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Project Title:	Integrated Resource Plans (Publicly Owned Utilities)
TN #:	212092
Document Title:	Presentation - Palo Alto's Integrated Resource Planning
Description:	SB 350-Required Integrated Resource Plans Workshop of April 18, 2016.
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DOCKETED

Docket Number:	16-OIR-01
Project Title:	General Rulemaking Proceeding for Developing Regulations, Guidelines and Policies for Implementing SB 350 and AB 802
TN #:	211107
Document Title:	Presentation - Palo Alto's Integrated Resource Planning
Description:	SB 350-Required Integrated Resource Plans Workshop of April 18, 2016.
Filer:	Marc Pryor
Organization:	City of Palo Alto
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City of Palo Alto Utilities

- Water
- Gas
- Wastewater
- Fiber
- Electric
  - Annual load: ~1,000 GWh
  - Peak: 180 MW
  - Customers: ~29,500

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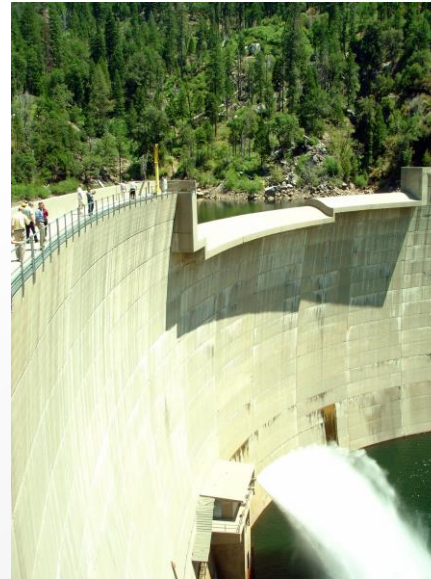
# Key Energy Planning Initiatives

Palo Alto Initiatives

1992: First ten year Electric IRP

2002: Palo Alto adopts it first RPS

2003: First Long-term Electric Acquisition Plan (LEAP)

2005: First Western IRP (updated every 5 years)

2006: Electric Resource Adequacy Program adopted

2007: City Climate Protection Plan –GHG reduction goals

2007: LEAP Updated –loading order and RPS update

2010: First 10 year Energy Efficiency Plan; 2012 update

2011/12: LEAP Updated –carbon reduction goals & storage

2013: Carbon Neutral Plan adopted

2014: Local Solar Plan adopted

2015: Electrification work plan adopted

California Initiatives

1996: Public Benefit Charge & Direct Access

2002: RPS introduced

2005: The "loading order"

