

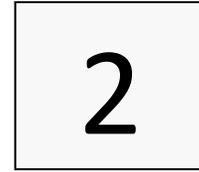
# MEMORANDUM

**TO: UTILITIES ADVISORY COMMISSION**

**FROM: UTILITIES DEPARTMENT**

**DATE: June 7, 2017**

**SUBJECT: Staff Recommendation that the UAC Provide Feedback on the Development of the City of Palo Alto Utilities Electric Integrated Resource Plan**



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## **REQUEST**

Staff seeks UAC feedback on a proposed work plan to update the Long-term Electric Acquisition Plan to become the City's Electric Integrated Resource Plan, which will be created in compliance with Senate Bill 350. There is no recommended action.

## **EXECUTIVE SUMMARY**

The Long-term Electric Acquisition Plan (LEAP) addresses the City's strategy for procuring and managing its energy supply. This involves multiple functions related to the pursuit and management of the City's electric resources consistent with State and Federal regulatory and legislative requirements, the City's climate sustainability goals, and the Utilities Department's strategic planning objectives. The 2012 Council-approved LEAP focused on various initiatives to reduce the carbon intensity of the City's electric supply portfolio through energy efficiency, an aggressive renewable portfolio standard (RPS) and ultimately the consideration of a carbon neutral portfolio. The LEAP is intended to be updated every three to five years to direct electric procurement and portfolio management efforts over a ten-year planning horizon. An update of LEAP is necessary to provide a basis for several key decisions and policies related to the electric portfolio in the 2020 to 2030 planning horizon.

## **BACKGROUND**

Integrated resource planning (IRP) traditionally is used to develop a plan for meeting forecasted annual peak and energy demand through a combination of supply-side resources (e.g. generators) and demand-side resources (e.g. installing energy efficient appliances) over a specified future period. A comprehensive decision analysis modeling tool is used to evaluate cost, benefits and uncertainties related to the various alternatives with the objective of identifying the best-fit, least-cost solutions. Generally, IRPs take the following factors into account in identifying solutions:

1. **Loading Order.** Pursue all cost effective energy efficiency and demand-side resources.
2. **Regulatory Compliance.** Comply with regulatory requirements (e.g. Renewable Portfolio Standards, rooftop solar) and other standards as appropriate (e.g. CAISO capacity requirements).

3. **Climate Goals and Carbon Neutral Plan objectives.** Reduce carbon intensity of the electric portfolio by utilizing 1) maximum procurement of long-term CEC eligible renewables; 2) existing large hydroelectric resources; and 3) Renewable Energy Credits (REC) when long-term resources are not sufficient.
4. **Customer Preferences.** Facilitate customer preference for other resources (e.g. a desire for local solar as embodied in the Local Solar Plan or PaloAltoGreen) and facilitate the deployment in a cost effective manner.
5. **Cost.** Identify the least-cost approach that addresses Council-adopted objectives, including rate impact limits such as 0.5 cents/kWh for RPS compliance and 0.15/kWh cents for Carbon Neutrality. Manage existing resources to maximize value.
6. **Risk Management.** Structure the portfolio or add mitigations to manage known risks (e.g. market price risk or hydroelectric variability) and build flexibility into the portfolio to address other less quantifiable risks (e.g. regulatory uncertainty) through diversification of suppliers, contract terms, and resources, and through the use of creditworthy counterparties when appropriate.

The last time the City conducted an IRP was in 1992. The City was facing a decision on whether to sign a new Western Base Resource (WBR) contract for hydroelectric power from the Western Area Power Administration for 2005-2025 which would be significantly different than the contract at the time. The existing contract met almost 100% of the City's electric needs and had very little variation in cost. The new WBR contract was expected to meet about 38% of the City's expected supply needs.<sup>1</sup> The goal of the 1992 IRP analysis was to evaluate several resources, including demand-side measures, with the objective of identifying the best-fit, least-cost energy solutions to meet the new deficit position resulting from the new WBR contract. Ultimately, the City signed the 2005-2025 WBR contract and pursued several other resources.

In November 2001 (CMR: 425:01) Council adopted the first LEAP, which provided policy direction to guide staff in the acquisition and management of electric supply resources through objectives and key strategies. The LEAP was different than a traditional IRP, in that its primary focus was on how to manage the electric portfolio consistent with RPS and other mandates rather than an exclusive focus on portfolio optimization. The LEAP was later updated in October 2002 (CMR: 398:02) and in March 2007 (CMR: 158:07) to reflect regulatory and legislative changes in the industry and to align with evolving community values related to energy efficiency, renewable supplies and climate protection. Within the LEAP Objectives and Guidelines framework, Council also adopted implementation plans which provided specific initiatives to evaluate and bring back to Council for consideration.

