI avoided by the end of the program. |

## Restoration Time Improvements

### Resource Availability and Development

LUMA has acted throughout the Fiscal Year 2025 (FY2025) to continue increasing the onboarding and deployment of experienced workers both for reliability work and outage responses. Shortly after commencement, LUMA undertook an aggressive upskilling program to bring the level of qualification of LUMA employees up to expected industry standards. The upskilling program was completed in November 2023, when LUMA had graduated 225 lineworkers to fully qualified status. During FY2025, LUMA continued to increase the onboarding and deployment of

experienced workers both for reliability work and outage responses. These efforts have been multi-pronged and include the following:

- **Utility Fieldworkers**: It is important to note that LUMA has more than 1,000 utility field workers, including lineworkers, in its Operations team. These are composed of approximately 60% ex-PREPA employees who have deep experience and knowledge of the Puerto Rico electric system and, with LUMA, have received industry-standard training through upskilling programs resulting in trade certification and qualification that ensures LUMA's technical craft workers are fully equipped to work safely and effectively.

- **Lineworker Apprenticeship Program**: This Program is focused on developing and growing local talent. Traditionally, an apprenticeship program cannot deliver qualified workers for approximately four years as the apprentice works through the eight stages of development from pre-apprenticeship through to the completion of the Apprentice Period. As of now, there are 216 apprentice lineworkers enrolled in LUMA's program, with the first students already starting to graduate in 2025, with the first graduate in February. This marks a significant milestone in our commitment to developing a skilled workforce dedicated to enhancing the reliability and resilience of Puerto Rico's energy infrastructure.

- **Substation Technician, Underground Residential Distribution Technician, and Cyber Security Technician programs**: These programs were added to the apprenticeships being offered, with the Underground Residential Distribution program being the most advanced out of these three programs. Having properly trained and certified craft workers ensures that LUMA can complete technical work on the system in a safe and effective manner. Currently, LUMA has 31 Underground Residential Distribution, 57 Substation, and 7 Cyber Security apprentices.

- **Off-island hiring programs**: LUMA has instituted off-island hiring programs both within the US mainland and internationally. The US mainland program has resulted in more than 25 trade-certified worker hires for Powerline and Substation Technicians, focused on attracting workers who have left Puerto Rico and previously worked for PREPA.

- LUMA has continually onboarded contractors to supplement our internal workforce with qualified personnel when needed. This includes local engineering resources to conduct system analysis and develop work order packages to execute key reliability work throughout the island by internal resources and construction contractors (i.e., transmission and distribution pole, transmission and distribution line rebuild, transmission and distribution substation reliability improvements, distribution automation, and vegetation work).

LUMA has a strong need to continue building qualified resources into the future to continue expanding and executing the repair and maintenance programs needed to improve system reliability. LUMA estimates that an approximate additional 200 internal craft workers plus contracted resources are required. Future growth plans depend on increased funding in both Operations & Maintenance and Non-Federally Funded Capital budgets. Underfunding these programs remains a significant concern and limitation to executing the needed plans.

**Fleet Availability**

As part of our analysis, we identified fleet availability as an indirect root cause impacting our operational efficiency. To address this, LUMA has implemented comprehensive strategies that simultaneously meet immediate operational needs and ensure long-term sustainability. Our current fleet management practices are designed to optimize vehicle readiness and minimize downtime, which is essential for ensuring our vehicles are available to support critical operations.

- **Strategic Replacement Planning:** Since its commencement, LUMA has implemented a well-structured fleet replacement strategy to maintain high fleet availability and reduce downtime. Investing in timely asset replacements can significantly minimize the operational disruptions associated with aging vehicles. Regular assessments of fleet conditions and the establishment of realistic vehicle life cycles enable proactive asset replacement before failures occur, thereby enhancing reliability and operational efficiency. In line with this strategy, LUMA executed an order for 30 additional bucket trucks in FY2025. These new vehicles will bolster our fleet capacity and reduce the downtime caused by aging or underperforming assets. By integrating these trucks into our operations, we aim to improve our response times to system outages, ensuring faster restoration of service and greater customer satisfaction.

- **Preventive Maintenance Schedule:** Since FY2022, LUMA has also implemented a robust preventive maintenance schedule crucial for keeping our vehicles in optimal condition. Routine inspections, oil changes, tire rotations, and brake checks should be scheduled based on manufacturer guidelines and historical performance data. This proactive approach minimizes unexpected breakdowns and ensures that vehicles are always ready for service.

- **Utilization of Advanced Fleet Management Software:** The implementation of LUMA's Fleet Management Software was successfully completed during FY2023. The adoption of fleet management software can streamline operations by providing real-time tracking, maintenance scheduling, and data analytics. These tools enable us to monitor vehicle utilization effectively, identify maintenance needs early, and optimize resource allocation. We can make informed decisions that enhance fleet availability by leveraging data-driven insights.

- **Telematics Technology Integration:** During FY2025, LUMA integrated telematics technology for real-time vehicle performance and driver behavior monitoring. This data can help identify inefficiencies in driving practices that may lead to increased vehicle wear and tear. We can improve overall vehicle longevity and availability by addressing these issues through targeted training programs and feedback mechanisms.

By implementing these strategies, we can significantly enhance our fleet's availability, ensuring that vehicles are ready to meet operational demands while improving overall efficiency and customer service. Prioritizing these initiatives will reduce downtime and contribute to the long-term sustainability of our fleet operations.

**Material Shortage**

As outlined in response to RFI-LUMA-MI-2020-0019-20241029-PREB-006, LUMA has implemented several measures to streamline procurement processes and effectively mitigate challenges related to material shortages. At the start of FY2024, a revised Procurement Manual

was published to establish clearer guidelines for every stage of the procurement process, ensuring that all teams follow a common framework. This manual provides a structured approach to managing procurement activities, from assessing requirements to delivering results.

LUMA engaged an external partner to assess the procurement department and lead a comprehensive transformation to drive further improvements. This initiative included redefining the department's organizational structure, establishing clear goals, and identifying key success factors to drive change. Additionally, LUMA appointed a new Chief Procurement Officer with extensive experience in leadership roles, specializing in financial and strategic planning, global sourcing strategies, business negotiation, and contract life cycle management. In addition to our ongoing procurement process improvements, the following initiatives are designed to help address material shortages effectively:

- **Enhanced Sourcing Strategies:** LUMA is establishing a dedicated sourcing team focused on improving the drafting of scopes of work and streamlining event execution. This team will work closely with suppliers to anticipate and mitigate material shortages by diversifying supply chains and negotiating favorable terms.
- **Workforce Augmentation:** By the end of FY2025, LUMA will have hired 15 operational procurement specialists and five internal controls specialists. These additions will support the reassessment and implementation of updated processes and procedures, strengthening the department's capacity to manage material procurement efficiently and address shortages proactively.
- **Technology Integration:** LUMA will implement a new workflow management tool designed to improve process adherence, provide better visibility into performance metrics, and facilitate tracking of key performance indicators. This tool will enable real-time monitoring of material availability and procurement timelines, helping to identify potential shortages early and manage them effectively.
- **Collaboration and Alignment**: The procurement department will foster greater alignment with other business functions, promoting closer collaboration to ensure that material needs are anticipated and met promptly. This integrated approach will help prevent delays caused by material shortages, supporting smoother operations and reducing the risk of supply chain disruptions.

By focusing on these strategic improvements, LUMA aims to enhance its procurement operations, address material shortages more effectively, and build a more efficient and effective procurement organization.

Efforts are underway to improve the Puerto Rico Power System, with the root causes of current challenges identified. However, addressing these issues requires investments, materials, and resources, which have been challenging to secure due to existing budget constraints and process limitations. Despite ongoing efforts, the current budget allocation remains insufficient to maintain the grid, let alone improve key metrics. The Corrective Action Plan is being implemented to address these challenges. However, budget constraints may impact the implementation timeline, affecting projections for improvement in customer minutes avoided. It is crucial to be aware that these projections may be delayed if budget limitations persist, underscoring the need for sustainable funding solutions.

**LUMA EXHIBIT 74.11**

**PC-of-LUMA-DST-41**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: PC-of-LUMA-DST-41

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### SUBJECT

Permanent Rates – Distribution

### REQUEST

Refer to LUMA Ex. 5.0 Table 8. What impact will the constrained Projects budget have on the system SAIFI and SAIDI versus the optimal budget?

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

As explained in LUMA Exhibit 5.0, Table 8, the Optimal Budget scenario, which includes stated investment and timing of both NFC and Federal Emergency Management Agency (FEMA) funded projects, the projected System Average Interruption Duration Index (SAIDI) opportunity could see improvement to as low as 1,130 minutes and System Average Interruption Frequency Index (SAIFI) as low as 6.5 interruptions after full investments completed through fiscal year 2028.

In contrast, and as discussed in Question 89 Exhibit 5.0 with the constrained budget in NFC and full realization of the federally funded plan, LUMA may be able to fund the investments needed to contain but just barely contain the current degradation of the grid and stave off acceleration. In other words, LUMA projects this amount of capital at the timing originally contemplated may be able to stop things from getting worse, all other things being equal. Any reductions of funding or delays in timing from this level creates a dynamic where the downward spiral continues unabated or insufficiently offset. Accounting for the 4 to 5% natural degradation attributed to the service life and condition of the transmission and distribution (T&D) System, SAIFI is projected to only improve to 7.1 events (as compared to as low as 6.5 events in the Optimal Budget) and SAIDI is projected to improve to 1,302 minutes (as compared to as low as 1,130 minutes in the Optimal Budget). It is noted that both projections are subject to, and dependent on, the required obligations of FEMA projects to fully effectuate the activities contemplated in the Federal budget.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.12**

**PC-of-LUMA-CAPEX-43**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: PC-of-LUMA-CAPEX-43

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**SUBJECT**

Permanent Rates

**REQUEST**

1. Refer to the proposed NFC budget increase in the Testimony of Patrick Hogan on Behalf of PREPA Bondholders (Budgets and Capital Expenditures): The testimony highlights an increase in the Transmission Line Rebuild program's NFC budget from $0.9 million in FY2025 to $35 million in the FY2026 constrained budget. What is the detailed justification for this dramatic increase in proposed spending?

2. Refer to the risk of over-collection discussed in the Testimony of Patrick Hogan on behalf of the PREPA Bondholders (Budgets and Capital Expenditures), page 11 of 51, line 14: Mr. Hogan states that approving the proposed budgets would result in 'over-collection from ratepayers'. Explain how this over-collection would occur and specify the financial impact on customers if the proposed projects are not executed as planned.

**RESPONDER**

Pedro Meléndez

**RESPONSE**

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

1. Prior year budgets did not include sufficient budget for the requisite level of transmission system infrastructure investments to manage a safe and reliable grid. By comparison, the Federal Emergency Management Agency (FEMA) transmission line rebuilds average $3.5-4.5 million/mile to rebuild 38kV transmission lines to adhere to current laws and regulations. The prior year approved budget would not allow completion of even one mile of transmission line rebuild. In contrast, the transmission portfolio and funding request has been right sized to address the various customer or system drivers that cause a need for transmission line rebuild. These drivers include wildfire mitigation (addressing priority segments of transmission lines in fire prone areas), resolving existing capacity constraints, upgrading capacity to accommodate customer requests to interconnect new loads, and upgrading transmission to interconnect new grid connected and large customer renewable energy projects. The initial FY2026 request allows initiation of projects,

development of detailed engineering designs, procurement of materials as needed, and beginning construction on transmission line upgrades.

2. The premise that the events leading to the reclassification of nonfederal capital (NFC) funds represent an over-collection from ratepayers is incorrect. Often the scenario that results in some projects being delayed and dollars reallocated to incremental projects occurs in to the event of emergency repairs (typically in response to a service interruption or safety requirement for customers) where immediate action is required to restore service in advance of receiving the necessary reviews and approvals required to receive federal funds. Where potentially eligible, these emergent activities can be submitted as "work completed" for federal fund obligations. In the event they do become subsequently approved and obligated (not all portions of the electric transmission and distribution (T&D) system qualify for federal funding), they will be recategorized, but this only frees up, after significant time passage, the NFC funds for additional inventory of repairs on the system, including:

   - From a short-term perspective, addressing the backlog of corrective actions resulting from inspections and tests on the system, and / or the continuing stream of unplanned outages that occur daily, and
   - From a long-term perspective, as the amounts allocated for federal funding fall short of those required to achieve system stability, let alone revitalize the entire grid to a point where reliability comports to industry norms, performing the capital repairs and replacements that may or may not qualify for federal funds but are necessary to provide sustainably improved reliability to customers.

   Thus, what is incorrectly characterized as "over-collection" is in fact designed to remain a prudent use of available capital to reduce service restoration times / address emergency repairs with appropriate controls and administrative processes in place to advance customer's service ..

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief. I would give the same response orally if asked under oath.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.13**

**ROI-LUMA-AP-2023-0003-20250712-PREB-PROV-010**

# Responses for Information on Provisional Rates

# NEPR-AP-2023-0003

## Response: ROI-LUMA-AP-2023-0003-20250712-PREB-PROV-010

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### SUBJECT

Transmission & Distribution (T&D)

### REQUEST

**Implementation Capabilities** – Detail the measures LUMA has taken—or will take—to ensure it can execute the higher capital spend implied by the requested NFC funding.

### RESPONSE

To support the higher capital spend implied by the requested nonfederal capital (NFC) funding, LUMA has implemented a work management and execution readiness framework. This framework is designed to ensure that all projects are delivered efficiently on schedule, and in alignment with both funding availability and defined scope. The work management team plays a central role in this process by coordinating and scheduling all planned activities across the execution of resources. This includes proactively coordinating and prioritizing tasks based on project criticality and resource availability. This forward-looking approach minimizes delays, optimizes resource utilization, and ensures capital funds are deployed in a timely and effective manner, fully supporting our organizational goals and regulatory commitments.

**LUMA EXHIBIT 74.14**

**ROI-LUMA-AP-2023-0003-20250712-PREB-PROV-009**

# Responses for Information on Provisional Rates

# NEPR-AP-2023-0003

## Response: ROI-LUMA-AP-2023-0003-20250712-PREB-PROV-009

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### SUBJECT

Transmission & Distribution (T&D)

### REQUEST

**Supply chain and labor constraints** – *Explain how LUMA incorporated long leadtime equipment, limited on island labor, and contracting constraints when estimating the T&D NFC amounts.*

### RESPONSE

LUMA's entire provisional rate request is a subset of the Optimal Budget. As described in the testimony of Alejandro Figueroa, submitted as Exhibit 1.0 in the July 3, 2025 rate review filing, LUMA's Optimal Budget was developed through a lens of executability, such that the plan as submitted is only what is executable. Therefore, the entire provisional rate request has been reviewed and confirmed by the LUMA team to be executable.

It is important to note that LUMA's transmission and distribution (T&D) nonfederal capital (NFC) funding, in particular for substation stabilization projects, is very much synchronized with the delivery schedules for critical long-lead materials to restore out of service, overloaded, and high-risk components of the system that are in poor condition that have been on order for some time. The projects included in the NFC plan are scheduled mainly with long lead-time materials that are already under contract and scheduled for delivery or in advanced phases of procurement and acquisitions, that allow the projects to execute reliably. LUMA's project plans do include labor planning based on on-island and available resources in conjunction with continued procurement efforts to expand qualified cost-effective resource availability. LUMA currently has contracts in place for several scopes including engineering, distribution, defined substation activities, and logistics, and has active procurements for additional scopes of work across transmission, substation, and distribution disciplines. To complement what is already in place, in the interim, LUMA leverages internal resources and expanded support from off-island through locally registered entities to maintain project progress across all scopes while further contracts are finalized. LUMA does note that in instances where contracting constraints limit incremental resources, the work management plan would expand the use of LUMA resources to perform activities in the NFC plan.

**LUMA EXHIBIT 74.15**

**PC-of-LUMA-OTH_OPEX-72 / OPEX-72_Attachment 1**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: PC-of-LUMA-OTH_OPEX-72

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**SUBJECT**

Permanent Rates

**REQUEST**

Describe how the activities assigned to LUMA under the Electric System Priority Stabilization Plan (PSP, see Resolution and Order of March 28, 2025, in Case No. NEPR-MI-2024-0005) are being funded, and how this funding affects the present rate revision petition.

**RESPONDER**

Pedro Meléndez

**RESPONSE**

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

Please refer to *PC-of-LUMA-OTH_OPEX-72_Attachment 1*.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief. I would give the same response orally and present the same attachments if asked under oath.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.16**

**PC-of-LUMA-DST-36 and 36.1**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: PC-of-LUMA-DST-36

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### SUBJECT

Permanent Rates – Distribution

### REQUEST

Refer to LUMA Ex. 5.0, Tables 4 and 6. For programs PBUT30, PBUT4, PBUT6, and PBUT39. How many circuits will be addressed annually? What is the expected reduction in SAIDI and SAIFI associated with this program over the rate period?

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

Using the rate case optimal nonfederal capital (NFC) and Federal Emergency Management Agency (FEMA) budget, the programs are expected to achieve a minimum improvement of 226 minutes in the System Average Interruption Duration Index (SAIDI) and a minimum improvement of 1.17 interruptions in the System Average Interruption Frequency Index (SAIFI) over the rate period (end of fiscal year 2028). The quantity of circuits and units expected to be addressed by each program under the NFC portion of the budget is outlined below:

- PBUT 39 - Targets the study, analysis, and partial remediation of 38 feeders (or circuits) each year via its Worst Performing Feeder initiative. The focus of this initiative is to address the primary overhead and equipment-related root causes of outages on the targeted feeders without undertaking a full or partial reconstruction of these circuits.
- PBUT30 - This program focuses on minimizing the safety hazards caused by distribution poles, equipment, and conductors that must be repaired or replaced. At the end of fiscal year 2028, the program expects to replace more than 8,000 three-phase primary poles and 15,000 high-risk nonstructural issues. Major repairs and replacements will be based upon the results of an assessment of the distribution system and an analysis by engineers to schedule the repair or replacement based on the criticality of the pole and those poles identified as needing repair on an emergent basis. As these activities occur with varying numbers across circuits/feeders, the

number of circuits the program impacts will ultimately be determined by the number of repairs per circuit encountered.

- PBUT6 – The NFC portions of this program divide across underground distribution line repairs including cable and switch replacements for failures, distribution upgrades to enable distributed energy resources (DER) which are not directly attributable to cost causers, upgrades driven by new business activity and upgrades to address capacity constrained circuits with impacts to safety & reliability, remediation of provisional aerial (failed underground sections that were restored to service with temporary overhead facilities), underground worst performing feeders, and strategic voltage conversions for small load pockets. These activities, with full budget through FY2028, would impact over 50 circuits or sections, over 250,000 feet of cable, 580 feeder upgrade activities, over 80 switches (across vacuum switches and switching units), more than 15 manholes and vaults, and more than 30 distribution transformers (including pad mount and submersible)
- PBUT4 Grid Automation Program is designed to support the replacement and repairs of aging and failed automation equipment and the acquisition of ancillary components essential for maintaining existing grid automation systems. The program will not address new circuits; its primary objective is to enhance the maintenance and reliability of current automation assets. These activities, with full budget through FY2028, would project to replace up to 160 single-phase reclosers, 25 three-phase reclosers, 20 IR control modules, 20 IR communication modules, 20 cellular modem kits, 10 IR control modules, and 600 batteries.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: PC-of-LUMA-DST-36.1

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**SUBJECT**

Permanent Rates – Distribution

**REQUEST**

Provide any estimates of the reliability improvement attributable to each program individually. If LUMA does not have such estimates, describe the relative reliability improvements expected of each program.

**RESPONDER**

Pedro Meléndez

**RESPONSE**

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

As part of developing the aggregate estimates presented in *PC-of-LUMA-DST-36*, LUMA assessed the anticipated reliability benefits of individual components within the portfolio. The estimated reliability impacts of those components contributing to the totals are outlined below, based on the optimal scenario with both Federal Emergency Management Agency (FEMA) and nonfederal capital (NFC) funding over Rate Period through Fiscal Year 2028.

**Table 36-1. Individual Projects Anticipated Reliability Benefits**

| Program Brief | Description | SAIDI Improvement* | SAIFI Improvement* |
|---|---|---|---|
| PBUT6 | Distribution Line Rebuild | 31.36 | .156 |
| PBUT4 | Distribution Automation | 110.3 | .655 |
| PBUT30 | Distribution Pole and Conductor Repair | 84.73 | .355 |
| PBUT39 | Reliability | | |

*Minimum improvements

# Rate Review

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.17**

**PC-of-LUMA-DST-37**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: PC-of-LUMA-DST-37

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**SUBJECT**

Permanent Rates – Distribution

**REQUEST**

Refer to LUMA Ex. 5.0, Tables 4 and 6. For programs PBUT30, PBUT4, PBUT6, and PBUT39. Provide the methods and calculation for estimating the needed investments. Also provide any historical costs or sources on which the cost estimates are based.

**RESPONDER**

Pedro Meléndez

**RESPONSE**

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

In response to the request regarding programs PBUT30, PBUT4, PBUT6, and PBUT39, we provide the following information related to the methods, calculations, and historical data used to estimate investment needs:

## Distribution Pole & Conductor Repair, PBUT30, LUMA Ex. 5.08

| Proposed NFC Budget ($MM) | | | |
|---|---|---|---|
| FY2026 | FY2027 | FY2028 | Total 3 years |
| $70 | $226 | $261 | $557 |

The Distribution Pole & Conductor Repair (PBUT30) program focuses on minimizing the safety and reliability hazards caused by defects across distribution poles, equipment, and conductors that must be repaired or replaced. Major repairs and replacements are based upon the results of assessments of the

distribution system and analysis by engineers to schedule the repair or replacement based on the criticality of the defects. LUMA notes that the $557 million shown here is the amount managed by the Capital Programs Department and thus only represents a portion of the total of $650 million in the LTIP as the other portion of this Program Brief is managed by the Operations Department supporting emergent repairs.

### *Pole Replacement ($276 million)*

*(LTIP Reference: Pole Replacement)*

- The largest portion of the budget for PBUT30 comes from pole replacement. LUMA has a current inventory of approximately 49,000 distribution pole defects identified and expects to find an additional 3,300 by FY2028 through preventative maintenance inspection.
- To manage the inventory of known defects and address the associated safety and reliability impacts, this budget designs to execute 7,880 primary pole replacements with nonfederal capital (NFC) through FY2028 using an average cost of $35,000 per pole based on recent historic actuals. The dollars requested in the rate case considered ensuring executability across the most critical defects; however, it is noted that this will not be enough to address all defects within the rate period, and this program will need to continue to scale up in future years.

### *Non-Structural Repairs ($84 million)*

*(LTIP Reference: Non-Structural Repairs Priority 1 and Non Structural Repairs Priority 2)*

- LUMA has a current inventory of approximately 33,000 non-structural defects identified and expects to find an additional 3,300 by FY2028 through preventative maintenance inspection. To manage the inventory of known defects and address the associated safety and reliability impacts, LUMA is requesting $84M to execute 16,700 non-structural repairs with nonfederal capital (NFC) through FY2028. Non-structural repairs includes any necessary repairs on functional components that do not involve a full pole/structure replacement such as insulators, crossarms, hardware, switches, fuses, conductors, pole mounted transformers, pad mounted transformers and other components.
- The unit costs applied are estimates, with appropriate adjustments for inflation, that are dependent on market costs and were based on historical data derived from actual work performed and actual spending on previous activities.

