



PASADENA WATER AND POWER

MEMORANDUM

August 27, 2024

To: Municipal Services Committee**From:** David M. Reyes
Interim General Manager**Subject: Optimized Strategic Plan Update**

This report provides an informational update to the Municipal Services Committee (“MSC”) about the status of the City of Pasadena’s (“City”) Optimized Strategic Plan (“OSP”), which builds upon Pasadena Water and Power’s (“PWP”) 2023 Power Integrated Resource Plan (hereinafter referred to interchangeably as “2023 Power IRP” or “IRP”).

BACKGROUND:

On December 11, 2023, the Pasadena City Council unanimously approved PWP’s 2023 Power IRP, a 25-year planning blueprint to provide the local community with safe, reliable, and environmentally responsible electricity services at competitive rates. Preparing an IRP is a California regulatory requirement for utilities like PWP and must be updated and submitted to the California Energy Commission (“CEC”) at least once every five years. In addition to meeting CEC’s IRP requirements, the 2023 Power IRP also incorporates City Resolution 9977, which includes the goal to source 100% of Pasadena’s electricity from carbon-free sources by the end of 2030 while optimizing for affordability, rate equity, stability, and reliability of electricity.

As part of the IRP approval, the City Council requested that the City Manager’s Office oversee the development of an OSP to define and outline actions needed to achieve Resolution 9977 goals. It was further recommended that the OSP would be created in collaboration with a consultant experienced in green energy to ensure a feasible plan for meeting Pasadena’s ambitious targets. Accordingly, the City Manager’s Office proposed the reengagement of Energy and Environmental Economics, Inc (“E3”), an industry leader in clean energy policy that provided technical review services for the 2023 IRP and has a good understanding of Pasadena’s ambitious clean energy goals. With a client list that includes the CEC, California Public Utilities Commission, California Air Resources Board, and a variety of public and private utilities throughout North America and the world, E3 is uniquely positioned to help quickly implement Pasadena’s accelerated transition towards a carbon-

free energy supply. On March 25, 2024, the City Council approved a two-year contract with E3 valued at \$1,170,000 to develop an OSP for the City.

Scope of Work

The OSP will lay out the key steps and future decision points that best position PWP to achieve its 2030 carbon-free goal while maintaining reliability and limiting cost impacts to customers. It will consider how new generation resources, investments in transmission and distribution infrastructure, and customer programs that could facilitate the transition to a clean energy future. E3 will assess PWP’s infrastructure needs, including types and locations of new generation resources and associated timing of acquisition. They will also explore customer participation, including projected future customer energy demands, distributed energy resources, and virtual power plants such as solar, battery energy storage, demand response, flexible loads, and electric vehicle charging.

The OSP development process involves a series of independent analytical efforts or studies. The initial “Preparatory Studies,” shown in Table 1 below, identify the broadest possible set of options that could contribute to meeting Resolution 9977 objectives. E3 will draw upon a range of data sources and methods to characterize the cost and potential of different generation and transmission options that will serve as the building blocks of different scenarios.

Table 1 – Preparatory Studies

	Task	FY 2024		FY 2025												FY 2026	
		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	
Preparatory Studies	Distributed Solar & Storage Study						•										
	Demand Response & Flex Loads Potential Study				•												
	Emerging Technology Assessment				•												
	Transmission Expansion Options Assessment					•											

In the “Portfolio Development” studies, shown in Table 2, a range of traditional electric sector planning models (e.g., loss-of-load-probability modeling, long-term capacity expansion, production cost, and distribution planning) will be used to design various portfolios to meet goals.

Table 2 – Portfolio Development

	Task	FY 2024		FY 2025												FY 2026			
		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul			
Portfolio Development	Glenarm Conversion and Replacement Study																		
	Long-Term Capacity Expansion Modeling																		
	Production Cost Modeling																		
	Distribution System Analysis																		

In the final phase, outlined in Table 3, E3 will analyze the cost impacts of each scenario and develop a draft OSP. Overall, the approved scope of work and timeline represent a cohesive and comprehensive framework built on rigorous technical analysis to inform an optimized plan toward the carbon-free goals of Resolution 9977.