2006: AB 32
RPS accelerated
CA Solar Initiative

2010: Energy Storage Law

2011: 33% RPS

2015: SB 350

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Focus on LEAP

- Long-term Electric Acquisition Plan (LEAP)
    - An IRP in all but name
    - Name change to recognize that now least-cost/best fit acquisition is tempered by the loading order and mandated RPS and local solar.
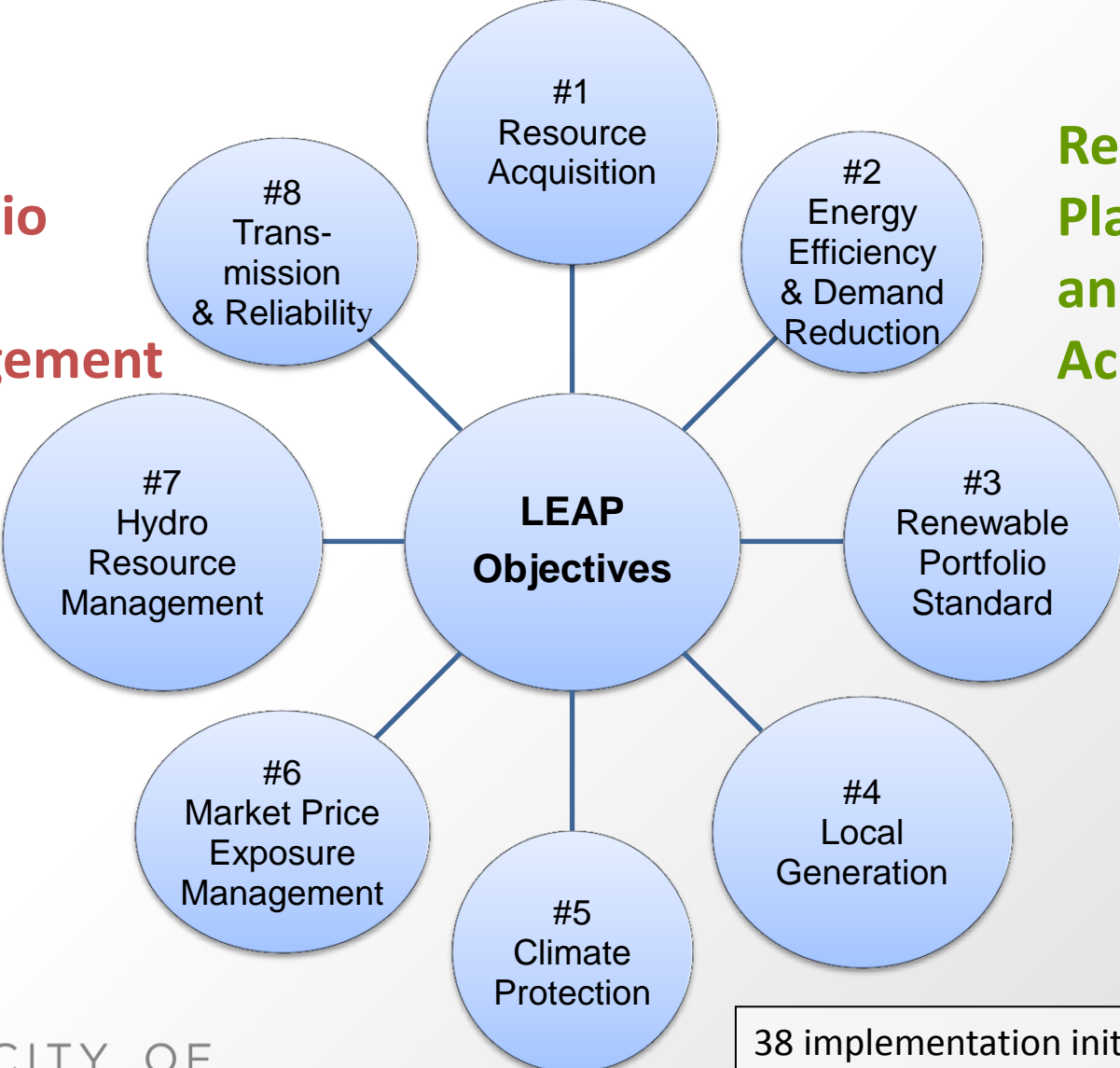   - Approved by City Council via a public process
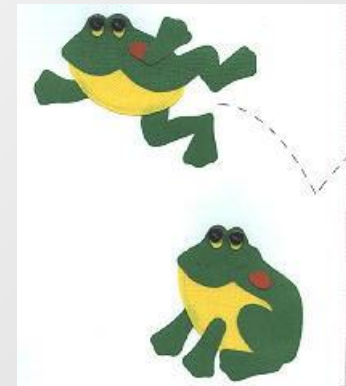
LEAP Objectives

1. Meet customer electricity needs through the <u>acquisition of least total cost energy and demand resources</u> including an assessment of the <u>environmental costs and benefits</u>.

2. <u>Manage supply portfolio cost uncertainty</u> to meet rate and reserve objectives.

3. <u>Enhance supply reliability</u> to meet City and customer needs by pursuing opportunities including transmission system upgrades and local generation.

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LEAP Strategies

Portfolio Cost Management

Resource Planning and Acquisition

- #8 Trans-mission & Reliability
- #1 Resource Acquisition
- #2 Energy Efficiency & Demand Reduction
- #7 Hydro Resource Management
- **LEAP Objectives**
- #3 Renewable Portfolio Standard
- #6 Market Price Exposure Management
- #5 Climate Protection
- #4 Local Generation

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38 implementation initiatives & tasks identified as part of Implementation Plan

