LUMA

Resource Adequacy Planning

RESOURCE ADEQUACY PLANNING

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1.0 Executive Summary

Resource Adequacy planning is intended to ensure that the bulk power system has the resources available to balance supply and demand, considering uncertainties like forced outages, fluctuating load and inclement weather. Broadly speaking this analysis **shall** cover the following time periods:

- Near term: The next seven days to the next six months planning horizon (the focus of this procedure).
- Mid-term: The next six months through the next five years, with primary focus on three to five years planning horizon (required as part of the Transmission & Distribution O&M Agreement).
- Long-term: The next 10–20 years planning horizon (to be integrated with next Integrated Resource Plan (IRP) cycle).

2.0 Objective/Scope/Roles

2.1 Objective

The objective of the Resource Adequacy Planning procedure is to define a standardized approach and methodology to how Resource Adequacy Planning is conducted and how this information is reported to PREB and other stakeholder groups.

2.2 Scope

This procedure defines who is responsible for near-term, Resource Adequacy Planning. This is especially important for the summer period when system demand reaches its annual peak. Mid-term and long-term resource adequacy planning are addressed as part of the IRP (Integrated Resource Plan). This procedure also defines how the different time perspectives are coordinated to support the IRP process, which **shall** be conducted by the Regulatory department and is outside the scope of this procedure.

This Resource Adequacy Planning procedure includes the following areas:

- Quality Check of Inputs Identified in Energy Dispatch, Scheduling and Merit Order procedure.
- Identification of Recurring Resource Adequacy Issues.
- Development of Near-Term Resource Adequacy Analysis.
- Reporting.
- Inputs to Mid- and Long-Term Resource Adequacy Analysis.
- Interface with other System Operating Procedures.

2.3 Roles and Responsibilities

Director Systems Operations **shall** consult with representatives from Regulatory and Finance departments to define how near-term, mid-term and long-term planning tasks are coordinated.

2.3.1 Director System Operations

Director Systems Operations **shall** be responsible for most tasks associated with short-term Resource Adequacy monitoring and reporting. Director Systems Operations **shall** also support the Regulatory department for topics related to mid-term and long-term resource adequacy.

2.3.2 Manager, Supply Contracts Administration (Regulatory Department)

The Manager, Supply Contracts Administration is responsible for development of the annual Resource Adequacy reports to the PREB, as well as working within Regulatory Department with appropriate parties responsible for long-term Resource Adequacy issues to be addressed in the IRP process. In addition, the Manager, Supply Contracts Administration **shall** provide support to System operations as needed on short term Resource Adequacy analysis.

2.3.3 Finance Department

The Finance Department **shall** be involved with financial-related elements of Resource Adequacy planning and analysis as it might affect capital budgets, or financial forecasts and models.

3.0 Procedure

3.1 Quality Check

The Energy Dispatch, Scheduling and Merit Order procedure sets forth the requirements for the preparation of a Dispatch Schedule. System Operations **shall** perform a quality check of the inputs identified in that procedure and define the data required for its quality check, and next-quarter and next-season resource adequacy analysis, including identifying input sources and format for such data.

The Director Systems Operations **shall** perform a quality check of the inputs identified in the Energy Dispatch Scheduling and Merit Order procedure with specific focus on the following inputs:

- Daily and short-term load forecast.
- Transmission system status, capacity, and outages.
- Generation and other resources status, capacity, and outages for all Interconnected Facilities.

Outage Planning Supervisor **shall** also perform error and trend analysis for these inputs to provide feedback that results in improvements and work those results from these inputs.

3.2 Identification of Recurring Resource Adequacy Issues

Manager Energy Management **shall** identify recurring and longer-term resource adequacy issues and propose appropriate remedial actions. Such actions could impact one of more of the following areas:

- Data inputs.
- Work-product processes.
- Operations.

3.2.1 Near-Term Resource Adequacy

In order to provide focus on the time horizon beyond the next two days, Manager Energy Management Support **shall** develop a near-term analysis taking the following inputs and factors into account. For the next two-quarter analysis, scenario and probabilistic analysis must be incorporated.

