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

IN RE: INFORMES DE PROGRESO DE INTERCONEXIÓN DE LA AUTORIDAD DE ENERGÍA ELÉCTRICA DE PUERTO RICO	**CASE NO. NEPR-MI-2019-0016** **SUBJECT:** Motion in Compliance with Order.

MOTION IN COMPLIANCE WITH ORDER

TO THE PUERTO RICO ENERGY BUREAU:

COME NOW, LUMA ENERGY, LLC as Management Co., and **LUMA ENERGY SERVCO, LLC** (collectively, LUMA), through the respective undersigned legal counsel and respectfully state and submit the following:

1. The captioned proceeding involves oversight by this honorable Puerto Rico Energy Bureau ("Energy Bureau") of procedures to handle requests for interconnections of distributed generation systems ("DGs") and microgrids to the Transmission and Distribution System ("T&D System").

2. During this proceeding, this honorable Energy Bureau has required the Puerto Rico Electric Power Authority ("PREPA"), and now LUMA, to submit quarterly progress reports on interconnections of DGs to the T&D System that are discussed in quarterly compliance hearings. (*see* Resolution and Order of July 21, 2020).

3. The most-recent compliance hearing was held on August 16, 2021. Prior to that hearing, in compliance with a Resolution and Order of August 6, 2021, LUMA filed with the Energy Bureau, on August 13, 2021, the presentation to be provided during the August 16th compliance hearing, which included the compliance plan or strategy to address the backlog in

approvals of interconnections request, that had been required by the Energy Bureau. *See* LUMA's "Moción para Presentar Informe de Progreso de Interconexión, Presentación a Utilizarse en la Vista del 16 de agosto de 2021 y Plan o Estrategia para Atender el *Backlog*" dated August 13, 2021.

4. During the August 16th proceeding, the Energy Bureau verbally directed LUMA to submit the following documents or information: (1) a detailed plan to address the backlog of distributed DG interconnection requests to the T&D System; (2) a list of feeders requiring supplemental studies; (3) a list of documents related to DG interconnection requests that cannot be handled electronically; (4) a checklist of documents to be submitted by interconnection applicants into to the electronic portal for basic and technical validation; and (5) personnel available to perform supplemental studies.

5. On August 27, 2021, the Energy Bureau issued a Resolution and Order directing that on or before September 13, 2021, LUMA shall file a plan to address the backlog of distributed DG interconnection requests which shall include: (1) identification and description of the activities or tasks that led to the backlog; (2) identification and description of the specific and concrete solutions to address the backlog in the short, medium and long terms; and (3) a timeline in Gantt Chart format that includes the tasks, phases and estimated time for each task to address the backlog. *See* August 27th Resolution and Order at page 2.

6. In the August 27th Resolution and Order, the Energy Bureau also scheduled a compliance hearing for September 20, 2021, and directed that LUMA file on or before September 13, 2021, the presentation to be offered during the compliance hearing. *Id.*

7. Finally, in the August 27th Resolution and Order, the Energy Bureau directed that on or before September 13, 2021, LUMA shall submit: (1) a list of feeders that have reached a

15% saturation level and require supplemental studies; (2) information on the personnel available in the regional offices for distribution engineering to perform the studies that are necessary to address interconnections requests; and (3) a list of documents that are required in the validation phase of interconnections requests that are not available in electronic format and may hinder validation of the requests. *Id.* at page 3.

8. In compliance with the August 27th Resolution and Order, LUMA hereby submits as Exhibit 1, the plan to address the backlog. This plan includes an explanation on LUMA's plan to ensure adequate staffing to conduct application validation processes and supplemental studies. *See* Exhibit 1 at page 10.

9. As Exhibit 2, LUMA is filing the checklist of documents to be submitted by interconnection applicants into to the electronic portal for basic and technical validation, as was requested during the August 16th compliance hearing. Exhibit 2 also identifies documents related to DG interconnection requests that are not currently handled electronically.

10. In addition, LUMA is hereby submitting an updated list of feeders requiring supplemental studies. *See* Exhibit 3.

11. Finally, in compliance with the August 27th Resolution and Order, LUMA is hereby submitting the presentation to be offered during the September 20th compliance hearing, in pdf format. *See* Exhibit 4.

WHEREFORE, LUMA respectfully requests that the Energy Bureau **take notice** of the aforementioned and deem that LUMA complied with the bench orders issued during the August 16th compliance hearing and those restated in the August 27th Resolution and Order, and with those portions of the August 27th Resolution and Order that required LUMA to file a plan to address the

backlog of distributed DG interconnection requests and the presentation to be offered during the September 20th compliance hearing.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this September 13, 2021.

I hereby certify that I filed this motion using the electronic filing system of this Energy Bureau and that I will send an electronic copy of this motion to the attorneys for PREPA, Joannely Marrero-Cruz, jmarrero@diazvaz.law; and Katiuska Bolaños-Lugo, kbolanos@diazvaz.law. Notice will also be sent to the Office of the Independent Consumer Protection Office, Lcda. Hannia Rivera Diaz, hrivera@jrsp.pr.gov and to counsel for the Puerto Rico Solar Energy Industries Association Corp. ("SESA"), javrua@sesapr.org.

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- *Exhibit 1*

Plan for Backlog

Action Plan to Improve Net Metering Process

NEPR-MI-2019-0016

September 13, 2021

Contents

1.0 Introduction

On August 16, 2021 a technical hearing was held with the Energy Bureau regarding Case No. NEPR-MI-2019-0016. As part of the proceeding, the Energy Bureau requested a plan to address the backlog of Net Energy Metering (NEM) cases that inherited from PREPA upon commencement[1], when LUMA took over responsibilities of Distributed Generation (DG) interconnection Program, and how LUMA will process future NEM cases.

This document will provide the information requested by the Bureau during the technical hearing, which includes detailed information regarding three main aspects of LUMA's Plan:

- **Background on Backlog** –This section includes a description of the activities in the application process that caused the backlog.
- **Plan for Resolving Backlog** – Provides description of activities that have been identified to resolve the backlog within a reasonable timeframe and to be followed for future NEM cases.
- **Backlog Reduction Forecast** – This section provides a forecast and timeline for the reduction of the backlog.

This action plan outlines LUMA's strategy to resolve the NEM backlog in an effective and expeditious manner and to reach a steady state where the NEM program can handle future application volume within the 30 days required by regulation.

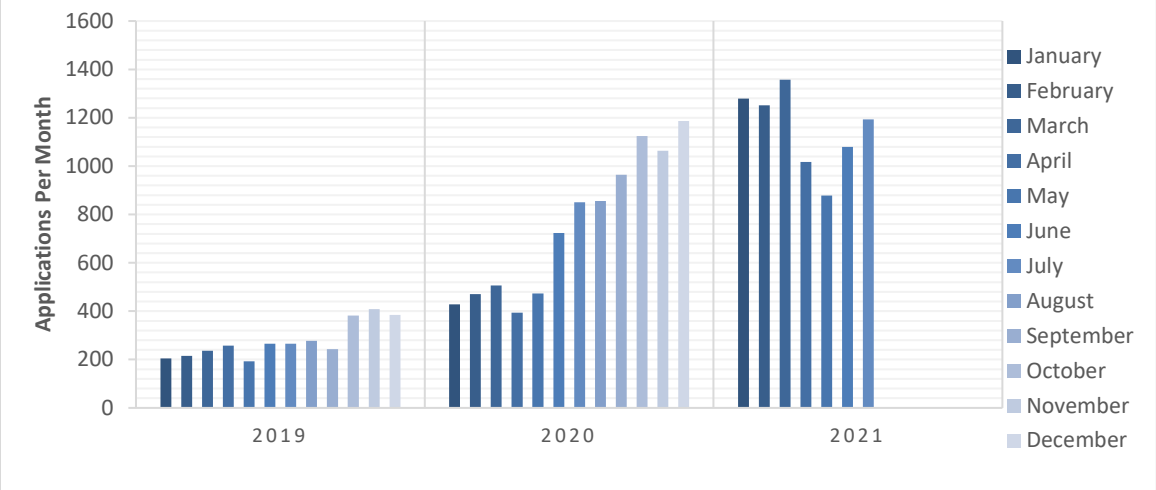
[1] Approximately 8,000 cases were in the backlog at the commencement date (June 1,2021). See *Progreso de Interconexión de Generación Distribuida, Trimestre Mayo a Julio 2021,* pg. 4

2.0 Background on Backlog

The reduction in solar PV prices, increased consumer demand, and growing number of service providers, combined with regulatory changes have led to a significant increase in NEM application volume over the past few years. Regulatory changes enacted by Act 17-2019 enabled customers to install small scale systems (<25 kW) and energize them prior to utility approval through the NEM application process. These policy provisions are meant to accelerate the deployment of DG by reducing administrative barriers to participation. However, application of these type of provisions is uncommon in North American utility jurisdictions. Most jurisdictions require application approval prior to installation, to ensure DG systems can be interconnected without compromising Transmission and Distribution (T&D) system reliability and safety.

There was a sharp increase in new DG applications beginning in late 2019, as shown in Figure 1 below. LUMA understands that this increase in applications significantly exceeded PREPA's capacity to process them, resulting in a steadily growing backlog of DG systems that are installed but waiting for NEM service activation.

Figure 1- Monthly DG Applications as of July, 2021



2.1 Description of PREPA's Legacy Process

The backlog that LUMA inherited on June 1, 2021, is predominantly composed of small-scale projects (<25 kW), which pursuant to Act 114-2004, as amended by Act 17-2019 ("Act 114-2004"), must be interconnected automatically to the transmission and distribution network. These cases are commonly referred to as "expedited" cases. Act 114-2004 also states that NEM shall be reflected on the customer's bill within 30 days, after the receipt of notice of the certification of the distributed generator installed by an engineer or an expert electrician. Per Act 114-2004, the fact that the feeder exceeds its capacity shall not constitute an obstacle for the interconnection of photovoltaic or renewable energy systems with a generation capacity less than 25 kW. Any necessary system improvements must still be completed and paid for by the requesting company.

However, there are still several activities that must be completed by the utility to enable activation of NEM service on the customer's bill. Figure 2 below presents a basic illustration of the standard NEM

application process along with a short description of each step. The illustration also identifies with a red star the activities that must be completed by the utility for NEM service to be reflected on the customer's bill. These activities serve to 1) ensure that the application is complete (validation), 2) change to a bi-directional meter, and 3) change the customer's billing tariff to activate net metering service on the next bill.

