



Energy Sustainability Plan Interim Results

Engineering and Operations Committee

Item 6a

October 7, 2019

Outline

- Background
- Changing energy landscape
 - Wholesale
 - Retail
- Energy Sustainability Plan
 - Approach for plan development
 - Peer review
 - Schedule

Background

Energy Management Policies (2010)

Objectives

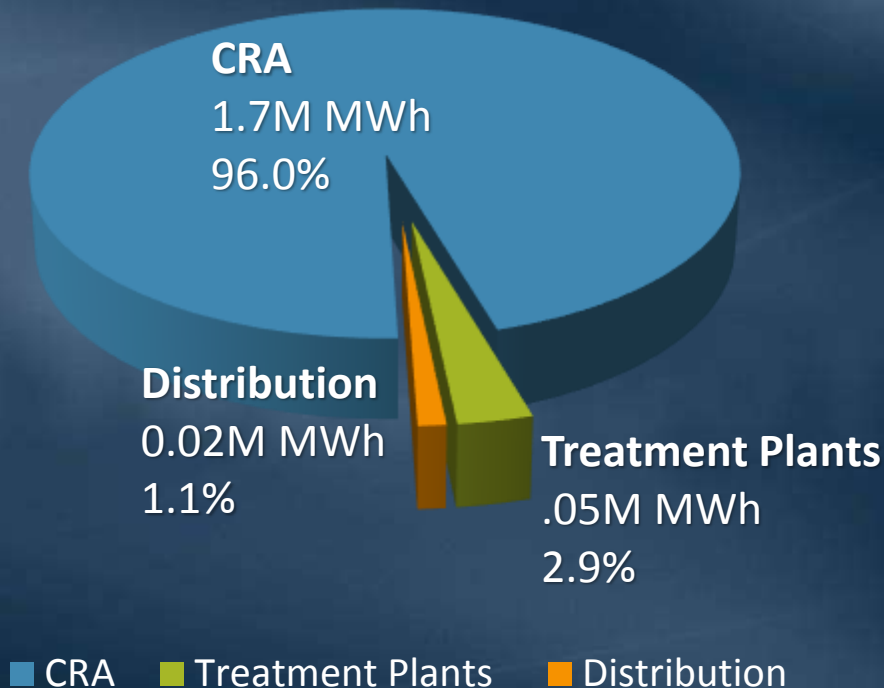
- Contain costs & reduce exposure to price volatility
- Enhance operational reliability
- Provide a revenue stream to offset costs
- Move towards energy independence



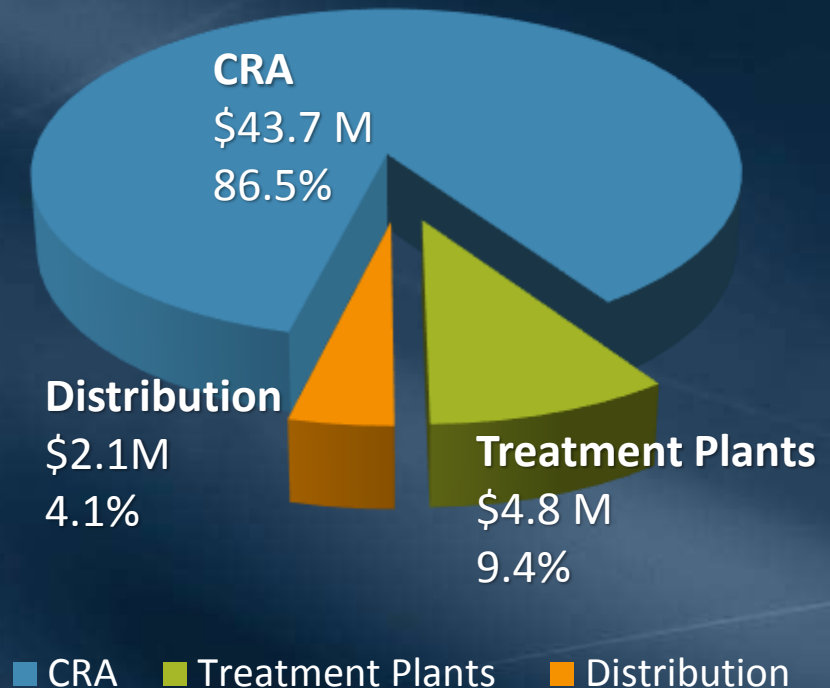
Metropolitan's System Energy Use and Cost Calendar Year 2018