### *Corrective Maintenance and Out of Service Equipment ($198 million)*

*(LTIP Reference: Engineering Distribution Corrective Maintenance (Priority 1), Engineering Distribution Corrective Maintenance (Priority 2), Engineering Distribution Out of Service (Priority 1) and Engineering Distribution Out of Service (Priority 2))*

- As mentioned in the pole replacement and non-structural repairs sections above, we have estimated expected pole and non-structural findings by FY2028 through preventative maintenance inspection. We expect to find 2,500 primary poles, 800 secondary poles, 2,700 pole mounted transformers, 500 pad mounted transformers, and 500 miles of overhead conductor. Therefore, we are requesting $162M to be able to address the estimated findings from preventative maintenance visual inspections.

- Information on the current condition of the system combined with historical deficiencies and corrections were used to estimate the above numbers
- LUMA is requesting $36M to restore high priority currently out of service equipment on the distribution system. This includes 26 vacuum switches, 222 switches and 500 underground cable segments (500ft per segment). The dollars requested in the rate case considered ensuring executability across the most critical defects; however, it is noted that this will not be enough to address all defects within the rate period, and this program will need to continue to scale up in future years.
- The unit costs applied are estimates, with appropriate adjustments for inflation, that are dependent on market costs and were based on historical data derived from actual work performed and actual spending on previous activities.

## Grid Automation, PBUT4, LUMA Ex. 5.09

| Proposed NFC Budget ($MM) | | | |
|---|---|---|---|
| FY2026 | FY2027 | FY2028 | Total 3 years |
| $2 | $4 | $9 | $15 |

The Grid Automation (PBUT4) program is designed to support the replacement and repairs of end of life and failed automation equipment, the acquisition and installation of ancillary components essential for maintaining and enhancing existing grid automation systems and to support installation and optimization of automation equipment for wildfire mitigation.

### *Wildfire Mitigation ($12.7 million)*

*(LTIP Reference: Distribution Automation (Wildfire Mitigation Infrastructure Hardening), Feeder Management System, DA Replacement Reclosure Equipment (Emergent))*

- This initiative includes the implementation of automation technology designed to prevent wildfire risks associated with electrical infrastructure operation and minimize the damage to the distribution system during fire events.
- The largest portion of the budget for PBUT4 comes from automation equipment for wildfire mitigation. Through FY2028, LUMA forecasts updating feeder automation equipment on at least 23 high priority feeders – these include three-phase and single-phase reclosers, specialized fusing, and deployment of sensors.

### *Automation Device Replacement and Testing equipment ($3.3 million)*

*(LTIP Reference: DA Test Equipment, DA Replacement Reclosure Equipment (Emergent))*

- The remainder of the optimal budget for PBUT4 through FY2028, $3.3 million is dedicated to replacing equipment and batteries as they reach end-of-life and upgrading existing devices with communication devices to enable remote connectivity.
- Currently, LUMA has installed 300 three phase reclosers and 674 single phase reclosers. Additionally, through FY2028, LUMA forecasts to install 1,480 three phase reclosers and 5,613

single phase reclosers using FEMA funding not included in the NFC funding request. These devices would represent the total population of distribution automation devices which would require testing, maintenance, and replacement over time. The NFC budget requested will only be used for the testing, maintenance and replacement - not the installation.

- The unit costs used are estimates, with appropriate adjustments for inflation, that are dependent on market costs and were based on historical data derived from actual work performed and actual spending on previous activities.

## Distribution Grid Reliability, PBUT39, LUMA Ex. 5.13

| Proposed NFC Budget ($MM) | | | |
|---|---|---|---|
| FY2026 | FY2027 | FY2028 | Total 3 years |
| $21 | $23 | $26 | $70 |

The Distribution Grid Reliability (PBUT39) program targets the study, analysis, and partial remediation of 38 feeders (or circuits) each year via its Worst Performing Feeder initiative. Also within this program is targeted improvement of feeders through fuse coordination, fault current indicator (FCI) and cut out installation initiatives.

### *Worst Performing Feeder Initiative ($33 million)*

*(LTIP Reference: Worst Performing Feeder)*

- Since this is a continuous initiative, in accordance with utility best practice, the nature of work changes each year based on the highest priority reliability under-performance for customers, and thus the specific scope cannot be predetermined. The target is to work on the worst performing 2% of the distribution system and the three worst performing feeders in each region, which amounts to 38 feeders per year. In the past, the funding allocated was $75,000 per feeder which did not allow completion of the sufficient remediation requirements identified on average for the feeders.

- LUMA is requesting $9.2 million in FY2026 and ramping up to $12.7 million in FY2028, cumulatively through FY2028 the total would be $33 million. The funding will focus on remediation of 38 feeders per year but with an increasing level of investment into each feeder. This ramp-up allows for increased scope development and scaled resource planning to achieve an investment amount of $334,000 per feeder. The dollars requested in the rate case considered an executable amount; however, this will still not be enough to address all defects within the rate period which has been estimated would require closer to $500,000 per feeder to more substantially mitigate the reliability deficiencies.

### *Fuse Coordination, Line Fault Current Indicator and Cutout Installation Initiatives ($25 million)*

*(LTIP Reference: Reliability System Upgrades)*

- The projected remaining work through Fiscal Year 2028 has been estimated by analyzing the historical average number of devices installed per distribution feeder and conducting a comprehensive review requiring upgrade or addition of the existing fuse inventory across the

distribution grid. This approach ensures a data-driven forecast of future installation needs. The budget of $25.4 million through FY2028, was derived forecasting to install up to 8,625 FCIs (at 2800/year), 15,969 fuses (at 5k+/year), and 274 cutouts (at 90/year) to make progress against the total system requirements which estimate a need of over 48k fuse replacements for coordination and an additional 28k FCIs..

- The unit costs applied were derived from historical data, including actual work performed, equipment expenditures, number of devices required per feeder, and previous activity spending.

***Regional Reliability Improvements ($12 million)***
*(LTIP Reference: Regional Reliability Improvements)*

- The regional improvements initiative focuses on improving the reliability of feeders not classified as worst performing but with significant potential for improvement in reliability metrics. This initiative emphasizes strategic investment in capital improvement projects tailored to address specific regional needs, as identified by district operations teams. By allocating funds for approved projects through the Regional Reliability team, the program ensures targeted enhancements that strengthen grid performance, reduce outage risk, and support overall system resilience.
- LUMA is requesting $3.5 million in FY2026 and ramping up to $4.6 million in FY2028, cumulatively through FY2028 the total would be $12.1 million. The funding will focus on remediation of 18 feeders per year but with an increasing level of investment into each feeder. This ramp-up allows for organic growth in spending synchronized with corresponding resource planning to achieve an investment amount of $255,000 per feeder. The dollars requested in the rate case considered an executable amount.

## Distribution Line Rebuild, PBUT6, LUMA Ex. 5.10

| Proposed NFC Budget ($MM) | | | |
|---|---|---|---|
| FY2026 | FY2027 | FY2028 | Total 3 Years |
| $37 | $57 | $72 | $166 |

The Distribution Line Rebuild (PBUT6) program focuses on rebuilding distribution feeders with poor reliability performance and those that serve critical power facilities, targeting the worst-performing feeders first. It also addresses provisional overhead systems identified as key safety concerns. LUMA notes that the $166 million shown here is the amount managed by the Capital Programs Department and thus only represents a portion of the total of $181 million in the LTIP as the other portion of this Program Brief is managed by the Operations Department supporting emergent repairs.

### *Underground Worst Performing Feeders ($4.8 million)*
*(LTIP Reference: UGWPF – Cables and UGWPF – Switches)*

- This work will be focused on replacements of switches and cable segments that have failed and for feeders with worst reliability metrics to have the greatest impact. This work focuses on necessary operational and executable repairs required while longer term rebuilds are designed and planned. Estimates for this work are based on performing improvements projects on at least five (5) underground circuits per year, assuming one percent of the underground distribution circuit assets will require repairs.

- Industry unit costs adjusted for historical costs of similar projects in Puerto Rico were used as the basis for this work.

### *Provisional Overhead ($33.1 million)*
*(LTIP Reference: Provisional OH (UG Primary)*

- Provisional Overheads refer to the temporary or “provisional overhead” facilities that were constructed as emergency repairs to re-energize customers after an Underground Circuit experienced failures where underground repairs were determined at the time to be prohibitive.

- This initiative focuses on reconstructing and repairing underground feeder segments that are currently being served by often unsafe, and non-standard, “temporary provisional overhead” repairs. Note that Ex. 5.10 Distribution Line Rebuild discusses the volume of provisional overheads discovered so far which require remediation exceeds 220 miles. LUMA forecasts reconstruction of the underground infrastructure for only 16.5 miles of the 220 miles of provisional overhead in the first 3 years. This infrastructure rebuild will enhance safety and reliability to levels commensurate with national electrical safety code (NESC) requirements in the neighborhoods where customers are directly connected to provisional infrastructure. This forecast is based on performing engineering design and feeder reconstruction costs at an average repair rate of $2 million per mile with a full budget of $33.1 million through FY2028.

### *Underground Distribution Lines Repair ($13.8 million)*
*(LTIP Reference: UG D Lines Repaired)*

- This initiative focuses on reconstructing underground distribution feeders that are either out of service or demonstrate signs of imminent failure. To avoid project scope overlap, these feeder segments will not have provisional overhead lines currently supplying customer loads. LUMA forecasts to reconstruct up to 3.5 miles of feeder segments. This work forecast is based on performing engineering design, trenching, duct bank installation, road repaving, and feeder reconstruction costs at an average repair rate of $4 million per mile with a budget of $13.8 million through FY2028.

### *Strategic Voltage Conversions ($11.5 million)*
*(LTIP Reference: Strategic Voltage Conversion)*

The Puerto Rico distribution system is constructed with multiple voltage levels serving distribution connection loads, including 4.16, 4.8, 7.2, 8.32 and 13.2kV. The strategic voltage conversion initiative aims to standardize voltage levels to eliminate non-standard voltages, and to eliminate pockets on circuits that step-down to a lower voltage, but that have large negative impacts on system reliability metrics. The voltage conversion improves nominal feeder thermal, voltage and power quality performance while also

increasing reliability and customer experience since feeder ties to adjacent 13.2 kV circuits can be established to provide loop feeds and backup service.

LUMA has identified one substation and one circuit (0.75 miles) that operates at 4.8kV that should be converted to 13.2 kV class. This conversion project is estimated at $5 million. LUMA has also identified over 12 priority circuit sections with load pockets served by single-point-of-failure voltage converters, where voltage conversion projects at an average of $550,000 each, $6.5 million is requested. Combined, the full budget for strategic voltage conversions is $11.5 million through FY28.

### *Distribution System Upgrades ($83 million)*

*(LTIP Reference: i. Distribution Capacity Constraints, ii. Distribution New Business (50kvA or more) iii. Distribution system improvement (DER))*

This initiative focuses on (i.) upgrading our distribution infrastructure to increase capacity on existing constrained and overloaded circuits (ii.) supporting economic development and new customer load additions across Puerto Rico, and (iii.) supporting the fragile distribution system through the growth of Distributed Energy Resources (DER). These investments together provide for reliability and resilience improvements that update and modernize the existing distribution infrastructure.

(i.) $12.6 million is requested through FY2028 to address existing distribution circuits and sections with undersized conductors for the existing load levels, and those which do not provide adequate levels of voltage support to customers at end-of-line. LUMA has identified over 30 miles of distribution primary wire that needs to be upgraded to address thermal and voltage violations due to loading. The funding requested covers approximately 20-25 miles of reconductoring through FY2028 based on estimates ranging from $500,000/mile for conductor only replacement up to $3.5 million/mile when multi-circuit structure replacements are required.

(ii.) $24.3 million is requested through FY2028 to address overloads and capacity upgrades identified in the course of technical engineering studies for new-business interconnection. These upgrades are necessary to interconnect new customer loads and support economic development projects across Puerto Rico. The requested amounts are derived from historical pace and volume of new-business interconnections that may be delayed or unable to connect due to limited distribution circuit capacity. LUMA sees an average of 4-5 requests per month, and anticipates upgrades across 6-7 circuits per year at a cost of $4 million per circuit.

(iii.) $46.1 million is requested through FY2028 to address existing and potential new distribution circuit thermal and voltage violations that result from the automatic interconnection of customer solar PV projects. Note that funding requested for DER upgrades are for critical and urgent safety and reliability investments needed and identified from initial technical evaluation on distribution circuits with high concentrations of customer DER. SESA-of-LUMA-DST-1 provides equipment or voltage violation types, quantities and estimated costs to mitigate these violations that LUMA has identified in the last 1.5 fiscal years. $13.5 million of upgrades for systems connected prior to, and during FY2024 are identified. Over $14.4 million of required upgrades for systems connected during FY2025 are identified. The rate case funding is requested for the most critical and urgent upgrades identified through feeder assessments, and not for every upgrade identified through the process. The conflicting Puerto Rico laws and regulations requiring automatic customer interconnection before studies are performed conflict with prudent utility practice. Note, however, that the developers is still responsible for system upgrades required because of their interconnection. Therefore, this funding need should diminish over time as long as developers fund their required upgrades.

These investments in the distribution system will provide grid flexibility to improve system reliability and reduce the probability and occurrence of outages, and capacity for new customer loads that support island-wide economic development of residential, commercial and industrial sectors, and enable the safe and reliable integration of renewable energy systems into the distribution grid.

***Wildfire Mitigation ($19.6 million)***
*(LTIP Reference: Distribution (Wildfire Mitigation Infrastructure Hardening))*

The requested funds focus on enhancing the distribution infrastructure resilience against wildfires. The scope includes planning, engineering, and initiation of designs for developing mitigation solutions on at least 10 priority miles at approximately $2 million per mile. These 10 miles are identified across 23 of the highest priority feeders in high fire risk regions which are concentrated in the south and southwest of the service territory. The mitigation solutions will harden the distribution feeders and reduce the risk of wildfire or wildfire impacts by adding specialized fuses, reclosers, converting circuit laterals to covered conductor or underground when justified. Other investments include enhancing situational awareness with expanded weather station deployment and visibility, and technologies to monitor system conditions.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.18**

**PC-of-LUMA-DST-65**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: PC-of-LUMA--DST-65

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### SUBJECT

Permanent Rates – Distribution

### REQUEST

Refer to LUMA Ex. 5.0, Tables 4 and 6. For programs PBUT4 and PBUT39, what is the business case for investing in grid automation? What impacts are expected, and how will costs and benefits be measured?

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

Programs PBUT4 and PBUT39, as detailed in LUMA Exhibit 5.0 (Tables 4 and 6), form part of LUMA's strategic investment aimed at enhancing system reliability, operational efficiency, and resilience. These initiatives contribute to the ongoing modernization of Puerto Rico's electric grid by focusing on key performance areas, including feeder-level automation, distribution feeder protection system enhancements, and targeted investments to improve distribution system reliability.

This program is designed to enhance the resilience and efficiency of the electrical distribution network by reducing outages and improving response times. A central component is the Worst Performing Feeders Initiative, which targets the upgrade of at least 38 feeders annually, selected based on historical reliability metrics. Additionally, the Reliability System Upgrades Initiative integrates technologies such as fault current indicators (FCIs) and fuse protection coordination to improve fault detection, accelerate restoration, and enable better segmentation of customers during fault events. For further details, refer to the Program Brief document.

PBUT4, Distribution Automation program, focuses on the installation, operation, and maintenance of intelligent three-phase and single-phase reclosers, as well as communicating fault current indicators on selected feeders, including main lines and feeder ties. These devices are designed to minimize customer interruptions per outage event by enabling faster fault detection, isolation, and service restoration. While the majority of the reliability benefit is achieved through installation of distribution automation devices with

more than $940 million of FEMA funding in PBUT4 through FY35, the much smaller portion $109 million of NFC funding is required to properly support, operate, and maintain these devices to achieve the forecasted reliability benefit.

Such maintenance across all assets is essential for LUMA to implement and is a requirement for all improvements performed with Federal Funds to avoid potential de-obligation or return requirements of original investments toward meeting the improvement scopes.

### Business Case for Investment

The business case for PBUT4 and PBUT39 is driven by the following objectives:

- Enhance Reliability and Resilience: Automation accelerates fault detection, isolation, and restoration, reducing both the duration and frequency of outages, and enhancing System Average Interruption Frequency Index (SAIFI) and System Average Interruption Duration Index (SAIDI) performance.
- These programs also target the Worst Performing Feeders, upgrading at least 38 feeders annually based on historical SAIDI and SAIFI performance. Through the Reliability System Upgrades Initiative, the deployment of automation technologies such as Fault Current Indicators (FCIs) and fuse coordination enables faster fault detection, isolation, and restoration. These improvements are expected to significantly reduce outage frequency and duration, directly improving customer experience and reliability metrics.
- Improve Operational Efficiency: Remote monitoring and control enabled by automation devices reduce the need for manual switching and field crew dispatches, lowering operational costs and improving response times.
- Increase Grid Visibility and Control: Real-time data from automated devices supports better decision-making, load management, and integration of distributed energy resources (DERs).

### Expected Impacts and Measurement of Benefits

The expected impacts of PBUT4 and PBUT39, along with the approach for measuring their costs and benefits, are summarized in the table below. These impacts are primarily reflected in anticipated improvements to SAIDI and SAIFI, which serve as key indicators of reliability performance. The table also identifies the type of investment, the scope of deployment, and the root causes being addressed.

**Table 65-1. Program Brief and Improvement Estimates Based on Optimal Budget Investment**

| Program Brief | Description | Type | Scope Measured | Impacted Root Cause Categories | Expected SAIDI Improvement | Expected SAIFI Improvement |
|---|---|---|---|---|---|---|
| PBUT4* | Distribution Automation | Distribution | Devices Installed | * | 270 | 1.67 |
| PBUT39 | Distribution Reliability | Distribution | Devices Installed/Feeders Addressed | Equipment | 40 | 0.16 |

*The PBUT4 expected improvement includes FEMA-funded investments, while NFC resources are allocated exclusively to the operation and maintenance of the installed equipment.

In addition to the described business case for installing distribution automation devices, according to Act 17 Section 1.15-o, LUMA is required to adopt Fault Location Isolation and Service Restoration (FLISR) technologies which are the devices installed within PBUT4 and PBUT39.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.19**

**PC-of-LUMA-TRS-10**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: PC-of-LUMA-TRS-10

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**SUBJECT**

Permanent Rates – Transmission

**REQUEST**

Referring to the table in Attachment 1 of PC-of-LUMA-TRS-4 (Budgets for PBUT 7 projects) describe what the budgets for "Transformers 'On-site' Preparation Costs" covers? Explain why the On-site Preparation Costs for FY 26 are $45,540,000 when the budget indicates a very limited number of transformers will be purchased in FY 26 (Transformers Programmatic Replacement is $345,000 and Transmission Transformers OOS is $0).

How many additional transformers are purchased under the optimal budgets in FY 27 and FY 28 compared to the constrained budgets and where will the additional transformers be installed?

**RESPONDER**

Pedro Meléndez

**RESPONSE**

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

In the vast majority of the cases in PBUT7, the substation transformers have already been purchased, and the budgets identified in PBUT7 do not change any specific purchase volumes, but rather are required and adjusted with regard to the other associated costs with preparation, installation, and energization of the transformers. Of all 431 LUMA transformers in Puerto Rico, approximately half (216) are operating beyond their designed life expectancy, which sets a reference for the current backlog of transformers that LUMA needs to replace just to catch up on the transformer lifecycles. After those transformers are replaced, an ongoing replacement cycle of 11 per year would be needed to keep up with the continual aging and degradation of the transformers in the system. Also, the aging conditions are further stressed since over 60% of the transformers currently in operation are overdue for maintenance.

Across this plant, even more critically, LUMA has identified 51 transformers that urgently need to be replaced due to being out-of-service, overloaded, and/or in poor operating condition. While LUMA plans to replace all of these, limitations across resources requires a strategic approach involving advancing

units to stations without the full replacement costs and resources available, where the transformers will be staged and dressed on site in preparation for the replacements as adequate funding, resources, and system conditions allow. This approach positions LUMA to be able to respond quickly for our customers in the event of the failure of these at-risk transformers.

The budget line for "Transformers 'On-site' Preparation Costs" covers the activities required to receive and prepare transformers on-site. The energization of the transformer is not covered in this cost. The activities are:

- Logistic support inside the substation and/or staging location
- Required civil works (such as foundation preparation, pad modifications, or site adjustments)
- On-site assembly including oil filling and installation of ancillary materials like radiators (e.g., dressing of bushings and radiators)

In FY26, the $45,540,000 of "Transformers 'On-site' Preparation Costs"[1] project covers the reception preparation activities for the transformers that will be energized in subsequent years, whereas those identified in the budgeted energization plan for FY26 already have their individual named projects identified in other line items in the list of PBUT7 projects. For this same reason, the "Transformers Programmatic Replacement"[2] and "Transformers - OOS"[3] projects have relatively low budgets in FY26 because these projects cover the transformer energizations that are planned in the budgets in subsequent years.

Compared to the Constrained budget, the Optimal budget would see approximately 7 additional transformers energized by the end of FY28. This value is based on the estimated unit cost for new transformer energizations based on historical experience and the RSMeans tool. These transformers would be installed at substation sites with priority system needs, such as the 51 transformers that currently need to be replaced due to being out-of-service, at risk of overload, or in poor operating conditions. Deferring the installation of these transformers would cause cascading negative impacts for the system, including increasing the up-front staging and preparation costs for the transformers already purchased and increasing the already excessive backlog of transformers requiring replacement. The compounded impacts of the Constrained budget reduction would delay LUMA's transformer recovery and remediation efforts by at least 2 years.

Allocating funds for this future investment is a definite need to enable the planned and unplanned substation equipment corrections and improvements required to combat the current and continued degrading condition of the system. The Constrained budget reduction compared to the Optimal budget would further defer these highly important system improvements.

Deferring these replacements due to the reduction from the Optimal budget to the Constrained budget poses significant operational risks. Critical power transformers have exceeded their life expectancy. Many were inadequately maintained over their lifetimes and subjected to severe operational conditions beyond manufacturer guidelines, creating an environment ripe for catastrophic failures. Additional impacts

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[1] See line 178 within the Non-Federal Capital sheet of the filed LTIP

[2] See line 189 within Non-Federal Capital sheet of the filed LTIP

[3] See line 191 within sheet Non-Federal Capital of the filed LTIP

include delaying substation infrastructure improvements and capacity upgrades driven by systemwide load growth, and connection of new customer loads. This introduces risks which impacts system reliability where transformer overloads cause increased failure rates and diminished equipment life.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.20**

**SESA-of-LUMA-RATE_DES-37**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: SESA-of-LUMA-RATE_DES-37

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**SUBJECT**

Permanent Rates – Rate Design

**REQUEST**

On August 19th 2025 article in El Nuevo Dia cites an executive from LUMA as saying the following (English translation):

"The LUMA executive emphasized that the consortium also expects to soon be able to access a portion of the $365 million that the U.S. Department of Energy (DOE) reassigned from renewable energy projects to improvements in the central grid. Specifically, LUMA submitted eight projects valued at $152 million, said Meléndez, noting that if approval materializes, it would represent $54 million in billing relief for customers."

a. What are the eight specific projects valued at $152 million, and what is each of the eight-project valued at?

b. Explain how this $152 million would represent $54 million in billing relief for customers. Is that $54 million included in this rate case proposal?

c. Describe all funds requested by LUMA of these $365 million, including a description of what was asked for and the dollar amounts associated with each.

d. Of the portion of the $365 requested by LUMA, how much was for projects related to distribution grid improvements which have as a primary or secondary effect, increasing or enhancing hosting capacity for distributed solar?

e. Of the portion of the $365 million requested by LUMA, how much of those funds are currently included in your rate case proposal, and would be avoided if the DOE fully awards the requested funds?

f. What is the anticipated timeline for clarity on the portion of the $365 million requested by LUMA?