Key LEAP Strategies
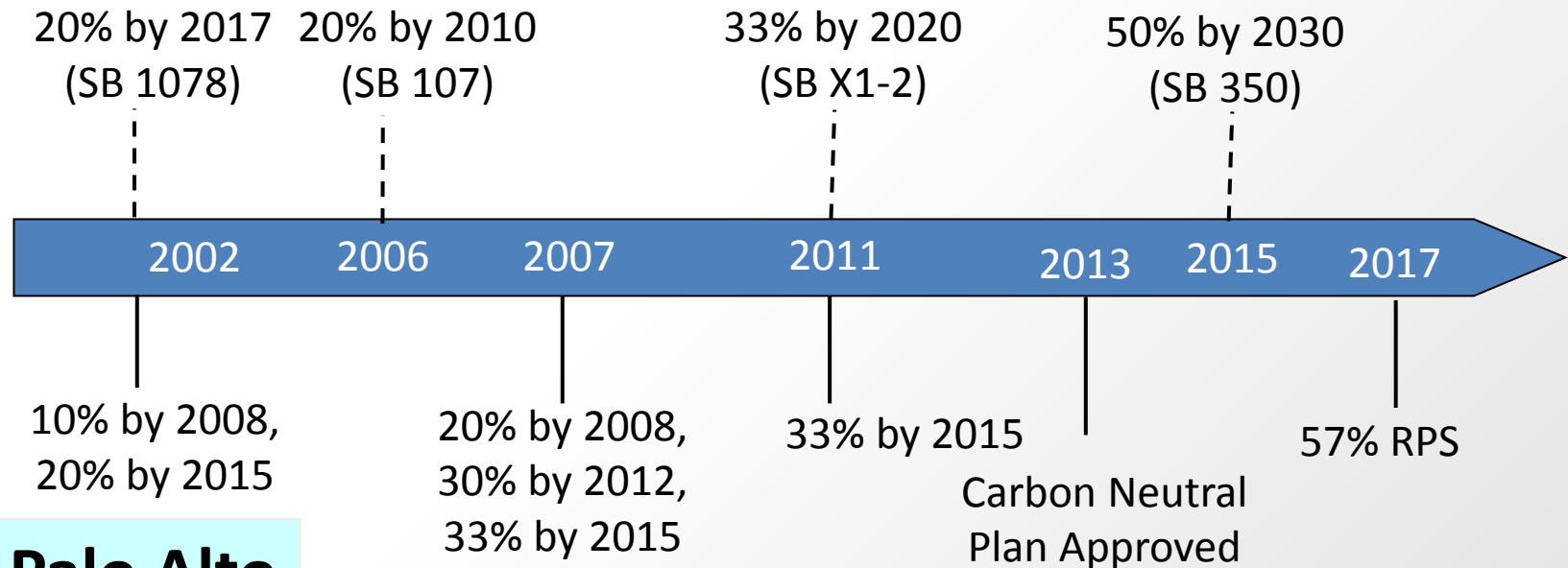
1. Resource Acquisition
   - Evaluate resources on equal basis
   - Develop and Implement an Avoided Cost Model
   - Uses long-term cost of renewables as the basis for evaluating EE, DR and DG alternatives
   - Incorporate EE, DR and EV penetration in load forecasting
2. Energy Efficiency & Demand Response
   - Fund and deploy cost effective EE & DR based on the Loading Order where EE is first.
   - Develop a 10-year Energy Efficiency Plan every 4 years
   - Implement Demand Response Pilot Programs
   - Assess Energy Storage Potential

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3. Renewable Portfolio Standard

California

20% by 2017
(SB 1078)

20% by 2010
(SB 107)

33% by 2020
(SB X1-2)

50% by 2030
(SB 350)