Figure 2. Standard Process for Small Scale NEM Projects (0-25kW)

1. **Validation** – Review application to ensure it is complete and meets technical requirements for eligible systems to be interconnected.
2. **Engineering Studies** – Technical review to determine whether project requires a supplementary study to evaluate the need for distribution system upgrades, which must be paid for by the customer/developer.
3. **Meter Change** – Change meter to bi-directional meter capable of recording net energy metering.
4. **Billing / Tariff Change** – Process of changing customer's billing tariff to NEM.
5. **Service Agreement** – Provides final documentation of the NEM service for customer records. This is automatically generated in the portal after billing/tariff change.

The Validation step is necessary as a due-diligence check to ensure all required documentation is submitted and complete. This step takes roughly an hour to complete per application, unless the application contains errors that require additional information from the customer or developer. LUMA has found that roughly 30% of applications are returned to the applicant during this Validation step because of mistakes or omissions on the application, or because not all the required attachments have been submitted. LUMA has also found that roughly 30-40% of cases require a meter change, which requires time to schedule a field visit to change the meter at the premise. Once the project has been validated and meter changed, the billing/tariff change process can be completed, at which point the NEM service will appear on the next bill.

CAUSES FOR BACKLOG

As described above, small-scale projects are required to be expedited to activate NEM service on the customer's bill within 30 days. However, PREPA did not create a separate process to enable these expedited cases to be completed faster. Each project went through the full process above (including studies). LUMA understands that once application volume became higher, the staff were unable to complete all steps within the required timeline, resulting in a backlog.

The following section outlines some of the primary reasons that the existing system was unable to adapt to increasing application volume, giving rise to the backlog:

1. Regional structure of DG Program. PREPA's existing system worked from a centralized web portal for developers and customers to submit applications. However, the portal is arranged in such a way that the processing of applications was done in each of the seven administrative regions of Distribution

Engineering, by staff that had other competing responsibilities. In addition, due to the design of the portal, staff in one region are not able to view and assist with the cases assigned to another region.

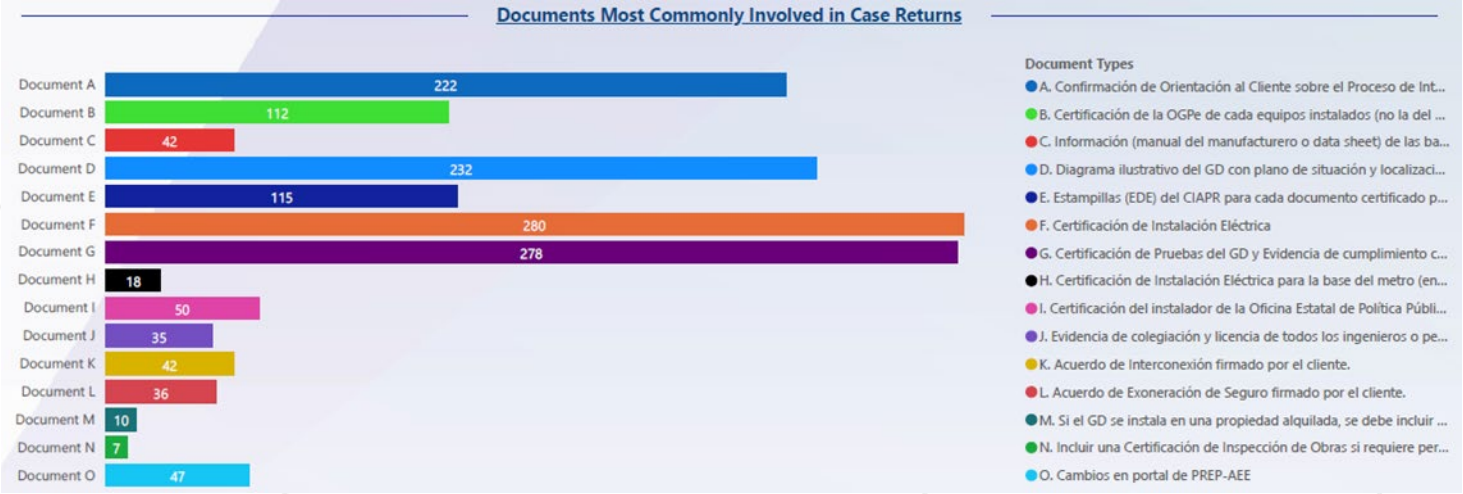
Under PREPA's system, the validation of cases and the studies were completed by regional Distribution Engineering offices. The meter change and NEM billing change was completed in similar fashion by regional commercial offices. This general regionalization of the key organizational functions resulted in a lack of coordination and standardization of NEM program processes. While volume was increasing, competing priorities in the regions made it difficult to keep pace with the increasing volume. The regional structure also prevented shifting resources from one region to another for additional assistance.

2. **High proportion of cases below 25 kW**. Most applications received (~98%) are for small scale projects (0-25 kW) that qualify for the expedited process. The PREPA process had both small sized (0-25 kW) and large size (above 25 kW) being processed by the same regional staff. While both type of cases could be interconnected at the distribution voltage level, regulation specifies different activities and requirements for each type. Consequently, the time to process these cases varies significantly.

By centralizing the process for the expedited cases, LUMA has been able to coordinate and streamline activities to further accelerate the processing of these 0-25 kW cases. The remaining 2% of cases (>25 kW), are still being reviewed by the regional engineering offices, who can now handle this volume without the burden of the large number of 0-25 kW cases.

3. **Review of required attachments**. Customers or developers must submit 15 attachments with each application, which must be reviewed during the Validation and Engineering Study stages. The attachment forms do not have error checking or electronic signature capabilities, which could help prevent errors, ensure completeness, and allow some of the validation process to be automated. LUMA has found that roughly 30% of applications are returned during the Validation step because of mistakes or omissions on the application, or because not all the required attachments have been submitted. A total of 876 out of a sample of 3,121 applications that were Validated in August were returned for corrections or incomplete documentation. Figure 3 below shows a breakdown of which attachments were returned to the customer during the month of August.

Figure 3. Attachments Most Commonly Involved in Case Returns



Eventually, these attachments can be consolidated, streamlined and automated. However, it may be premature to invest the significant amount of time required to fully automate these applications now until the final Generation and Microgrid Interconnection Regulation is established. This new regulation may affect these documents, which would require re-work.

3.0 Plan for Resolving Backlog

Based on findings from LUMA's initial evaluation of legacy processes and applications, LUMA has developed a plan to resolve the backlog of cases that are waiting for NEM service to appear on their bill.

LUMA's strategy for resolving the backlog involves two primary components:

- Develop a new process for the "expedited" projects, and
- Devote extra resources to activating NEM service using the expedited process as quickly as possible until the backlog reaches a steady state where the organization can process incoming applications at a sufficient rate to prevent further accumulation of the backlog.

LUMA's key activities for achieving these objectives are to:

1. **Centralize key NEM program functions** to make it quicker to respond to changes in application volume, regulations and customer needs.

2. **Ensure Adequate Staffing** to increase application processing capacity to resolve the backlog and then maintain expected steady-state volume of applications, to prevent a backlog from reoccurring.

3. **Accelerate NEM service activation** by expediting key steps in the utility's process to get NEM service reflected on customer bills as soon as possible.

4. **Provide Additional Communications** to customers and developers on changes in application status resulting from accelerated service activation, in the form of an interconnection queue list.

5. **Conduct Web Portal Improvements** to streamline and standardize the applications and DG portal system to reduce the amount of time it takes to process each application.

Table 1 below summarizes the timeline to complete each activity, which are further detailed in the following section.

Table 1. Action Plan Gantt Chart

Task	Description	Start Date	End Date	Responsible	Status	June	July	Aug	Sept	Oct	Nov	Dec
1	Centralize Organizational Functions	1-Jun	1-Aug	Business Transformation, Billing	Complete							
2	Staffing Plan	1-Jun	29-Oct	Business Transformation	In Progress							
3	Accelerate NEM Service Activation	12-Jul	17-Dec	Business Transformation, Billing	In Progress							
4	Provide Additional Communications	1-Aug	17-Dec	Business Transformation	In Progress							
5	Conduct Web Portal Improvements	1-Sep	30-Nov	IT	In Progress							

1. Centralize Key NEM Organizational Functions

Status: Completed
Timeline: June 2021 – August 2021

Centralize Application Processing. LUMA has hired and trained a dedicated team in the Business Transformation department with the sole priority of managing the interconnection program and overcoming the backlog. This team has been working to coordinate all aspects of the program across all departments, to ensure changes are effectively managed and communicated. During the first month of operation, the Business Transformation team has successfully centralized and standardized the critical application intake and Validation processes and systems, which were previously conducted in regional offices.

Centralized Billing. Each customer's account is assigned a certain tariff structure, which must be changed to the NEM tariff in our billing system. However, many customers do not currently have a bi-directional meter capable of net metering. These cases require a meter change before the NEM tariff can be changed on the customer's bill. The meter change and NEM tariff activation processes at PREPA were not standardized across regions or well-coordinated with the other PREPA departments involved, causing variation in processing time and confusion among customers. These processes are now being managed by a dedicated Billing department in LUMA, in close coordination with the other departments involved.

The Billing staff receives a list of cases that have been Validated by Business Transformation and issues a service order for the meter change, if required. If the meter change is not needed, Billing can activate the NEM tariff right away, which will be reflected in the customers next billing cycle. These organizational changes were necessary for overcoming the backlog, to ensure that these complex processes could be consistently and efficiently coordinated across departments in all regions.

2. Staffing Plan

Status: In progress
Timeline: June 2021 – October 2021

The Business Transformation team dedicated to the NEM Program has been organized in such a way to leverage the advantages of a centralized working structure, where applicable. Business Transformation (BT) is providing overall coordination of the program and also centralizing the completion of the critical Validation process.

A manager in the BT group has direct oversight of the processing of cases. The group has been organized in two teams. Each one of these groups include several application processors that handle the Validation and Study processes for the cases assigned to them. This structure provides the flexibility to expand staffing through external contractors or staffing augmentation as needed to handle the current volume of cases. LUMA has already increased staffing levels internally and with our external contractors.