**RESPONDER**

Pedro Meléndez

## RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

a. Please refer to *NPFGC-of-LUMA-CAPEX-7*. Here is a breakdown of the eight projects for approximately $153 million.

| | | | |
|---|---|---|---|
| 1) | P1 | $29.2 million | Behind the Meter Repairs for AMI deployment |
| 2) | P2 | $13.1 million | Transformer Pre-Installation work |
| 3) | P3 | $15.7 million | Transmission Repairs |
| 4) | P4 | $6.6 million | Switchgear Replacements |
| 5) | P5 | $19.5 million | Feeder Modernization |
| 6) | P6 | $19.4 million | Relay Protection Upgrades |
| 7) | P7 | $9.0 million | Intelligence Enhancements |
| 8) | P8 | $40.4 million | Utility Pole Loading Abatement |
| | | $153 million | LUMA Total |

b. It is noted that the following four out of the eight projects, which under most recent estimates total to approximately $54.8 million, overlap projects and activities addressing system needs currently identified in the rate case. Should a grant be awarded that appropriately provides funding for specific project costs and activities included in the rate case those specific activities that are funded by the grant would then no longer require ratepayer funds for the covered activities.

| | | | |
|---|---|---|---|
| 1) | P2 | $13.1 million | Transformer Pre-Installation work |
| 2) | P3 | $15.7 million | Transmission Repairs |
| 3) | P4 | $6.6 million | Switchgear Replacements |
| 4) | P6 | $19.4 million | Relay Protection Upgrades |
| | | $54.8 million | Total |

c. Please refer to *NPFGC-of-LUMA-CAPEX-7*. As indicated by Pedro Meléndez, LUMA Energy has submitted only $153 million in projects, not $365 million as detailed above in part “a”.

- **Behind the Meter Repairs for AMI deployment:** Perform repairs on customer-owned meter equipment allowing customers and LUMA to receive the benefits of the AMI meters and grid monitoring
- **Transformer Pre-Installation work:** Complete and energize 6 new large power transformers at substations, replacing failed units.
- **Transmission Repairs:** Restore at least 5 transmission power-flow paths that are currently unavailable to the system.
- **Switchgear Replacements:** Restore critical substation switchgear power-flow paths that are currently unavailable.
- **Feeder Modernization:** Reduce SAIFI and SAIDI for customers across priority feeders on the distribution system through the reduction of sustained interruptions and enabling more efficient restoration times.
- **Relay Protection Upgrades:** Implement critical upgrades, execute critical maintenance activities, and make targeted priority repairs to reduce the risk of events cascading to wide areas destabilizing the system or creating systemwide outages and improve reliability.
- **Intelligence Enhancements:** Implement technology enhancements to system inspection to rapidly gather more granular awareness of threat levels and conditions across the transmission system.

- **Utility Pole Loading Abatement:** Identify, mitigate, and prevent excessive structural loading caused by unauthorized, abandoned, or non-compliant telecommunication attachments on a prioritized portion of PREPA-owned utility poles

d. As indicated by Pedro Meléndez in the El Nuevo Dia article and in the response to NPFGC-of-LUMA-CAPEX-7, LUMA Energy has only submitted $153 million in projects, not $365 million as detailed above in part "a". As explained in *SESA-of-LUMA-RATE_DES-24* response, the same applies for these activities where there are no costs directed solely at the proactive increase in hosting capacity. During repair and rebuild activities, the integration of updated standard conductors and enhanced capacity to support operational redundancy in hazard mitigation yields a definite positive impact on the hosting capacity of the affected facilities. This outcome, however, is considered ancillary and not the primary benefit for which the projects are designed and evaluated.

e. LUMA Energy has only submitted $153 million in projects, not $365 million as detailed above in part "a". The below are the projects that overlap in the Rate Case.

| | | |
|---|---|---|
| P2 | $13.1 million | Transformer Pre-Installation work |
| P3 | $15.7 million | Transmission Repairs |
| P4 | $6.6 million | Switchgear Replacements |
| P6 | $19.4 million | Relay Protection Upgrades |
| | $54.8 million | Total |

P2, P4 and P6 will all be found in PBUT7 while P3 will be found in PBUT13 of the Rate Case. It is premature for LUMA to determine what would not be required in the rate case until such time as LUMA actually has an award with relevant terms and conditions to evaluate.

f. As stated in *NPFGC-of-LUMA-CAPEX-7*, the grant is still pending approval. LUMA is not in a position to speculate the actions of other agencies or entities.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.21**

**NPFGC-of-LUMA-CAPEX-7 and 7.1**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-7

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### SUBJECT

Permanent Rates – Capital Expenditures

### REQUEST

In the July 31st Provisional Rate Order, the Energy Bureau noted, "On May 16, 2025, the U.S. Department of Energy ('DOE') announced that the DOE's Grid Deployment Office ('GDO') will review $365 million in funding from the Puerto Rico Energy Resilience Fund (PR-ERF) to ensure DOE assistance is used to support practical fixes to the grid and benefits all residents of Puerto Rico." Page 19. Please answer the following questions:

What, if anything, has LUMA done to access the PR-ERF funding?
Has LUMA met and/or communicated with DOE regarding the PR-ERF funding? When and what was discussed?
Has LUMA met and/or communicated with PREPA, Genera, COR3, P3, and/or other governmental entities regarding the PR-ERF funding?

What projects, if any, does LUMA anticipate funding (in whole or in part) with the PR-ERF funding? If none, please explain why, and how LUMA anticipates such funding will otherwise be utilized.

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

For the past couple of months since May 2025, LUMA has been in communication with the Puerto Rico Electric Power Authority (PREPA) and Department of Energy (DOE) to discuss the projects to be presented for the Puerto Rico Energy Resilience Fund (PR-ERF). LUMA's latest official correspondence to PREPA/DOE, dated July 23, 2025, described ten (10) different projects, eight (8) from LUMA Energy and two (2) from Genera. The projects identified are to improve resilience and stabilization of the Puerto Rico electrical grid. These projects include but are not limited to: behind the meter repairs (e.g. Meter base replacement), transformer pre-installation work, repairs to the transmission facilities, advanced

energy protection schemes, feeder modernization, system stabilization, utility pole loading abatement, improvement and repairs to generation facilities, and natural gas pipeline construction. The unified statement of project objectives (SOPO) accounted for available PR-ERF funding, of which LUMA Energy defined $153 million for the eight (8) projects.

Periodic meetings have been held to originate and discuss the proposed projects and update statuses and clarifications, as well as written responses to requests for information. These meetings have included representatives from LUMA Energy, PREPA, Genera, P3A and DOE. The topic was first proposed in workshops with the DOE task force at Fortaleza on March 24th, 25th and 26th. The DOE held further meetings with PREPA and LUMA on May 27th, 28th, and 29th to agree to specific project proposals and milestone commitments. Formal SOPO and grant submittal documents were then subsequently requested the week of June 9th and there has been regular correspondence since that time with continuous indication that the grant is imminent and will have a period of performance beginning on May 27th (when the DOE requested the milestone commitments – the first of which was in the first week of June), but PREPA and LUMA have not yet, to the best of LUMA's knowledge, received formal written grant documents or terms and conditions.

Currently, the grant is still pending approval; however, LUMA has been completing milestones as discussed with the DOE. These milestones include completing legal review for removal of abandoned telecommunication equipment, assigning responses, issuance of task orders, and completion of route and bridge studies.

For clarity, LUMA's eight (8) projects, estimated at $153 million, are identified below with approximate costs:

| | | |
|---|---|---|
| 1) | $29.2 million | Behind the Meter Repairs for AMI deployment |
| 2) | $13.1 million | Transformer Pre-Installation work |
| 3) | $15.7 million | Transmission Repairs |
| 4) | $6.6 million | Switchgear Replacements |
| 5) | $19.5 million | Feeder Modernization |
| 6) | $19.4 million | Relay Protection Upgrades |
| 7) | $9.0 million | Intelligence Enhancements |
| 8) | $40.4 million | Utility Pole Loading Abatement |
| 9) | $153 million | LUMA Total |

It is noted that while certain projects overlap critical initiatives LUMA must execute urgently on the transmission and distribution (T&D) system and will begin to do so under provisional rates. Several of the projects are incremental opportunities for the T&D system and customers that are not addressed in the rate case. Reference *PC-of-LUMA-PROV-55_Attachment 1* for further detail on the Priority Stabilization Plan (PSP) projects potential DOE Contributions.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-7.1

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### SUBJECT

Permanent Rates – Capital Expenditures

### REQUEST

LUMA's response states that there is "overlap" between the $153 million of federally funded PR-ERF projects and the amount it is seeking from ratepayers via the rate petition. On the other hand, LUMA also states that "several of the projects are incremental" to what is sought via the rate petition. The response does not provide any further quantification of overlap. Please specifically quantify how much of the federally funded $153 million overlaps with the rate petition, and as to which of the eight project categories.

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

The following four out of the eight projects, which under most recent estimates total to approximately $54.8 million, overlap projects and activities addressing system needs currently identified in the rate case.

| | | | |
|---|---|---|---|
| 1) | P2 | $13.1 million | Transformer Pre-Installation work |
| 2) | P3 | $15.7 million | Transmission Repairs |
| 3) | P4 | $6.6 million | Switchgear Replacements |
| 4) | P6 | $19.4 million | Relay Protection Upgrades |
| | | $54.8 million | Total |

P2, P4 and P6 will all be found in PBUT7 while P3 will be found in PBUT13 of the Rate Case. It is premature for LUMA to determine what would not be required in the rate case until such time as LUMA actually has an award with relevant terms and conditions to evaluate.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.22**

**NPFGC-of-LUMA-CAPEX-9**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-9

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**SUBJECT**

Permanent Rates – Capital Expenditures

**REQUEST**

Refer to LUMA Ex. 5.00 (Melendez) Q&A #71, and Ex. 5.01 (Impact on the Grid – Reliability System Improvements). Please explain whether LUMA is using any underlying model or tool to estimate the impact of projects on reliability metrics. If so, please identify and provide the model/tool. If not, please explain how LUMA is arriving at specific reliability impacts.

**RESPONDER**

Pedro Meléndez

**RESPONSE**

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

LUMA does not currently rely on a commercial software tool to estimate the impact of all projects on reliability metrics such as System Average Interruption Duration Index (SAIDI) or System Average Interruption Frequency Index (SAIFI). Instead, LUMA employs a structured engineering judgment approach supported by historical performance data.

As established in *NPFGC-of-LUMA-CAPEX-8* response, a mathematical model was developed where program costs serve as input and the expected improvements in customer minutes interrupted (CMI) and customers interrupted (CI) are the outputs.

To better reflect the reliability improvements of each proposed project, a rational function was used due to its ability to model asymptotic behavior, approaching a constant value as the independent variable tends towards infinity, effectively modelling long-term stability. For each proposed project, a rational function is fitted with optimization techniques using historical reliability data to represent the anticipated time-dependent improvement in reliability, under the assumption that targeted cause codes are impacted by the investment.

$$Metric = \frac{ax^2 + bx + c}{dx^2 + ex + f}$$

Where x is a positive number representing the amount of investment, with the outputs being SAIDI and SAIFI. Mathematically, asymptotic behavior is observed as the limit approaches infinity. In other words, with an infinite amount of investment, the improvement will converge to a maximum.

$$\lim_{x \to \infty} \frac{a x^2 + bx + c}{d x^2 + ex + f} = \frac{a}{d}$$

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.23**

**NPFGC-of-LUMA-CAPEX-13 and 13.1**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-13

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**SUBJECT**

Permanent Rates – Capital Expenditures

**REQUEST**

Refer to LUMA Ex. 5.00 (Melendez) Q&A #89. LUMA claims in Ex. 5.0 that there is a "4 to 5% natural degradation attributed to the age and condition of the system" per year. Please explain in detail the basis for, and methodology for arriving at, this assumption.

**RESPONDER**

Pedro Meléndez

**RESPONSE**

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

Time series forecasting techniques were applied to establish a baseline of expected reliability performance under normal operating conditions. This baseline projects future trends, including the natural degradation of system performance, assuming no intervention or capital investment.

The estimated "4 to 5% natural degradation" reflects the average annual decline in reliability derived from this baseline model. It is based on historical data trends and represents the expected deterioration in performance metrics over time due to aging infrastructure, environmental factors, and operational wear.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-13.1

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**SUBJECT**

Permanent Rates – Capital Expenditures

**REQUEST**

Please provide the underlying mathematical models (including historical training data, documentation, computer codes, Excel workbooks, and other related files) used to project the "baseline of expected reliability performance" as listed in your response to NPFGC-of-LUMA-CAPEX-13.

**RESPONDER**

Pedro Meléndez

**RESPONSE**

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

As stated in response *NPFGC-of-LUMA-CAPEX-13*, time series forecasting techniques were applied to establish a baseline of expected reliability performance under normal operating conditions. This baseline projects future trends, including the natural degradation of system performance, assuming no intervention or capital investment.

The estimated “4 to 5% natural degradation” reflects the average annual decline in reliability derived from this baseline model. It is based on limited historical data trends observed over the last 4 years and represents the expected deterioration in performance metrics over time due to aging infrastructure, environmental factors, and operational wear.

As described, LUMA uses historical outage data as provided to the PREB to develop the baseline of expected reliability improvement. Please refer to NPFGC-of-LUMA-CAPEX-10.1_Attachment 1.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.24**

**NPFGC-of-LUMA-CAPEX-45**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFGC-of-LUMA-CAPEX-45

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**SUBJECT**

Permanent Rates

**REQUEST**

Please refer to the files titled "Confidential_1757378245116_NPFGC-of-LUMA-CAPEX-10_CONFIDENTIALNPFGC-of-LUMA-CAPEX-10.1_Attachment 1.xlsx" and "Redacted_1757378255828_NPFGC-of-LUMA-CAPEX-10_NPFGC-of-LUMA-CAPEX-10.1_Attachment 1_redacted.xlsx"

These files contain a number of hardcoded figures and hidden sheets. Please provide explanations and supporting raw data, backup calculations, and/or models for the hardcoded figures and other items identified in the list below:

Sheet “Degradation”:
“Degradation SAIDI” & “Degradation SAIFI” (Columns B & C).
“SAIDI Final” and “SAIFI Final” (Cells D2 & E2).
Sheet “$ Amount”:
Clarification on why certain NFC projects were excluded in this tab vs. the LTIP (e.g., “Emergent Replacements and Minor proactive replacements (Bucket)”).
Sheets “CMI CI Events DIST_AVG“, “CMI CI Events SUB_AVG“, “CMI CI Events TLINES_AVG“:
Ranking method for feeders (Column C), substations, and transmission lines (Column G).
Relationship with hidden worksheets “DIST_Data,” “SUB_DATA,” and “Example Event Outage Log”.
Each of the “Calculator (Up to 5 Y)” NFC sheets (hidden in the original workbook file):
“Cost/Unit” (Cells F15:F22).
“ACMI” and “ACI“ percentages (Cells H15:I22).
Fixed values under “ACMI_1/Year/Unit“ (Cells O15, O19, O21).
Fixed values under “ACI_1/Year/Unit“ (Cells U15, U19, U21).
Assumption for lower-bound value @ 70% (Row 13).
Fixed values for “Events/Year/Circuit“ under “Rate of Improvement“ (Cells B31, B34, B37).
Each of the “Calculator (5 to 10 Y)“ NFC sheets (hidden in the original workbook file):
“Cost/Unit“ (Cells F15:F22).
ACMI and ACI percentages for first, second, and third waves (Cells H15:M22).
Fixed values under “ACMI_1/Year/Unit“ (Cells S15, S19, S21).
Fixed values under “ACI_1/Year/Unit“ (Cells Y15, Y19, S21).
Assumption for lower-bound value @ 75% and 90% (Row 13).

Fixed values for “Events/Year/Circuit“ under “Rate of Improvement“ (Cells B31, B34, B37).
Each of the “Calculator (Up to 5 Y)“ FEMA sheets (hidden in the original workbook file):
“Cost/Unit“ (Cells F16:F22).
“Units_1“ (Cell M15).
“ACMI“ and “ACI“ percentages (Cells H15:I22).
Fixed values under “ACMI_1/Year/Unit“ (Cells O15, O19, O21).
Fixed values under “ACI_1/Year/Unit“ (Cells U15, U19, U21).
Assumption for lower-bound value @ 90% (Row 13).
Fixed values for “Events/Year/Circuit“ under “Rate of Improvement“ (Cells B31, B34, B37).
Each of the “Calculator (5 to 10 Y)“ FEMA sheets (hidden in the original workbook file):
“Cost/Unit“ (Cells F16:F22).
ACMI and ACI percentages for first, second, and third waves (Cells H15:M22).
Fixed values under “ACMI_1/Year/Unit“ (Cell S15, S19, S21).
Fixed values under “ACI_1/Year/Unit“ (Cell Y15, Y19, S21).
Assumption for lower-bound value @ 75% and 90% (Row 13).
Fixed values for “Events/Year/Circuit“ under “Rate of Improvement“ (Cells B31, B34, B37).
Sheet “Template -Assumption“(hidden in the original workbook file):
“Distribution_Customers Total“ (Cell B6).

## RESPONDER

Pedro Meléndez

## RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

Sheet “Degradation”: These values are derived from historical degradation trends observed in the system, based on regression analysis of past System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI) data.

2) “Degradation SAIDI” & “Degradation SAIFI” (Columns B & C).
   Regression on Degradation rate.

2) “SAIDI Final” and “SAIFI Final” (Cells D2 & E2).
   Regression on SAIDI and SAIFI Trend.

Sheet “$ Amount”:

1) Clarification on why certain nonfederal capital (NFC) projects were excluded in this tab vs. the LTIP (e.g., “Emergent Replacements and Minor proactive replacements (Bucket)”).
   These NFC projects were excluded as they are not expected to have a planned and predictable measurable direct impact on reliability metrics as they are responsive to system events and failure conditions. While repairs and emergent replacements with LUMA’s upgraded materials and standards are certainly expected to have a net positive impact on system performance and reliability, because they are not planned and directed there is a high amount of uncertainty in locations and magnitudes and therefore they are conservatively excluded from projections

However, it is important to emphasize that these projects are critical to maintaining and improving system performance. They address real-time system needs and asset conditions, and when executed they are expected to contribute positively to reliability over time. The exclusion from this projection is not a reflection of their importance or effectiveness, but rather a conservative modeling approach due to the inherent uncertainty in their timing, location, and scope.

These projects remain a necessary and valuable component of the overall capital investment strategy and are fully reflected in the Long-Term Infrastructure Plan (LTIP).

Sheets “CMI CI Events DIST_AVG“, “CMI CI Events SUB_AVG“, “CMI CI Events TLINES_AVG“:

2) Ranking method for feeders (Column C), substations, and transmission lines (Column G).
   The methodology employed in this process is proprietary and considered confidential intellectual property. As such, we are unable to disclose the detailed calculation procedures. While the detailed algorithm is proprietary, it is based on weighted historical outage frequency, duration, and customer impact.
2) Relationship with hidden worksheets “DIST_Data,” “SUB_DATA,” and “Example Event Outage Log”.
   Worksheets “DIST_Data,” “SUB_DATA,” and “Example Event Outage Log” contains historical instances of outages used to compute the rankings per assets.

Each of the “Calculator (Up to 5 Y)” NFC sheets (hidden in the original workbook file):

6) “Cost/Unit” (Cells F15:F22).
   These are based on internal cost databases and engineering estimates.

6) “ACMI” and “ACI“ percentages (Cells H15:I22).
   Based upon expectations of net improvements. These values are derived from internal modeling tools calibrated with historical performance data

6) Fixed values under “ACMI_1/Year/Unit“ (Cells O15, O19, O21).
   The methodology employed in this process is proprietary and considered confidential intellectual property. As such, we are unable to disclose the detailed calculation procedures. These values are derived from internal modeling tools.

6) Fixed values under “ACI_1/Year/Unit“ (Cells U15, U19, U21).
   The methodology employed in this process is proprietary and considered confidential intellectual property. As such, we are unable to disclose the detailed calculation procedures. These values are derived from internal modeling tools.
6) Assumption for lower-bound value @ 70% (Row 13).
   Based under the assumption of partial approval of funds and/or non-planned costs. This reflects a conservative scenario assuming partial funding or implementation delays.

6) Fixed values for “Events/Year/Circuit“ under “Rate of Improvement“ (Cells B31, B34, B37).
   No fixed values were used on “Events/Year/Circuit” under “rate of Improvement"; these values remain variable.

Each of the “Calculator (5 to 10 Y)“ NFC sheets (hidden in the original workbook file):

6) “Cost/Unit“ (Cells F15:F22).
   These are based on internal cost databases and engineering estimates.

6) ACMI and ACI percentages for first, second, and third waves (Cells H15:M22).
These percentages are based on the expected net improvements, proportionally allocated across the groups defined under “Rate of Improvement.”

6) Fixed values under “ACMI_1/Year/Unit“ (Cells S15, S19, S21).
The methodology employed in this process is proprietary and considered confidential intellectual property. As such, we are unable to disclose the detailed calculation procedures. These values are derived from internal modeling tools.

6) Fixed values under “ACI_1/Year/Unit“ (Cells Y15, Y19, S21).
The methodology employed in this process is proprietary and considered confidential intellectual property. As such, we are unable to disclose the detailed calculation procedures. These values are derived from internal modeling tools.

6) Assumption for lower-bound value @ 75% and 90% (Row 13).
Based under the assumption of partial approval of funds and/or non-planned costs. This reflects a conservative scenario assuming partial funding or implementation delays.

6) Fixed values for “Events/Year/Circuit“ under “Rate of Improvement“ (Cells B31, B34, B37).
No fixed values were used on “Events/Year/Circuit” under “rate of Improvement”; these values remain variable.

Each of the “Calculator (Up to 5 Y)“ FEMA sheets (hidden in the original workbook file):

7) “Cost/Unit“ (Cells F16:F22).
These are based on internal cost databases and engineering estimates.

7) “Units_1“ (Cell M15).
Based upon the expectation of work done in a fixed amount of assets.

7) “ACMI“ and “ACI“ percentages (Cells H15:I22).
Based upon expectations of net improvements. These values are derived from internal modeling tools calibrated with historical performance data.

7) Fixed values under “ACMI_1/Year/Unit“ (Cells O15, O19, O21).
The methodology employed in this process is proprietary and considered confidential intellectual property. As such, we are unable to disclose the detailed calculation procedures. These values are derived from internal modeling tools.

7) Fixed values under “ACI_1/Year/Unit“ (Cells U15, U19, U21).
The methodology employed in this process is proprietary and considered confidential intellectual property. As such, we are unable to disclose the detailed calculation procedures. These values are derived from internal modeling tools.

