

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

NEPR

Received:

Oct 15, 2021

12:50 PM

IN RE: PRELIMINARY STUDIES FOR
NEW COMBINED CYCLE POWER PLANT
IN PALO SECO

CASE NO.: NEPR-MI-2021-0003

SUBJECT: Motion to Submit October 2021
Status Report in Compliance with Order
Entered on February 1, 2021

**MOTION TO SUBMIT OCTOBER 2021 STATUS REPORT IN COMPLIANCE
WITH ORDER ENTERED ON FEBRUARY 1, 2021**

TO THE HONORABLE PUERTO RICO ENERGY BUREAU:

COMES NOW, the Puerto Rico Electric Power Authority (PREPA), through its counsel of record, and respectfully submits and prays:

On February 1, 2021, the Puerto Rico Energy Bureau of the Public Service Regulatory Board (the “Energy Bureau”) entered *Resolution and Order* opening the captioned matter and directing PREPA to, on the 15th day of each subsequent month, submit a report on the status of the development of studies for a new combined cycle gas turbine in the San Juan area. In compliance with the Order, PREPA herein submits the report titled *New Combined Cycle Planning and Studies Monthly Progress Status Report* dated October 15, 2021 (the “Status Report”). Exhibit A. The Status Report outlines and details the PREPA’s progress in the development of the studies.

WHEREFORE, PREPA respectfully requests the Energy Bureau to determine that PREPA has complied with the Order.

RESPECTFULLY SUBMITTED.

In San Juan, Puerto Rico, this 15th day of October 2021.

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EXHIBIT A

New Combined Cycle Planning and Studies Monthly Progress Status Report
dated October 15,2021



**Puerto Rico
Electric Power
Authority**

Puerto Rico Electric Power Authority (PREPA)

**New Combined Cycle Planning and Studies
Monthly Progress Status Report
October 15, 2021**

Introduction and Outline

Introduction:

- The Puerto Rico Energy Bureau’s Integrated Resources Plan (IRP) Final Resolution and Order, approved on August 24, 2020, establishes a limit of \$5 million in expenses for preliminary economic, siting, permitting and planning analysis of a combined cycle plant and fuel delivery infrastructure.
- PREPA is currently performing planning and studies for the construction of a new dual-fuel, combined cycle power plant in the San Juan area with a capacity between 300 and 400 MW and is not to exceed the Energy Bureau-approved \$5 million.
- This report outlines PREPA’s progress on this phase of the project and provides the following four elements requested by the Energy Bureau:
 - 1) A proper and adequate detailed description of the specific tasks and studies;
 - 2) The progress of such tasks;
 - 3) Gantt Chart of the timeline for the completion of the required preliminary work; and
 - 4) Copies of the contract originally executed for the preliminary work.

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Project Overview

Management Notes:

- The Feasibility Report for the Combined Cycle (Task 5) has been completed and submitted to PREPA for review and comments. The report is expected to be finalized by the end of October 2021.
- Submittal to PREB of completed Planning Analysis Workstreams reports (Tasks, 1, 3, 4 and 5) is expected by the end of October 2021.
- A request to continue with the Combined Cycle Project in the North, for FEMA 404 Phase I for Engineering , will be filed with the PREB upon submittal of the Planning Analysis Reports. A scope of Phase I, timeline and estimated budget will be included with the request.
- Sitting Workstream deliverables are currently in the approval cycle. These deliverables will require updates once the combined cycle site is selected and again when PREB authorizes continuing with the Combined Cycle FEMA Phase I engineering (28% complete).

Financials	
Approved Budget Baseline	\$5,000,000
Total Expenses From Previous Periods	\$1,227,448
Expenses This Period	\$0
Total Expenses	\$1,227,448
Total Expenses / Approved Budget Baseline	24.50%

Scope

75%

Planning Analysis

99%

In Progress

On-BudgetOn-Schedule

Siting

100%

In Progress

On-BudgetOn-Schedule

Permitting

15%

In Progress

On-BudgetOn-Hold

Preliminary Economic

10%

In Progress

On-BudgetOn-Hold

Max. Monthly Headcount (based on October)

PREPA's Headcount

6

Contractor's Headcount

0

Max. Total Headcount

6

Schedule Metrics		
11/16/2020 Project Start Date	23 Total Scheduled Tasks	4 Pending Tasks On-Track
11/15/2021 Project End Date	15 YTD Tasks Completed	4 Pending Tasks On-Hold
87% Time Elapsed	4 Tasks Due in October	0 Pending Tasks Overdue