The last LEAP update took place in 2012 after a multi-year process of reviewing electric portfolio planning objectives, key strategies, and implementation initiatives (Attachment A and [Staff Report #1317](#)). The LEAP included initiatives to evaluate the feasibility of several policies and programs, many of which were adopted, including:

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<sup>1</sup> The was because the new WBR was proposed as a run-of-the-river contract, whereby the City would receive an allocation of generation based on hydrological conditions along with a corresponding share of costs.

- Development of an avoided cost model which is used to evaluate all demand and supply-side resources on an equal basis;
- Incorporation of 10-year Energy Efficiency Plan updates to take place every four years (2012 and 2016);
- Demand Response Pilot Programs;
- An Energy Storage Potential assessment;
- An assessment of gas-fired generation in Palo Alto;
- Evaluating a Clean Local Energy Accessible Now (CLEAN) – feed-in tariff for clean distributed generation;
- Termination of the PLUG-In Program for cogeneration;
- Update of the Renewable Portfolio Standard;
- A redesign of the PaloAltoGreen program;
- Evaluation of adopting a Local Solar Plan;
- A California Oregon Transmission Project long-term layoff amendment; and
- Evaluation of adopting a Carbon Neutral Plan

## **DISCUSSION**

The need to conduct a traditional IRP has been minimized significantly through California’s and the City’s adoption of several legislative initiatives and policies which mandate how resources will be procured through loading order mandates, targets for roof-top solar photovoltaics, renewable portfolio standards and/or capacity planning reserves. However, on October 7, 2015, Governor Edmund G. Brown, Jr. signed Senate Bill 350 (SB 350) into law, which among other things requires that publicly owned utilities (POU) serving loads greater than 700,000 megawatt hours per year, such as Palo Alto, submit an integrated resource plan (IRP) to the California Energy Commission (CEC) every five years with the first one due by January 31, 2019. One of the main objectives of SB 350 is to ensure that POUs are on track to meet the State’s greenhouse gas reduction goals by 2030.

An update of the current LEAP is necessary and will provide a basis for several key decisions and policies related to the electric portfolio in the 2020 to 2030 planning horizon. This update will serve as the basis for meeting the requirements set forth in SB 350 and going forward, staff will refer to the next LEAP as the Electric Integrated Resource Plan (EIRP).

A key factor for consideration in the EIRP includes the City’s contract with the Western Area Power Administration (WAPA) for hydroelectric resources from the Central Valley Project (CVP) which expires at the end of 2024. The process for extending this contract is well underway and is expected to take five to seven years to complete. The EIRP and corresponding implementation plan will include discussion and evaluation of the right amount of large hydroelectric resources to be included in the City’s electric portfolio. The EIRP will also need to address necessary modifications to the City’s RPS; how to integrate the impacts of distributed energy resources and electrification; and how to best deliver a carbon neutral portfolio which meets greenhouse gas reduction goals set forth in the City’s Sustainability and Climate Action Plan and maintains the financial health of the City’s Utilities.

SB 350 also requires the doubling of energy efficiency savings targets by 2030 and established a new RPS for all load serving entities from 33% in 2030 to 50% by 2030. The 10-Year Energy Efficiency Potential Plan approved by Council in March 2017 addresses the new energy efficiency savings requirements and while the City expects to achieve an RPS of 57% in 2017, formal adoption by Council of the new RPS and compliance requirements is necessary.

Several state legislative initiatives are underway which may impact the electric portfolio planning for the City including:

- establishing a 100% clean energy standard, which may impact the viability of large hydroelectric resources;
- major modifications to California’s cap and trade program; and
- renewed interest in providing full retail competition through expansion of Direct Access.

The new EIRP will need to address the aforementioned initiatives and mandates along with internal policy drivers and the need to provide customers with low-cost, safe, reliable and environmentally sustainable electricity.

The schedule and structure of the EIRP process is being guided in large part by requirements imposed by SB 350 and CEC guidelines to implement it. Passage of SB 350 requires the development and submission of an IRP to the CEC no later than January 31, 2019. The IRP must be consistent with CEC guidelines that are still in development. At a minimum, Sections 9621 and 454.52 of the State Public Utilities Code require that the City’s IRP will need to:

1. Meet GHG emissions targets that reflect the electricity sector’s contribution to achieving the economy-wide greenhouse gas emissions reductions of 40 percent from 1990 levels by 2030
2. Ensure procurement of at least 50 percent eligible renewable energy resources by 2030
3. Meet the following goals
  - a. Fulfill obligation to serve customers at just and reasonable rates
  - b. Minimize impacts on ratepayers’ bills.
  - c. Ensure system and local reliability.
  - d. Strengthen the diversity, sustainability, and resilience of the bulk transmission and distribution systems, and local communities.
  - e. Enhance distribution systems and demand-side energy management.
  - f. Minimize localized air pollutants and other greenhouse gas emissions, with early priority on disadvantaged communities
4. Address the following procurement topics
  - a. Energy efficiency and demand response resources
  - b. Energy storage
  - c. Transportation electrification.
  - d. A diversified procurement portfolio consisting of both short-term and long-term electricity, electricity-related, and demand response products.
  - e. Resource adequacy requirements

To address the City’s electric portfolio planning needs in a comprehensive EIRP update and to meet SB 350’s requirements, staff proposes a series of discussions on specific portfolio elements over the next 12 to 18 months. These discussions will enable the UAC and Council to have a

better understanding of the issues and decisions facing the Electric Utility and to provide input and direction early on in the process.

Staff is seeking feedback from the UAC and Council on how to best address the many internal and external issues, initiatives, directives and requirements in the new EIRP and an evaluation of the appropriateness of current LEAP objectives and strategies. Table 1 provides potential discussion topics along with a tentative schedule for UAC and Council consideration. Attachment B includes an illustration of the proposed work plan.

**Table 1: 2017-18 EIRP Tentative Work Plan**

<b>Discussion Item</b>	<b>Meeting Objectives/Goals</b>	<b>UAC</b>	<b>Council</b>
<b>1. EIRP Overview and Work Plan</b>	Provide a high level framework for what will be discussed, time line; guiding principles; and key drivers.	June 2017	August 2017
<b>2. Load Forecast, Needs Assessment; and Market Overview</b>	Overview of electric load forecast and expected supply resources; long-term energy and capacity needs and California market overview (tentative)	July 2017	September 2017
<b>3. Distributive Energy Resources Strategy and Planning for Growth</b>	Distributive Energy Resources Plan - energy efficiency, Local Solar Plan, distributed generation, electrification, electric vehicles, storage and distribution system planning	August 2017, October 2017, January 2018 (action)	March 2018 (action)
<b>4. Hydroelectric Resources</b>	Overview of Palo Alto's hydroelectric resources; hydro risk management; Western Area Power Administration's 2025 Power Marketing Plan; Calaveras Project; key decisions; and direction.	September 2017	October 2017
<b>5. Renewable Portfolio Standard</b>	Overview of RPS; update to meet SB 350 requirements; renewable over-generation and curtailments; and other RPS modifications.	November 2017 (action)	January 2018 (action)
<b>6. Carbon Neutral Plan</b>	Overview and updates – dependent on RPS and large hydro direction	February 2018	April 2018
<b>7. Portfolio Management and Transmission</b>	Portfolio risk management; delivery costs; transmission planning; and California Oregon Transmission Project	February/ March 2018	April/May 2018
<b>8. Proposed EIRP Objectives, Key Strategies and Implementation Plan</b>	Draft EIRP objectives, key strategies and implementation plan;	June 2018 (possible action)	July/August 2018 (possible action)
<b>9. Final EIRP</b>	Approval of EIRP objectives; strategies and implementation plan; and SB 350 IRP submittal to CEC	October 2018 (action)	December 2018 (action)

**NEXT STEPS**

Staff will incorporate the UAC’s input on the proposed EIRP work plan and share with the Council for their input as well.

**RESOURCE IMPACT**

There is no direct resource impact as a result of the proposed EIRP work plan. Work will be performed with existing staff.

**POLICY IMPLICATIONS**

There is no direct policy impact associated with the proposed work plan, but any changes made through EIRP will affect policy related to electric portfolio management. Staff will also update the EIRP to ensure consistency with the City’s sustainability goals as established in its Sustainability and Climate Action Plan.

**ENVIRONMENTAL REVIEW**

The Utilities Advisory Commission’s discussion of the EIRP work plan does not meet the definition of a project under Public Resources Code 21065 and is therefore California Environmental Quality Act (CEQA) review is not required.

**ATTACHMENTS**

- A. Existing LEAP Objectives, Guidelines and Implementation Plan
- B. Proposed Work Plan

**PREPARED BY:** MONICA PADILLA, Senior Resource Planner

**REVIEWED BY:**  JONATHAN ABENDSCHEIN, Assistant Director, Resource Management

**APPROVED BY:**   
ED SHIKADA  
General Manager of Utilities

## Long-term Electric Acquisition Plan (LEAP)

Approved March 7, 2011 (Staff Report 1317, Resolution 9152)  
Modified by Council March 19, 2012 (Staff Report 2581, Resolution 9237)  
Modified by Council April 16, 2012 (Staff Report 2710, Resolution 9241)

### LEAP Objectives:

1. Meet customer electricity needs through the acquisition of least total cost energy and demand resources including an assessment of the environmental costs and benefits
2. Manage supply portfolio cost uncertainty to meet rate and reserve objectives.
3. Enhance supply reliability to meet City and customer needs by pursuing opportunities including transmission system upgrades and local generation.