- Load forecast adjusted as necessary to reflect currently available seasonal weather forecasts.
- Available generation resources, adjusted to reflect all planned outages and appropriate forced outage rates, including any demand response programs approved for addition.
- The availability and price forecast for generation resource fuels (natural gas, diesel, and fuel oil).
- Available transmission capacity, adjusted to take planned transmission outages into account.
- Ongoing maintenance issues and concerns related to generation resources and the transmission system that could give rise to a maintenance outage over the analysis period.
- Planned additions to resource portfolio.
- Planned additions or upgrades to transmission system.

3.2.2 Reporting

Manager Energy Management **shall** develop and maintain reports for the work items above and distribute these reports to Regulatory, Finance and other departments as appropriate.

3.3 Inputs to Mid- and Long-Term Resource Adequacy Planning

The work identified and performed in accordance with this procedure **shall** also be used as inputs to the resource adequacy work identified in §5.13(d)(iii) of the Puerto Rico Transmission and Distribution System Operation and Maintenance Agreement dated June 20, 2020, and the work performed as part of future IRPs; however, that latter work is outside the scope of this procedure.

3.4 Interface with other System Operating Procedures

While performing its work in accordance with this procedure, the Control Center Support Manager **shall** be mindful of interactions and interfaces with other System Operation procedures and propose amendments and modifications where required.

Appendix A: Glossary

Term	Definition
Integrated Resource Plan (IRP)	The IRP, is a plan developed by PREPA comprising a specific period of time, focused on ensuring the development of the electric power system in Puerto Rico, as well as reliability improvement, efficiency and transparency of the system. In this case, the IRP plan will take into account all the reasonable resources to satisfy the demand for electric power services during a twenty (20)-year period.

Appendix B: Procedure Cross-Reference Matrix

Procedure Reference Matrix, Part 1 of 2	Short Term Load Forecasting	New Facility Interconnection	Resource Adequacy Planning	Interconnected Facility Retirements	Legacy T&G Demarcation	Interconnected Facilities Capabilities	Black Start	Telemetry	Cybersecurity	Root Cause Analysis & Corrective Actions	Public Reporting	Performance Reporting	Stakeholder Management	Policy on Reserves
Short Term Load Forecasting														
New Facility Interconnection														
Resource Adequacy Planning					X						X	X		
Interconnected Facility Retirements														
Legacy T&G Demarcation														
Interconnected Facilities Capabilities														
Black Start														
Telemetry														
Cybersecurity														
Root Cause Analysis and Corrective Actions														
Public Reporting														
Performance Reporting														
Stakeholder Management														
Policy on Reserves														
Reducing Risk Exposure to Contingencies														
Critical Loads														
Load Shedding														
Contingency and System Operating Limits Response														
Energy Dispatch, Scheduling and Merit Order														
Transmission Operations														
Plant Level Communications														
Balancing Frequency and Voltage														
Demand-Side Resources (Non-Wire Alternatives)														
System Operator Training														
Scheduling Planned T&G Outages														
Forced Outage														
Outage Execution and Closeout														
Emergency Response Execution														
Emergency Response Drills														

RESOURCE ADEQUACY PLANNING

Procedure Reference Matrix, Part 2 of 2	Reducing Risk Exposure to Contingencies	Critical Loads	Load Shedding	Contingency & System Operating Limits Response	Energy Dispatch, Shedding & Merit Order	Transmission Operations	Plant Level Communications	Balancing Frequency & Voltage	Demand Side Resources (NWA)	System Operator Training	Scheduling Planned T&G Outages	Forced Outage	Outage Execution & Closeout	Emergency Response Execution	Emergency Response Drills
Short Term Load Forecasting															
New Facility Interconnection															
Resource Adequacy Planning					X						X	X			
Interconnected Facility Retirements															
Legacy T&G Demarcation															
Interconnected Facilities Capabilities															
Black Start															
Telemetry															
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