Significant Upcoming Milestones	
Description	Target Period
Prepare proposed relocation of the new combined cycle and present to stakeholders	2021 Q4
Determine the effect of the renewables' growth in the grid and its potential solutions	2021 Q4
Finalize the Renewable Integration Study and Submit to PREB	2021 Q4
Determine Project Schedule and Cost Estimate for the Full Combined Cycle Project	2021 Q4

Project Tasks By Workstream

ID	Task Description	% Complete	Scheduled Start	Scheduled / Actual Finish	Status
Planning Analysis Workstream					
1	Renewable Integration Study	99%	11/16/2020	10/31/2021	On-Track
2	Retirement of Existing Thermal Resources Report – Updated every 6 months after initial release (Reference in Final IRP O&R – Pg. 270, ¶¶ 869-878)	100%	2/17/2021	5/17/2021	Completed
3	Environmental (Permitting) Due Diligence Report	99%	12/18/2020	10/31/2021	On-Track
4	New Combined Cycle Power Plant Location Selection Report	99%	12/18/2020	10/31/2021	On-Track
5	Feasibility Study, Environmental Due Diligence Report, and Location Selection Report Approval From PREPA (Milestone)	95%	6/15/2021	10/31/2021	On-Track
Siting Workstream					
6	Geotechnical Investigation	100%	1/11/2021	5/7/2021	Completed
7	Site Survey	100%	1/11/2021	5/7/2021	Completed
8	Design Criteria Update	100%	1/11/2021	5/21/2021	Completed
9	General Arrangement	100%	1/11/2021	6/28/2021	Completed



Project Tasks By Workstream (Cont'd)

ID	Task Description	% Complete	Scheduled Start	Scheduled / Actual Finish	Status
Siting Workstream (Cont'd)					
10	Heat Balance Analysis	100%	1/11/2021	4/30/2021	Completed
11	Water Balance Analysis	100%	3/1/2021	3/5/2021	Completed
12	Flood Study	100%	3/1/2021	6/14/2021	Completed
13	Process Flow Diagrams (P&IDs)	100%	3/1/2021	5/14/2021	Completed
14	Single Line Diagram	100%	2/1/2021	5/14/2021	Completed
15	Architectural Conceptual Design	100%	3/1/2021	6/28/2021	Completed
16	Site Development Conceptual Design	100%	3/1/2021	6/28/2021	Completed
17	Site Grading and Drainage	100%	3/15/2021	6/28/2021	Completed
18	Major Foundation Conceptual Design	100%	4/1/2021	6/28/2021	Completed
19	Electrical Arrangements	100%	3/1/2021	6/28/2021	Completed



Project Tasks By Workstream (Cont'd)

ID	Task Description	% Complete	Scheduled Start	Scheduled / Actual Finish	Status
Permitting Workstream					
20	COE Environmental Application – Consultation*	15%	1/11/2021	10/15/2021	On-Hold
Preliminary Economic Workstream					
21	Project Cost Estimate – Full Combined Cycle Project*	10%	1/11/2021	10/15/2021	On-Hold
22	Project Schedule – Full Combined Cycle Project*	10%	1/11/2021	10/15/2021	On-Hold
Close-Out Tasks					
23	Final Report of all Deliverables Upon Completion for PREB (Milestone)*	0%	6/28/2021	11/15/2021	On-Hold

* Tasks on hold pending approval to continue engineering for the Combined Cycle Phase I deliverables under FEMA 404



Project Tasks By Workstream – Phase 2

ID	Task Description	% Complete	Scheduled Start	Scheduled / Actual Finish	Status
Planning Analysis Workstream					
1	10-Year Thermal Generation Retirement, Addition, and Conversion Plan* (Draft released to PREPA December 30, 2020)	80%	12/18/2020	10/29/2021	On-Hold
Siting Workstream					
2	3D Model*	0%	5/3/2021	10/15/2021	On-Hold
Permitting Workstream					
3	NEPA EA Report – Consultation*	15%	1/11/2021	10/15/2021	On-Hold
4	Air Permit Application – Consultation*	15%	1/11/2021	10/15/2021	On-Hold
5	NPDES Permit Application – Consultation*	15%	1/11/2021	10/15/2021	On-Hold
Close-Out Tasks					
6	New Combined Cycle Planning and Studies Phase One Results Submitted to COR3*	0%	8/12/2021	10/15/2021	On-Hold
7	New Combined Cycle Planning and Studies Phase One Results Submitted to FEMA*	0%	10/12/2021	10/12/2021	On-Hold

* Tasks on hold pending approval to continue engineering for the Combined Cycle Phase I deliverables under FEMA 404

Note: These tasks and milestones are expected to be completed after the end date of the New Combined Cycle Planning and Studies project phase 1 and during later phases of the New Combined Cycle Project.