1.6 MAF system deliveries/0.9 MAF CRA diversions

Energy (MWh)



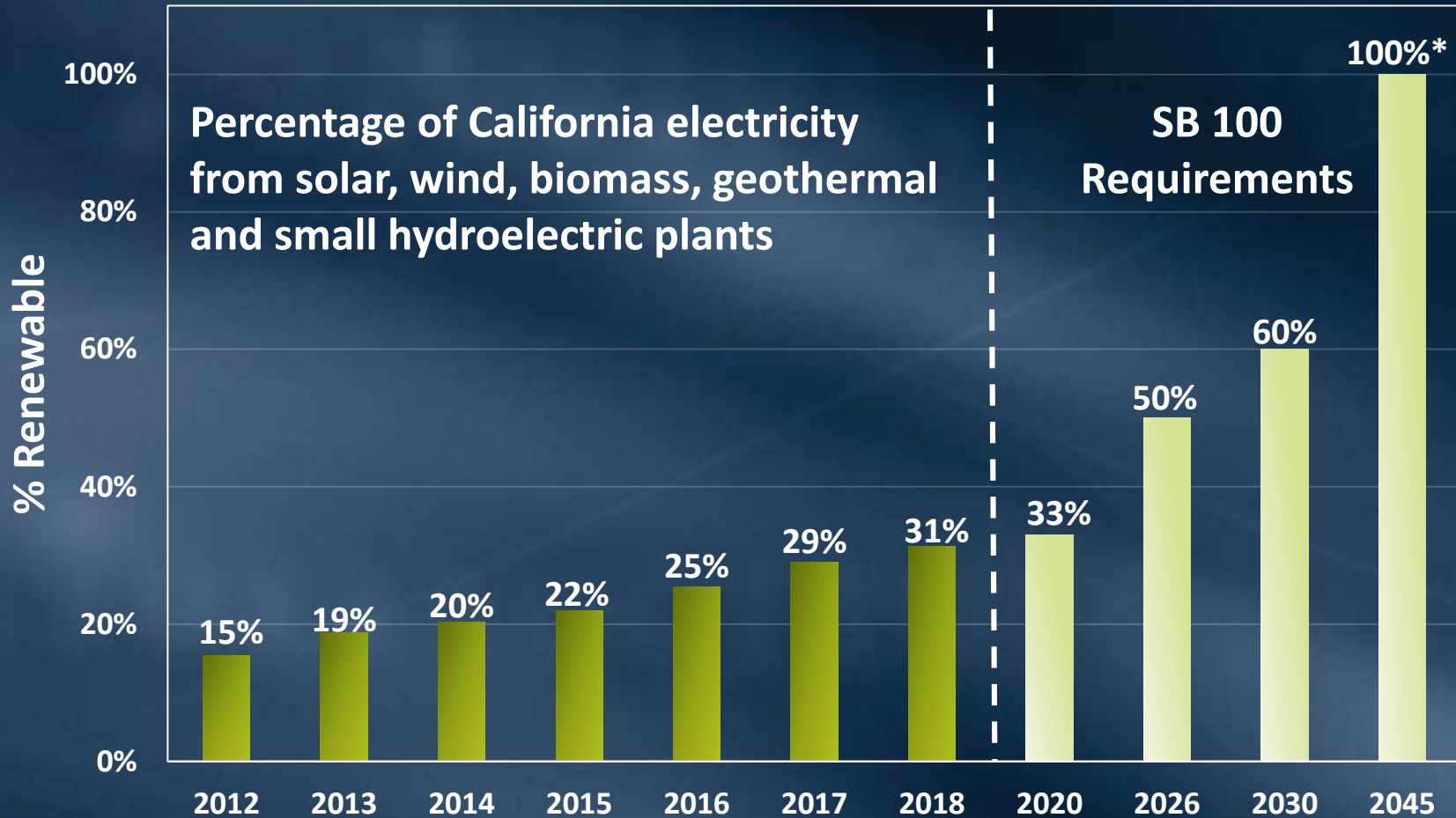
Cost (\$M)