7) Assumption for lower-bound value @ 90% (Row 13).
Based under the assumption of partial approval of funds and/or non-planned costs. This reflects a conservative scenario assuming partial funding or implementation delays.

7) Fixed values for “Events/Year/Circuit“ under “Rate of Improvement“ (Cells B31, B34, B37).
No fixed values were used on “Events/Year/Circuit” under “rate of Improvement”; these values remain variable.

Each of the “Calculator (5 to 10 Y)“ FEMA sheets (hidden in the original workbook file):

6) “Cost/Unit“ (Cells F16:F22).
These are based on internal cost databases and engineering estimates.

6) ACMI and ACI percentages for first, second, and third waves (Cells H15:M22).
These percentages are based on the expected net improvements, proportionally allocated across the groups defined under “Rate of Improvement.”

6) Fixed values under “ACMI_1/Year/Unit“ (Cell S15, S19, S21).
The methodology employed in this process is proprietary and considered confidential intellectual property. As such, we are unable to disclose the detailed calculation procedures. These values are derived from internal modeling tools calibrated.

6) Fixed values under “ACI_1/Year/Unit“ (Cell Y15, Y19, S21).
The methodology employed in this process is proprietary and considered confidential intellectual property. As such, we are unable to disclose the detailed calculation procedures. These values are derived from internal modeling tools calibrated.

6) Assumption for lower-bound value @ 75% and 90% (Row 13).
Based under the assumption of partial approval of funds and/or non-planned costs. This reflects a conservative scenario assuming partial funding or implementation delays.

6) Fixed values for “Events/Year/Circuit“ under “Rate of Improvement“ (Cells B31, B34, B37).
No fixed values were used on “Events/Year/Circuit” under “rate of Improvement” ; these values remain variable.

Sheet “Template -Assumption“(hidden in the original workbook file):

1) “Distribution_Customers Total“ (Cell B6).
All customers connected to the distribution system.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief. I would give the same response orally if asked under oath.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.25**

**PC-of-LUMA-OTH_OPEX-53 and Attachment**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFCG-of-LUMA-OTH_OPEX-53

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### SUBJECT

Permanent Rates – Physical Operations: General

### REQUEST

Refer to LUMA Exhibit 5.0 (Meléndez testimony), Q&A #90. Mr. Meléndez states, "If the PREB approves the Constrained Budget, LUMA's performance, as measured by SAIFI and SAIDI, will not improve as needed…" Please explain what is meant by "as needed" here. Is LUMA targeting a specific minimum quantum of improvement for SAIFI and/or SAIDI during the three-year rate period? If so, please identify such target(s). If not, how will LUMA determine when SAIFI and/or SAIDI have improved "as needed."

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response.

Yes. LUMA is targeting a specific minimum quantum of improvement in System Average Interruption Frequency Index (SAFI) and System Average Interruption Duration Index (SAIDI), as defined by the Puerto Rico Energy Bureau's (PREB) Final Resolution and Order on Performance Targets for LUMA Energy Servco, LLC, issued on January 26, 2024, as amended on reconsideration on June 14, 2024 (Performance Metrics Targets Order[1]).The term "as needed," as used in Mr. Meléndez's testimony, refers specifically to the degree of improvement in reliability performance necessary to achieve compliance with the performance targets established by the PREB in the Performance Metrics Target Order. In that Order, PREB defined annual performance targets for SAIFI and SAIDI. These targets are structured across multiple performance tiers. The tables below summarize the targets:

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[1] [1] *Available at* https://energia.pr.gov/wp-content/uploads/sites/7/2024/01/20240126-AP20200025-Final-Resolution-and-Order.pdf and https://energia.pr.gov/wp-content/uploads/sites/7/2024/06/20240614-AP20200025-Resolution-and-Order.pdf.

**Table 1. System Average Interruption Frequency Index (SAIFI)**

| | Minimum Performance Level | 25% | 50% | 100% | 125% | 150% |
|---|---|---|---|---|---|---|
| Baseline | 7.0 | | | | | |
| Year 1 | 7.0 | 6.9 | 6.7 | 6.4 | 6.3 | 6.1 |
| Year 2 | 6.4 | 6.3 | 6.1 | 5.8 | 5.7 | 5.5 |
| Year 3 | 5.8 | 5.7 | 5.5 | 5.2 | 5.1 | 4.9 |

**Table 2. System Average Interruption Duration Index (SAIDI)**

| | Minimum Performance Level | 25% | 50% | 100% | 125% | 150% |
|---|---|---|---|---|---|---|
| Baseline | 1,218 | | | | | |
| Year 1 | 1,218 | 1,185 | 1,152 | 1,086 | 1,053 | 1,020 |
| Year 2 | 1,086 | 1,053 | 1,020 | 954 | 921 | 888 |
| Year 3 | 954 | 921 | 888 | 821 | 788 | 755 |

These targets represent the expected level of improvement in reliability performance. Therefore, when Mr. Meléndez refers to performance not improving "as needed," he is referencing LUMA's concern that, under the Constrained Budget scenario, it may not be possible to meet 100% tier targets due to:

- The current degraded state of the transmission and distribution (T&D) system; and
- The volume of corrective and preventive work required to stabilize reliability;

To provide more context, and comparing to mainland utilities, the average U.S. electric utility reports a SAIDI of less than two hours per year , and a SAIFI of approximately 1.3 interruptions per customer annually (excluding Major Event Days), according to the Annual Electric Power Industry Report, Form EIA-861 (2024 reliability data) (*NPFCG-of-LUMA-OTH_OPEX-53_Attachment 1*). In stark contrast, Puerto Rico's electric system continues to face significant reliability challenges. For example, LUMA concluded Fiscal Year 2024 with a SAIDI exceeding 23 hours and a SAIFI of over 7 interruptions per customer more than ten times the duration and six times the frequency of outages compared to the U.S. average. This substantial gap underscores the urgent need for sustained improvements and targeted investments.

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

**LUMA EXHIBIT 74.26**

**NPFGC-of-LUMA-CAPEX-23**

# Responses for Information on Permanent Rates

# NEPR-AP-2023-0003

## Response: NPFCG-of-LUMA-CAPEX-23

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### SUBJECT

Permanent Rates – Capital Expenditures

### REQUEST

Refer to LUMA Exhibit 5.0 (Meléndez testimony), Q&A #77. Mr. Meléndez states, "LUMA's careful adherence to cost estimating principles shows that the costs of these projects are reasonable…" Please identify and describe (i) the "cost estimating principles" vaguely referenced here, and (ii) how specifically LUMA "careful[ly] adhere[d]" to them.

### RESPONDER

Pedro Meléndez

### RESPONSE

LUMA files this discovery response without in any way implying that it considers this response could be admissible as evidence in this rate review proceeding. LUMA objects to the premise that the cost estimating principles were vaguely referenced. LUMA expressly reserves the right to supplement, clarify, revise, or correct this response

Adherence to cost estimating principles relates to the adherence to Federal Emergency Management Agency (FEMA)'s reasonable costs standards which states that a cost is "reasonable" if it is necessary and does not exceed what a prudent utility would pay under the same circumstances. These principles are equally applied to non-federal or federally funded projects. In addition, LUMA follows the recommended practices of AACE International which is a cost classification system that provides guidelines for applying principles to project cost estimates. All LUMA project cost estimates leverage at least one source or a combination of data across RSMeans (that includes material, labor and equipment costs), AACE, historical data from LUMA experience or subject matter experts in past projects, invoices received, and actual local industry rates.

Additional considerations include, but are not limited to, whether the costs are generally recognized as ordinary and necessary for LUMA's operations; adherence to sound business practices such as arm's-length bargaining; compliance with federal, state, and local laws; and consideration of market prices for comparable costs for the geographic area. Whether the costs in question are contemplated to be reimbursed with federal funds or not, applying this federal standard supports the efficient and effective

use of funds. Also, this standard is a key factor in determining eligibility for Public Assistance (PA) and other FEMA grant programs. See 2 C.F.R. § 200.404.1

*Attestation*

I, Pedro Meléndez, state that the information contained in this response is complete, true, and accurate to the best of my knowledge and belief.

/s/ Pedro Meléndez

[1] https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200/subpart-E/subject-group-ECFRea20080eff2ea53/section-200.404

**LUMA EXHIBIT 74.27**

# Project Delivery Lifecycle Playbook

LUMAPR.COM

# 5106.1 - PROJECT DELIVERY LIFECYCLE PLAYBOOK REV. 0

LUMA

# Playbook Overview



## PURPOSE

This playbook is intended to serve as a reference guide to **LUMA Capital Programs, Asset Management, and Engineering organization** project team members to understand project management guidelines, tools, and resources to more effectively and efficiently **achieve project goals and objectives for both Federally Funded and non-Federally Funded projects**.

## OBJECTIVES

The contents of the playbook are intended to meet the following objectives:

1. Provide an overview of the project management lifecycle (referred to as the **Delivery Lifecycle Framework (DLF)**).
2. Provide an overview of **tools designed to help manage projects**.
3. Provide an overview of **standards for project controls and maintaining project health**.
4. Serve as a central location for **links to LUMA project management reference materials and resources**.

CP-PMO

This playbook contains links that may refer to other files.

## NEED HELP?

**This playbook is maintained by the Capital Programs Project Management Office (PMO). Reach out to the PMO if you have questions about content, need additional information, or have suggestions for enhancing content.**

| | |
|---|---|
| **QUALITY MANAGEMENT** *Lina Cintron* | **PROCESS IMPROVEMENT** Luisa Rodriguez |
| **TECHNOLOGY ENABLEMENT** Albriel Roche | **DOCUMENT CONTROL** Carmen Nadal |

**TIP:** To have access to the latest version of this playbook, bookmark this link on your computer. This is a living document and content will be updated regularly.

# Table of Contents



*To meet stated objectives, the Project Delivery Playbook has been organized as follows:*

1

## Project Delivery Lifecycle Framework (DLF)

Overview of the project management Delivery Lifecycle Framework (DLF) including project phases, stage gates, phase activities, phase deliverables, systems, project baselines, and roles & responsibilities.

2

## Project Health Metrics & Reporting

Overview of project dashboards, RAID and Change Request Log, as well as criteria for “Red, Amber, Green” measurement of project, program, and portfolio health.

3

## Governance Structure

Defines the levels of project and program governance committees including committee purpose, committee members, delegation of authority, and meeting cadence .

4

## Change Controls

Overview of change control process, thresholds, and approval matrix.

5

## Project Delivery Reference Materials

Repository for links to useful LUMA project management reference materials and resources including links to policies & procedures, systems & tools, training, and departmental SharePoint sites.

LUMAPR.COM

# 1 PROJECT DELIVERY LIFECYCLE FRAMEWORK (DLF)

LUMA

# Purpose of this Section



**This section provides an overview of the project management Delivery Lifecycle Framework (DLF).**

The following information will be addressed in this section:

1. DLF phases and objectives
2. Project phase advancement
3. Project schedule baselines
4. DLF phase activities and deliverables
5. Project tools and templates used throughout DLF
6. Roles & responsibilities by DLF phase

## KEY REFERENCES

**As you navigate the following section, please refer to the following resources for additional information**

**LUMA POLICY & PROCEDURES**

| * PROJECT MANAGEMENT PROCESSES & ARTIFACTS | * Project Documentation Management | * DLF RACI Matrix |
|---|---|---|
| *Project delivery process maps & artifacts* | *Process of managing project documents* | *Key activities with Responsible, Accountable, Consulted, and Informed roles identified* |

*Note: Draft copy under revision of PMO.

**NOTE:** The DLF provides guidance and standards for project delivery. However, based on project or program (e.g., Federally funded vs. NME) there may be some variation in requirements for stage gates and project artifacts. Regardless, all projects must be approved within established control processes to advance through the delivery lifecycle. Please consult PMO and Portfolio Leadership to confirm phase requirements.

# Project Delivery Lifecycle Framework (DLF) Introduction




The **Project Management Lifecycle (PML)** is based on the **Project Management Institute's (PMI)** standard released in 2023 and the industry best practice framework used for shepherding a project from its beginning to its end. It provides project managers and project team members with a structure and tools to create, execute, and close a project.

For purposes of this playbook, The LUMA Capital Programs, Asset Management, and Engineering organization aligns with PMI standards and refers to the PML as **Project Delivery Lifecycle Framework (DLF).**

**NOTE:** For the purpose of this Playbook, the word "project" means any project and program.

# Project Management Support



*The core function of project management is to assemble a team and coordinate those resources to perform project planning (i.e., project Plan Phase), as well as execute against project goals and objectives by managing project scope, schedule, costs, risks, and changes. To support effective and efficient project delivery, the LUMA Capital Programs, Asset Management, and Engineering organization provide support teams to help project managers perform their responsibilities.*

## LUMA CAPITAL PROGRAMS, ASSET MANAGEMENT, AND ENGINEERING

### PROJECT MANAGEMENT OFFICE

- Delivery Lifecycle Framework (DLF)
- Process Definition and Continuous Improvement
- Project and Processes Quality Management (QM)
- Document Management & Controls
- Technology Enablement

### PROJECT CONTROL & CONTRACT ADMINISTRATION

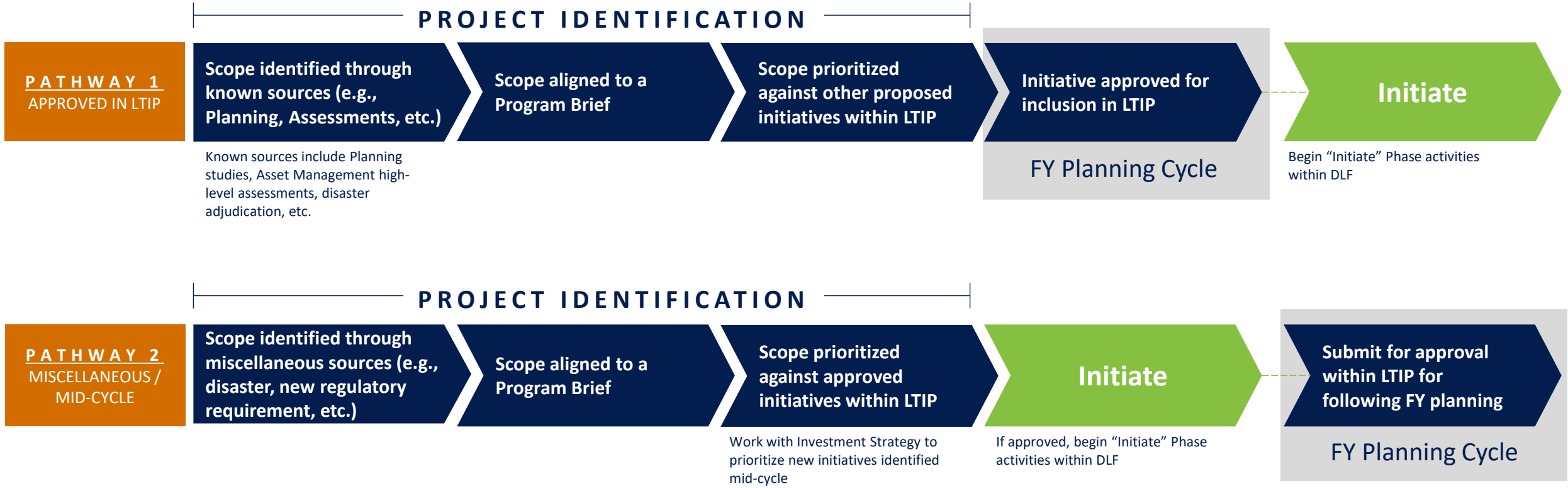
- Project Scheduling
- Cost Estimating
- Risk Management
- Project Cost Controls
- Contract Administration
- Invoicing
- Project Analysis & Reporting

**NOTE:** Because a large percentage of LUMA Capital Programs, Asset Management, and Engineering organization projects and programs are federally funded, it is imperative that project teams comply with FEMA reimbursement requirements per regulation eCFR :: Title 44 of the CFR -- Emergency Management and Assistance. Active engagement with the PMO and Project Controls, as well as Grants Management teams, will help ensure projects comply.

# Potential Project DLF Points of Entry



*How does an initiative enter the Delivery Lifecycle Framework to become a project or program?*
*There are two identification paths into the Initiate Phase of the DLF based on whether the project was already approved within the Long-Term Investment Plan (LTIP), or if it is a miscellaneous scope that was identified mid-cycle.*




**NOTE: LUMA projects and programs are aligned with the strategy under the System Remediation Plan as established in the Puerto Rico Transmission and Distribution System Operation and Maintenance Agreement dated as of June 22, 2020.**

# Delivery Lifecycle Framework (DLF) Overview



*The DLF creates discipline around program and project delivery by establishing phases and stage exit criteria standards to increase consistency and overall performance. Within the DLF there are 5 discrete project phases. Each phase has defined objectives and exit criteria.*

| | Initiate | Plan | Detailed Design | Execute | Close-Out |
|---|---|---|---|---|---|
| PHASE OBJECTIVES | • Identify new projects based on priority<br>• Obtain project financial number and activate project in systems<br>• Define preliminary solution options<br>• Develop initial project scope with a preliminary cost estimate and schedule<br>• Assess project viability | • Assign core project team<br>• Develop solution designs<br>• Develop detailed project scope, schedule, and budget<br>• Identify resource needs<br>• Initiate long-lead material requests and contracts | • Finalize detailed solution designs<br>• Confirm readiness and availability of contracts, equipment, materials, resourcing assignments, permits, etc. | • Deliver projects as defined within the detailed project scope<br>• Maintain project scope, schedule, budget, and forecast<br>• Manage project documentation | • Evaluate project performance against the project goals<br>• Close vendor contracts<br>• Stand down project team and resources<br>• Consolidation of lessons learned<br>• Submit project for financial close |
| | Stage Gate | Stage Gate | Stage Gate | Stage Gate | Stage Gate |
| EXIT CRITERIA | **Approval for capital expenditure** | **Approved execution scope, schedule, and budget** | **Confirmed execution readiness** | **Satisfactory completion of project objectives** | **Confirmed completion of project close-out activities** |

Stage Gate

**NOTE:** A Stage Gate indicates the approval or confirmation of documentation or actions that must occur before the project can proceed through the remaining project lifecycle. The stage gate is the closure of a project phase where a work project is transferred as a deliverable; the phase end is the natural point to assess progress and activities and determine the path forward.

# Project Phase Advancement



*As part of the project phase advancement process, certain documents must be created, maintained, and properly stored. For a project to **advance from one phase to the next**, stage gate exit criteria must be reviewed, confirmed, and **approved through Governance**.*

| Initiate | Plan | Detailed Design | Execute | Close-Out |
|---|---|---|---|---|
| **◆ STAGE GATE DELIVERABLES**<br>Reviewed and approved through appropriate governing body. | | | | |
| • FEMA Project Scope of Work (Initial) - ISOW<br>• Project Expenditure Request (PER) | • Detailed Scope of Work (DSOW)<br>• Preliminary Engineering Designs<br>• Detailed Project Schedule<br>• Execution Financial Forecast | • Construction Permits<br>• Issue For Construction (IFC) | • As-Built Drawings<br>• Substantial Completion and Acceptance Certificate<br>• Commissioning Report | • FEMA Formulation Package<br>• FEMA Final Inspection<br>• Capital Accounting Closing Authorization Form<br>• Project Final Report |
| **QUALITY MANAGEMENT (QM) REVIEWED DELIVERABLES**<br>Does not require governance committee approval but is reviewed by Quality Management Team for completeness and adherence to standards. | | | | |
| • Project Classification & Numbering Form | • Environmental Studies<br>• Land & Permit Requirements<br>• Task Order Scope of Work (TOSOW) or Unified Functional Spec Document | • Work Order Packages<br>• Engineering Standards | • Field Instructions<br>• Construction Inspection Reports<br>• Non-Conformance Reports<br>• Environmental, Health, and Safety Reports | • Contractor Release |

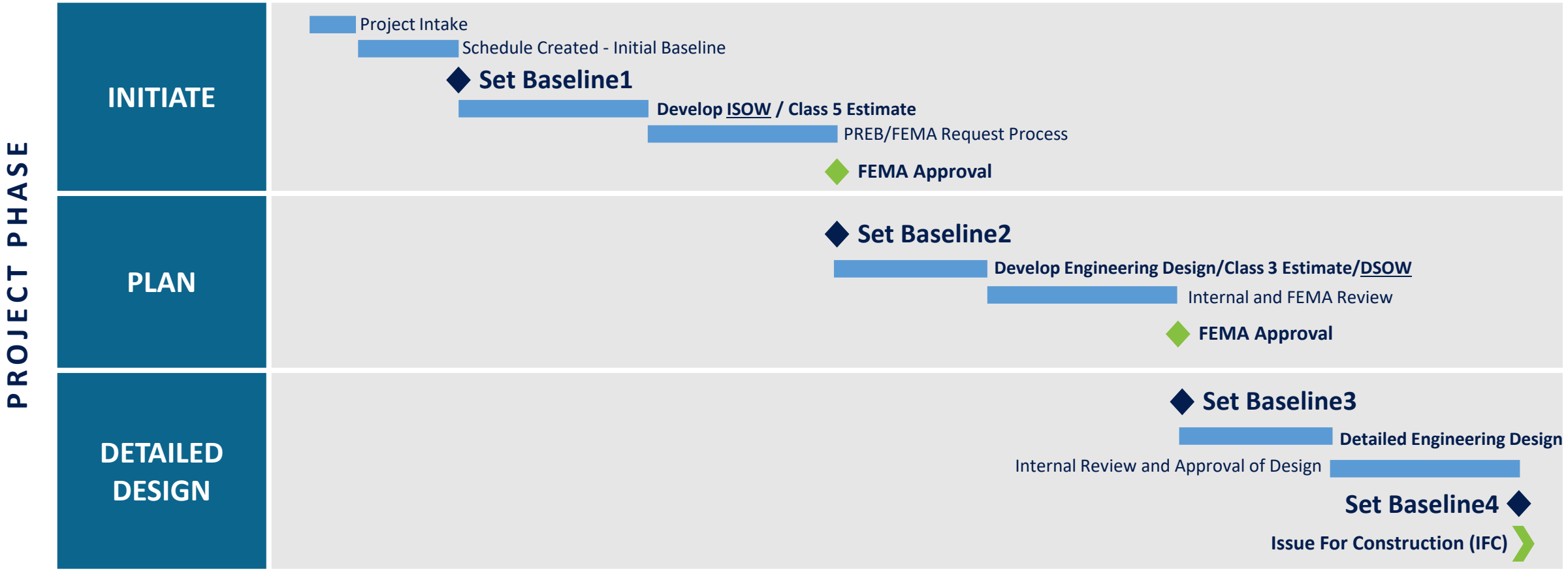
**TIP:** Refer to LUMA Policies and Procedures for the complete artifacts library. Project Managers should actively work with the Document Controls or Quality Management team within the PMO to ensure all documentation requirements are being met.

# Project Schedule Baselines



*Baselining a schedule is crucial in project management as it establishes a reference point for project planning, providing a snapshot of the project's intended timelines, milestones, and dependencies. It serves as a benchmark against which actual progress can be measured, facilitating effective tracking, analysis, and management of deviations to ensure project objectives are met within the defined parameters.* ***Project Managers should always ensure they have a currently approved baseline****.*

## PLANNED BASELINE UPDATES – ILLUSTRATIVE EXAMPLE




**NOTE:** The Scheduling, Costing, and Estimating Teams within Project Controls are responsible for setting the initial baselines based on the information provided by the Program Brief Manager or representative. The Project Manager is responsible for maintaining baselines, reporting, and obtaining approvals for baseline changes across all other phases.