Currently, LUMA has 10 people working full-time, between internal staff and consultants, dedicated to the application Validation process, which is the most time consuming step for activating NEM service. This staffing level has resulting in Validation of 600 cases per week on average. During the next 4-8 weeks, we expect to add 3-6 additional resources, bringing the total of available resources working on Validations to around 15 and increasing throughput to around 850 cases per week, or 3,400 cases per month. The Forecast section later in this Plan will present calculations that demonstrate the adequacy of this staffing level for resolving the backlog to a steady state.

The Billing team has a team of nearly 15 staff that have been working together to activate NEM service in our system. This team has played a critical role in expediting the backlog by centrally coordinating the meter and tariff change activities. The Billing team has been capable of activating over 1,000 cases per week and will not require any further capacity increases to handle the backlog.

It should be noted that performing the Engineering Study step is not an essential part of the work required to resolve the backlog, because the Act 17 required that NEM service be activated in 30 days regardless of the need for supplementary study or system upgrades. However, LUMA is also staffing up the planning and engineering roles required to perform those functions.

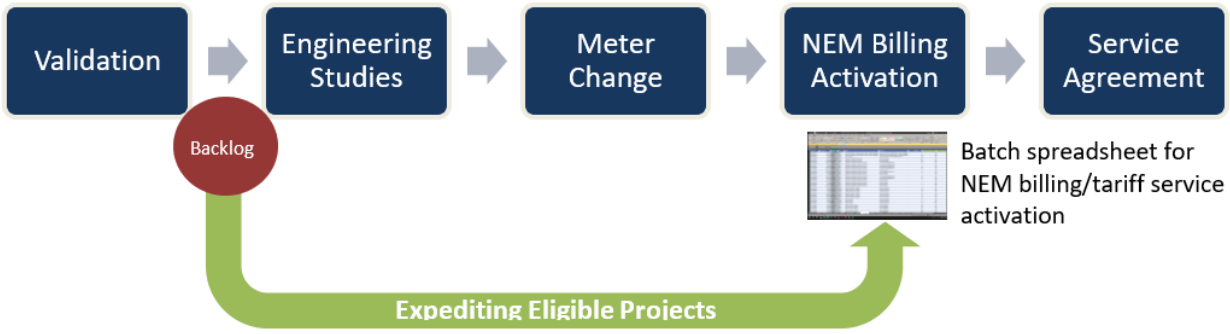
Currently, LUMA has three engineers to perform Supplementary Studies for DG projects connected to distribution voltage levels. Additionally, LUMA is in the process of training three engineers to conduct interconnection assessments at transmission voltage levels. To carry out the certifications of feeders in the field (feeder topology, conductor cross section, status of the service transformer, verification of the side phases, three-phase sample measurement of power consumption of the feeder, position of the link switches [tie switches], etc.) Luma has dedicated 5 cartographers.

3. Accelerating NEM Service Activation

Status: In Progress
Timeline: July 2021 – December 2021

The organizational changes above were necessary to enable accelerated NEM service activation, which is the key activity that will resolve the application backlog. Projects in the "backlog" are those that have been in the queue for longer than 30 days without NEM service reflected on their bill. LUMA's solution for quickly resolving the backlog is to activate NEM service in large batches outside of the portal, rather than one at a time within the portal, as shown in Figure 4 below. This solution avoids the slow, manual processing of each application one at a time within the portal, which cannot currently be conducted at a sufficient pace to work down the backlog.

Figure 4 Modified Workflow to Accelerate NEM Service



LUMA's initial review of application data found over 4,000 cases that were validated (and therefore ready for NEM service activation) but were still going through the remaining steps of the standard workflow within the portal (i.e., study, supplementary study). After careful evaluation, it was decided to accelerate these cases by sending them directly to Billing for NEM service activation as shown in Figure 4. As Billing activities were now also centralized, the team can process a high volume of cases in a short period of time (~800-1,000 cases per week). This resulted in nearly 3,000 cases for which NEM service was activated in July, 2021. Once NEM service is activated in the Billing department it will then be reflected on the customer's next bill, with credits applied retroactively.

We will continue using this expedited process at least until the backlog has been reduced to the point that the portal is able to process incoming applications within 30 days (currently anticipated to be in December). The long-term solution is a reprogram of the portal logic so that once an application has been validated, it automatically sends a notice to the Billing team to conduct NEM service activation in parallel to the Study processes. However, proposed updates to the DG Regulation will require complete overhaul or rebuild of the DG Portal and corresponding business processes. It would be counterproductive and duplicate effort to reprogram the current portal now only to do all of this work again in the coming months to reflect these regulation changes, especially since the current process is now working effectively.

It should be noted that the remaining application processing steps (i.e., Study, Supplementary Study, and Service Agreement) still await completion within the portal. This means that even though NEM service has been activated, some cases will still trigger the need for Supplementary Study and may later require system upgrades at a cost to the developer.

4. Provide Additional Communications

Status: In Progress
Timeline: June 2021 – December, 2021

By processing applications outside of the portal's sequential process, we can activate NEM service on the bill as soon as possible for the client. However, the portal is not programmed to notify customers or developers that NEM Service has been activated outside the portal. This notification is normally generated automatically by the portal once the regional commercial offices manually change the application status within the portal.

As a near-term solution, LUMA has developed a spreadsheet queue with notification of application status, as shown in Figure 5 below. This provides information to customers and developers regarding the status of their application from the perspective of the Net Metering service activation on the bill.

Figure 5. Interconnection Queue List

Queue Position	Case Number	Billing / Tariff Status	Application Received	Municipality	Capacity AC Total (kW)
1	2019-GD-00617	In Progress	3/25/2019	SAN JUAN	7.6
2	2019-GD-01561	In Progress	7/12/2019	GUAYANILLA	8.56
3	2019-GD-01681	In Progress	7/31/2019	CAYEY	3.84
4	2019-GD-02430	In Progress	10/15/2019	CANOVANAS	4.5
5	2019-GD-03149	In Progress	12/7/2019	CAYEY	5
6	2020-GD-00624	In Progress	2/13/2020	LAJAS	3.24
7	2020-GD-00687	In Progress	2/17/2020	COROZAL	3.24
8	2020-GD-01115	In Progress	3/12/2020	CIDRA	4
9	2020-GD-01218	In Progress	3/18/2020	CAROLINA	3.25
10	2020-GD-01233	In Progress	3/18/2020	GURABO	3.5
11	2020-GD-01257	In Progress	3/19/2020	GURABO	3.5
12	2020-GD-01272	In Progress	3/20/2020	GURABO	3.5
13	2020-GD-01285	In Progress	3/22/2020	CAROLINA	6.8
14	2020-GD-01312	In Progress	3/23/2020	JUNCOS	5.6
15	2020-GD-01367	In Progress	3/25/2020	CIDRA	4.54
16	2020-GD-01392	In Progress	3/27/2020	TOA ALTA	3.5
17	2020-GD-01406	In Progress	3/30/2020	CIDRA	4.5
18	2020-GD-01403	In Progress	3/30/2020	TOA ALTA	3.75
19	2020-GD-01419	In Progress	3/31/2020	CAROLINA	5.31
20	2020-GD-01448	In Progress	4/2/2020	GURABO	5.9
21	2020-GD-01467	In Progress	4/3/2020	GUAYNABO	7.96
22	2020-GD-01468	In Progress	4/3/2020	GURABO	3
23	2020-GD-01463	In Progress	4/3/2020	SAN LORENZO	3.24
24	2020-GD-01488	In Progress	4/6/2020	GURABO	5.75
25	2020-GD-01540	In Progress	4/8/2020	GURABO	4.72
26	2020-GD-01573	In Progress	4/9/2020	TRUJILLO ALTO	6.19
27	2020-GD-01577	In Progress	4/10/2020	SAN JUAN	15.36
28	2020-GD-01615	In Progress	4/14/2020	ARECIBO	3
29	2020-GD-01756	In Progress	4/25/2020	MANATI	4.72
30	2020-GD-01834	In Progress	5/1/2020	COROZAL	3.25
31	2020-GD-01890	In Progress	5/6/2020	MANATI	6.8
32	2020-GD-02039	In Progress	5/14/2020	CAROLINA	3.25
33	2020-GD-02054	In Progress	5/15/2020	CAROLINA	6
34	2020-GD-02247	In Progress	5/28/2020	CAROLINA	7.6
35	2020-GD-02417	In Progress	6/6/2020	CAROLINA	3
36	2020-GD-02415	In Progress	6/6/2020	GURABO	3.75

The file provides information to customers based on three simplified status definitions, as outlined below:

a. Recently Complete – NEM service has been activated and will show up on next billing cycle.

b. In Progress – Team is working to activate the NEM service, which should be active in the next 1-2 months.

c. Pending Validation – Case has been recently received, is currently being validated, and will be active in the next 2-3 months.

It is common practice among North American utilities to publish a simple spreadsheet-based Interconnection Queue for client/developer communications. In fact, the proposed Generation and Microgrid Regulation would also require this Queue in the future. After conversation with key stakeholders, LUMA determined it would be beneficial to customers and developers to provide this now. Many customers contact their developer and/or the LUMA call center to request information about the status of their applications. This tool provides developers and call center staff with up to date project status information to provide customers. LUMA has been updating and disseminating this spreadsheet every two to four weeks and is working to make it available on the website.

5. Web Portal Improvements

Status: In progress
Timeline: September 2021 – November 2021

The web portal is the designated tool for customers to submit their DG projects for NEM activation. The portal requires numerous functional upgrades to better serve the customers and improve its efficiency. For instance, the portal was designed for a decentralized, regional organizational structure and limits staff in one region from assisting with cases in another region.

An evaluation of the Portal was made and based on the feedback from both internal and external users, a number of near-term improvements are planned during the timeline outlined above:

Correct region-specific errors – There are regional differences in the way cases are processed within the portal. We have observed region-specific errors in the portal can prevent cases from being properly completed. We will be correcting these portal errors.

Improved reporting capabilities through direct access to databases – The current portal reporting functionalities are very limited. For instance, the portal doesn't allow tracking/reporting of duration at each step of the application process (e.g., customer's duration vs LUMA's duration). We are creating a development environment to access the complete database and application data to obtain more detailed information on each case.

Close-case functionality – The portal does not currently allow for closing duplicate cases, abandoned cases or cases that have been filed by mistake. There are many hundreds of cases that have been abandoned by the customer or duplicated in a different work stream. We currently have no easy way to remove these cases from the portal, which skew performance metrics and make it difficult to get an accurate number of pending cases.