Changing Energy Landscape

California's Greening Grid

SB100 Renewable Energy Development

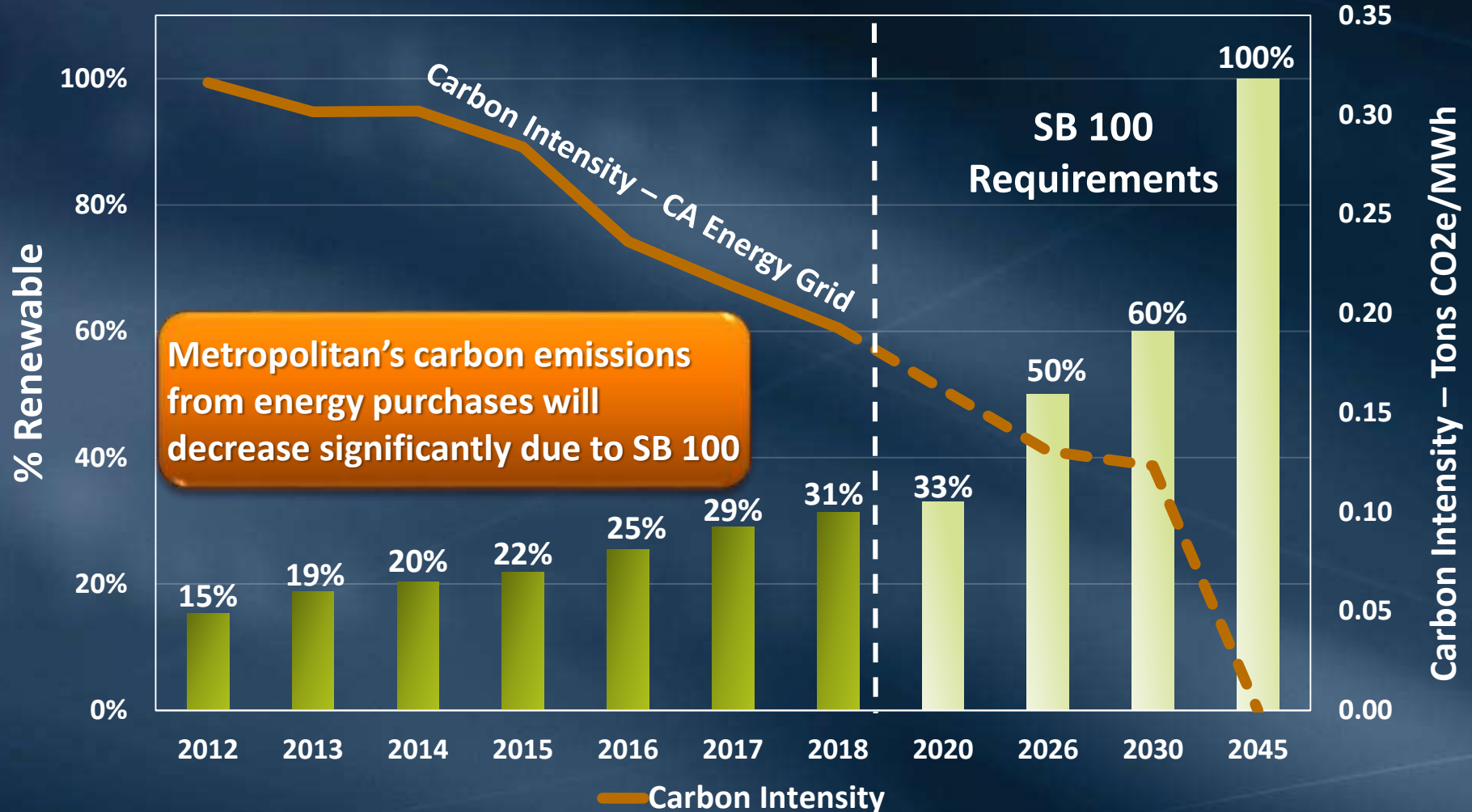


* Minimum of 60% renewables, and up to 40% from non-carbon sources including large hydro

Source: California Energy Commission (Historical)