Appendix

Project Scope, Objectives and Benefits

The New Combined Cycle Planning and Studies Project Scope

- This phase of the project is designed to perform a preliminary economic, siting, permitting, and planning analysis of a new combined cycle plant and its fuel delivery infrastructure and/or energy storage, as mandated by the PREB.
- The Budget is not to exceed \$5 million for this phase and was originally scheduled from November 16, 2020 to July 9, 2021. However, due to loss of employees and transfer of responsibilities among PREPA staff during the PREPA to LUMA transition much of this work was disrupted and is now re-starting. The revised expected completion day is November 15, 2021.

Project Objectives

- Assess the feasibility of a reliable and cost-effective optimal power generation solution to mitigate severe category 5 storms such as those experienced during and after hurricane Maria, as well as other natural disasters including earthquakes.
- Assess the capability of PREPA's power grid to accommodate increased levels of renewable generation and its impact in the overall electrical system stability and the need of synchronous thermal generation to maintain grid stability.
- Illustrate the cost effectiveness of performing preliminary permitting and engineering activities for a new combined cycle plant while not interfering with or delaying the procurement of solar PV (or other renewable energy) and battery energy storage resources.

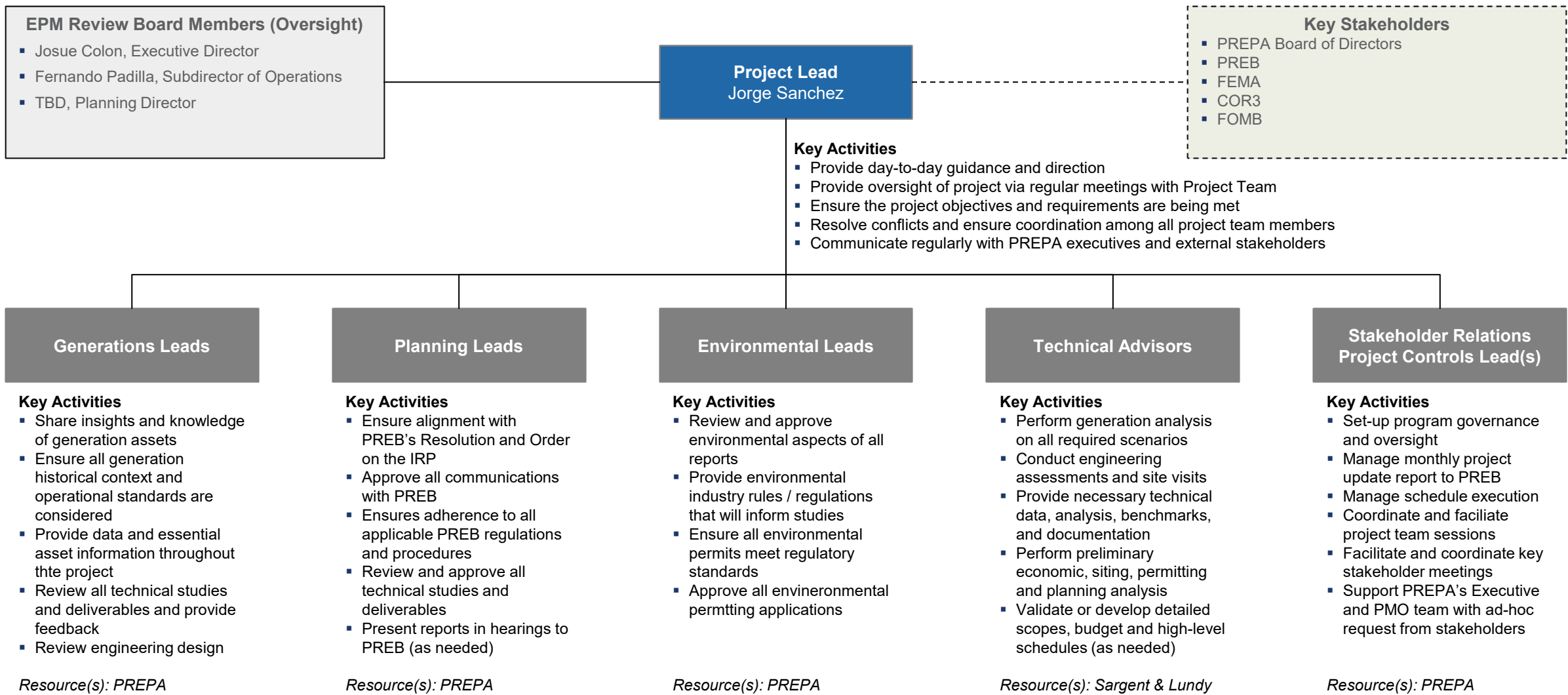
Project Benefits

- Protect against the uncertainty of near-future solar PV and battery energy storage price outcomes, or other potential reliability concerns by continuing with these planning and studies in parallel with the renewable procurements.
- Determine the most reliable and cost-effective generation solution for the northern part of the island¹.
- Determine the most optimal generation solution that mitigates the hazards from major catastrophic events (e.g., hurricanes and earthquakes)¹.

[1] Note: In collaboration with and seeking the approval of the Energy Bureau.



Project Organization Structure



New Requirements and Project Re-Baseline Summary

The New Combined Cycle Planning and Studies Project has been re-baselined to reflect PREB's most recent requirement and other external dependencies. This re-baseline will have an impact on the completion date of several deliverables.