Automation of application attachments – Some of the required application attachments can be streamlined and made into fillable web-forms that prevent users from submitting incomplete or erroneous information. The automation of documents will ensure error-free application submittal that will significantly reduce the amount of time spent in Validation of cases.

Rebranding with LUMA logos – LUMA has completed the initial rebranding of the web portal, which awaits testing to ensure it does not cause any disruption to portal access or functionality.

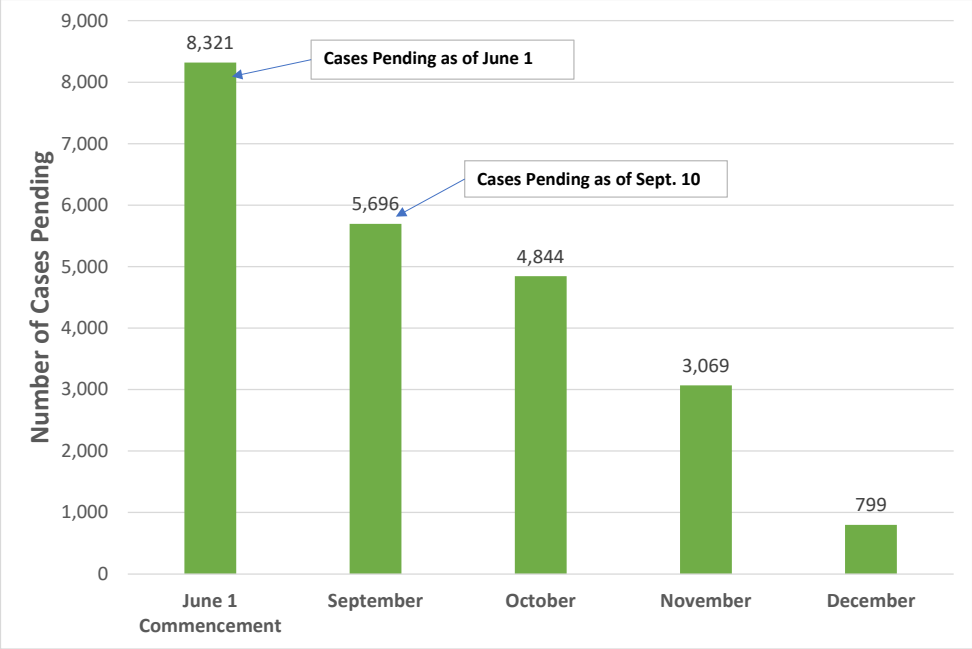
The changes above are mostly minor improvements to the “back-end” functionality of the portal and will make case management processes easier to administer. These improvements will address both short and mid-term needs. LUMA’s initial review of the proposed Generation and Microgrid Regulation indicates that a new portal architecture (aka “back-end”) will be needed in the long-term to incorporate the new functionality and processes required in the regulation. For this reason, LUMA is focused on scoping out the required functionality of a new portal architecture, rather than improving the current out-moded system. It is likely that the front-end user interface will remain similar to the current portal, even with a new back-end.

4.0 Backlog Reduction Forecast

Based on the activities implemented to centralize key processes and accelerate NEM service activation, LUMA has observed very positive results in terms of the volume of cases being processed. The accelerated NEM service activation strategy began with a first batch of 4,000 cases sent to Billing during the month of July to be expedited. Of those cases, approximately 3,000 were activated during the first month. We have prioritized cases based in the order they were originally submitted (oldest cases first), which was not done uniformly at PREPA. We have also developed and coordinated new internal procedures to periodically send Validated cases to Billing NEM service activation.

As of September 10, 2021, LUMA has been working under this strategy for roughly 10 weeks. During this time, we have kept track of the progress made and developed a general forecast of the time it will take to manage the backlog. Figure 6 below illustrates the current forecast for reducing the backlog. It is expected that the backlog will be resolved by December, 2021, at which point we will reach a steady state where the organization can process incoming applications at a sufficient rate to prevent further accumulation of the backlog.

Figure 6. Forecast by Month for Processing Pending Cases



The basis for this forecast is detailed further in Table 2 below. As of September 10, the application queue includes 5,696 pending cases (column A). Over the past 7 months of the 2021 calendar year, an average of 1,150 new applications were submitted per month (column B). The Business Transformation and Billing teams have been Validating and activating NEM service at a rate of roughly 2,000-3,000 applications per month (column C). This rate is projected to increase in October and November as LUMA adds more personnel, per the staffing plan. The final column shows the remaining cases at the end of each month, showing that at this rate all pending cases will be processed by December. Beyond December, with the backlog resolved, LUMA's steady-state cases will be handled with the described enhanced process.

Table 2. Backlog Forecast Calculations

Month	Cases Pending (A)	New Cases Received (B)	Cases Activated (C)	Cases Remaining (A +B-C)
September	5,696	1,150	2,003	4,844
October	4,844	1,150	2,925	3,069
November	3,069	1,150	3,420	799
December	799	1,150	1,949	0

5.0 Risks

The following section outlines potential risks that may affect the Action Plan outlined above.

1. **Technical Risks**. By accelerating the NEM status of cases, LUMA can expedite the activation of NEM service faster for customers. However, the automatic interconnection and approval of projects prior to engineering analysis could lead to technical issues related to high penetration of DG on the distribution system, such as high voltage, back feed through voltage regulators, substation transformer, desensitized the protection scheme thus increase reliability concerns. The strategy currently implemented has been discussed with operational and planning staff and the determination has been made that the plan presents a manageable level of risk. At this moment, only 10%-15% of distribution feeders will likely need supplementary studies to evaluate the potential for upgrades to assure system stability. As DG penetration increases, the number of feeders reaching levels of DG that present greater system stability risk will inevitably increase, leading to more of cases requiring supplementary study. To mitigate this issue, LUMA is concurrently working to streamline the Study and Supplementary Study processes, along with developing the Hosting Capacity Studies, in the process of publishing interconnection capacity maps to improve visibility into these areas.

2. **Communications**. The portal is not programmed to notify customers or developers that NEM Service has been activated through the new expedited Process. This may create confusion among customers and developers. As a temporary measure, a spreadsheet queue list has been developed to notify customers and developers of the status for each application processed. It has also been provided to our call center to enable them to answer customer inquiries. The list will be updated every 2-4 weeks.

3. **Meter inventory.** Part of activating NEM service involves verification of the customer meter. If the meter is not NEM capable, it has to be changed to a bi-directional meter capable of recording energy export. The acceleration of NEM cases will deplete the current meter inventory, which is also used for other types of clients and new interconnections. LUMA placed a large order of additional bi-directional meters shortly after commencement and is expecting the first shipment in September, though this shipment may not be completely fulfilled until early 2022 due to manufacturing shortages.

4. **Changes in Regulation**. On July 15, 2021, the Energy Bureau issued a preliminary draft for a proposed update to the DG regulation (8915/16). LUMA has been actively participating, providing comments and feedback on the proposed regulation. LUMA's initial review of the proposed Generation and Microgrid Regulation indicates that significant changes to organizational processes will be needed, along with a new portal to incorporate the new functionality required in the regulation. Until the final regulation is passed, there is uncertainty around the changes that will be required to the Program, its applications and systems. LUMA is trying to avoid any changes to the current program and systems that might require re-work in the new regulatory structure.

6.0 Conclusion

LUMA has developed and begun implementing concrete strategies to resolve the backlog of NEM applications as quickly as possible. Through analysis of the interconnection workflow, opportunities were identified to simplify the process and achieve the goals of providing NEM activation to the maximum number of customers in the least amount of time. We have created an accelerated process for activating NEM service on customer bills once applications have been validated. Preliminary results have shown an increase of 38% of cases activated on a quarterly basis. At the current rate of processing, we are forecasting to resolve the backlog in December 2021. Over the long-term will continue to work towards further streamlining application processes, systems and tools to meet regulatory requirements and improve customer satisfaction.

Exhibit 2

List of Documents Required for Basic and Technical Validation

Lista de documentos requeridos para validación básica y técnica

NEPR-MI-2019-00016

13 de septiembre de 2021

Validación Básica (Sólo se válida el recibo del documento en portal)	Validación Técnica (Se válida que el documento cumpla con todos los requerimientos)	Opciones para Validación de Documentación Electrónica
Confirmación de Orientación al Cliente sobre el Proceso de Interconexión de GD.	Nombre del Cliente Número de Cuenta Nombre del Representante de la Compañía/Desarrollador Marca en el reglamento correspondiente Nombre del Proyecto Capacidad del Sistema (DC y AC) Dirección Física del Proyecto Firma del Cliente Dirección del Cliente Fecha	Electrónica en el portal, no requiere cambios.
Certificación de la OGPe de cada equipo instalado (no la del sistema).	Certificación de Placas Solares Certificación de Inversores Certificación de Baterías	Es configurable utilizando API con OGPe.
Información (manual del manufacturero o data sheet) de las baterías e información del equipo asociado, según aplique.	Manual o Datasheet de la Batería Manual o Datasheet de MID (gateway, smart switch, etc.)	Manuales. La opción es evaluar el requisito.
Diagrama ilustrativo del GD con plano de situación y localización certificado por un ingeniero electricista.	Diagrama monolineal Plano de Situación ("Site Plan") Plano de Localización ("Location Plan") con coordenadas Lambert Firma de Ingeniero Capacidad del Sistema (DC y AC) Cantidad de Placas Cantidad de Inversores Cantidad de Baterías Especificación de "Supply Side" o "Load Side" Especificación de "Rapid Shutdown" Relación diagrama con proyecto (ejemplo: número de proyecto)	Diagramas, requiere evaluación de opciones.
Estampillas (EDE) del CIAPR para cada documento certificado por un ingeniero.	Estampilla del Diagrama Ilustrativo Estampilla de Certificación de Instalación Eléctrica Estampilla de Certificación de Pruebas Otras estampillas	Estampillas son validable con API con el CIAPR
Certificación de Instalación Eléctrica	Información del Proyecto (Dueño, dirección física, teléfono) Número de Cuenta y ID Localidad Tipo de Cliente (ej. Residencial, Comercial, Gobierno, etc.) Base de Medidor / Cantidad del Medidores Número de Medidor Existente "Supply Side" (Si ó No) Información del Diseñador (Nombre, Núm. de Licencia, Fecha de expiración de licencia) Información del Ingeniero o Perito que certifica Tipo de Tecnología y Ubicación dentro de localidad (si no es techo existente, necesita permiso de OGPe) Datos del Generador (Fabricante, modelo, cantidad, capacidad individual y capacidad total) Datos de los Inversores (Conexión, fabricante, modelo, cantidad, capacidad, voltaje, corriente, aprobado, cap. Total) Datos del Sistema de Almacenamiento (Instalado, fabricante, modelo, tecnología, capacidad, tipo, AC/DC coupling)	Evaluar la posibilidad del API para validaciones con el Colegio de Peritos. Desarrollo adicional es requerido.