California's Greening Grid

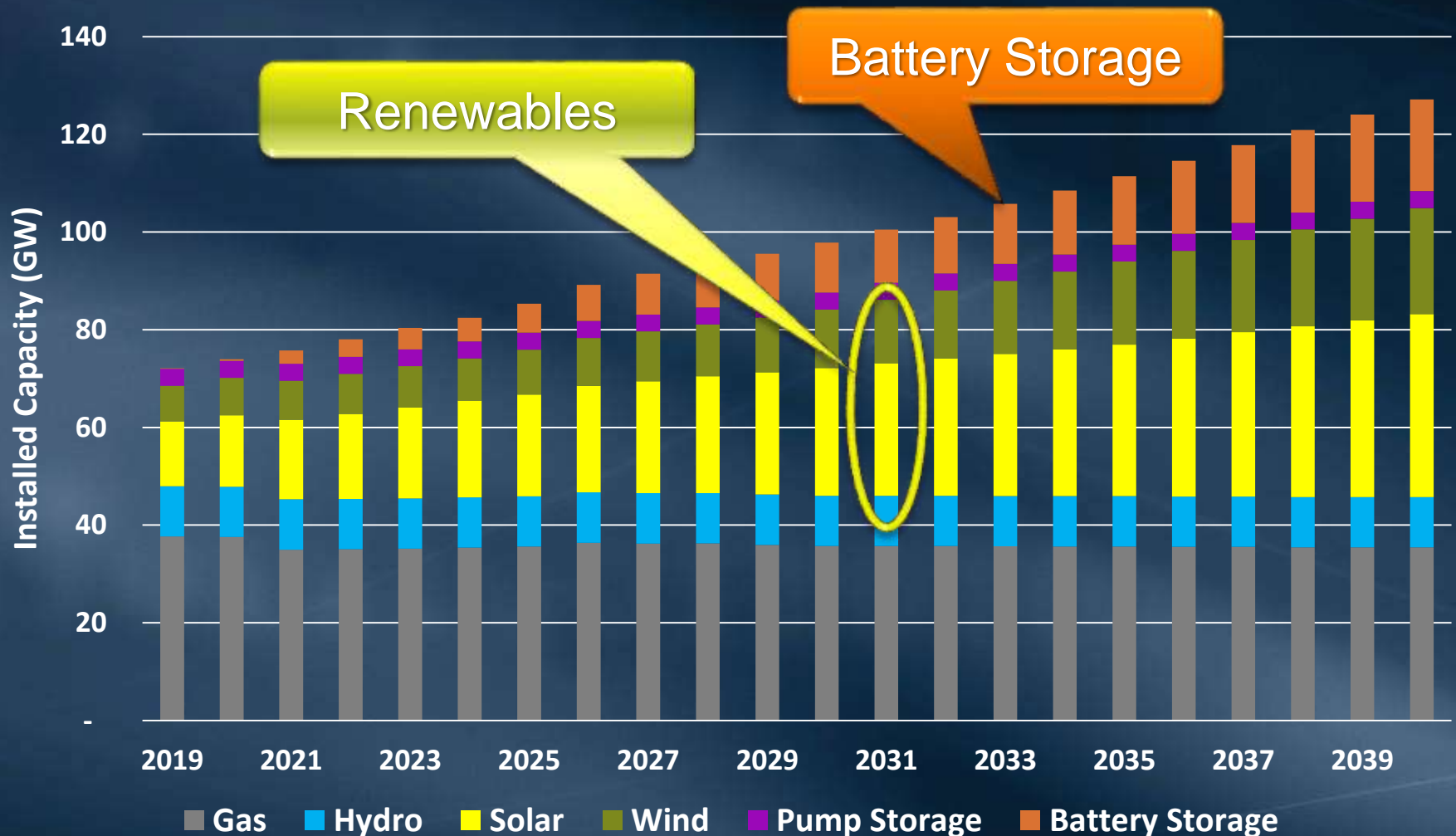
Renewable Energy Growth in California



Source: California Energy Commission (Historical) and Wood Mackenzie (Future)