- **PREB Requirement**

- The PREB's Resolution and Order on the 10-Year Plan on March 26, 2021, clarified that this feasibility study is aligned with the Approved IRP and the Modified Action Plan.
- Additionally, the PREB has ordered PREPA to ensure that this study considers/includes the integration of new renewable energy near San Juan.
- To best reflect this requirement and align the results of this feasibility study with the order, the Renewable Energy Integration Study (Task 1) should be completed, evaluated, and considered within the next phase of this project.
- Prior to seeking any subsequent funding approvals for new generation from FEMA, PREPA will seek the approval from the PREB. Any timeline for the submissions to FEMA and the next phase of this project will be dependent on this PREB approval.

- **External Dependencies**

- PREPA is working on the final modeling analysis and emissions inventory work related state implementation plan (SIP) to submit to the EPA (expected completion was end of May 2021 but has now been delayed due to PREPA and LUMA reorganization and staff changes. A revised expected day will be provided on November 15, 2021, report). While this work is separate from the feasibility study project, it has led to delays to multiple tasks in this project.

- **Path Forward**

- As noted, this project has been re-baselined with a new schedule and task completion dates that incorporate the PREB requirement and SIP dependency described above which will inform deliverables such as the New Combined Cycle Power Plant Location Selection Report and 10-Year Thermal Generation Retirement, Addition, and Conversion Plan.
- Phase 1 results will lead to recommendations on how to best support the integration of new renewables and any new generation required to ensure the reliability of the grid. Anticipated completion date was July 9, 2021, but has now been delayed due to PREPA and LUMA reorganization and staff changes. A revised expected day will be provided on November 15, 2021 report.
- During Phase 2, this project will make recommendations on the type of generation (if required) that is most feasible, technically and operationally reliable, and cost effective to support the integration of new renewables. Approximate completion will be provided on November 15, 2021 report.