Validación Básica (Sólo se válida el recibo del documento en portal)	Validación Técnica (Se válida que el documento cumpla con todos los requerimientos)	Opciones para Validación de Documentación Electrónica
	Infraestructura Eléctrica existente (RED invade servidumbre AEE, otros) Firma e información del Ingeniero o Perito Electricista certificado como instalador de sistemas renovables Vigencia de 1 año desde la fecha de firma del ingeniero o perito electricista que certifica. Voltajes concuerdan con el tipo de conexión (120/240V. 240V - monofásico; 208V, 480V trifásico)	
Certificación de Pruebas del GD y Evidencia de cumplimiento con los ajustes reglamentarios).	Modo de Operación: ¿Interconectado (Grid-Tied) o desconectado totalmente? Modo de Operación: ¿Si es hibrido, Exportar o Autoconsumo? Modo de Operación: ¿Si es hibrido, baterías operan continuamente o sólo resguardo? Verificación Instalación GD (todos deben ser SI excepto los que digan "si aplica" o "según aplique") Pruebas al GD (todos deben ser SI excepto los que digan "si aplica" o "según aplique") Verificación de ajustes del inversor: ¿Ajustes en la pantalla cumple? ¿Tablas de Reglamento o Tablas Alternas? Verificar las impresiones de pantalla del inversor o sistema de control	Automatizable integrando API para validar el número de licencia de ingenieros y firma electrónica.
Certificación de Instalación Eléctrica para la base del metro (en los casos con instalación supply side).	Si aplica, verificar certificación de instalación eléctrica (consultar con Raul)	Implementar banco de firma electrónica de ingenieros y peritos, en adición al API con ambos colegios
Certificación del instalador de la Oficina Estatal de Política Pública Energética o su sucesora, el Programa de Política Pública Energética del Departamento de Desarrollo Económico y Comercio.	Certificación de la OEPPE (o PPPE) vigente al momento de la instalación	Crear registro de contratistas certificados, posiblemente sea necesario crear un registro en la OEPPE/PPPE
Evidencia de colegiación y licencia de todos los ingenieros o peritos electricistas que trabajen en el proyecto.	Certificación de Colegiación Licencia de Ingeniero	Implementar banco de firma electrónica de ingenieros y peritos, en adición al API con ambos colegios
Acuerdo de Interconexión firmado por el cliente.	Acuerdo de Interconexión firmado por el cliente.	Existente.
Acuerdo de Exoneración de Seguro firmado por el cliente.	Acuerdo de Exoneración firmado por el cliente.	Existente.
Si el GD se instala en una propiedad alquilada, se debe incluir una Declaración Jurada del dueño de la propiedad.	Si aplica, verificar Declaración Jurada del dueño de la propiedad.	Estos son casos excepcionales. Evaluar opciones.
Incluir una Certificación de Inspección de Obras si requiere permiso de la OGPe por ser una instalación sobre estructuras nuevas (no sobre el techo).	Si aplica, verificar Certificación de Inspección de Obras y Permiso de OGPe.	Estos son casos excepcionales. Evaluar opciones. Verificar si puede ser manejado con un API con OGPe.

Exhibit 3

List of Feeders that need Supplemental Studies

LISTA DE ALIMENTADORES QUE REQUIEREN ESTUDIOS SUPLEMENTARIOS

#	Región	Pueblo	Alimentador	Voltaje (kV)
1	ARECIBO	ADJUNTAS	8203-02	4.16
2	ARECIBO	ARECIBO	8004-04	13.2
3	ARECIBO	ARECIBO	8007-01	13.2
4	ARECIBO	ARECIBO	8010-03	13.2
5	ARECIBO	ARECIBO	8014-06	13.2
6	ARECIBO	ARECIBO	8014-08	13.2
7	ARECIBO	ARECIBO	8015-09	13.2
8	ARECIBO	ARECIBO	8007-04	7.2
9	ARECIBO	ARECIBO	8404-04	4.16
10	ARECIBO	BARCELONETA	8004-02	4.16
11	ARECIBO	BARCELONETA	8501-01	4.16
12	ARECIBO	BARCELONETA	8501-03	4.16
13	ARECIBO	BARCELONETA	8602-02	4.16
14	ARECIBO	CAMUY	7601-01	4.16
15	ARECIBO	CAMUY	7601-03	4.16
16	ARECIBO	CAMUY	7601-04	4.16
17	ARECIBO	FLORIDA	8501-02	4.16
18	ARECIBO	FLORIDA	8602-03	4.16
19	ARECIBO	HATILLO	7701-02	4.16
20	ARECIBO	HATILLO	7702-03	4.16
21	ARECIBO	ISABELA	7503-01	4.16
22	ARECIBO	ISABELA	7503-05	4.16
23	ARECIBO	ISABELA	7505-05	13.2
24	ARECIBO	ISABELA	7502-03	4.16
25	ARECIBO	MANATI	8405-01	13.2
26	ARECIBO	MANATI	8404-01	13.2
27	ARECIBO	MOROVIS	8801-01	8.32
28	ARECIBO	QUEBRADILLAS	7402-01	4.16
29	ARECIBO	QUEBRADILLAS	7402-03	4.16
30	ARECIBO	UTUADO	8103-01	4.16
31	ARECIBO	UTUADO	8801-03	8.32
32	BAYAMON	BAYAMON	1704-01	4.16
33	BAYAMON	BAYAMON	1704-05	
34	BAYAMON	BAYAMON	1710-05	13.2
35	BAYAMON	BAYAMON	1711-04	13.2
36	BAYAMON	BAYAMON	1718-02	13.2
37	BAYAMON	BAYAMON	1801-01	13.2
38	BAYAMON	BAYAMON	1801-02	13.2
39	BAYAMON	BAYAMON	1806-03	13.2
40	BAYAMON	BAYAMON	9105-08	13.2
41	BAYAMON	BAYAMON	1706-03	4.16
42	BAYAMON	BAYAMON	9101-01	8.32
43	BAYAMON	DORADO	9201-04	8.32
44	BAYAMON	DORADO	9206-11	13.2
45	BAYAMON	DORADO	9207-05	13.2
46	BAYAMON	DORADO	9206-10	13.2
47	BAYAMON	TOA ALTA	1719-18	13.2
48	BAYAMON	TOA ALTA	9207-08	13.2
49	BAYAMON	TOA BAJA	9203-02	8.32
50	BAYAMON	TOA BAJA	9203-03	8.32

LISTA DE ALIMENTADORES QUE REQUIEREN ESTUDIOS SUPLEMENTARIOS

#	Región	Pueblo	Alimentador	Voltaje (kV)
51	BAYAMON	TOA BAJA	1703-02	4.16
52	BAYAMON	VEGA BAJA	9002-02	8.32
53	BAYAMON	VEGA BAJA	9004-08	13.2
54	CAGUAS	AGUAS BUENAS	3014-04	
55	CAGUAS	CAGUAS	1908-05	13.2
56	CAGUAS	CAGUAS	3006-04	13.2
57	CAGUAS	CAGUAS	3006-05	13.2
58	CAGUAS	CAGUAS	3014-02	4.16
59	CAGUAS	CAGUAS	3015-07	13.2
60	CAGUAS	CAGUAS	3103-05	13.2
61	CAGUAS	CAGUAS	3008-03	8.32
62	CAGUAS	CAGUAS	3010-02	8.32
63	CAGUAS	CAGUAS	3006-02	13.2
64	CAGUAS	CAGUAS	3103-04	13.2
65	CAGUAS	CAGUAS	3008-01	8.32
66	CAGUAS	CAGUAS	3103-03	13.2
67	CAGUAS	CAGUAS	3302-04	8.32
68	CAGUAS	CAYEY	3406-01	8.32
69	CAGUAS	CAYEY	3406-03	8.32
70	CAGUAS	CIDRA	3601-01	4.8
71	CAGUAS	CIDRA	3601-02	8.32
72	CAGUAS	COROZAL	9902-03	8.32
73	CAGUAS	HUMACAO	2603-09	13.2
74	CAGUAS	HUMACAO	2603-10	
75	CAGUAS	HUMACAO	2604-03	13.2
76	CAGUAS	HUMACAO	3205-09	13.2
77	CAGUAS	HUMACAO	2604-02	13.2
78	CAGUAS	JUNCOS	3201-04	4.16
79	CAGUAS	JUNCOS	3205-10	13.2
80	CAGUAS	LAS PIEDRAS	2803-01	8.32
81	CAGUAS	NAGUABO	2701-01	8.32
82	CAGUAS	NAGUABO	2702-01	8.32
83	CAGUAS	YABUCOA	2901-03	8.32
84	CAROLINA	CANOVANAS	2402-02	13.2
85	CAROLINA	CAROLINA	2402-03	13.2
86	CAROLINA	CAROLINA	1646-01	13.2
87	CAROLINA	CAROLINA	1619-03	13.2
88	CAROLINA	CAROLINA	1602-05	4.16
89	CAROLINA	CULEBRAS	3801-02	4.16
90	CAROLINA	FAJARDO	2005-10	13.2
91	CAROLINA	FAJARDO	2002-03	8.32
92	CAROLINA	LUQUILLO	2201-01	4.8
93	CAROLINA	LUQUILLO	2305-02	13.2
94	CAROLINA	VIEQUES	2501-01	4.16
95	MAYAGUEZ	ADJUNTAS	7902-03	4.16
96	MAYAGUEZ	AGUADA	7201-02	4.16
97	MAYAGUEZ	AGUADA	7104-06	4.16
98	MAYAGUEZ	AGUADA	7003-02	4.16
99	MAYAGUEZ	AGUADA	7301-01	4.16
100	MAYAGUEZ	AGUADILLA	7005-02	4.16