### LEAP Strategies:

1. **Resource Acquisition** – Pursue the least total cost resources including an assessment of environmental costs and benefits to meet the City’s needs in the long term by:
  - a. Evaluating each potential resource on an equal basis by evaluating rate impacts and establishing costs and values for location, time of day and year, carbon, value of renewable supplies and any secondary benefits attributed to the resource; and
  - b. Including all resources – conventional energy, local and remote renewable energy supplies, energy efficiency, cogeneration, and demand reduction – in the evaluation.
2. **Electric Energy Efficiency and Demand Reduction** – Fund programs that maximize the deployment of cost-effective, reliable and feasible energy efficiency and demand reduction opportunities as the highest priority resources by:
  - a. Every three years, preparing a ten-year energy efficiency plan that identifies all cost-effective energy efficiency opportunities;
  - b. Using the cost of long-term renewable energy resources adjusted for time of day factors and location as the avoided cost when evaluating cost effectiveness of energy efficiency measures;
  - c. Designing and making energy efficiency programs available to all customers; and
  - d. Considering the impacts (costs, benefits and GHG emissions) of substituting electricity-using appliances for natural gas-using appliances and vice versa in the ten-year energy efficiency plan.
3. **Renewable Portfolio Standard (RPS)** – Reduce the carbon intensity of the electric portfolio by acquiring renewable energy supplies by:
  - a. Pursuing a minimum level of renewable purchases of at least 33% of retail sales by 2015 with the following attributes:
    - i. The contracts for investment in renewable resources shall not exceed 30 years in term.
    - ii. Pursue only renewable resources deemed to be eligible by the California Energy Commission (CEC).
    - iii. Evaluate use of Renewable Energy Certificates (RECs) to meet RPS.
  - b. Ensuring that the retail rate impact for renewable purchases does not exceed 0.5 ¢/kWh on average; and
  - c. Performing an ongoing evaluation of the Palo Alto Clean Local Energy Accessible Now (CLEAN) program.

## Long-term Electric Acquisition Plan (LEAP)

4. **Local Generation** – Promote and facilitate the deployment of cost-effective local resources by:
  - a. Using the renewable market price referent (MPR) adjusted for time of day factors and location as the avoided cost when evaluating cost effectiveness of local resources;
  - b. Considering energy delivery cost uncertainty and strategic value options when evaluating opportunities;
  - c. Evaluating a Feed-in-Tariff to promote locally sited renewable resources;
  - d. Evaluating cost-effective energy storage resources; and
  - e. Evaluating the feasibility of developing a 25 to 50 MW generating facility connect to the City’s distribution system.
  
5. **Climate Protection** – Reduce the electric portfolio’s carbon intensity by:
  - a. Supporting the City municipal government’s climate protection goals;
  - b. Promoting the use of technologies (e.g. incentives for cogeneration systems, promotion of EVs, in-home energy displays) and programs that will reduce the community’s carbon footprint at a cost of up to the City’s value of carbon;
  - c. Continuing to offer a renewable resource-based retail rate for all customers who want to voluntarily select an increased content of non-hydro renewable energy; and
  - d. Evaluating quantitative goals for possible future implementation.
  
6. **Hydro Resource Management** – Actively monitor and manage cost uncertainty related to variations in hydroelectric supply and maximize value of hydro resources by:
  - a. Planning for an average hydro year on a long-term basis;
  - b. Utilizing cost effective hydro resource management products; and
  - c. Implementing opportunities to maximize benefits and reduce costs of the Western Base Resource and Calaveras hydroelectric resources.
  
7. **Market Price Exposure Management** – Actively monitor and manage operational, counterparty and wholesale energy price risk in the short-term (up to three to five years) by:
  - a. Maintaining an adequate pool of creditworthy suppliers; and
  - b. Diversifying supply purchases across commitment date, start date, duration, suppliers and pricing terms in alignment with rate stability objectives and reserve guideline.
  
8. **Transmission and Reliability** – Pursue the reliability of supply at fair and reasonable transmission and delivery costs by:
  - a. Actively participating through collaborative efforts with other entities, in local, regional, statewide and federal regulatory and legislative forums;
  - b. Participating in transmission and reliability market design forums to ensure that adopted market designs result in adequate reliability, workably competitive markets and equitable cost allocation;
  - c. Evaluating interconnection options to the City to increase service reliability and lower delivery costs; and
  - d. Exploring transmission opportunities and strategies to meet long-term renewable portfolio objectives beyond 2020.