# DLF Phases Summary – Initiate Phase



**Initiate** | Plan | Detailed Design | Execute | Close-out

LEGEND: ◆ Stage Gate ● FEMA Required ✓ QM Reviewed

## OBJECTIVES:

- **Identify new projects based on priority**
- **Request for new project submitted by Planning to PB Owner to get sign-off to move forward with ISOW development and approval**
- **Obtain project financial number and activate project in systems**
- **Define solution options**
- **Develop preliminary project baselines**
- **Assess project viability**

## PHASE ACTIVITIES:

- Assign PB management responsibilities (to PB Manager or other)
- Define program-specific metrics
- Determine financial accounting strategy for the project (e.g., grouping assets vs individual assets), engaging appropriate stakeholders as needed (e.g., Grid Strategy, Finance & Accounting, etc.)
- Complete the Project Classification and Numbering Form and submit it to Project Accounting
- Assign project financial number and activate in PM and Accounting systems
- Set-up planned project in Project Online
- Establish initial baselines (schedule and forecast)
- Provide initial Environmental consultation & estimate
- Define potential solution alternatives
- Complete Project Scoping
- Functional Specification documentation, if required
- Identify Long-Lead Material and communicate needs
- Complete Class 5 estimate
- Complete Project Expenditure Request (PER) and submit to governance for approval
- Complete FEMA Project ISOW (if applicable) and submit to governance and Grants Manager for approval
- Update Project Online as needed
- Submit the project to PREB for approval (if applicable)
- Route to Grants Manager to obtain FEMA Project Number (if applicable)
- Respond to FEMA RFI (if needed)
- Create RAID Log
- Identify and document project interdependencies
- Document Lessons Learned

## TEAM MEMBERS:

| CAPITAL PROGRAMS, ASSET MANAGEMENT, AND ENGINEERING | STAKEHOLDER GROUPS |
|---|---|
| • Asset Management<br>• Investment Strategy<br>• Engineering<br>• Work Management<br>• PB Manager<br>• PB Owner<br>• Project Controls (Estimating & Scheduling)<br>• PMO (Technology Enablement) | • Materials Management<br>• Project Accounting<br>• Grants Management<br>• Environmental & Land<br>• Reliability<br>• Finance Operations |

## PHASE-SPECIFIC DELIVERABLES:

- ◆ Project Financial Number
- ◆ FEMA Project Scope of Work (Initial) - ISOW ●
- ◆ Project Expenditure Request (PER) ✓

## *MAINTAINED DOCUMENTATION:

- Project Schedule ✓
- Project Cost Estimate ✓
- Financial Forecast
- Project Status Reports ✓
- Agency Correspondence ● ✓
- Request for Information (RFI) ● ✓
- Meeting Agendas & Minutes ✓
- Timesheets (LUMA & Contractors) ● ✓
- RAID Log ✓
- Change Request Log ✓
- Lessons Learned Register ✓

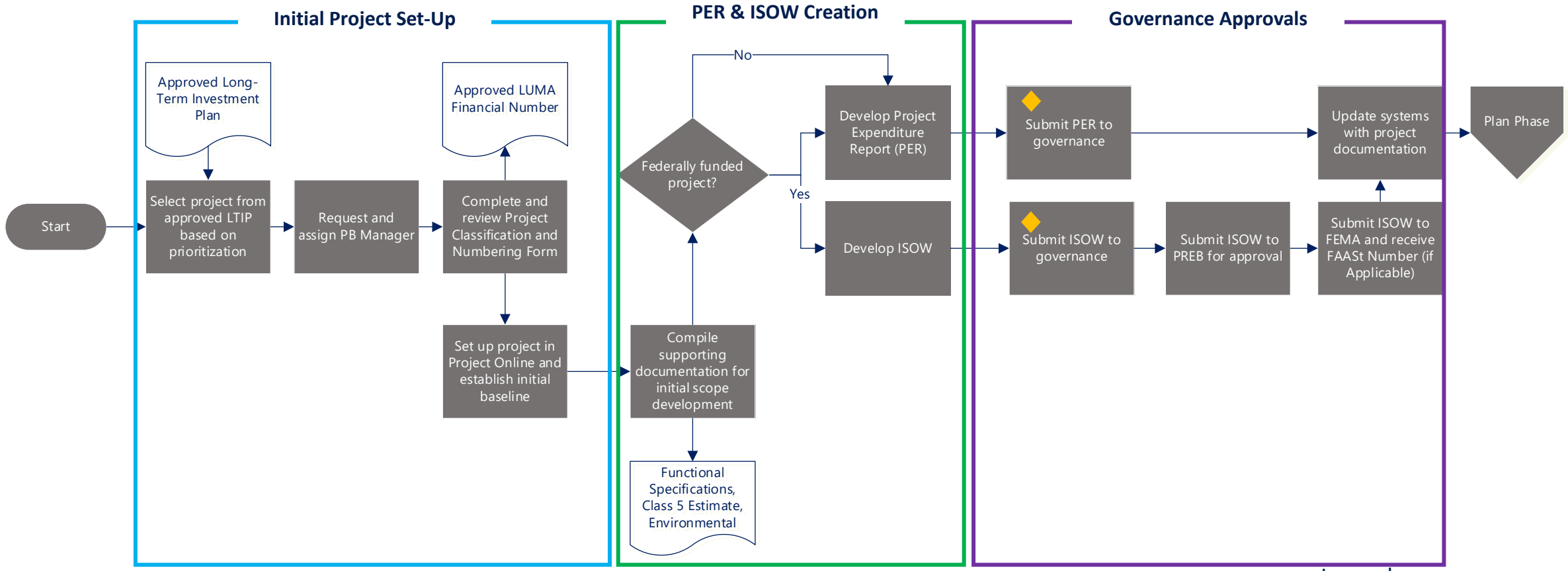
* *Initiated during this phase and maintained/updated throughout DLF*

# DLF High-level Process Flow – Initiate Phase



Initiate | Plan | Detailed Design | Execute | Close-out

**TIP:** Refer to the DLF Process Map for a more detailed process.



# DLF Phase Summary – Plan Phase



Initiate | **Plan** | Detailed Design | Execute | Close-out

LEGEND: ◆ Stage Gate ● FEMA Required ✓ QM Reviewed

## OBJECTIVES:

- Assign core project team
- Develop preliminary solution designs
- Develop detailed project scope, schedule, and budget
- Identify resource needs
- Initiate contracts and complete planning for long-lead materials

## PHASE ACTIVITIES:

- Update baselines
- Submit request for Project Manager
- Assign Project Manager
- Transition project to Project Manager using ISOW (federally funded, F2) & PER (All projects)
- Submit request for core project team (Scheduler, Cost Controller, Estimator, Risk Analyst, and Document Controller) and Engineering resources
- Conduct Planning Kick-off Meeting with Project Team and functional liaisons (Asset Management, Materials, Engineering, Construction)
- Compile project scope, schedule, cost estimate, forecast, and historical preservation documentation
- Develop Resource Allocation and Project Roles Strategy (internally vs. externally sourced)
- Complete Long-Lead Materials forecast and initiate material request
- Determine solution requirements and potential options
- Perform environmental studies for integration in DSOW
- Identify hazard mitigation opportunities
- Determine engineering resourcing approach (internally or externally sourced)
- Complete engineering vendor TOSOW or Unified Functional Spec assignment (if applicable)
- Develop Preliminary Engineering Design
- Complete project interdependency analysis
- Engage Procurement (develop and issue RFPs, vendor selection, etc.)
- Submit execution resource request (e.g., construction)
- Update project Change Request Log as needed
- Request Class 3 Estimate
- Complete Project DSOW
- Submit DSOW for internal approval per governance (if applicable)
- Submit DSOW for PREB/FEMA approval through Grants Management (if applicable)
- Respond to FEMA RFI (if needed)
- Compile Request for Reimbursement (RFR) documentation
- Update PM and accounting systems as needed
- Conduct training sessions
- Document Lessons Learned

## TEAM MEMBERS:

| CAPITAL PROGRAMS, ASSET MANAGEMENT, AND ENGINEERING | STAKEHOLDER GROUPS |
|---|---|
| • PB Owner<br>• Work Management<br>• Project Manager<br>• Engineering<br>• Project Controls (Estimating, Scheduling, Cost Control, Risk)<br>• PMO (Quality Management, Document Control, Technology Enablement) | • Engineering (A&E)<br>• Procurement<br>• Materials Management<br>• Construction<br>• Environmental & Land<br>• Capital Accounting<br>• Grants Management |

## PHASE-SPECIFIC DELIVERABLES:

- Kick-Off Meeting Minutes ✓
- Vendor Task Order Scope of Work (TOSOW) or Unified Functional Spec Document ✓
- Aconex Project Profile Form
- Environmental Studies
- Land & Permit Requirements

- ◆ **Project Schedule**
- ◆ **Financial Forecast**
- ◆ **Preliminary Engineering Design**
- ◆ **Detailed Scope of Work (DSOW)** ●

## * MAINTAINED DOCUMENTATION:

- Submittals ● ✓
- Project Financial Forecast
- Material Forecast
- Health, Safety and Environmental Incident (EHS) Reports

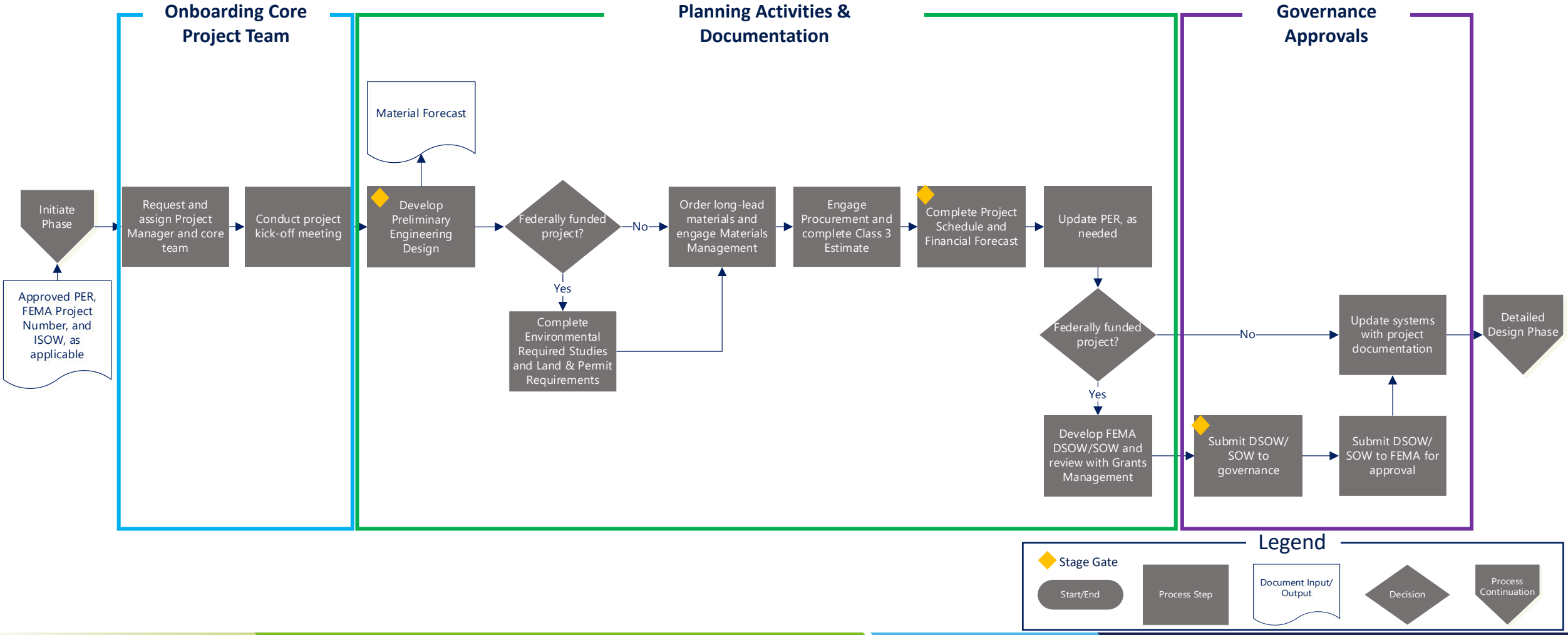
* *Initiated during this phase and maintained/updated throughout DLF*

# DLF High-level Process Flow – Plan Phase



Initiate | **Plan** | Detailed Design | Execute | Close-out

**TIP:** Refer to the DLF Process Map for a more detailed process.



# DLF Phase Summary - Detailed Design Phase

LUMA Ex. 74.27

Initiate | Plan | **Detailed Design** | Execute | Close-out

LEGEND: ◆ Stage Gate ● FEMA Required ✓ QM Reviewed

## OBJECTIVES:

- **Finalize detailed solution designs**
- **Confirm readiness and availability of contracts, equipment, materials, resourcing assignments, permits, etc.**

## PHASE ACTIVITIES:

- Revise baselines
- Conduct Detailed Design kick-off
- Finalize solution designs
- Develop Work Order Package (WOP) and Bill of Material (BOM) (if applicable) for Issue For Approval (IFA)
- Conduct internal design review sessions; confirm acceptance criteria and requirements of design with stakeholders (e.g., construction and quality)
- Complete short lead material requirements and orders (Refer the Procurement Manual)
- Develop Issue for Construction (IFC)
- Secure permits & state/municipal endorsements
- Conduct environmental reporting reviews and mitigation plan
- Complete construction resource assignments (e.g., procurement of resources)
- Complete materials procurement process
- Update project schedule
- Update project interdependencies
- Implement change controls as needed
- Document Lessons Learned
- Update PM and accounting systems as needed
- Respond to FEMA RFI (if needed)
- Compile Request for Reimbursement (RFR) documentation
- Develop Engineering Standards

## TEAM MEMBERS:

| CAPITAL PROGRAMS, ASSET MANAGEMENT, AND ENGINEERING | STAKEHOLDER GROUPS |
|---|---|
| • PB Owner<br>• Project Manager<br>• Engineering<br>• Project Controls (Estimating, Scheduling, Cost Control, Risk)<br>• Contract Administration<br>• PMO (Quality Management, Document Control, Technology Enablement) | • Engineering (A&E)<br>• Procurement<br>• Materials Management<br>• Environmental & Land<br>• Construction<br>• Grants Management |

## PHASE-SPECIFIC DELIVERABLES:

- ◆ **Construction & Environmental Permits** ●
- ◆ **Issue for Construction (IFC)**
- ◆ Construction Work Order Package ✓
- Engineering Standards ✓
- A&E Contractor Kickoff Meeting Agenda & Minutes
- Insurance Bond ●
- Insurance Certificate ●
- Lead and Asbestos Checklist (428 Form)
- Contracts & Agreements
- Kick-off Meeting Minutes

## *MAINTAINED DOCUMENTATION:

- Contract Change Order Request ● ✓
- Training Records ✓
- Turnover Packages ✓

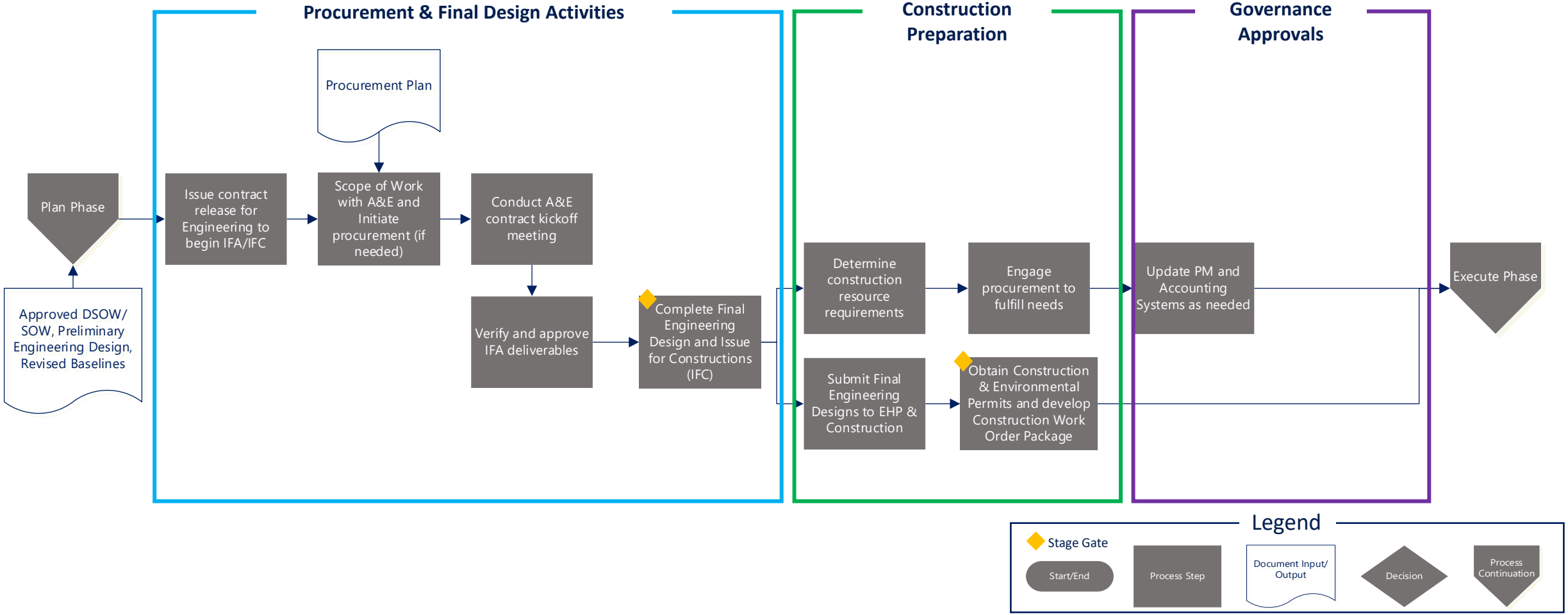
* *Initiated during this phase and maintained/updated throughout DLF*

# DLF High-level Process Flow – Detailed Design Phase



Initiate | Plan | **Detailed Design** | Execute | Close-out

**TIP:** Refer to the DLF Process Map for a more detailed process.



# DLF Phase Summary – Execute Phase



Initiate | Plan | Detailed Design | **Execute** | Close-out

LEGEND: ◆ Stage Gate ● FEMA Required ✓ QM Reviewed

## OBJECTIVES:

- **Deliver projects as defined within the detailed project scope**
- **Maintain project scope, schedule, budget, and forecast**
- **Manage project documentation**
- **Commissioning activities**

## PHASE ACTIVITIES:

- Execution Kick-Off with construction contractor(s)
- Conduct required planning at job site (e.g., identify veg clearing needs, equipment requirements, etc.)
- Coordinate with System Operations Center to schedule system outages necessary for asset construction
- Perform work as outlined in WOP and SOW: Complete Construction Site Access Works, Earth works, Foundation Works, Structure Works, Apparatus and Cabling Works, Electronic Settings and Configuration
- Identify, document, and manage risks, actions, issues, and decisions within the RAID Log
- Monitor field inspections, non-conformances, and EHS reports
- Execute financial management processes (e.g., forecasting, variance explanations, etc.)
- Update project schedule and status as required
- Create status reports (weekly, bi-weekly, monthly etc.)
- Implement change controls as needed
- Complete field instructions and train contractors
- Respond to FEMA RFI (if needed)
- Confirm and conduct testing requirements
- Log and approve project assets for deployment in production (if applicable)
- Enact Deployment Plan & support pre and post go-live tasks (if applicable)
- Coordinate with System Operations Center to schedule activities necessary for energizing assets
- Perform Quality Control (QC)
- Complete the Engineering Issue For Records (IFR) process to confirm the construction of assets based on Engineering designs or to confirm and document any variations identified
- Complete asset and material reconciliation
- Complete Asset retirement documentation and return unused material
- Complete secure disposal of construction asset
- Compile Request for Reimbursement (RFR) documentation
- Collaborate with Grants Managements and Construction to compile the information required for FEMA Formulation Package
- Document Lessons Learned

## TEAM MEMBERS:

| CAPITAL PROGRAMS, ASSET MANAGEMENT, AND ENGINEERING | STAKEHOLDER GROUPS |
|---|---|
| • Project Manager<br>• PB Owner<br>• Project Controls (Estimating, Scheduling, Cost Control, Risk)<br>• Contract Administration<br>• PMO (Quality Management, Document Control, Technology Enablement)<br>• Asset Stategy | • Construction<br>• Operations<br>• Engineering (A&E)<br>• Commissioning<br>• Grants Management |

## PHASE-SPECIFIC DELIVERABLES:

- ◆ **As-Built Drawings**
- ◆ **Substantial Completion Certificate**
- ◆ **Commissioning Report**
- Field instructions ✓
- Kick-off Meeting Minutes ✓

## * MAINTAINED DOCUMENTATION:

- Non-Conforming Report ✓
- Construction Inspection Report ✓
- Punch Lists ✓
- Environmental, Health, and Safety Monitoring Report (EHS) ✓

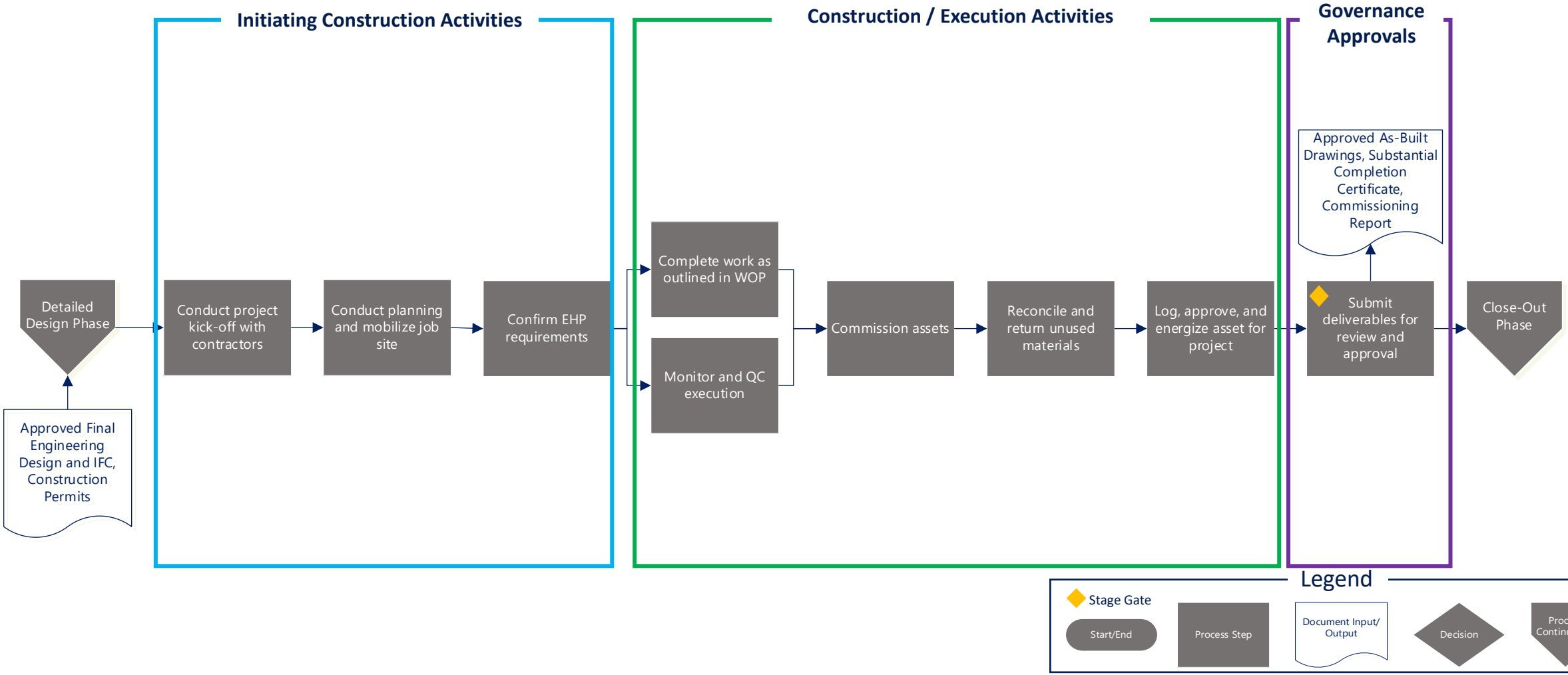
* *Initiated during this phase and maintained/updated throughout DLF*