LISTA DE ALIMENTADORES QUE REQUIEREN ESTUDIOS SUPLEMENTARIOS

#	Región	Pueblo	Alimentador	Voltaje (kV)
101	MAYAGUEZ	AGUADILLA	7005-03	4.16
102	MAYAGUEZ	AGUADILLA	7005-04	4.16
103	MAYAGUEZ	AGUADILLA	7003-05	4.16
104	MAYAGUEZ	AnASCO	6101-05	4.16
105	MAYAGUEZ	CABO ROJO	6702-04	7.2
106	MAYAGUEZ	LAJAS	6601-02	7.2
107	MAYAGUEZ	LAJAS	6603-03	13.2
108	MAYAGUEZ	MARICAO	6305-03	4.16
109	MAYAGUEZ	MAYAGUEZ	6005-02	4.16
110	MAYAGUEZ	MAYAGUEZ	6014-02	13.2
111	MAYAGUEZ	MAYAGUEZ	6012-01	13.2
112	MAYAGUEZ	MAYAGUEZ	6004-05	4.16
113	MAYAGUEZ	MAYAGUEZ	6001-05	4.16
114	MAYAGUEZ	MAYAGUEZ	6501-04	4.16
115	MAYAGUEZ	MAYAGUEZ	6004-03	4.16
116	MAYAGUEZ	MOCA	7103-04	4.16
117	MAYAGUEZ	MOCA	7104-05	4.16
118	MAYAGUEZ	RINCON	7301-05	4.16
119	MAYAGUEZ	SABANA GRANDE	7801-03	4.16
120	MAYAGUEZ	SAN SEBASTIAN	7805-13	13.2
121	PONCE	ARROYO	4006-02	13.2
122	PONCE	COAMO	4603-01	13.2
123	PONCE	COAMO	4504-01	4.16
124	PONCE	GUANICA	5602-02	13.2
125	PONCE	GUAYAMA	4006-04	13.2
126	PONCE	GUAYAMA	4002-02	4.16
127	PONCE	GUAYAMA	4504-02	4.16
128	PONCE	GUAYAMA	4601-01	4.16
129	PONCE	GUAYANILLA	5501-01	4.16
130	PONCE	JUANA DIAZ	5013-02	4.16
131	PONCE	JUANA DIAZ	5801-03	4.16
132	PONCE	JUANA DIAZ	5808-01	13.2
133	PONCE	JUANA DIAZ	5817-02	4.16
134	PONCE	JUANA DIAZ	5801-02	4.16
135	PONCE	MAUNABO	4301-02	4.16
136	PONCE	PATILLAS	4201-01	4.16
137	PONCE	PEÑUELA	5305-03	13.2
138	PONCE	PEÑUELA	5402-01	4.16
139	PONCE	PONCE	5001-02	4.16
140	PONCE	PONCE	5004-07	13.2
141	PONCE	PONCE	5011-05	4.16
142	PONCE	PONCE	5012-01	4.16
143	PONCE	PONCE	5018-04	13.2
144	PONCE	PONCE	5007-04	4.16
145	PONCE	PONCE	5012-04	4.16
146	PONCE	PONCE	5003-03	4.16
147	PONCE	PONCE	5016-01	13.2
148	PONCE	PONCE	5016-02	13.2
149	PONCE	PONCE	5007-01	4.16
150	PONCE	PONCE	5012-03	4.16

LISTA DE ALIMENTADORES QUE REQUIEREN ESTUDIOS SUPLEMENTARIOS

#	Región	Pueblo	Alimentador	Voltaje (kV)
151	PONCE	PONCE	5002-01	4.16
152	PONCE	PONCE	4501-04	4.16
153	PONCE	SALINAS	4501-01	4.16
154	PONCE	SALINAS	4502-02	4.16
155	PONCE	SALINAS	4503-01	4.16
156	PONCE	SALINAS	4502-01	4.16
157	PONCE	SALINAS	4601-02	4.16
158	PONCE	SANTA ISABEL	4401-04	4.16
159	PONCE	VILLALBA	5901-01	4.16
160	PONCE	YAUCO	5302-04	4.16
161	SAN JUAN	GUAYNABO	1346-02	13.2
162	SAN JUAN	GUAYNABO	1521-01	13.2
163	SAN JUAN	GUAYNABO	1529-15	13.2
164	SAN JUAN	GUAYNABO	1530-08	4.16
165	SAN JUAN	GUAYNABO	1709-02	13.2
166	SAN JUAN	GUAYNABO	1709-03	13.2
167	SAN JUAN	GUAYNABO	1909-04	13.2
168	SAN JUAN	GUAYNABO	1909-08	13.2
169	SAN JUAN	GUAYNABO	1909-09	13.2
170	SAN JUAN	GUAYNABO	1911-06	13.2
171	SAN JUAN	GUAYNABO	1343-05	4.16
172	SAN JUAN	GUAYNABO	1526-05	4.16
173	SAN JUAN	GUAYNABO	1903-03	4.16
174	SAN JUAN	GUAYNABO	1903-01	4.16
175	SAN JUAN	GUAYNABO	1903-02	4.16
176	SAN JUAN	GUAYNABO	1901-05	4.16
177	SAN JUAN	GUAYNABO	1345-05	4.16
178	SAN JUAN	GUAYNABO	1345-04	4.16
179	SAN JUAN	SAN JUAN	1114-01	13.2
180	SAN JUAN	SAN JUAN	1519-02	4.16
181	SAN JUAN	SAN JUAN	1519-05	4.16
182	SAN JUAN	SAN JUAN	1106-05	4.16
183	SAN JUAN	SAN JUAN	1327-10	4.16
184	SAN JUAN	SAN JUAN	1342-01	4.16
185	SAN JUAN	SAN JUAN	1345-03	4.16
186	SAN JUAN	SAN JUAN	1328-01	4.16
187	SAN JUAN	SAN JUAN	1404-07	13.2
188	SAN JUAN	SANTURCE	1115-02	13.2
189	SAN JUAN	TRUJILLO ALTO	1206-02	13.2

Exhibit 4

Presentation for September 20th Compliance Hearing

Action Plan to Improve Net Metering Process

NEPR-MI-2019-0016
September 13, 2021

Agenda

1. Introduction
2. Background on Backlog
3. Plan for Resolving Backlog
4. Forecast
5. Risks

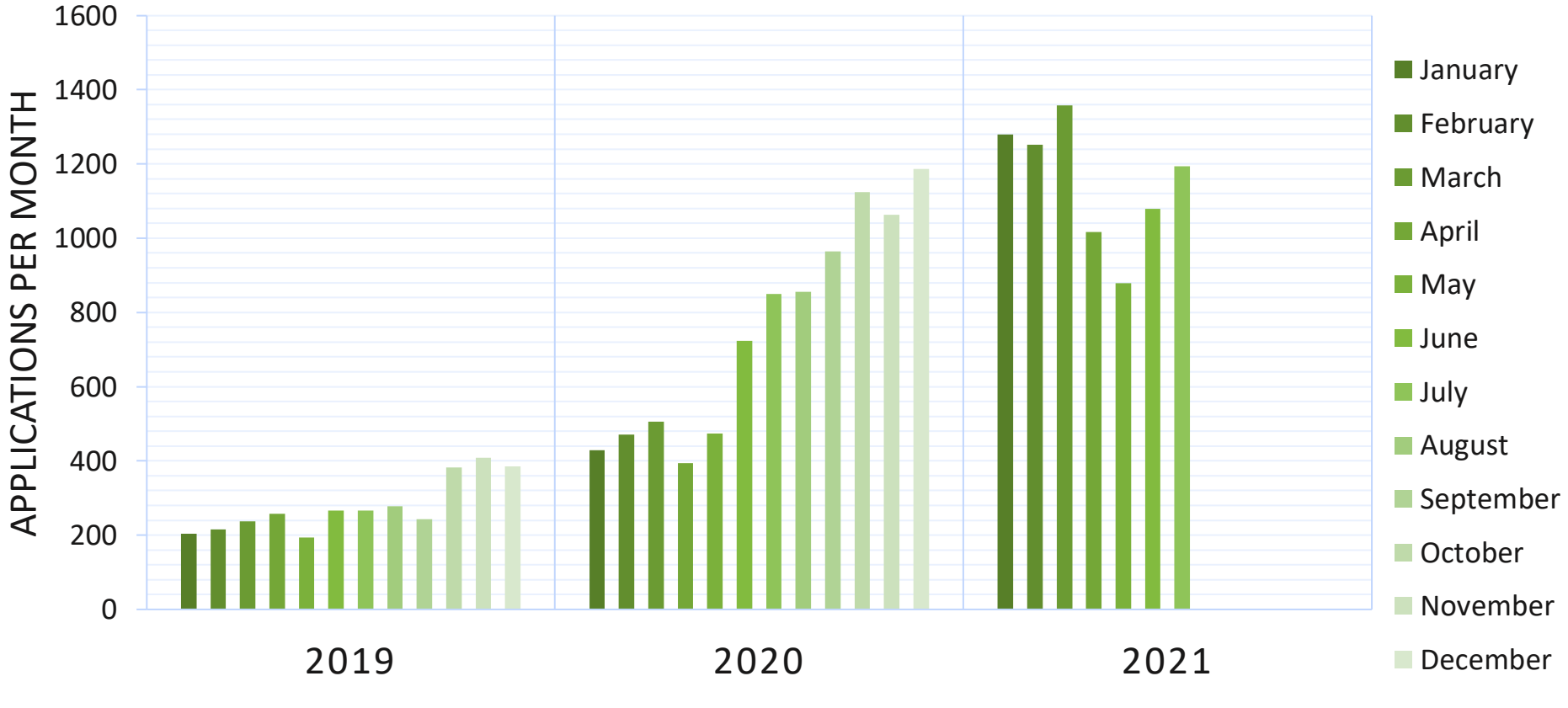
Introduction

The following are the main components of LUMA's Action Plan for resolving the NEM application backlog, which will be discussed in this presentation:

- **Background on Backlog** – Provides a description of the key processes and organizational factors that gave rise to the application backlog.
- **Plan for Resolving Backlog** – Provides description of initiatives that have been identified to resolve the backlog within a reasonable timeframe.
- **Forecast** - Provides a forecast and timeline for the reduction of the backlog based on the progress of activities already underway.
- **Risks** – Outlines the major risks that could impact LUMA's progress in completing this Action Plan.

Background on Backlog

Reduction in solar prices, increase in consumer demand and regulatory changes led to an increase in applications for Net Energy Metering (NEM) in 2020, compared to previous years.



Background on Backlog (cont.)