California's Greening Grid

Expansion of Renewables & Battery Storage



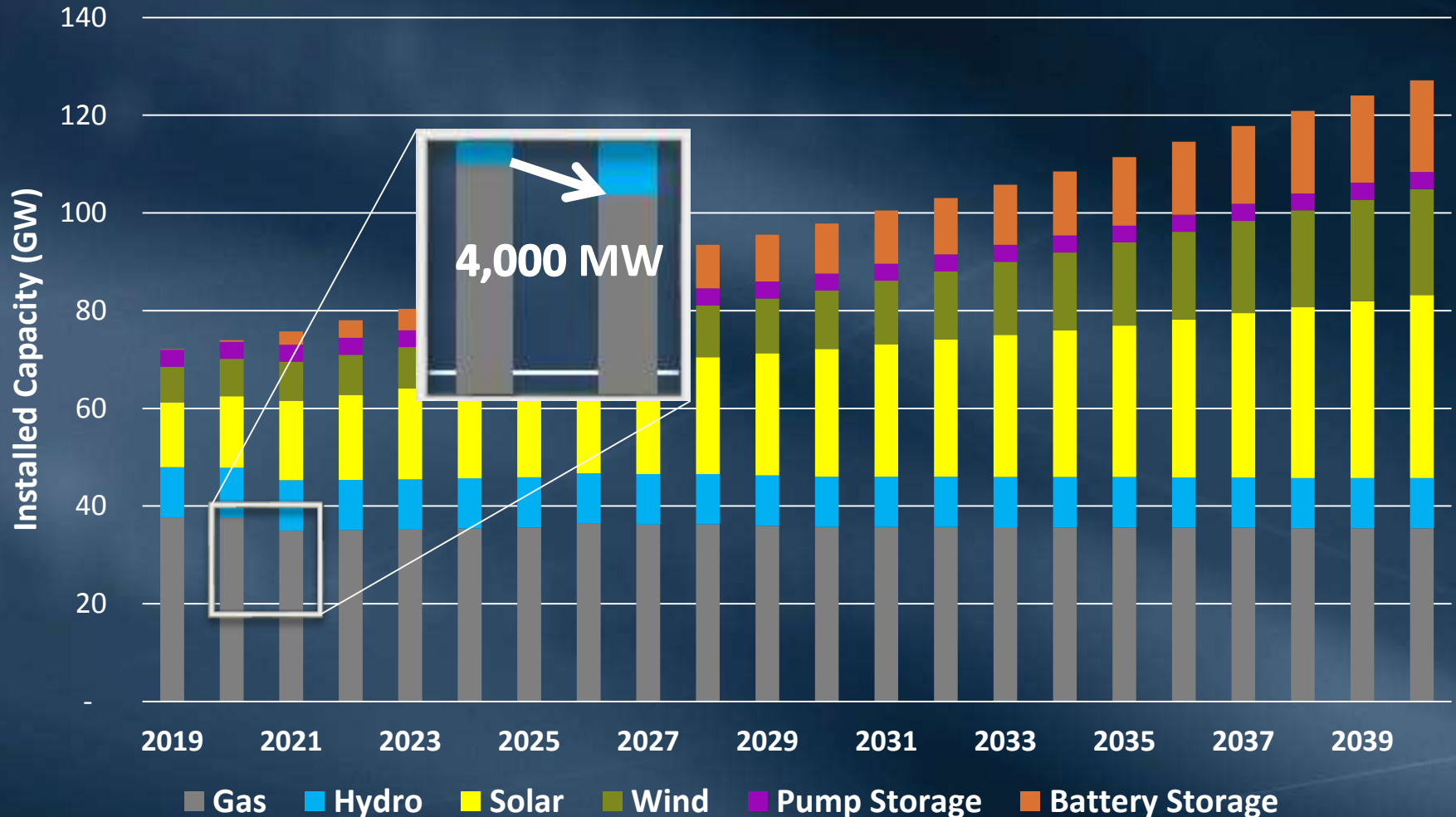
Source: Adapted from Wood Mackenzie
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Reduction in Coastal Gas-Fired Generation