Table 3 – Optimized Strategic Plan

	Task	FY 2024		FY 2025												FY 2026			
		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul			
Optimized Strategic Plan	Cost Impacts Analysis																		
	Final Report																		

Stakeholder and Community Outreach

The participation of key stakeholders, including customers, policymakers, and the larger community, is instrumental in the successful development of the OSP. In coordination and collaboration with PWP External Affairs, E3’s comprehensive outreach process will include informational updates to the MSC and Environmental Advisory Commission (“EAC”); community outreach meetings that engage residential and commercial customers and community organizations; and advisory meetings with the newly formed Technical Advisory Panel (“TAP”), a diverse representation of the Pasadena community created to provide input and feedback on the developing plan.

Technical Advisory Panel

Since June 2024, E3 has hosted four TAP meetings, which will occur approximately once per month during the duration of the OSP. These initial meetings provided information on the scope of work, background on proposed studies, and other preliminary information. Upcoming meetings will cover the individual studies in greater detail and the ongoing development of associated methodologies.

City Council Committee and Commission Updates

Beginning in September 2024, E3 will provide bi-monthly updates to the MSC and EAC regarding the status of the work performed and next steps. These updates will allow E3 and PWP to receive policy direction and public comment that will help advance the analysis and progress of the developing OSP.

Next Steps

E3 has started the technical analysis stage of the OSP Preparatory Studies, which focuses on local resource development and potential and local reliability needs. Progress will be reported to the MSC and EAC every two months beginning on September 10, 2024.



PASADENA WATER AND POWER

MEMORANDUM

September 10, 2024

To: Municipal Services Committee

From: David M. Reyes 
Interim General Manager

Subject: **Optimized Strategic Plan Update**

This memorandum is for information only.

BACKGROUND:

This report is to provide an informational update to the Municipal Services Committee ("MSC") about the status of the City of Pasadena's ("City") Optimized Strategic Plan ("OSP"). This update builds upon and informs of additional activities that have occurred since the most recent MSC update on August 27, 2024.

PROGRESS UPDATE:

The OSP consultant, Energy and Environmental Economics, Inc. ("E3") has commenced work on the Preparatory Studies of the OSP that will bring together all existing plans and activities into a singular workplan with actionable next steps. The current activities of the OSP's supporting studies include:

- Local Distributed Solar and Storage Potential Study
- Demand Response and Flex Loads Potential Study
- New and Emerging Technology Assessment

NEXT STEPS:

E3 is compiling inputs and assumptions for the remaining OSP supporting study, the Transmission Options Study. In addition, E3 has started the initial scoping of the Portfolio Development Phase of the OSP, which will provide unique combinations of resources for E3 to model to meet PWP's future needs and goals. As results become available, E3 will discuss the development and analysis of the multiple portfolios with various stakeholder groups, including: bi-monthly informational updates to the MSC and the Environmental Advisory Commission ("EAC") beginning on September 10th, monthly advisory meetings with the Technical Advisory Panel ("TAP"), and through upcoming virtual community meetings with the Pasadena community.



PASADENA WATER AND POWER

MEMORANDUM

March 11, 2025

To: Municipal Services Committee

From: David M. Reyes
Interim General Manager

Subject: **Optimized Strategic Plan Update**

This memorandum is for information only.

BACKGROUND:

This report is to provide an informational update to the Municipal Services Committee (“MSC”) about the status of the City of Pasadena’s (“City’s”) Optimized Strategic Plan (“OSP”). The OSP is a broad effort to establish a cohesive, actionable roadmap that lays out the key steps and future decision points to best position the City to meet the goals set forth by Resolution 9977. This effort incorporates both new and updated original analyses to develop optimized future portfolios, as well as lessons from previous planning studies conducted by Pasadena Water and Power (“PWP”). This update builds upon and informs of activities that have occurred since the most recent MSC update on September 10, 2024.

PROGRESS UPDATE:

The OSP consultant, Energy and Environmental Economics, Inc. (“E3”), has progressed through the first phase of the OSP analysis, the Preparatory Studies of the OSP. The Preparatory Studies identify and characterize the potential supply-side and demand-side resource options available to support the City’s transition to a 100% carbon-free resource portfolio. Additionally, E3 has commenced work on the second phase of the OSP analysis, the Portfolio Development of the OSP, which will study unique combinations of resources for E3 to model to meet PWP’s future needs and goals. The current activities of the OSP’s supporting studies include:

- Demand Response and Flex Loads Potential Study
- Transmission Expansion Options
- Glenarm Conversion and Replacement Study

The concurrently active workstream of the Preparatory Studies and Portfolio Development of the OSP are additionally focused on characterizing the technical potential and options for local resource development in Pasadena’s service territory. This includes emphasizing demand-side solutions, characterizing supply-side resources, and exploring transmission

expansion options that can support local reliability needs. The Portfolio Development Phase of the OSP will use detailed power system modeling to construct multiple case studies that meet clean energy goals and maintain reliability. As part of this phase, E3 will also provide analyses of options to convert or replace the Glenarm Power Plant while maintaining an adequate supply of local resources and imports across all credible conditions including peak loads, extreme weather, and transmission contingencies.