- The backlog was created by small-scale projects (<25 kW), commonly referred to as “expedited” projects, which were authorized by Act 17-2019 to be installed and automatically approved to participate in the NEM Program within 30 days.
- While these applications are automatically approved, there are still several activities that must be completed to enable activation of NEM service on the customer’s bill.
- PREPA did not create a separate process to enable these activities to be completed faster for the expedited cases.
- Once application volume became higher, PREPA staff were unable to complete all steps within the required timeline, resulting in a backlog.

Description of Activities that Caused Backlog

PREPA's Legacy NEM Application Process

- Below is the standard process for the NEM program applications.
- The Validation and Engineering Studies are most time-consuming steps.
- Each step was conducted independently in regional offices, without central coordination or standardization.

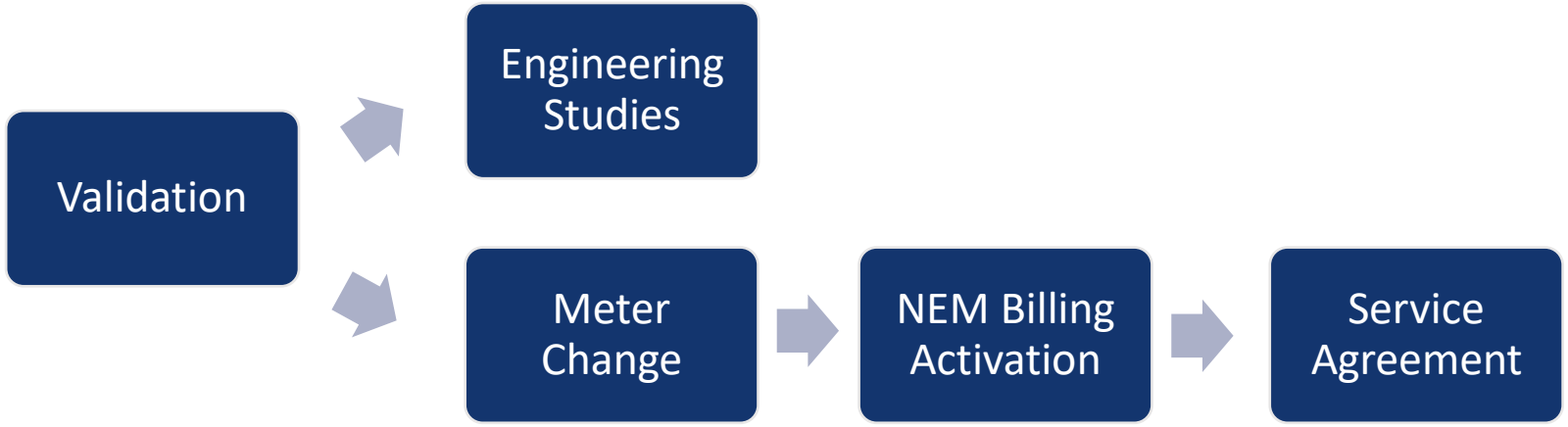
PREPA's Standard NEM Application Process

Description of Activities that Caused Backlog (cont.)

Activities Required for NEM Service Activation

- Act 17 requires NEM Billing Activation to be completed in 30 days regardless of need for engineering studies or system improvements.
- To comply with Act 17 requirements, the meter change and billing processes should have been modified to be conducted in parallel with the engineering studies, as shown in the figure below.
- However, the decentralized, regional structure of PREPA's organization and systems prevented the flexibility and coordination needed to quickly change processes to meet increasing demand and changing regulatory requirements.

Application Process Required for Expedited Cases



Description of Activities that Caused Backlog (cont.)

Review of required attachments

- Customers must submit 15 attachments with each application, which must be reviewed during the Validation and Engineering Study stages.
- The attachment forms do not have error checking or electronic signature capabilities, which could help prevent errors, ensure completeness, and allow some of the validation process to be streamlined and/or automated.
- LUMA has found that roughly 30% of applications are returned during this Validation step because of mistakes and/or omissions on the application or attachments.

Strategy for Resolving Backlog

LUMA's Strategy for resolving the backlog involves two primary components:

- Develop a new process for the "expedited" projects, and
- Devote extra resources to activating NEM service using the expedite process as quickly as possible until the backlog reaches a steady state where the organization can process incoming applications at a sufficient rate to prevent further accumulation of the backlog.

Activities Planned to Resolve Backlog

To achieve our Strategy, LUMA will conduct the following activities:

#	Activity	Objective
1	**Centralize key NEM organizational functions**	Improve flexibility and coordination to enable quicker response to changes in application volume, regulations and customer needs.
2	**Ensure Adequate Staffing**	Increasing application processing staff capacity to resolve the backlog and maintain expected steady-state volume of applications, to prevent a backlog from reoccurring.
3	**Accelerate NEM service activation**	Expediting key steps in the utility's process to get NEM service reflected on the customer bills as soon as possible.
4	**Provide Additional Communications**	Maintain effective communication with customers and developers on changes in application status resulting from accelerated service activation, in the form of an interconnection queue list.
5	**Web Portal Improvements**	Improvements to streamline and standardize the processes, applications and DG portal system to reduce the amount of time it takes to process each application.

Plan for Resolving Backlog - Timeline

The Gantt chart below presents the timeline for this Action Plan

Task	Description	Start Date	End Date	Lead	Status	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Centralize Organizational Functions	1-Jun	1-Aug	Business Transf.	Complete							
2	Staffing Plan	1-Jun	29-Oct	Business Transf.	In Progress							
3	Accelerate NEM Service Activation	12-Jul	17-Dec	Business Transf.	In Progress							
4	Provide Additional Communications	1-Aug	17-Dec	Business Transf.	In Progress							
5	Conduct Web Portal Improvements	1-Sep	30-Nov	IT	In Progress							

Plan for Resolving Backlog – Key activities

1 - Centralized Organizational Functions

Centralized Applications Processing	• Business Transformation group is managing and coordinating the interconnection program across all LUMA departments. • Business Transformation is also centralizing and standardizing the critical application intake and Validation processes and systems, which were previously conducted in regional offices.
Centralized Billing	Central coordination of meter change and NEM service activation.

Plan for Resolving Backlog – Key activities

2 - Staffing Plan

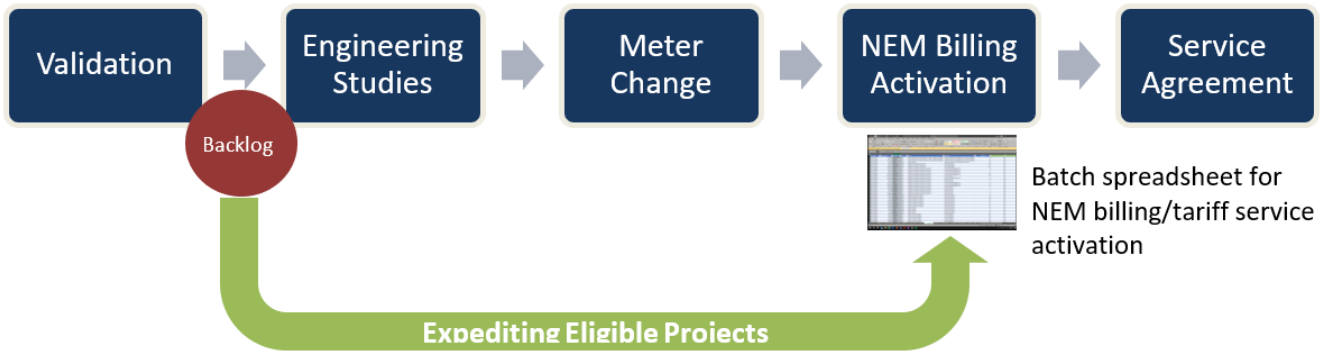
- Business Transformation (BT) is providing overall coordination of the program and conducting the critical Validation process for expedited cases.
- The group has been organized in two teams. Each one of these groups include several application processors that handle the Validation and Study processes for the cases assigned to them.
- At present 10 FTE between internal/external staff as dedicated to validation process. Expect to increase to 15 FTE in 4-8 weeks, which is the amount needed to resolve the backlog per the Forecast presented later
- The Billing team has a team of nearly 15 staff that have been working together to activate NEM service in our system. The Billing team has been capable of activating over 1,000 cases per week and will not require any further capacity increases to handle the backlog.

Plan for Resolving Backlog – Key activities

3 - Accelerate NEM Service Activation

- LUMA has developed a new process for expedited cases, to conduct NEM Service Activation independent of Eng. Studies, as required by Act 17.
- To resolve the large number of cases in backlog, we are using this new process to activate NEM service in large batches outside of the portal, rather than one at a time within the portal.
- Billing activities are now also centrally coordinated. The team can process 800-1,000 cases per week.

Modified Workflow for Expedited Cases



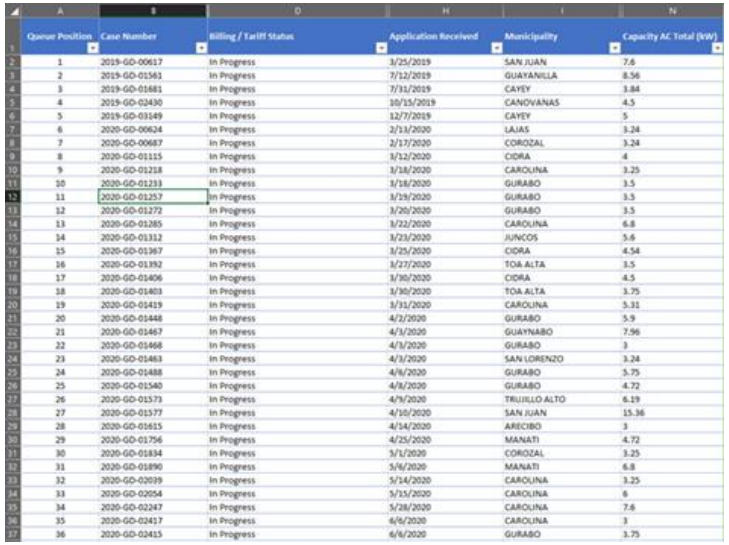
We will continue using this expedited process at least until backlog has been reduced to the point that the portal can be reconfigured to process incoming applications within 30 days (anticipated December).