# DLF High-level Process Flow – Execute Phase



Initiate | Plan | Detailed Design | **Execute** | Close-out

**TIP:** Refer to the DLF Process Map for a more detailed process.



# DLF Phase Summary - Close-Out Phase



Initiate | Plan | Detailed Design | Execute | **Close-out**

LEGEND: ◆ Stage Gate ● FEMA Required ✓ QM Reviewed

## OBJECTIVES:

- **Evaluate project performance against the project goals**
- **Close vendor contracts**
- **Stand down project team and resources**
- **Consolidate lessons learned**
- **Submit project for financial close**

## PHASE ACTIVITIES:

- Verify with Technical and Regional Leads that work was performed as expected and post go-live support is complete
- Close out vendor contracts
- Ensure asset information is updated in all physical and system locations necessary (e.g., update GIS information)
- Submit all required information/packages necessary for FEMA Formulation Package (if needed) and Request for Reimbursement (RFR)
- Respond to FEMA RFI (if needed)
- Update all project plans / trackers
- Close out open RAID and action items
- Map out Lessons Learned for future projects
- Archive project documents
- Complete Project Final Report & Submit to governance for approval
- Submit financial close request (Capitalization and Retirement Package)
- Stand down project resources

## TEAM MEMBERS:

| CAPITAL PROGRAMS, ASSET MANAGEMENT, AND ENGINEERING | STAKEHOLDER GROUPS |
|---|---|
| • Asset Management<br>• Engineering<br>• Project Manager<br>• PB Owner<br>• Project Controls (Estimating, Scheduling, Cost Control, Risk)<br>• Contract Administrations<br>• PMO (Quality Management, Document Control, Technology Enablement)<br>• Work Management | • Operations<br>• Grants Management<br>• Project Accounting<br>• Reliability<br>• Plant Accounting |

## PHASE-SPECIFIC DELIVERABLES:

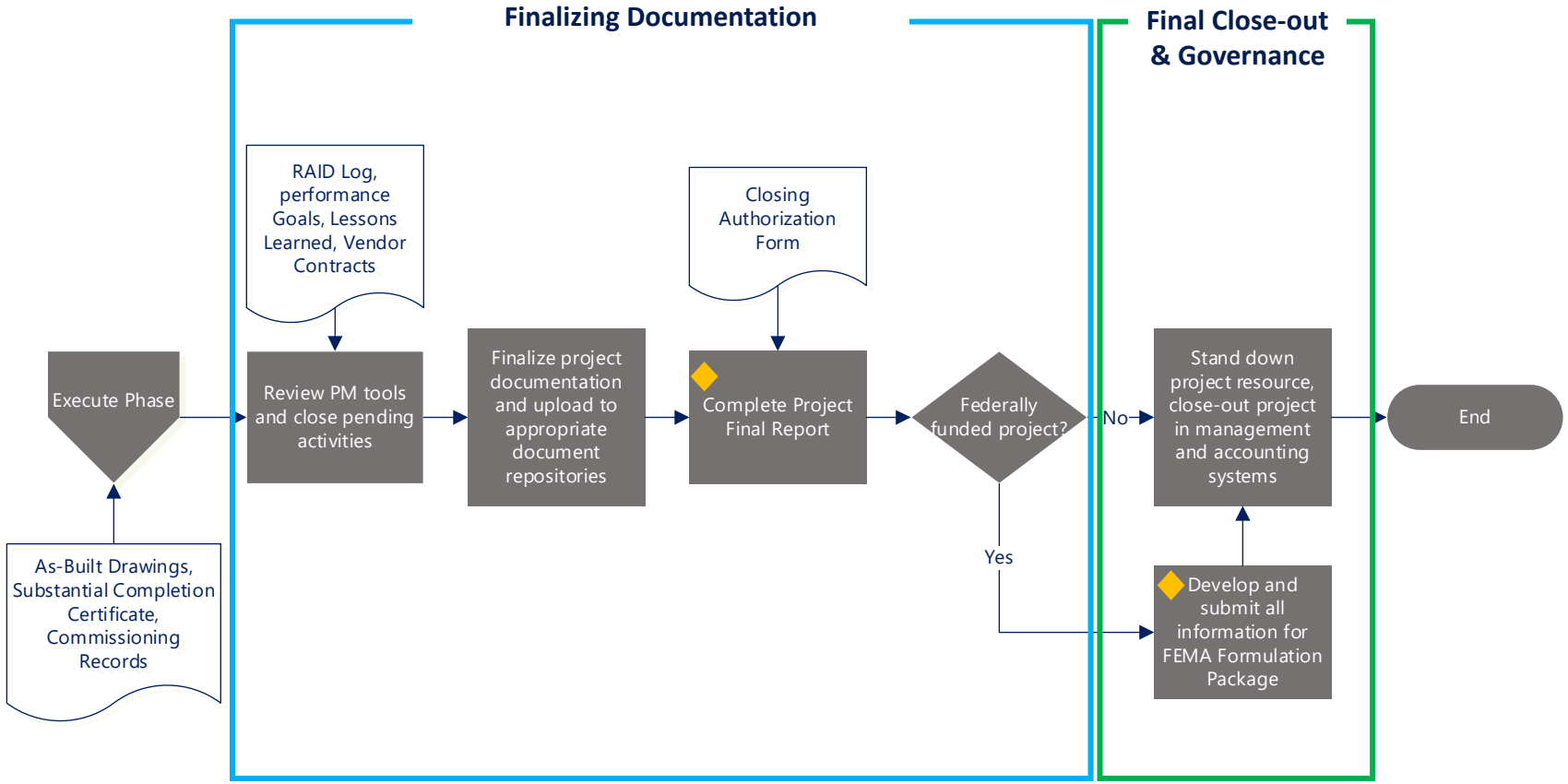
- ◆ **FEMA Formulation Package** ●
- ◆ **FEMA Final Inspection** ●
- ◆ **Project Final Report**
- ◆ **Closing Authorization Form (Plant Accounting)**
- Contractor Release ✓

# DLF High-level Process Flow – Close-Out Phase



Initiate | Plan | Detailed Design | Execute | **Close-Out**

**TIP:** Refer to the DLF Process Map for a more detailed process.



# Additional DLF Maintained Tools, Deliverables, and Documentation

# Additional DLF Maintained Tools, Deliverables, and Documentation (1 of 2)



*In addition to phase-specific required deliverables, there are tools, templates, and documentation that need to be maintained over the course of the project delivery lifecycle.*

| ITEM | QM REVIEWED | FEMA REQUIRED | Initiate | Plan | Detailed Design | Execute | Close-out |
|---|---|---|---|---|---|---|---|
| Project Schedule | X | | | ◆ | | | |
| Financial Forecast | | | | ◆ | | | |
| Project Status Reports | X | | | | | | |
| Agency Correspondence | X | X | | | | | |
| Request for Information (RFI) & RFI Circulation | X | | | | | | |
| Meeting Agendas & Minutes | X | | | | | | |
| Timesheets (LUMA & Contractors) | X | X | | | | | |
| RAID Log | X | | | | | | |
| Change Request Log | X | X | | | | | |
| Lessons Learned Register | X | | | | | | |
| Project Expenditure Request (PER) | X | | ◆ | | | | |

**LEGEND:** Phases Maintained ◆ Stage Gate

Stage Gate

**NOTE:** Although maintained throughout the DLF, a snapshot of the Project Schedule and Financial Forecast is required to advance from the Plan Phase to the Detailed Design Phase. Quality Management could require a review of any of these documents during an internal audit.

# Additional DLF Maintained Tools, Deliverables, and Documentation (2 of 2)



*In addition to phase-specific required deliverables, there are tools, templates, and documentation that need to be maintained over the course of the project delivery.*

| ITEM | QM REVIEWED | FEMA REQUIRED | Initiate | Plan | Detailed Design | Execute | Close-out |
|---|---|---|---|---|---|---|---|
| Submittals | X | X | | ■ | ■ | ■ | |
| Project Cost Worksheet | X | | | ■ | ■ | ■ | |
| Health, Safety and Environmental (EHS) Incident Reports | X | | | ■ | ■ | ■ | |
| Material Forecast | X | | | ■ | ■ | ■ | |
| Training Records | X | | | | ■ | ■ | |
| Contracts and Change Order Requests | X | X | | | ■ | ■ | |
| Turnover Packages | X | | | | ■ | ■ | |
| Non-Conforming Report | X | | | | | ■ | |
| Construction Inspection Report | X | | | | | ■ | |
| Punch Lists | X | | | | | ■ | |
| Environmental Monitoring Report | X | | | | | ■ | |

**LEGEND:** ■ Phases Maintained ◆ Stage Gate

# DLF Roles & Responsibilities

# DLF Roles and Responsibilities (1 of 4)



*Over the course of the project delivery lifecycle, roles and responsibilities will evolve based on phase objectives and activities.*

| | Initiate | Plan | Detailed Design | Execute | Close-out |
|---|---|---|---|---|---|
| **Executive Leadership** | Organizational direction, oversight, and governance | | | | |
| **Investment Strategy & Planning** | Project and program prioritization; issue Project Briefs for development; Governance committee member | Governance committee member | | | Review project and provide feedback as needed and ensure project completion is recorded in asset management plans |
| **Work Management** | Involved in internal resource assignment coordination in support of Project Charter development | Assist coordinating assignment of Project Manager and core project team (Engineering, Project Control resources) | Assist coordinating assignment of construction resources | Manage resource assignments as needed | Assist in coordinating standing down resources |
| **PB Owner** | Program Brief (PB) level direction and oversight; Consulted on initial project cost and scope estimates and documents; Shepherds projects through governance | | | | Validate all close out requirements are met and approve Project Final Report |
| **PB Manager*** | Coordinates/Manages/Completes project initiation activities related to a specific Program Brief. Establishes and maintains project management tools (e.g., RAID, Schedule, Lessons Learned) during Initiate Phase | Coordinate transition of Project Manager resource to newly approved projects; reports progress and completion of a group of related projects; monitors progress of program components to ensure overall goals, scheduled, budget, and benefits of program will be met; provide monthly forecast in collaboration with the Portfolio Owners and Project Managers; develop risk mitigation and corrective action plans at the program level; takes program through governance for stage gates & change control | | | Ensures all program and project close-out activities are completed |

*** NOTE:** In the absence of a PB Manager role, assigned responsibilities should be carried out by the PB Owner or designee(s) on the PB Owner's team.

# DLF Roles and Responsibilities (2 of 4)



*Over the course of the project delivery lifecycle, roles and responsibilities will evolve based on phase objectives and activities.*

| | Initiate | Plan | Detailed Design | Execute | Close-out |
|---|---|---|---|---|---|
| **Project Accounting** | Assigns and sets up project numbers in LUMA Financial systems; produces monthly financial reports | Maintain monthly close calendar, produce monthly financial reports; maintain/adjust GL entries (actual and accrued expenses); manage budget vs. actual variance explanations | | | Close-out project financial number; confirm appropriate assets are capitalized |
| **Engineering (Internal & A&E)** | Provides input on project selection; develop solution alternatives | Develop solution requirements and preliminary designs; develop material forecasts; identify hazard mitigation opportunities; coordinate order of long-lead materials | Finalize solution design; develop WOPs; update material forecast needs, update environmental and historic preservation plans | Update material forecast; Develop As-Built Drawings | Consulted for close-out documentation, as applicable |
| **Environmental and Land** | Consulted efforts for initial estimates | Complete environmental historic preservation evaluation and requirements; Determine required environment and land permits and commence request process | Ensure all EHP requirements, Environmental, Land, and Construction permits have been obtained; Obtain Approval on all EHP Requirements from COR3 and FEMA and Puerto Rico and Federal Environmental Agencies | | Consulted on Environmental Monitoring Reports |
| **Project Manager** | Not Applicable. PM is assigned in the Plan phase. | Coordinate fulfillment of project resource needs; Reports progress and completion of project components; Progressively elaborates high-level information into detailed plans throughout the project lifecycle; manages the project team to meet the project objectives; Monitors and controls the work of producing the deliverables (products, services, or results) that the project was undertaken to produce; maintains required project documentation and artifacts; manages project risks, issues, and decisions, as well as key project decisions; takes project through governance for stage gates & change control | | | Ensures all program and project close-out activities are completed |

# DLF Roles and Responsibilities (3 of 4)



*Over the course of the project delivery lifecycle, roles and responsibilities will evolve based on phase objectives and activities.*

| | Initiate | Plan | Detailed Design | Execute | Close-Out |
|---|---|---|---|---|---|
| **Project Controls & Contract Management** | Cost Estimating supports development of initial cost estimates | Provide project management support for establishing baseline project scope, cost estimates, schedules, and forecasts; support PM in the set-up of project tools & templates; determine stage gate readiness for required documents and assets | Supports Project Manager in maintaining project management artifacts (scheduling, cost controls, forecasts, change requests, reporting); supports document management, accountable for vendor and contract management, invoicing, and accruals | | Supports Project Manager in all program and project close-out activities are completed; confirm appropriate assets are capitalized |
| **Project Management Office (PMO)** | Serve as a resource for project management processes, tools, standards, project material availability, process improvement, CP systems owner, and best practices; perform QA audits of project documents and artifacts; Determine stage gate readiness for required documents and assets; Document Control support | | | | |
| **Materials Management** | Consulted for Long-Lead Materials | Consolidate Program Material Forecasts from Engineering to initiate procurements, inventory analysis and demand planning activities | Refine Program Material Forecast as Engineering progresses to account for items identified in detailed design | Coordination and logistics of material transfer from warehouse to jobsite | Coordinate logistics with project team for unused material return from job site to vendor or transfer to separate project |
| **Procurement** | Not Applicable | Process Long-lead Material & Program Material Forecast Procurement, process Service Contracts (e.g., A&E Vendors, Construction Contractors, etc.) | Procure additional materials for projects as detailed design progresses, Process service contract amendments (e.g., time, value, etc.) | | Supports PM in all project close-out activities, including the closure of purchase orders. |

# DLF Roles and Responsibilities (4 of 4)

LUMA Ex. 74.27

*Over the course of the project delivery lifecycle, roles and responsibilities will evolve based on phase objectives and activities.*

| | Initiate | Plan | Detailed Design | Execute | Close-out |
|---|---|---|---|---|---|
| **Construction** | | | Project design review; Job site planning (e.g., identify veg clearing needs, equipment requirements, materials, planned outages; etc.); construction resource training | Job site planning; coordinate system outages; execute work as outlined in WOP; communicate risks and deviations from design; incident investigation and management; safety management; coordinate job site clean-up; coordinate return of unused materials; Collaborate with PM in lessons learned | |
| **Commissioning** | | | Project design review | Commissioning; commissioning reporting; operational transition; safety management; project quality assurance; compliance adherence | |
| **Operational Finance & Grants Management** | Review to ensure FEMA Project ISOW meets regulation requirements (i.e. COR3/FEMA, etc.) and revise as needed; Provide FEMA Number for project | Submit FEMA Project DSOW to COR3/FEMA and perform the appeals process; inform the Project Team of resolution and guidance on FEMA Project SOW | Funding allocation; Manage project obligations and submissions for FEMA Request for Reimbursements (RFRs); Identify and fulfill all federal reporting requirements | | Ensure additional Federal close out requirements have been met; ensure all RFRs have been submitted; confirm appropriate assets are capitalized obtain; sign off to approve final FEMA deliverables |
| **Accounts Payable** | | Process vendor invoices for payment | | | |

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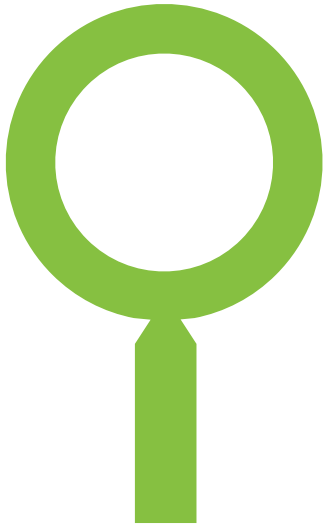
# 2 PROJECT HEALTH METRICS & REPORTING

# Purpose of this Section





**Monitoring and providing visibility into project health is a critical component of ensuring project success and project status reporting. LUMA Capital Programs, Asset Management, and Engineering organization has developed tools and defined a set of uniform criteria for scoring project health.**

The following information will be addressed in this section:

1. Program and Portfolio Dashboards
2. Risks, Actions, Issues, and Decisions (RAID) AND Change Request Log
3. “Red, Amber, Green” scoring Criteria for projects, programs, and portfolios

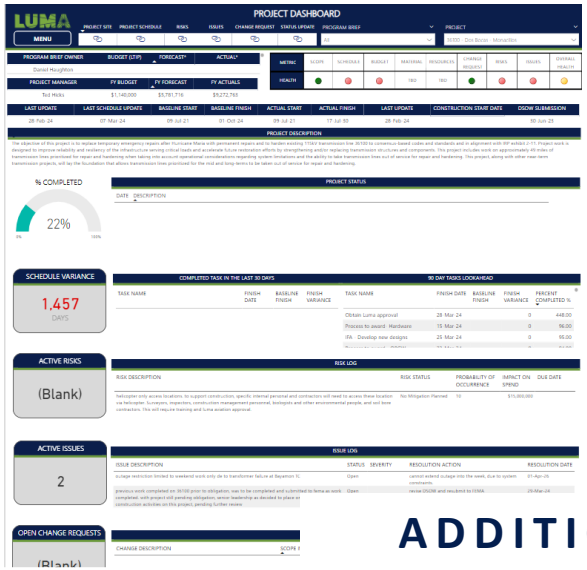
# Reports & Dashboards



*Several dashboards, reports, forms, and logs will be rolled out that will help with visibility and transparency*


## PROJECT STATUS DASHBOARD

Provide an up-to-date, at-a-glance summary of the most important metrics at each governance level pulled from Project Online.




## PROGRAM DASHBOARD

Provide an up-to-date, at-a-glance summary of the most important metrics at each governance level pulled from Project Online with special emphasis on ISOW, DSOW development, and Construction.


## ADDITIONAL SUPPORTING RESOURCES:

### RAID Log

Provide an up-to-date, at-a-glance summary of the Risk, Action, Issues, and Decisions related to a Project or Program Brief

### ***Change Request Log***

Provide an up-to-date, at-a-glance summary of the Change Requests related to the Project

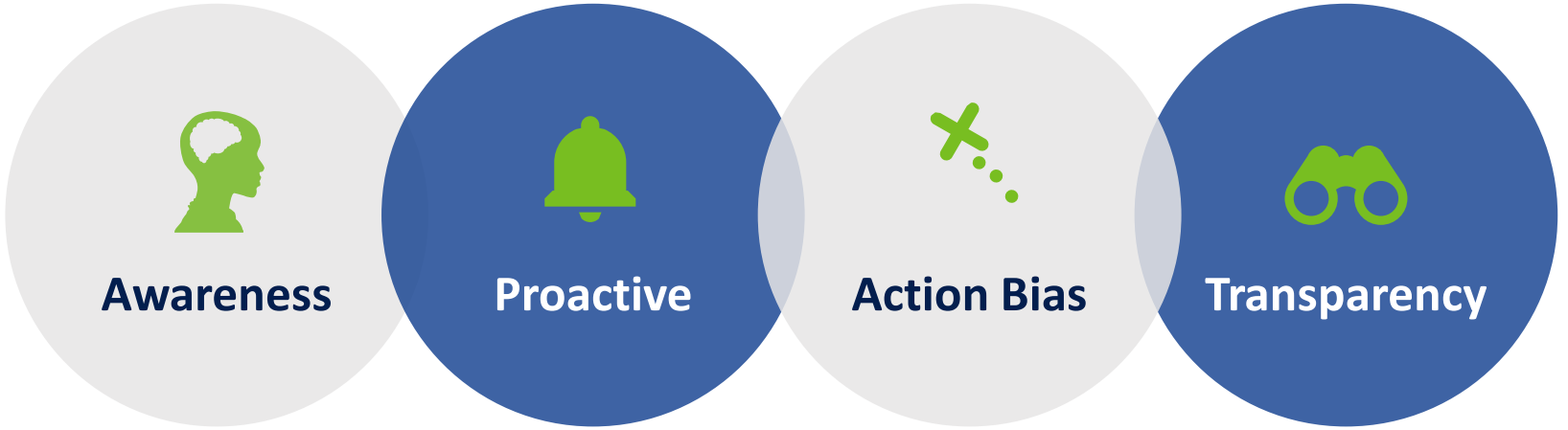
# RAID & Change Request Benefits & Best Practices



*RAID & Change Request Log are maintained within Project Online and are a necessary function of project delivery.*

| | |
|---|---|
| **(R)isks** | A **RISK** is a possible future occurrence which may negatively impact the project |
| **(A)ctions** | An **ACTION** is a takeaway item for the responsible party to follow up on |
| **(I)ssues** | An **ISSUE** is a current problem that is negatively impacting the progress of the project |
| **(D)ecisions** | A **DECISION** is a resolution by a governing body that is documented for posterity |
| **Change Request (CR)** | A **CR** is a formal revision to a projects scope, cost, schedule or resources |

## BENEFITS




**Awareness**

RAID & CR Management is critical to the success of any project because it allows the leads to be aware of any items that may impede their progress

**Proactive**

RAID & CR Management is a proactive methodology that allows the program managers to "foresee" any obstacles and navigate the project to completion effectively

**Action Bias**

When RAID & CR items are listed, it provides insight to the challenges that the project is facing and to respond effectively before the item results in chaos

**Transparency**

RAID & CR Management helps project leaders organize information to share with their team, so all members of the project team understand the goals and strategies for project success

## BEST PRACTICES

- Review the RAID log weekly, and use it as a standing agenda item during project team meetings
- Allocate risks, actions, issues, and decisions to individual people; this makes people accountable, and you can scan the list to see who is doing what
- Use the decision log to record the decisions made in all the project-related and governance meetings, not just your project team meetings