Active community engagement and comprehensive public participation are critical components of the OSP. By the date of this meeting, E3 will have discussed the development and analysis of the multiple portfolios with various stakeholder groups, including nine Technical Advisory Panel (“TAP”) meetings, three updates to the MSC (including this meeting), two updates to the Environmental Advisory Commission (“EAC”), and one Community meeting.

NEXT STEPS:

E3 will finalize the Preparatory Studies of the OSP and will continue progress on the Portfolio Development Phase of the OSP. These Preparatory Studies will be publicly available when they are in final draft forms. The Portfolio Development Phase will move into the Long-Term Capacity Expansion optimization modeling to develop multiple case studies of new resource investments and system operations aimed at minimizing costs while meeting clean energy targets and reliability requirements. At the completion of the Portfolio Development Phase of the OSP, E3 will commence the Impact Assessment Phase of the OSP which will calculate cost metrics and will identify opportunities, dependencies, and risks of each case study.

As results become available, E3 will discuss the development and analysis of the multiple portfolios and shape the OSP document with PWP and various stakeholder groups, through bi-monthly informational updates to the MSC and the EAC, monthly advisory meetings with the TAP, and upcoming meetings with the Pasadena community.



PASADENA WATER AND POWER

MEMORANDUM

April 8, 2025

To: Municipal Services Committee

From: David M. Reyes 
Interim General Manager

Subject: **Optimized Strategic Plan Update**

This memorandum is for information only.

BACKGROUND:

This report is to provide an informational update to the Municipal Services Committee (“MSC”) about the status of the City of Pasadena’s (“City’s”) Optimized Strategic Plan (“OSP”). The OSP is a broad effort to establish a cohesive, actionable roadmap that lays out the key steps and future decision points to best position the City to meet the goals set forth by Resolution 9977. This effort incorporates both new and updated original analyses to develop optimized future portfolios, as well as lessons from previous planning studies conducted by Pasadena Water and Power (“PWP”). This update builds upon and informs of activities that have occurred since the most recent MSC update on March 11, 2025.

PROGRESS UPDATE:

The OSP consultant, Energy and Environmental Economics, Inc. (“E3”), has continued progress on the second phase of the OSP analysis, the Portfolio Development Phase of the OSP. The Portfolio Development Phase of the OSP uses detailed power system modeling to construct multiple case studies that meet clean energy goals and maintain reliability. As part of this phase, E3 has commenced the Long-Term Capacity Expansion optimization modeling to develop multiple case studies of new resource investments and system operations aimed at minimizing costs while meeting clean energy targets and reliability requirements. Additionally, E3 is focused on characterizing the technical potential and options for accelerated local resource development in Pasadena’s service territory exploring variations to provide the City Council robust analysis to inform the OSP. The current activities of the OSP’s supporting studies include:

- Long-term Capacity Expansion
- Distribution System Analysis

As E3 progresses through the Portfolio Development Phase of the OSP, they have concurrently initiated the Impact Assessment Phase of the OSP which will calculate cost metrics and will identify opportunities, dependencies, and risks of each case study. The first OSP supporting study of the Impact Assessment Phase is the Distribution System Analysis. This study is a geospatial analysis of future substation loads to identify locations for accelerated distributed energy resources and demand-side measures.

Active community engagement and comprehensive public participation are critical components of the OSP. As the results of these supporting studies become available, including the shape of the OSP document, E3 will share the progress and collect feedback from various stakeholder groups. By the date of this meeting, E3 will have discussed the development and analysis of the multiple portfolios, including: ten Technical Advisory Panel (“TAP”) meetings, four updates to the MSC (including this meeting), three updates to the Environmental Advisory Commission (“EAC”), and one Community meeting.

NEXT STEPS:

E3 will finalize the Portfolio Development Phase of the OSP and will continue progress on the Impact Assessment Phase of the OSP including assessing cost impacts. During these concurrently active workstreams, E3 will actively collect and incorporate feedback from MSC and TAP on the Portfolio Development Phase. In addition to continuing progress on the OSP supporting studies, E3 is preparing reports on the findings of the Preparatory Studies which will be publicly available when they are in final draft formats.