Plan for Resolving Backlog – Key activities

4 - Provide Additional Communications

- The portal is not programmed to notify customers or developers that expedited NEM Service has been activated.
- As a temporary solution, we have created an Interconnection Queue list.
- The Queue provides simplified information to customers on their application status, using the following definitions:
  - Recently Complete – NEM service has been activated and will show up on next billing cycle.
  - In Progress – Team is working to activate the NEM service, which should be active in the next 1-2 months.
  - Pending Validation – Case has been recently received, is currently being validated, and will be active in the next 2-3 months.
- This file is being updated every two weeks and will soon be posted on the DG Portal website for customer/developer access.

Interconnection Queue



Queue Position	Case Number	Billing / Tariff Status	Application Received	Municipality	Capacity AC Total (kW)
1	2019-GD-00617	In Progress	3/25/2019	SAN JUAN	7.6
2	2019-GD-01561	In Progress	7/12/2019	GUAYANILLA	8.56
3	2019-GD-01681	In Progress	7/31/2019	CAYEY	3.84
4	2019-GD-02430	In Progress	10/15/2019	CANOVANAS	4.5
5	2019-GD-03149	In Progress	12/7/2019	CAYEY	5
6	2020-GD-00624	In Progress	2/13/2020	LAJAS	3.24
7	2020-GD-00687	In Progress	2/17/2020	COROZAL	3.24
8	2020-GD-01115	In Progress	3/12/2020	CIDRA	4
9	2020-GD-01218	In Progress	3/18/2020	CAROLINA	3.25
10	2020-GD-01233	In Progress	3/18/2020	GURABO	3.5
11	2020-GD-01257	In Progress	3/19/2020	GURABO	3.5
12	2020-GD-01272	In Progress	3/20/2020	GURABO	3.5
13	2020-GD-01285	In Progress	3/22/2020	CAROLINA	6.8
14	2020-GD-01312	In Progress	3/23/2020	JUNCOS	5.6
15	2020-GD-01367	In Progress	3/25/2020	CIDRA	4.54
16	2020-GD-01392	In Progress	3/27/2020	TOA ALTA	3.5
17	2020-GD-01406	In Progress	3/30/2020	CIDRA	4.5
18	2020-GD-01403	In Progress	3/30/2020	TOA ALTA	3.75
19	2020-GD-01419	In Progress	3/31/2020	CAROLINA	5.31
20	2020-GD-01448	In Progress	4/2/2020	GURABO	5.9
21	2020-GD-01467	In Progress	4/3/2020	GUAYNABO	7.96
22	2020-GD-01468	In Progress	4/3/2020	GURABO	3
23	2020-GD-01463	In Progress	4/3/2020	SAN LORENZO	3.24
24	2020-GD-01488	In Progress	4/6/2020	GURABO	5.75
25	2020-GD-01540	In Progress	4/8/2020	GURABO	4.72
26	2020-GD-01571	In Progress	4/9/2020	TRUJILLO ALTO	6.19
27	2020-GD-01577	In Progress	4/10/2020	SAN JUAN	15.36
28	2020-GD-01615	In Progress	4/14/2020	ARECIBO	3
29	2020-GD-01756	In Progress	4/25/2020	MANATI	4.72
30	2020-GD-01834	In Progress	5/1/2020	COROZAL	3.25
31	2020-GD-01890	In Progress	5/6/2020	MANATI	6.8
32	2020-GD-02039	In Progress	5/14/2020	CAROLINA	3.25
33	2020-GD-02054	In Progress	5/15/2020	CAROLINA	6
34	2020-GD-02247	In Progress	5/28/2020	CAROLINA	7.6
35	2020-GD-02417	In Progress	6/6/2020	CAROLINA	3
36	2020-GD-02415	In Progress	6/6/2020	GURABO	3.75

Plan for Resolving Backlog – Key activities

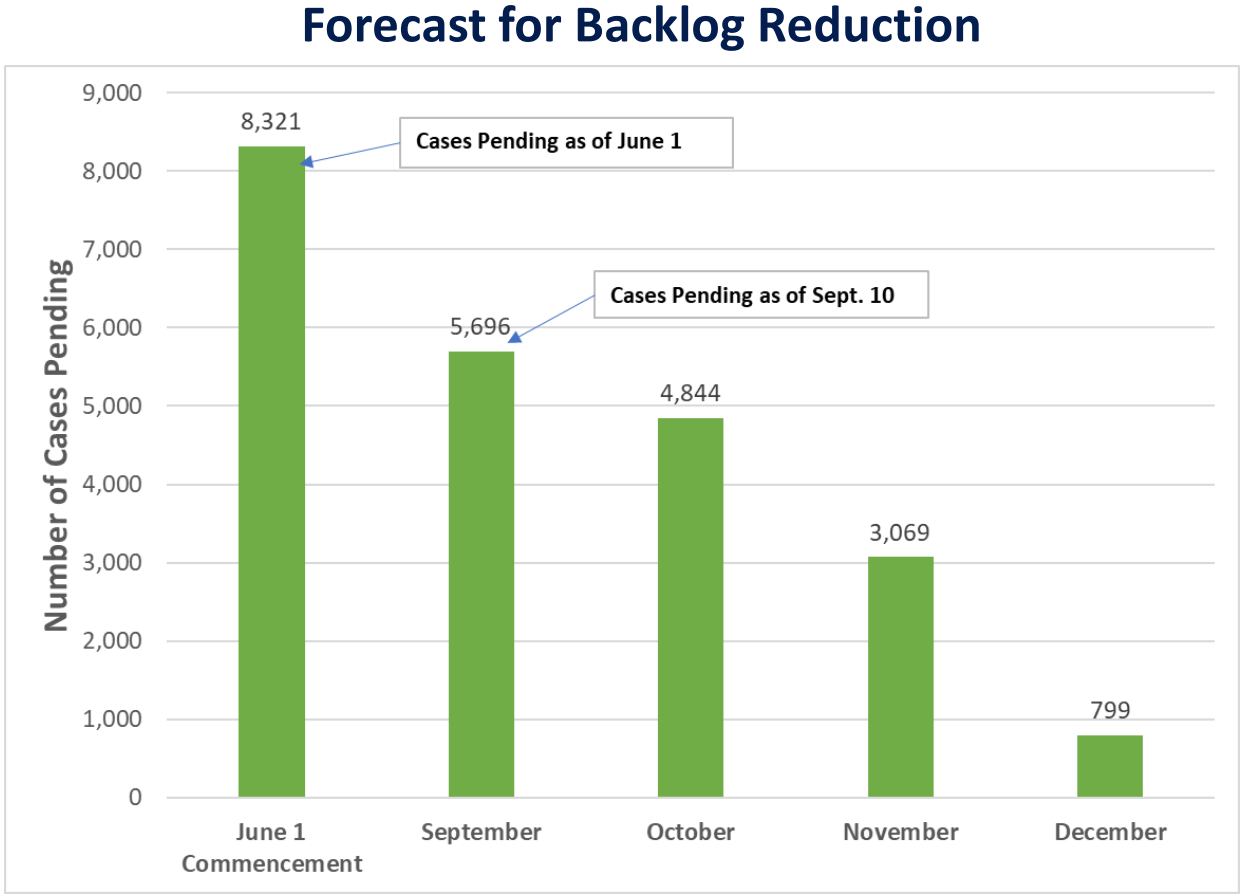
5 - Web portal improvements

- The portal requires some operational and reporting function upgrades to better serve the customers and improve its efficiency.
- Based on the feedback from both internal and external users, several near-term improvements are planned during the timeline outlined earlier:
    - Correct region-specific errors in the way cases are process in the portal
    - Improved reporting capabilities through direct access to databases
    - “Close-case” functionality for duplicate or abandoned cases
    - Automation of application attachments
    - Rebranding with LUMA logos

The changes above are mostly minor improvements to the “back-end” functionality of the portal, to make case management processes easier to administer.

Forecast

- LUMA has been working under this strategy for roughly 10 weeks.
- LUMA has observed very positive results in the volume of cases being processed with this approach.
- The Business Transformation and Billing teams have been Validating and activating NEM service at a rate of roughly 2,000-3,000 applications per month.
- **At this rate, the backlog is currently expected to be resolved by December 2021.**



Forecast Assumptions

- This table provides the basis for our current forecast
- As of September 10, there are 5,696 cases pending (column A).
- 1,150 new applications are submitted per month on average (column B).
- LUMA is activating NEM service for 2,000-3,000 applications per month (column C). The change in rate of cases activated in Column C reflects an increase in staffing of 3 FTEs in October, per the Staffing Plan.
- The final column shows the remaining cases at the end of each month, which is projected to reach 0 in December.

Forecast for Backlog Reduction

Month	Cases Pending (A)	New Cases Received (B)	Cases Activated (C)	Cases Remaining (A +B-C)
September	5,696	1,150	2,003	4,844
October	4,844	1,150	2,925	3,069
November	3,069	1,150	3,420	799
December	799	1,150	1,949	0

Risks

Risks	Potential Consequences
Technical Risks	• Automatic interconnection and approval of projects prior to engineering analysis can lead to technical issues related to high penetration of DG on the distribution system, such as high voltage. LUMA is working to streamline the Study and Supplementary Study processes, along with developing the Hosting Capacity Studies to improve visibility into these areas. LUMA is also preparing a process for customers to submit high voltage complaints.
Communications	• The portal is not programmed to notify customers or developers that NEM Service has been activated through the new expedited Process. This may create confusion among customers and developers. As temporary measure, a Queue spreadsheet has been developed with notification status for each application processed.
Meter Inventory	• The acceleration of meter changes to resolve the backlog will deplete the meter inventory that is also used for other types of clients. LUMA placed a large order of additional bi-directional meters after commencement and is expecting the first shipment in September, though this shipment may not be completely fulfilled until early 2022 due to manufacturing shortages.
Change in Regulations	• Initial review of the proposed Generation and Microgrid Regulation indicates that a new portal will be needed to incorporate the new functionality required in the regulation. • Until the final regulation is passed, there is uncertainty around the changes that will be required to the Program and its systems. LUMA is trying to avoid any changes to the current program and systems that might require re-work in the new regulatory structure.

Conclusion

- LUMA has begun implementing concrete strategies to resolve the backlog of NEM applications as quickly as possible.
- We have created an accelerated process for activating NEM service on customer bills once applications have been validated.
- At the current rate of processing, we are forecasting to resolve the backlog in December 2021.
- Over the long-term will continue to work towards further streamlining application processes, systems and tools to meet regulatory requirements and improve customer satisfaction.

LUMA

Thank you