# Project Health Metrics

LUMA Ex. 74.27

| | RED | AMBER | GREEN |
|---|---|---|---|
| PROJECT HEALTH | 1 or more of Scope, Schedule, or Budget reflect Red status | 1 or more of Scope, Schedule, or Budget reflect Amber status with none in Red status | Scope, Schedule, and Budget all reflect Green status |
| SCOPE | 1 or more scope Change Request(s) of High change impact level are pending approval | 1 or more scope Change Request(s) of Low or Medium change impact level are pending approval | No scope Change Request(s) are pending approval; planned project scope to be delivered |
| SCHEDULE | Behind schedule baseline by ≥ 2 months | Behind schedule baseline by < 2 months | On or ahead of schedule baseline |
| BUDGET | > 20% over or under approved FY budget; OR 1 or more budget Change Request(s) of High change impact level are pending approval | Between > 10% - ≤ 20% over or under approved FY budget; OR 1 or more budget Change Request(s) of Low or Medium change impact level are pending approval | On budget or within ≤ 10% of approved FY budget AND no budget Change Request(s) are pending approval |
| ISSUES | The highest priority amongst all open Issues is High | The highest priority amongst all open Issues is Medium | The high priority amongst all open Issues is Low; OR no Issues are identified |
| RISKS | The highest rank amongst all open Risks is High | The highest rank amongst all open Risks is Medium | The high rank amongst all open Risks is Low; OR no Risks are identified |
| RESOURCES | Allocated project resources are insufficient; mitigation plan does not exist to address gaps OR planned activities are impacted and interim work cannot proceed | Allocated project resources are insufficient; mitigation plan exists to address gaps OR planned activities are impacted but interim work can proceed | Allocated project resources are sufficient; mitigation plan exists to address gaps AND there is no expected impact to planned project activities |
| MATERIALS | Allocated project materials are insufficient; mitigation plan does not exist to address gaps OR planned activities are impacted and interim work cannot proceed | Allocated project materials are insufficient; mitigation plan exists to address gaps OR planned activities are impacted but interim work can proceed | Allocated project materials are sufficient; mitigation plan exists to address gaps AND there is no expected impact to planned project activities |

# Program and Portfolio Health Metrics

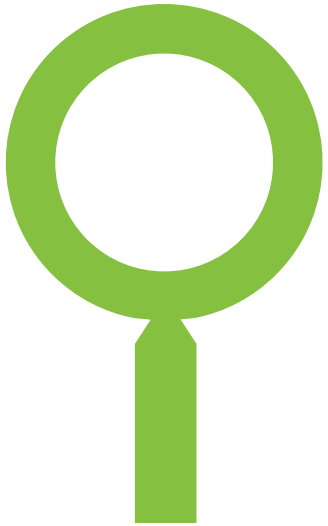
LUMA Ex. 74.27

| | RED | AMBER | GREEN |
|---|---|---|---|
| **PORTFOLIO HEALTH** | >= 1 Programs OR >= 20% of Projects within the Portfolio reflect Red overall health | >= 1 Programs OR >= 20% of Projects within the Portfolio reflect Amber overall health | All Programs reflect Green health OR < 20% of Projects within the Portfolio reflect non-Green overall health |
| **PROGRAM HEALTH** | >= 20% of Projects within the Program reflect Red overall health OR Program budget is Red | >= 20% of Projects within the Program reflect non-Green overall health OR Program budget is Amber | < 20% of Projects within the Program reflect non-Green overall health AND Program budget is Green |
| **PROJECT HEALTH** | 1 or more of Scope, Schedule, or Budget reflect Red status | 1 or more of Scope, Schedule, or Budget reflect Amber status with none in Red status | Scope, Schedule, and Budget all reflect Green status |

# 3 Governance Structure

# Purpose of this Section





**Successful project execution is supported by a clearly defined Portfolio Governance framework that ensures there is proactive resource and dependency management, streamlined decision-making, and comprehensive value realization woven throughout each project and program within a portfolio.**

The following information will be addressed in this section:

1. LUMA Capital Programs, Asset Management, and Engineering organization governance levels
2. Governance Committee objectives, members, and delegation of authority
3. Governance Committee facilitation roles and responsibilities

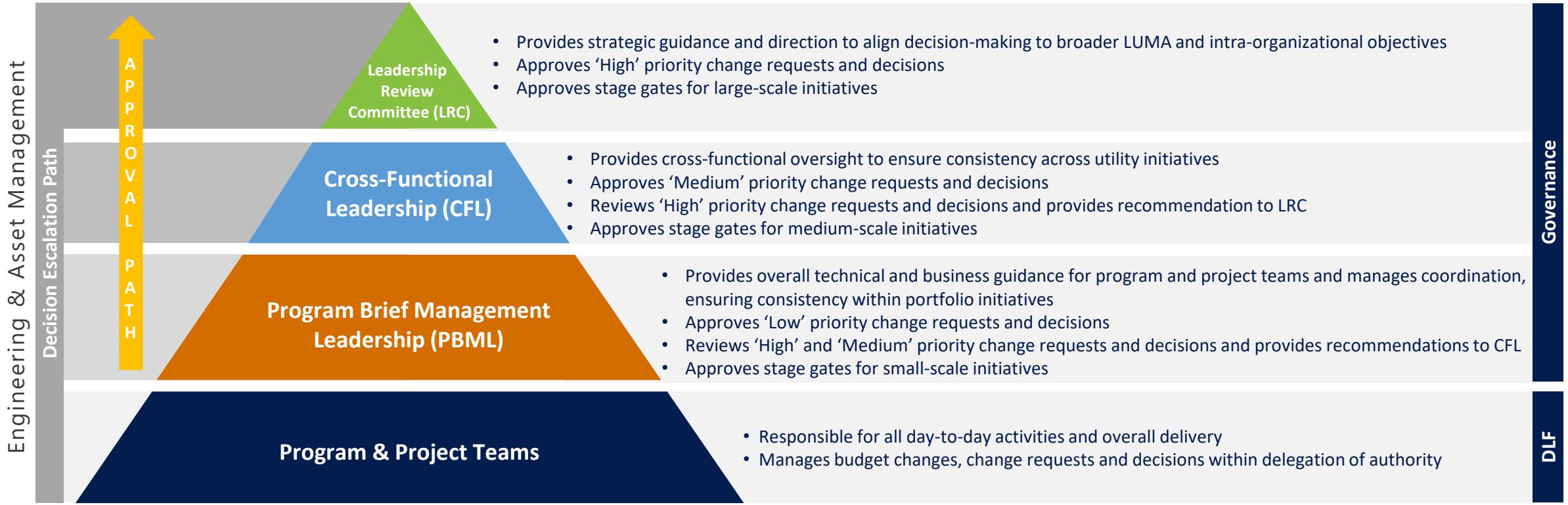
**NEED HELP?**

**Vanita Chhabra, PMO Governance Lead**

# Governance Levels



*Governance supports delivery by establishing a clear **escalation path** with **decision-making authority** ensuring strategic oversight and organizational alignment.*




**NOTE:** The DLF is the foundation of successful governance by establishing good project management practices. Always start Governance approvals from the Lower level (i.e., PBML). High, Medium, and Low-priority definitions are on Slides 49-50.

# Governance Levels



*Governance Committees provide formal decision-making within defined delegations of authority.* ***Decisions must pass through each lower level of governance before being escalated to the next level.***

DECISION ESCALATION PATH

| | COMMITTEES | COMMITTEE OBJECTIVE | DELEGATION OF AUTHORITY | COMMITTEE MEMBERS* | |
|---|---|---|---|---|---|
| LEVEL 3 - LRC | LEADERSHIP REVIEW COMMITTEE (LRC) | **Highest level of decision making** to ensure alignment to organizational strategy and vision | **HIGH IMPACT**<br>Change Requests, Risks, Issues, and Decisions<br><br>Initiate and Plan Stage Gates for Initiatives<br>**≥ $10M** | • VP, Dist. Eng. and Investment Strategy<br>• VP, Capital Programs<br>• VP, Large Projects<br><br>***Note: LRC committee quorum: 50%*** | • VP, Grid Strategy<br>• VP, Transmission & Substations<br>• VP, Quality & System Standards<br>• VP, System Operations<br>• VP, PMO |
| LEVEL 2 - CFL | CROSS-FUNCTIONAL LEADERSHIP (CFL) | Unified governance committee to provide **cross-functional oversight** of initiatives and changes | **MEDIUM IMPACT**<br>Change Requests, Risks, Issues, and Decisions<br><br>Initiate and Plan Stage Gates for Initiatives<br>**≥ $5M** | • Director of Planning<br>• Director of Asset Management<br>• Director of Reliability<br>• Directors of Engineering<br>• Director of Finance Operations<br>• Director of Finance Business Partner<br>• Director of Environmental<br>• Director of IT**<br>***Note: CFL committee quorum: 50%*** | • Director of Materials Mgmt.<br>• Director of Regulatory<br>• VP, PMO<br>• Director of Grid Strategy<br>• Director for Transmission<br>• Director Substation<br>• Director Distribution<br>• Director Investment Strategy |
| LEVEL 1 - PBML | PBUT6, PBUT33, PBUT8<br>PBUT5, PBUT13, PBUT7<br>PBUT30, PBIT1, PBUT18<br>PBUT4, PBUT36, PBOP7<br>PBUT37, PBUT22 | Accountability within each of the Program Briefs to **self-govern** towards defined PB objectives | **LOW IMPACT**<br>Change Requests, Risks, Issues, and Decisions<br>All Stage Gates for All Initiatives | • PB Owner(s)<br>• Asset-specific Planning Lead<br>• Asset-specific Asset Management Lead<br>• Asset-specific Engineering Lead | |

**NOTE:** Approval of the Grants Manager is required on ISOW.

**Committee member decision authority may be delegated if authorized, and a quorum will be required based on current titles and roles*
*** Only when an IT/OT project is being covered within the committee review*

# Governance Committee Meetings Roles & Responsibilities



*Facilitator, presenter, and material preparation roles and responsibilities are defined in addition to committee member and voting member roles, with overall facilitation support by the Governance Lead.*

| GOVERNANCE | ROLE | RESPONSIBILITIES | ACCOUNTABLE |
|---|---|---|---|
| LEADERSHIP REVIEW COMMITTEE (LRC) | Facilitator | Set agenda, coordinate material preparation and pre-send, manage meeting, record meeting minutes. | Governance Lead |
| | Presenter(s) | Review the meeting materials in advance, present the agenda item within the allotted time, and clarify questions from governance committee members. | PB Owner or CP Director* |
| | Material Prep** | Fill in governance templates with stage gate or escalation information in advance of meeting. | CP Director or PB Owner or delegate |
| CROSS-FUNCTIONAL LEADERSHIP (CFL) | Facilitator | Set agenda, coordinate material preparation and pre-send, manage meeting, record meeting minutes. | Governance Lead |
| | Presenter(s) | Review the meeting materials in advance, present the agenda item within the allotted time, and clarify questions from governance committee members. | PB Owner or CP Director* |
| | Material Prep** | Fill in governance templates with stage gate or escalation information in advance of meeting. | PM or PB Manager |
| PROGRAM BRIEF MANAGEMENT LEADERSHIP (PBML) | Facilitator | Set agenda, coordinate material preparation and pre-send, manage meeting, record meeting minutes. | PB Owner |
| | Presenter(s) | Review the meeting materials in advance, present the agenda item within the allotted time, and clarify questions from governance committee members. | PM, PB Manager, or PB Owner |
| | Material Prep** | Fill in governance templates with stage gate or escalation information in advance of meeting. | PM or PB Manager |

**NOTE:** Presenters vary by meeting agenda but should have at least 1 representative per role. Typically, CFL and LRC are bi-weekly.

*ISOWs are presented by the PB Owner; DSOWs and Change Requests by the CP Director. All non-FEMA projects require PB Owner as presenters.

**Documentation is required to be submitted at least 48 hours in advance.

# Initiatives will either be governed at the project or program level

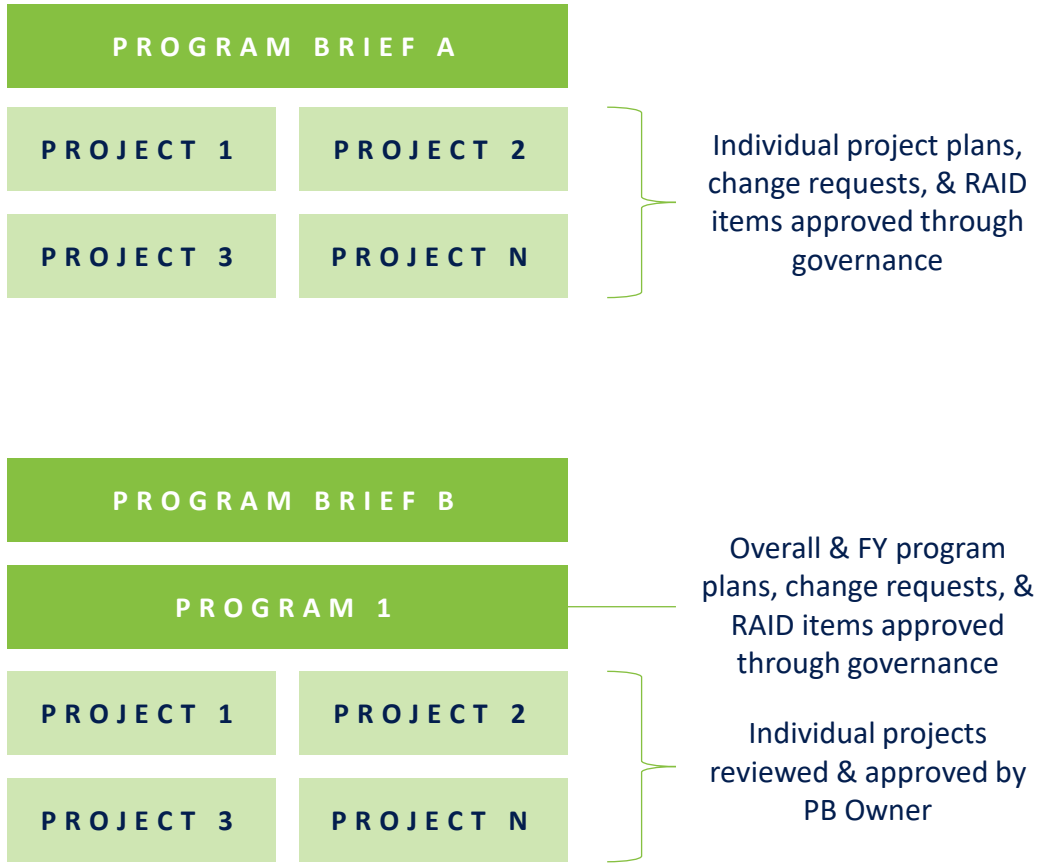


*For most initiatives, individual projects will matriculate through the governance process on a one-by-one basis. For certain programs made up of many repeatable projects, these initiatives will be governed at the overall program level. While the decisions and artifacts being governed will be the same for individual projects and programs, the cadence & scope may vary.*

## GOVERNANCE

| | | | |
|---|---|---|---|
| PROJECT | STAGE GATE APPROVAL | Scope | Individual project stage gate artifacts |
| | | Cadence | As required for each individual project |
| | CHANGE REQUESTS | Scope | Changes to individual project scope, schedule, budget, & benefits |
| | | Cadence | Ad Hoc (as required when need for change control identified) |
| | RAID ITEMS | Scope | Individual project risks, issues, and decisions that require escalation |
| | | Cadence | Ad Hoc (as required when need for RAID escalation identified) |
| PROGRAM | STAGE GATE APPROVAL | Scope | Program-wide stage gate artifacts |
| | | Cadence | Initiation of a new program and annual approval of FY plans |
| | CHANGE REQUESTS | Scope | Changes to overall program and/or FY program scope, schedule, budget, & benefits |
| | | Cadence | Ad Hoc (as required when need for change control identified) |
| | RAID ITEMS | Scope | Program-wide and / or individual project risks, issues, and decisions that require escalation |
| | | Cadence | Ad Hoc (as required when need for RAID escalation identified) |

## ILLUSTRATION



# The existing Program Briefs will follow the governance structure assigned below



The Program Briefs will either follow a Project or Program governance structure, based on the scope and nature of the initiative, as outlined in the below table. The governance structure each initiative will follow should be determined by the Asset Category VP at the start of the initiative.

| *Portfolio Asset Category* | *Portfolio Sponsor* | *PB #* | *PB Name* | *Governance Structure* | *PB Owner* | *PB Manager* | **CP Director* |
|---|---|---|---|---|---|---|---|
| **Distribution** | Aleksi Paaso | PBUT06 | D-Line Rebuild | Project | Daniel Haughton | TBD | Rinly Moolakatt |
| | | PBUT05 | Streetlights | **Program** | Heriberto Gonzalez | TBD | |
| | | PBUT30 | D-Pole Repair & Replacement | **Program** | Reinaldo Baretty | Jolene Colbourne | |
| | | PBUT04 | Distribution Automation | **Program** | Julio Aguilar | Benjamin Cynewski | |
| | | PBUT37 | Microgrids | Project | Babak Enayati | TBD | |
| **Transmission** | William Gannon | PBUT33 | T-Line Rebuild | Project | Daniel Haughton | TBD | Jeff Clymer |
| | | PBUT13 | T-Pole Replacement | **Program** | Frank Frentzas | TBD | |
| **Telecom, IT/OT** | Patrick Arns | PBIT01 | IT OT Telecom Systems & Network | Project | Timothy Auch / Mark Stevens | TBD | Timothy Auch |
| | | PBUT36 | AMI | **Program** | Greg Chiszar | TBD | |
| | | PBUT22 | EMS Upgrades-Critical Energy Management System | **Program** | Raphael Gignac | TBD | |
| **Substation** | William Gannon | PBUT08 | Substation Rebuild | Project | Daniel Haughton | TBD | Kenneth Peterson |
| | | PBUT07 | Substation Reliability | Project | Darrell Wilvers | TBD | |
| | | PBUT18 | Substation Security | Project | Michelle Fraley | TBD | |
| **Vegetation** | Toni Petteplace | PBOP07 | Vegetation Management | **Program** | Toni Petteplace | TBD | James Saavedra |

* Large Projects Directors: Matt Wymer / Renewable: Esther Serra

**NOTE:** The Master Project List is the source of truth for projects and programs details.

# The following examples illustrate the difference between program & project governance



These hypothetical examples are illustrative and meant to provide a deeper understanding of when an initiative should go to governance and what scope should be reviewed based on the initiative type (project or program).

**Example 1: Project Governance**
The T-Line Rebuild program consists of 75 large, individual projects with unique scope. Each individual project within the T-Line Rebuild program must go to governance for approval of stage gate artifacts based on the defined governance thresholds.

**Example 2: Program Governance**
The Distribution Automation program consists of 80 individual projects with repeatable scope. The program must go to governance for approval of stage gate artifacts at the program level (e.g., budget, timeline, ISOW) upon initiation of the program and on an annual basis to approve fiscal year plans.

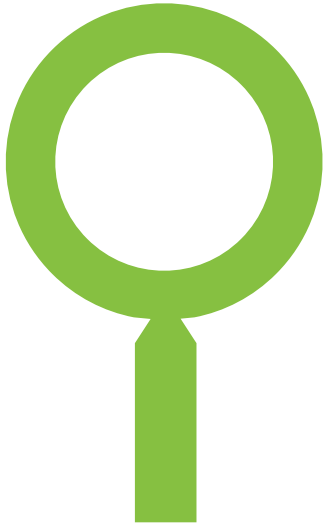
**Example 3: Program Governance**
Due to material constraints, the D-Pole Replacement program schedule will be delayed by 6 months. After considering alternatives, the D-Pole Replacement program team determines the need to submit a change request to extend the program timeline. Based on governance thresholds, this change request must be reviewed and approved by all levels of governance.

**Example 4: Project Governance**
The Venezuela Substation Rebuild Project has been approved through the Initiate, Plan, & Detailed Design phases, with FEMA-approved ISOWs and DSOWs, and is now in the Execute phase. Project stakeholders have identified the need to significantly modify the design to meet new technical requirements. After considering multiple alternatives, the Project Manager has determined the need for a change request. Based on governance thresholds, this change request must be reviewed and approved by all levels of governance, and the project team must work closely with the Grid Strategy team to ensure changes are properly accounted for in the DSOW and rescope is resubmitted to FEMA for review and approval.

# 4 Change Controls Process

# Purpose of this Section





**Over the course of a project, it is anticipated that there will be scenarios where changes to budget, scope, schedule, and/or benefits may be necessary. Change requests require the proper documentation, visibility, and approvals. This section provides an overview of the change control process used by LUMA Capital Programs, Asset Management, and Engineering organizations.**

The following information will be addressed in this section:

1. Change Control process overview and flow diagrams
2. Change Control process for Change Orders
3. Change Request thresholds and approval matrixes

**NOTE:** A Change Request is different from a Change Order, which specifically refers to a change to an approved contract. Any change to a contract requires a Contractor Change Order Request. Changes are monitored through the Change Request Log.

# Change Control Process

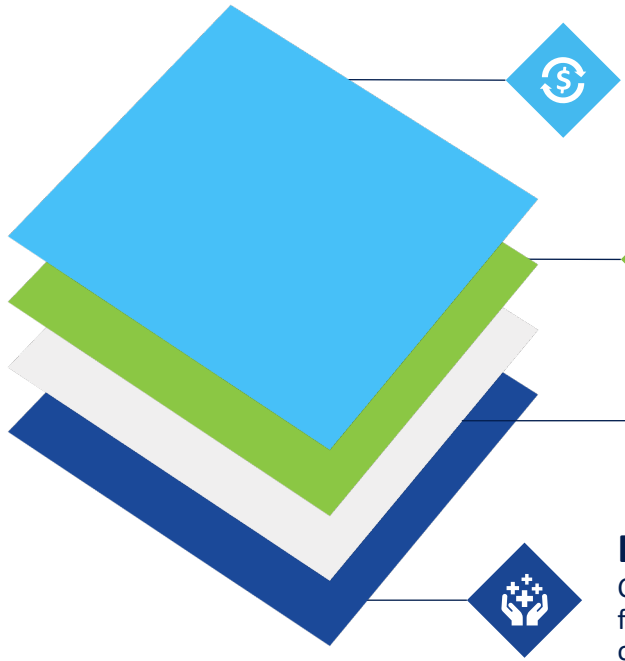


## OBJECTIVE

Once a project is in Execute phase and its scope, schedule, budget, & benefits have been approved and baselined, changes to the baselines should be managed through the Change Control Process. The objective of the Change Control Process is to ensure deviations from approved baselines are documented, impacts are understood, and changes are approved, managed, & implemented through the proper governance channels.