| 2002 | 2006 | 2007 | 2011 | 2013 | 2015 | 2017 |

10% by 2008,
20% by 2015

20% by 2008,
30% by 2012,
33% by 2015

33% by 2015

57% RPS

Carbon Neutral
Plan Approved

Palo Alto

Palo Alto's RPS is 33% by 2015, with a maximum rate impact of 0.5 ¢/kWh – in 2017 CPAU's RPS will be 57% at a rate premium of 0.19 ¢/kWh
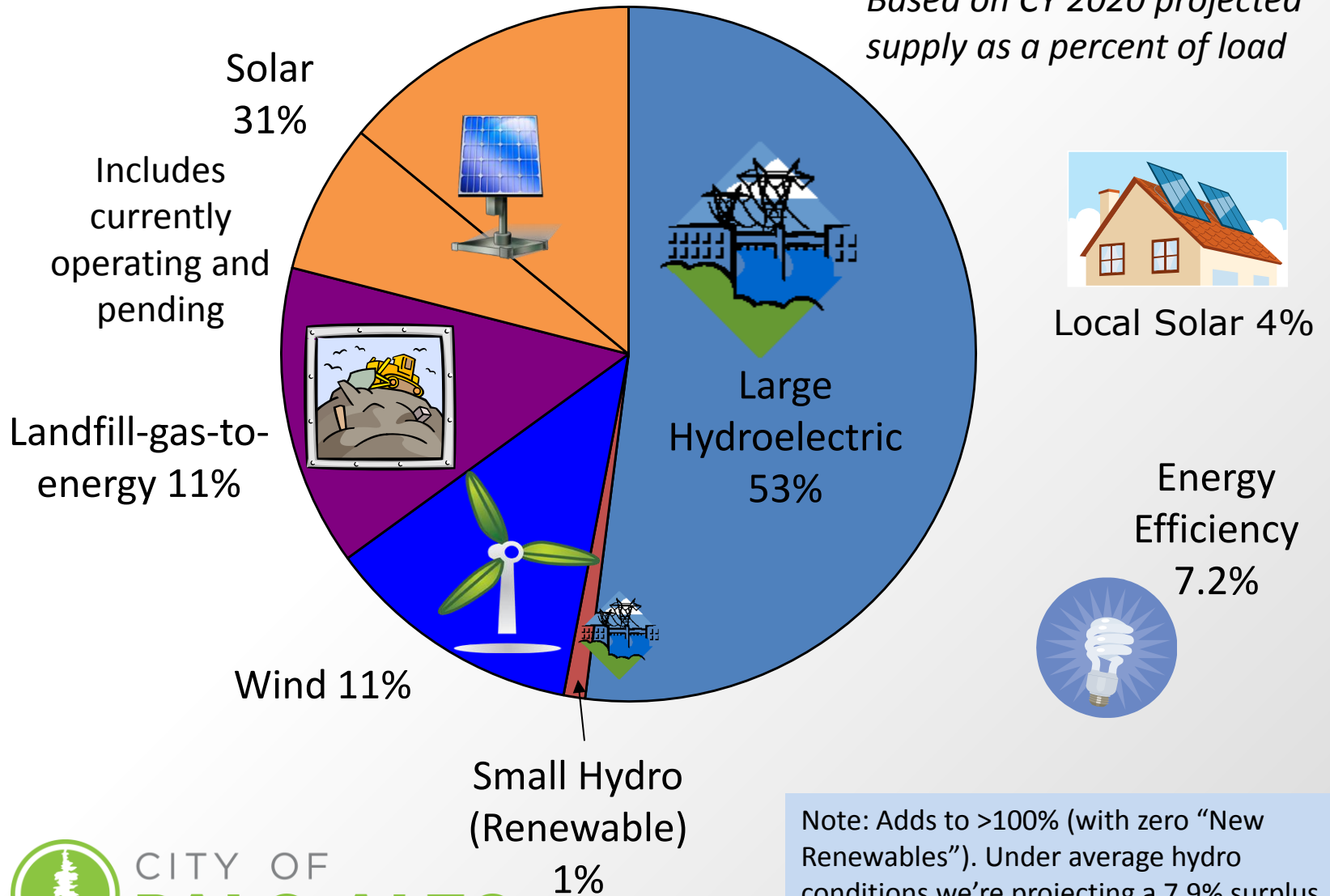
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4. Local Generation

    – Assessment of 25 to 50 MW gas-fired generation in Palo Alto – not feasible

    – Development of CLEAN – feed-in tariff for renewable distributed generation

    – Development of Local Solar Plan

5. Climate Protection

    – Reduce electric portfolio's carbon intensity

    – Evaluate impact of electric vehicles

    – Evaluate eliminating GHG emissions from electric portfolio - Carbon Neutral Plan Approved in 2013

    – Redesign PaloAltoGreen

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The Carbon Neutral Portfolio

Based on CY 2020 projected supply as a percent of load

Solar
31%

Includes currently operating and pending

Landfill-gas-to-energy 11%

Wind 11%

Small Hydro (Renewable) 1%

Large Hydroelectric 53%

Local Solar 4%

Energy Efficiency 7.2%

Note: Adds to >100% (with zero "New Renewables"). Under average hydro conditions we're projecting a 7.9% surplus right now.

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Integrated Resource Planning Efforts for 2016/17

- Update LEAP/IRP –to meet SB350 requirements for RPS (50% by 2030), distributed resources and evaluate carbon neutral resource opportunities post 2025

- Develop first Distributed Energy Resource Plan

- Update and continue to implement Energy Efficiency Plan

- Continue to implement Local Solar Plan – Community Solar & Donation Programs

- Develop Net Energy Metering Successor Program

- Update evaluation of Energy Storage Potential – grid & utility scale

- Implement City's new Climate Protection Plan – including Electrification efforts

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Palo Alto's resource planning already meets the essence of SB 350's IRP requirements

SB 350	Palo Alto
Produce a 10 year integrated resource plan starting in 2019 and update every 5 years	LEAP is a 10 year plan updated approximately every 5 years (more often if needed) which sets objectives and strategies for meeting the City's energy needs. LEAP/IRP is scheduled to be updated in 2016 and will be updated again for 2019 to meet the IRP requirements.
Implement cost effective energy efficiency, distributed generation and demand response measures	The Loading Order requires that we pursue all cost effective energy efficiency first then distributed resources. To assess cost effectiveness the City utilizes an avoided cost model in all resource planning decisions.
Demonstrate how greenhouse gas reductions will be achieved	Palo Alto's existing Climate Protection Plan sets aggressive GHG reduction goals to be carried out by the respective departments. The Electric Supply Carbon Neutral Plan sets out to eliminate all carbon associated with electricity consumed within Palo Alto. The updated Climate Protection plan will set new GHG reduction goals and address electrification initiatives needed to achieve such goals.

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Thank You

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