Impacts Grid Reliability and Price Volatility



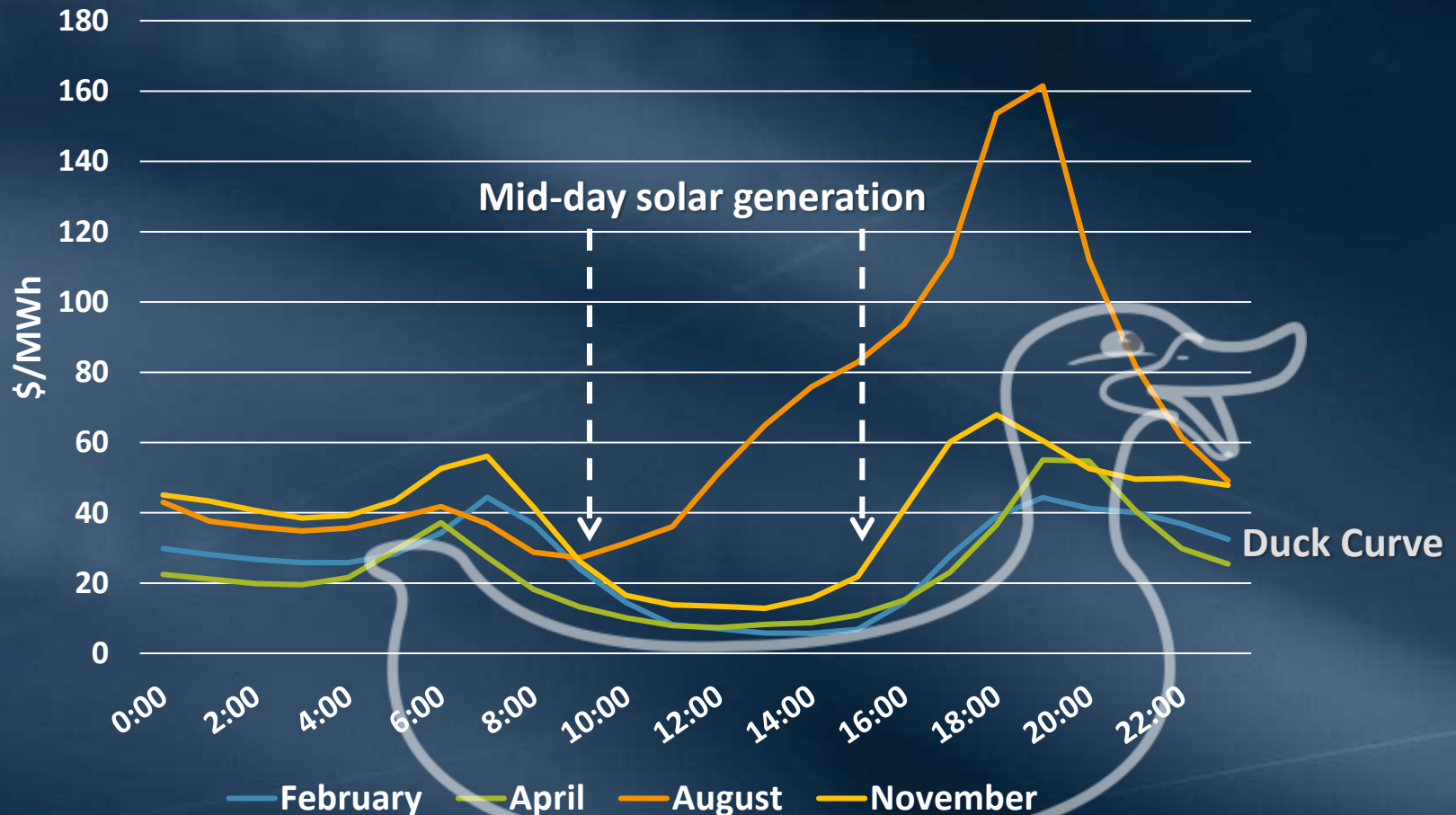
Source: Adapted from Wood Mackenzie