## IMPORTANCE OF CHANGE CONTROL PROCESS

- Have clear visibility into and traceability of decisions to change scope, schedule, budget, or benefits over time
- Fully understand and plan for impacts & interdependencies of changes to project scope, schedule, budget, & benefits
- Improve forecast accuracy by managing change and appropriately updating project plans & tools
- Ensure the right stakeholders are engaged in the process and made aware of the change



### BUDGET

Changes to the approved fiscal year program or project budget due to shifts in labor, material, contractor, or other types of costs

### SCOPE

Changes to the approved program or project scope, as approved in the ISOW or DSOW, or PER (Non-federal)

### SCHEDULE

Shifts in the baselined program or project schedule due to delays or other types of interdependencies

### BENEFITS

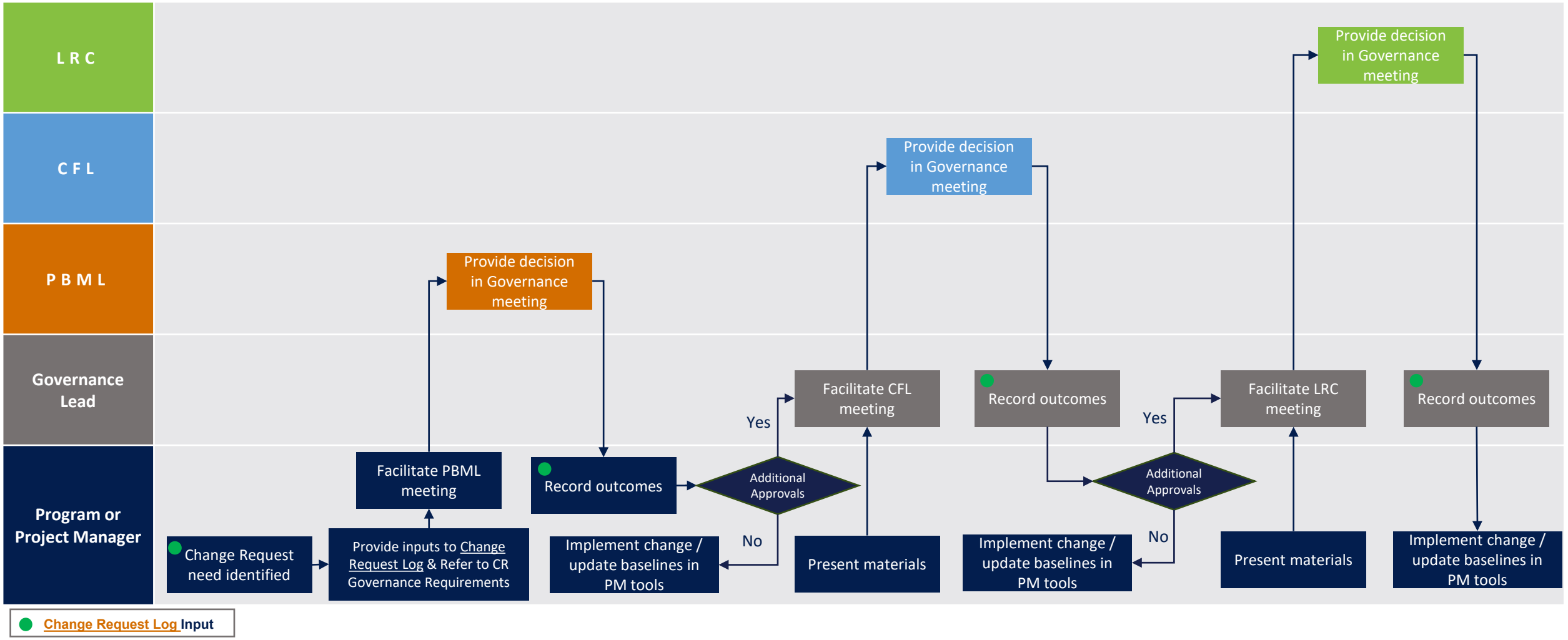
Changes to the expected benefits resulting from the implementation of the program or project

# Change Request Process



*Once the need for a change has been identified, the Project Manager should work with the PMO Governance Lead to submit a Change Request (CR) into the Change Request Log for review. The CR will then be reviewed and dispositioned through the proper **governance** channels.*

## CHANGE CONTROL PROCESS

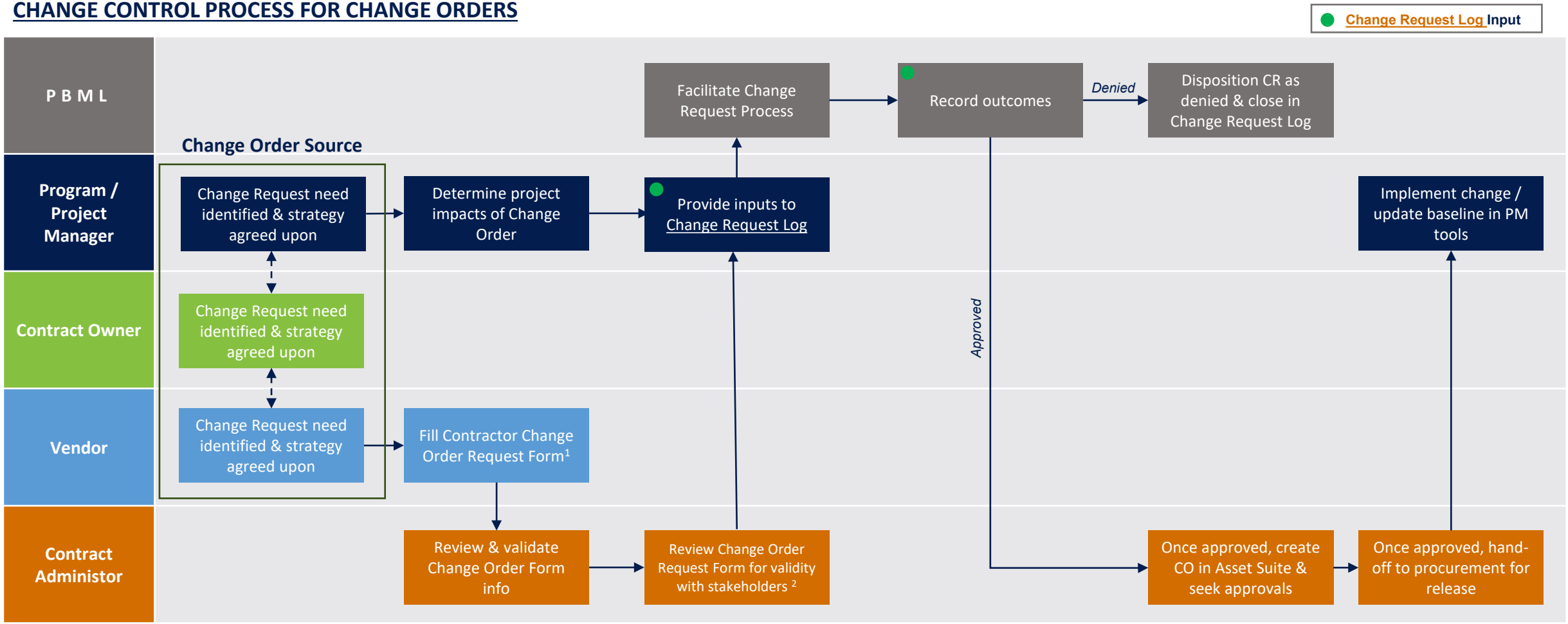


# Change Request Process for Change Orders

LUMA Ex. 74.27

*If a change to an existing work order (WO) or task order (TO) is required, the change must first be approved through the Change Request Process before the Change Order is issued.*

## CHANGE CONTROL PROCESS FOR CHANGE ORDERS




1. *Need for a change request may be identified by the PM, Contract Owner, or Vendor, but the Vendor is typically responsible for filling out the Change Order Request Form*
2. *For any change order request, the Contract Administrator (CA) should immediately engage the PM to ensure overall impacts to the project are accounted for and all necessary stakeholders are engaged. The CA is responsible for ensuring the validity of the information in the Change Order Request Form, while the PM is responsible for reviewing & aligning the CR strategy with required stakeholders ahead of Governance.*

# Change Request Thresholds & Approval Matrix (1 of 2)

LUMA Ex. 74.27

| Change Domain | Governance Level | Change Thresholds | Approver |
|---|---|---|---|
| Capital / NME / Federal Funding Budgetary Changes | LRC (High) | **> Δ$10M** in total cumulative Change Requests<br>Or where change is **> Δ20%** of the approved FY project / program budget | LRC Members |
| | CFL (Medium) | **> Δ$5M - ≤ Δ$10M** in total cumulative Change Requests<br>**Or where change is > Δ10% - ≤ Δ20%** of the approved FY project / program budget | CFL Members |
| | PBML (Low) | **> Δ$1M - Δ$5M** in total cumulative Change Requests<br>Or **Δ5% – ≤ 10%** of the approved FY project / program budget | PB Owner |
| | N/A | **≤ Δ5%** of approved FY project / program budget, not to exceed **Δ$1M** in total cumulative Change Requests | PB Manager |
| O&M Budgetary Changes | LRC (High) | **> Δ$1M** in total cumulative Change Requests<br>Or where change is **> Δ20%** of the approved project / program budget | LRC Members |
| | CFL (Medium) | **> Δ$0.5M - ≤ Δ$1M** in total cumulative Change Requests<br>Or where change is **> 10% - ≤ 20%** of the approved project / program budget | CFL Members |
| | PBML (Low) | **> Δ$0.1M - Δ$0.5M** in total cumulative Change Requests<br>Or **Δ5% – ≤ 10%** of the approved project / program budget | PB Owner |
| | N/A | **≤ Δ5%** of approved project budget, not to exceed **Δ$0.1M** in total cumulative Change Requests | PB Manager |

# Change Request Thresholds & Approval Matrix (2 of 2)

LUMA Ex. 74.27

| Change Domain | Governance Level | Change Thresholds | Approver |
|---|---|---|---|
| No-Cost Scope Changes | LRC | Significant modifications to technology strategy, design, or functionality of the solution | LRC Members |
| | N/A | Additions, enhancements, or reductions to approved scope of an in-flight initiative | PB Manager |
| No-Cost Schedule Changes | LRC | Change impacts final delivery of project by **≥ 2 months** | LRC Members |
| | CFL | Change **impacts dependent projects / programs across other portfolios** | CFL Members |
| | PBML | Change **impacts critical path / key milestone(s)** OR **< 2 months** impact to final delivery of project | PB Owner |
| | N/A | Change has no impact to critical path / key milestone(s), but **impacts dependent workstreams, activities, or other projects within the program** | PB Manager |
| No-Cost Benefits Change | LRC | Change to one or more benefit metrics by **>20%** OR impact to other program / project benefit realization | LRC Members |
| | CFL | Change to one or more benefit metrics by **> 10% - ≤ 20%** AND impacts other program / project benefit realization | CFL Members |
| | PBML | Change to one or more benefit metrics by **> 10% - ≤ 20%** AND no impact to other program / project benefit realization | PB Owner |
| | N/A | Change to one or more benefit metrics by **≤ 10%** | PB Manager |

# 5 Project Delivery Reference Materials

# Purpose of this Section



**This section serves as a central location for links to useful LUMA project management reference materials and resources for project delivery. Each resource item contains its name, link (to a specific document, document repository, SharePoint site, system, tool), and a brief description.**

Reference materials have been organized into 3 categories:

1. Policies & Procedures
2. Training
3. Department SharePoint Sites

CP-PMO

## NEED HELP?

**As you review the following information, please reach out to the Project Management Office if you have questions, need additional information, or have suggested edits.**

| | |
|---|---|
| **QUALITY MANAGEMENT** *Lina Cintron* | **PROCESS IMPROVEMENT** *Luisa Rodriguez* |
| **TECHNOLOGY ENABLEMENT** *Albriel Roche* | **DOCUMENT CONTROL** *Carmen* Nadal |

# Supporting Departments



| Department | Support |
|---|---|
| Capital Accounting | • Project Classification and Numbering Form<br>• PER<br>• Closing Authorization Form |
| Engineering & Asset Management | • Published Engineering Records<br>• Standards and Specifications<br>• GIS Job Requests |
| Environmental, Permitting and Land Request and Tracking Form | • Use this link to request support from the Health, Safety, and Environmental team. |
| IEM | IEM serves as the Grants Management team for FEMA grants and project formulation development. |
| Capital Programs Project Management Office (CP-PMO) | PMO's fundamental scope is to manage the project management practice within the organization including:<br>• Repository for PMO processes<br>• Delivery Lifecycle Framework (DLF)<br>• PMO Service Requests<br>• Learning Spot<br>• Internal Quality Audit Schedule<br>• Project Center (Project Online)<br>• Aconex |
| Project Controls & Contract Administration | • Project Scheduling<br>• Cost Estimating<br>• Risk Management<br>• Project Cost Controls<br>• Contract Administration<br>• Invoicing<br>• Project Analysis & Reporting |

# Project's Document Management Systems



*Over the course of a project, project teams will be interacting or receiving information from several systems. Below are key systems typically used or referenced during the project delivery lifecycle.*

| SYSTEM | DESCRIPTION |
|---|---|
| Project Online | Project Online is the source of truth and a general repository for project schedules and associated project data and artifacts. The Project Online homepage also houses the **RAID Log** and **Change Request Log** PowerBI dashboards and the **Lessons Learned** program SharePoint form and the corresponding SharePoint list. Project Online includes a SharePoint directory for each project as well as a SharePoint for reporting project status. |
| OpenAir | OpenAir is the timekeeping system used by seconded and exempt employees. Timecards in OpenAir are input by each employee and approved by their manager. |
| Kronos | Kronos is the timekeeping system used to track, manage, and approve time and attendance for non-exempt employees. Timecards in Kronos are input by each employee and approved by their manager. |
| Oracle EBS | Oracle E-Business Suite (EBS) is the financial tracking and reporting system of choice and the source of all existing financial reports. Financial data is managed by Finance and the Oracle platform is managed by IT. Monthly financial reports are generated by Project Accounting. |
| Oracle Aconex | Oracle Aconex is a cloud-based project management software solution that manages information and processes between internal and external project stakeholders. It is the document management system of choice as well as the tool for organizing and managing RFIs and Submittals. PMs and their assigned document controllers ensure that required documents are updated and labeled appropriately. Oracle Aconex is managed by PMO Document Control team and maintained by PMO Technology Enablement |
| GIS Enterprise Map | The Geographic Information System (GIS) Enterprise Map is a tool containing asset information on LUMA assets and their locations. The ArcMap GIS Enterprise Map is managed by IT. |
| AssetSuite | AssetSuite is the contracting and procurement system of choice. AssetSuite is used across the organization for materials management and requisitions. It is maintained by IT. (Username & Password: LUMA's credentials) |
| Intelex | Online platform that provides Environmental, Health, and Safety (EHS) management solutions for incidents and accidents reporting. |
| WorkDay | Workday is the learning management system (LMS) where all initial onboarding training as well additional material on pertinent systems and processes can be referenced. PMO trainings are managed by Capital Programs Change Management & Training team through Workday. |
| Grants Portal | This is the FEMA platform used to manage grant applications. Grants Management team supports PMs in the use of this platform. Access to this portal is limited. |

**TIP: For more information on how to gain access to Project Online and a more detailed functional review, as well as document control requirements and standards, please consult the following PMO resources or open a PMO Service Request.**

**TECHNOLOGY ENABLEMENT**
*Albriel Roche*

**DOCUMENT CONTROL**
**Carmen Nadal**

# Project Management Training (1 of 2)

LUMA Ex. 74.27

| ITEM (Link) | DESCRIPTION |
|---|---|
| Introduction to Project Controls | The Introduction to Project Controls Training in the Workday system provides project team members and other stakeholders with a general understanding of the following:<br>• Project Risk Control<br>• Project Scheduling<br>• Project Cost Control<br>• Project Contract Administration |
| Introduction to Work Breakdown Structure (WBS) and Project Coding Training | LUMA Capital Programs is responsible for the consistent execution and monitoring of Capital Projects, including reporting during all phases of the project. LUMA's WBS allows for project work to easily be monitored. For that, a broad comprehension of the WBS, as well as the ability to correctly classify costs related to project work, is required by every project team member. During this training, each participant will:<br>• Learn what is the LUMA WBS and how it relates to Capital Project Work<br>• Understand the 4 levels within the WBS and identify the task that corresponds to the project work being performed<br>• Know how to correctly code project charges (time/labor, materials charges and expenditure) to Project Work.<br>• Know how to correctly charge time in Open Air<br>• Discern between O&M coding and specific WBS tasks |
| Lessons Learned Program Training | The Lessons Learned Program Tracking training introduces the 5101.3-Lessons Learned Program document and provides general stakeholders with an understanding of the following:<br>• Lessons Learned as a concept and their many benefits<br>• Proper Lessons Learned documentation, submission, and the PMO review process<br>• The functionality of the Lessons Learned form within Project Online |
| **RAID Log (Tool)**<br>Change Request Log<br>Issue Log<br>Risk Log | The RAID (Risk, Action, Issue, and Decision) tool aims to streamline issues, risks, and change management processes. This tool promotes accountability and visibility of the change request process.<br>PMs and the Risk Management team under the Project Controls team maintain this tool. |
| **Delivery Lifecycle Framework** | The DLF creates discipline around program and project delivery by establishing project phases and stage exit criteria standards to increase consistency and overall performance. Within the DLF there are five discrete project phases: Initiate, Plan, Detailed Design, Execute, and Close-Out. |

# Project Management Training (2 of 2)



| ITEM (Link) | DESCRIPTION |
|---|---|
| Governance | Governance provides the structure, functions, and processes that guide and provide value to program and project activities to create the correct alignment of initiatives to support the achievement of the organization's strategic objectives:<br>• Streamlined decision-making<br>• Strategic Oversight<br>• Empowered Teams<br>• Consistency |
| Oracle Aconex Document Control System Training | The objectives for this training include:<br>• Learn how to use essential functionalities of the Aconex system like document uploads/modifications, metadata, document register, searching, collaboration, and markups.<br>• Learn how to initiate and manage document control processes like general correspondence, transmittals, RFIs, NCRs, change requests and packages/submittals.<br>• Learn how to initiate and manage document control workflows for review/approval; how to use reports and dashboards<br>• **This training is currently only offered in person. Please reach out to PMO Document Controller for additional details (pmodocumentcontrol@lumapr.com).** |
| OpenAir Training | The objectives for this training include: (Exempt and Seconded Timesheets)<br>• Understand Open Air requirements for time entry<br>• Learn how to create and submit a timesheet in Open Air for approval<br>• Learn how to split, clone, edit, approve and delete a timesheet in Open Air |
| Category Z Guidance | The objectives for this training include:<br>• Understand what activities are eligible Category Z costs and can be charged accordingly<br>• Share consistent and accurate guidelines for documenting based on Category Z documentation requirements for reimbursements<br>• Provide resources (e.g., training and guides) that establish leading practices for reporting of Category Z project costs |
| NEW Procurement Manual Overview | The objectives for this training include:<br>• Be familiar with the methods of procurements available for the acquisition of goods and/or services.<br>• Identify the required documentation that needs to be submitted for each procurement.<br>• Understand how Stakeholders can help drive and support goals of cost effectiveness and responsible sourcing. |

# Policies & Procedures

LUMA Ex. 74.27

| ITEM | DESCRIPTION |
|---|---|
| LUMA Policies & Procedures | The LUMA Policies and Procedures (LPP) site contains all LUMA standards in a centralized documentation system. Subdirectories within the LPP include (but are not limited to) Customer Experience, Finance & Accounting, HSEQ, Engineering, IT OT, Operations, Capital Programs, Human Resources, Regulatory, and Corporate Services. |
| Capital Programs Policies & Procedures | The Capital Programs site contains all project management templates, forms, procedures, process maps, and documentation maintained by the Capital Programs PMO team in a centralized location. Documents related to project delivery are available on the LPP site under the Capital Programs folder. |
| LUMA Engineering Records Standards & Specifications | This documentation library contains all of LUMA's engineering standards and specifications, including procedures, processes, guides, and forms associated with the different asset categories (i.e., Distribution, Telecom, Substation, and Transmission systems). |
| LUMA Procurement Manual | The purpose of this Procurement Manual is to document the procurement policies and procedures that LUMA Energy Servco, LLC ("LUMA") will use when procuring goods and services as agent for the Puerto Rico Electric Power Authority ("PREPA"). This Procurement Policy is established under the authority of the Operations and Maintenance Agreement ("O&M Agreement" or "OMA") dated as of June 22, 2020, among PREPA, as owner of the Transmission and Distribution System ("T&D System"), the Puerto Rico Public Private Partnerships Authority ("P3A"), as Administrator, and LUMA Energy ServCo, LLC and LUMA Energy, LLC as Operator of the T&D System. Any language regarding LUMA's responsibilities or involvement in procurement activities is intended to provide clarity on the way that LUMA employees will conduct their responsibilities in fulfillment of LUMA's role as agent of PREPA. |

# Reference Materials & Standards

LUMA Ex. 74.27

| ITEM (Link) | DESCRIPTION |
|---|---|
| CFR Title 44 - Emergency Management and Assistance | The Emergency Management Assistance Compact (EMAC) is an interstate mutual aid agreement that provides a mechanism for sharing personnel, equipment, and resources among states during emergencies and disasters12. It is a mutual aid agreement among states and territories of the United States |
| Puerto Rico Transmission and Distribution System Operation and Maintenance Agreement, dated as of June 22, 2020. | Operation and Maintenance Agreement between The PR Electric Power Authority, The PR Public-Private Partnerships Authority, LUMA Energy LLC and LUMA Energy ServCo LLC. |
| Puerto Rico Energy Bureau (PREB) | The Puerto Rico Energy Bureau (PREB) is the independent and specialized body created by Act 57-2014, as amended, to serve as key component for the full and transparent implementation of the Energy Reform. Specifically, the PREB has the responsibility to regulate, monitor and enforce the energy public policy of the Government of Puerto Rico. |
| FEMA Hazard Mitigation Grants: 404 and 406 | Section 404 hazard mitigation and Section 406 hazard mitigation funding are distinct programs with key differences in their scope, purpose, and funding. The 404 funding is used to provide protection to undamaged parts of a facility or to prevent or reduce damages caused by future disasters. 404 grant funding may be used in conjunction with 406 mitigation funds to bring an entire facility to a higher level of disaster resistance when only portions of the facility were damaged by the current disaster event. |
| Central Office for Recovery, Reconstruction, and Resiliency (COR3) | The COR3 ensures that the Government of Puerto Rico successfully undertakes reconstruction efforts with efficiency, effectiveness, and transparency, while capitalizing on opportunities to build back in a way that makes Puerto Rico better, stronger, and more resilient. |
| Outage Map | This map is a visualization of the current status and performance of the service around the PR island. |
| Load Shed Map | This map is a new tool that will help you stay informed during a load shed event. These events occur when the energy demand, or load, exceeds the generation available. |
| Bipartisan Budget Act of 2018 | The Disaster Relief Act, part of the Bipartisan Budget Act of 2018, required that OIG perform oversight of activities related to disaster relief, which include preparation, response, recovery, and mitigation. |

**LUMA EXHIBIT 74.28**

**List of 99 Projects that Comprise the Tier 1 portion of the Consolidated Project Plan**

**LUMA EXHIBIT 74.29**

**LUMA Recovery and Transformation Framework**

*LUMA Exhibit 74.29 - LUMA Recovery and Transformation Framework (RTF)*

| **MISSION:** | Recover and transform the utility to deliver customer-centric reliable, resilient, safe, sustainable, electricity at reasonable prices. | | | |
|---|---|---|---|---|
| **KEY GOALS:** | | | | |
| **Prioritize Safety** | **Improve Customer Satisfaction** | **System Rebuild and Resiliency** | **Operational Excellence** | **Sustainable Energy Transformation** |
| Reform utility activities to support a strong safety culture focused on employee safety and safety of the people of Puerto Rico. | Transform operations to deliver a positive customer experience and deliver safe, reliable electricity at reasonable prices. | Effectively deploy federal funding to restore the grid and improve resilience of vulnerable infrastructure. | Enable employees to pursue operational excellence through new systems, processes, training and a safe workplace. | Modernize the grid and the utility to enable the sustainable energy transformation. |