**New Combined Cycle Planning and Studies
Monthly Progress Status Report
October 15, 2021**

ID	Task Name	Duration	Start	Finish	% Complete	Baseline Finish	Qtr 4, 2020	Nov	Dec	Qtr 1, 2021	Jan	Feb	Mar	Qtr 2, 2021	Apr	May	Jun	Qtr 3, 2021	Jul	Aug	Sep	Qtr 4, 2021	Oct	Nov	Dec
1	New Combined Cycle Planning and Studies Phase 1	261 days	Mon 11/16/20	Mon 11/15/21	75%	Mon 11/15/21																			
2	Planning Analysis Workstream	250 days	Mon 11/16/20	Sun 10/31/21	99%	Wed 9/15/21																			
3	Renewable Integration Study	251 days	Mon 11/16/20	Sun 10/31/21	99%	Mon 8/30/21																			
4	Retirement of Existing Thermal Resources Report	64 days	Wed 2/17/21	Mon 5/17/21	100%	Mon 5/17/21																			
5	Environmental (Permitting) Due Diligence Report	227 days	Fri 12/18/20	Sun 10/31/21	99%	Tue 6/1/21																			
6	New Combined Cycle Power Plant Location Selection Report	227 days	Fri 12/18/20	Sun 10/31/21	99%	Wed 9/15/21																			
7	Feasibility Study, Environmental Due Diligence Report, and Location Selection Report Approval From PREPA	100 days	Tue 6/15/21	Sun 10/31/21	95%	Wed 9/15/21																			
8	Siting Workstream	121 days	Mon 1/11/21	Mon 6/28/21	100%	Mon 6/28/21																			
9	Geotechnical Investigation	85 days	Mon 1/11/21	Fri 5/7/21	100%	Fri 5/7/21																			
10	Site Survey	85 days	Mon 1/11/21	Fri 5/7/21	100%	Fri 5/7/21																			
11	Design Criteria Update	95 days	Mon 1/11/21	Fri 5/21/21	100%	Fri 5/21/21																			
12	General Arrangement	121 days	Mon 1/11/21	Mon 6/28/21	100%	Mon 6/28/21																			
13	Heat Balance Analysis	45 days	Mon 3/1/21	Fri 4/30/21	100%	Fri 4/30/21																			
14	Water Balance Analysis	5 days	Mon 3/1/21	Fri 3/5/21	100%	Fri 3/5/21																			
15	Flood Study	76 days	Mon 3/1/21	Mon 6/14/21	100%	Mon 6/14/21																			
16	Process Flow Diagrams (P&IDs)	55 days	Mon 3/1/21	Fri 5/14/21	100%	Fri 5/14/21																			
17	Single Line Diagram	75 days	Mon 2/1/21	Fri 5/14/21	100%	Fri 5/14/21																			
18	Architectural Conceptual Design	86 days	Mon 3/1/21	Mon 6/28/21	100%	Mon 6/28/21																			
19	Site Development Conceptual Design	86 days	Mon 3/1/21	Mon 6/28/21	100%	Mon 6/28/21																			
20	Site Grading and Drainage	76 days	Mon 3/15/21	Mon 6/28/21	100%	Mon 6/28/21																			
21	Major Foundation Conceptual Design	63 days	Thu 4/1/21	Mon 6/28/21	100%	Mon 6/28/21																			
22	Electrical Arrangements	86 days	Mon 3/1/21	Mon 6/28/21	100%	Mon 6/28/21																			
23	Permitting Workstream	200 days	Mon 1/11/21	Fri 10/15/21	15%	Fri 10/15/21																			
24	COE Environmental Application – Consultation	200 days	Mon 1/11/21	Fri 10/15/21	15%	Fri 10/15/21																			
25	Preliminary Economic	200 days	Mon 1/11/21	Fri 10/15/21	10%	Fri 10/15/21																			
26	Project Cost Estimate	200 days	Mon 1/11/21	Fri 10/15/21	10%	Fri 10/15/21																			
27	Project Schedule	200 days	Mon 1/11/21	Fri 10/15/21	10%	Fri 10/15/21																			
28	Close-out Workstream	101 days	Mon 6/28/21	Mon 11/15/21	0%	Mon 11/15/21																			
29	Final Report of all Deliverables Upon Completion for PREB	101 days	Mon 6/28/21	Mon 11/15/21	0%	Mon 11/15/21																			
30	New Combined Cycle Planning and Studies Phase 2	226 days	Fri 12/18/20	Fri 10/29/21	27%	Fri 10/29/21																			
31	Planning Analysis Workstream Phase 2	226 days	Fri 12/18/20	Fri 10/29/21	80%	Fri 10/29/21																			
32	Thermal Generation Retirement, Addition, and Conversion Plan	226 days	Fri 12/18/20	Fri 10/29/21	80%	Fri 10/29/21																			
33	Siting Workstream Phase 2	120 days	Mon 5/3/21	Fri 10/15/21	0%	Fri 10/15/21																			
34	3D Model	120 days	Mon 5/3/21	Fri 10/15/21	0%	Fri 10/15/21																			
35	Permitting Workstream Phase 2	200 days	Mon 1/11/21	Fri 10/15/21	15%	Fri 10/15/21																			
36	NEPA EA Report – Consultation	200 days	Mon 1/11/21	Fri 10/15/21	15%	Fri 10/15/21																			
37	Air Permit Application – Consultation	200 days	Mon 1/11/21	Fri 10/15/21	15%	Fri 10/15/21																			
38	NPDES Permit Application – Consultation	200 days	Mon 1/11/21	Fri 10/15/21	15%	Fri 10/15/21																			
39	Close-out Workstream Phase 2	47 days	Thu 8/12/21	Fri 10/15/21	0%	Fri 10/15/21																			
40	New Combined Cycle Planning and Studies Phase One Results Submitted to COR3	47 days	Thu 8/12/21	Fri 10/15/21	0%	Fri 10/15/21																			
41	New Combined Cycle Planning and Studies Phase One Results Submitted to FEMA	0 days	Tue 10/12/21	Tue 10/12/21	0%	Tue 10/12/21																			

◆ 10/12