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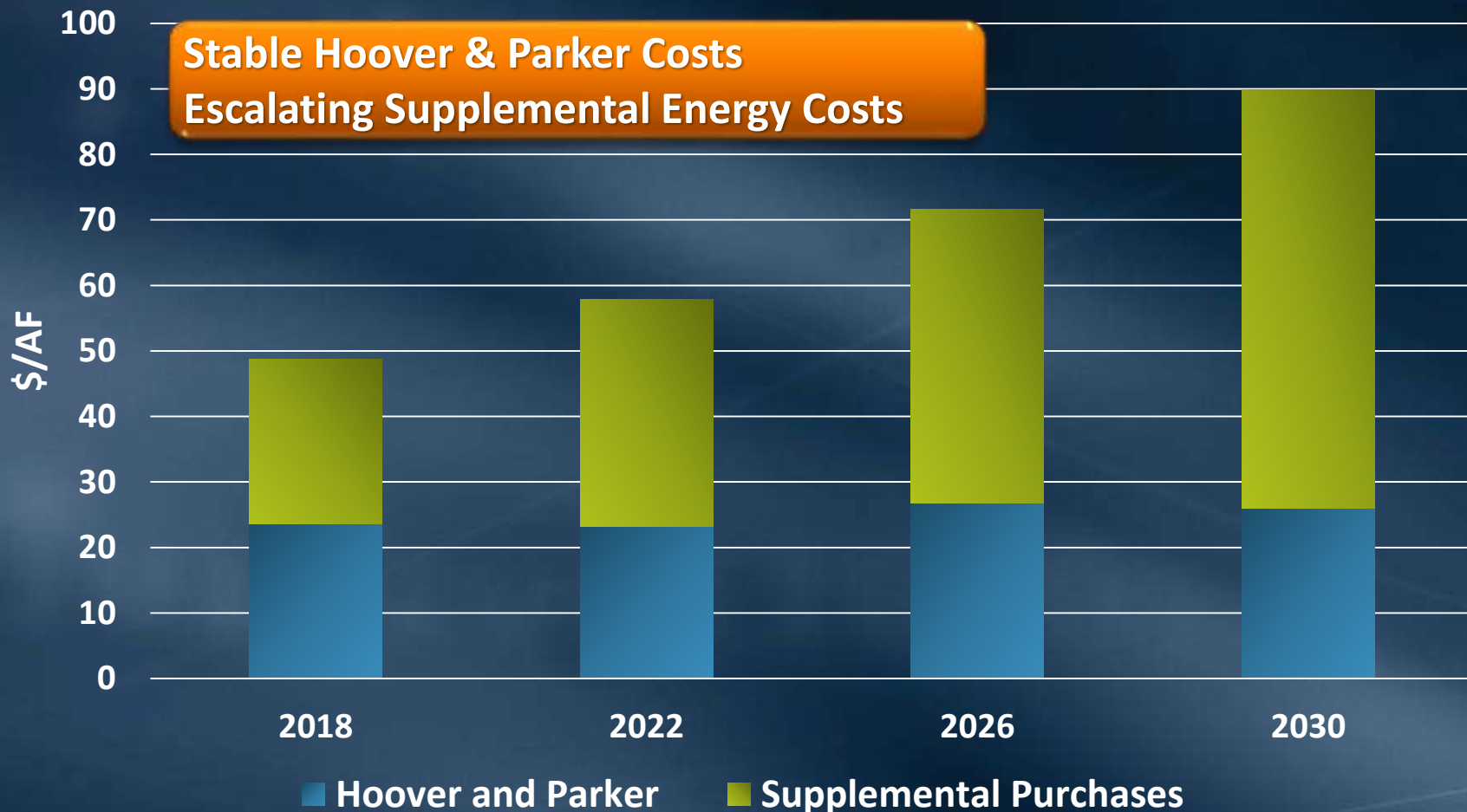
Changing Wholesale Energy Market

2018 CRA Energy Prices Impacted by Carbon & Solar Generation



Changing Wholesale Energy Market

Projected Escalation in CRA Energy Costs



Estimated costs, based on an assumption of 950,000 AF per year

CRA Energy Risk Management

- **2002:** California Energy Crisis; Metropolitan's forward energy hedging program
- **2012:** Audit Report and recommendations
 - Establish risk management policy
 - Develop guidelines and procedures
- **2012-17:** Stable energy prices; no forward hedging
- **2018:** CRA pump cycling in response to summer energy volatility
- **2019-20:** Finalize policies and procedures; implement risk controls to achieve financial goals

Changing Retail Energy Landscape

New Time of Use rates

- Shift in peak pricing to later in the day reduces the value of incremental on-site solar generation & increases value of battery storage

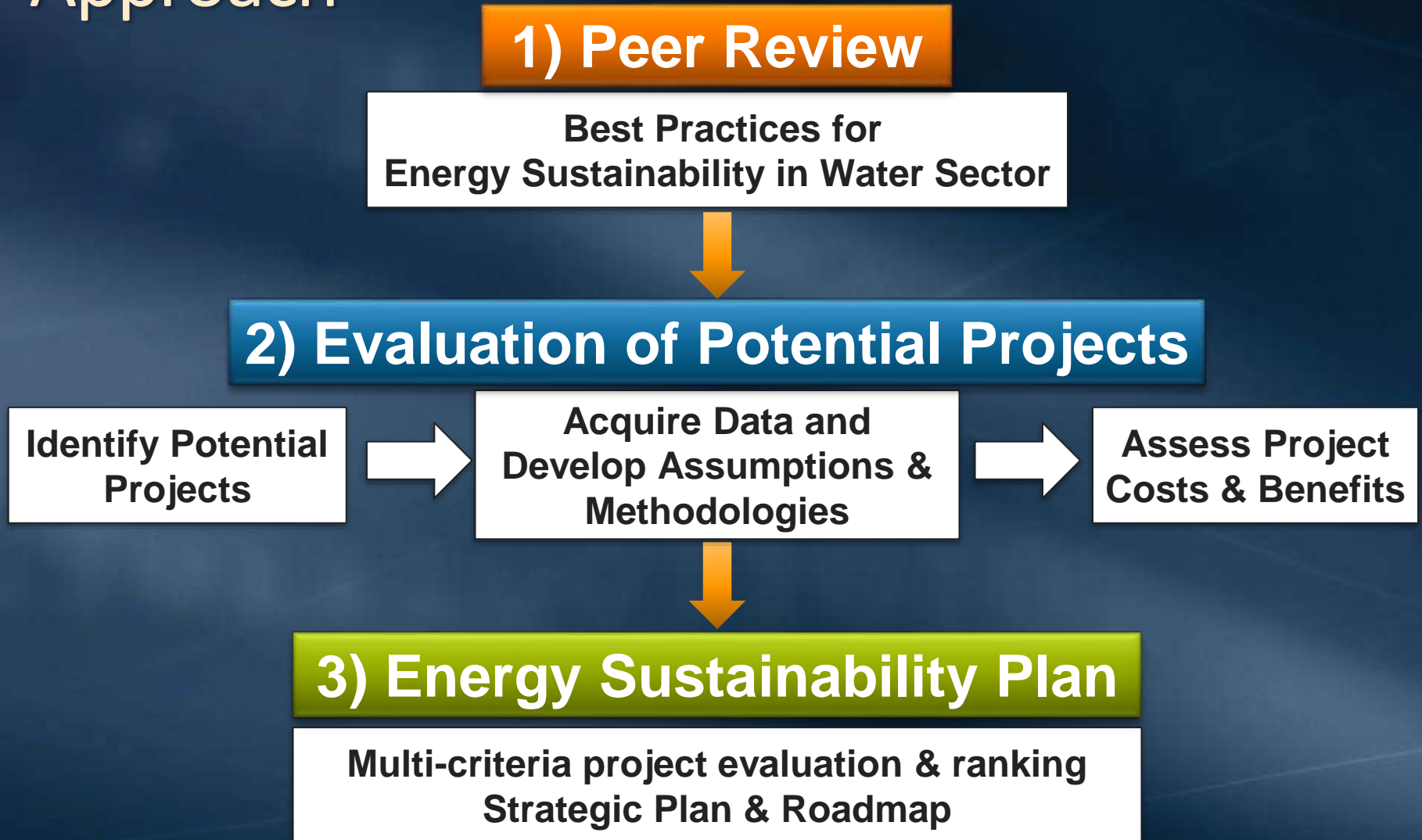
Alternate Energy Supply Options

- Community Choice Aggregation (CCA)
 - Current rates & green options comparable to SCE
 - Potential cost & time lag to switch between providers
- Direct Access (DA) – Third Party Energy Supply
 - SB237 – CPUC evaluation of reopening DA by July 2020

Energy Sustainability Plan

Energy Sustainability Plan Update

Approach



Energy Sustainability Plan Update

Peer Review of 17 Water Agencies



Energy Sustainability Plan Update

Peer Review of 17 Water Agencies

- Similar Energy Management Policies & Goals
 - Reduce energy cost and volatility
 - Improve energy efficiency
 - Reduce carbon emissions
- Renewable energy and energy storage projects deployed through Power Purchase Agreement (PPA) structure
- Energy efficiency improved through advanced data management/sub-metering

Energy Sustainability Plan

Evaluation of Potential Projects

Distribution System and WTPs

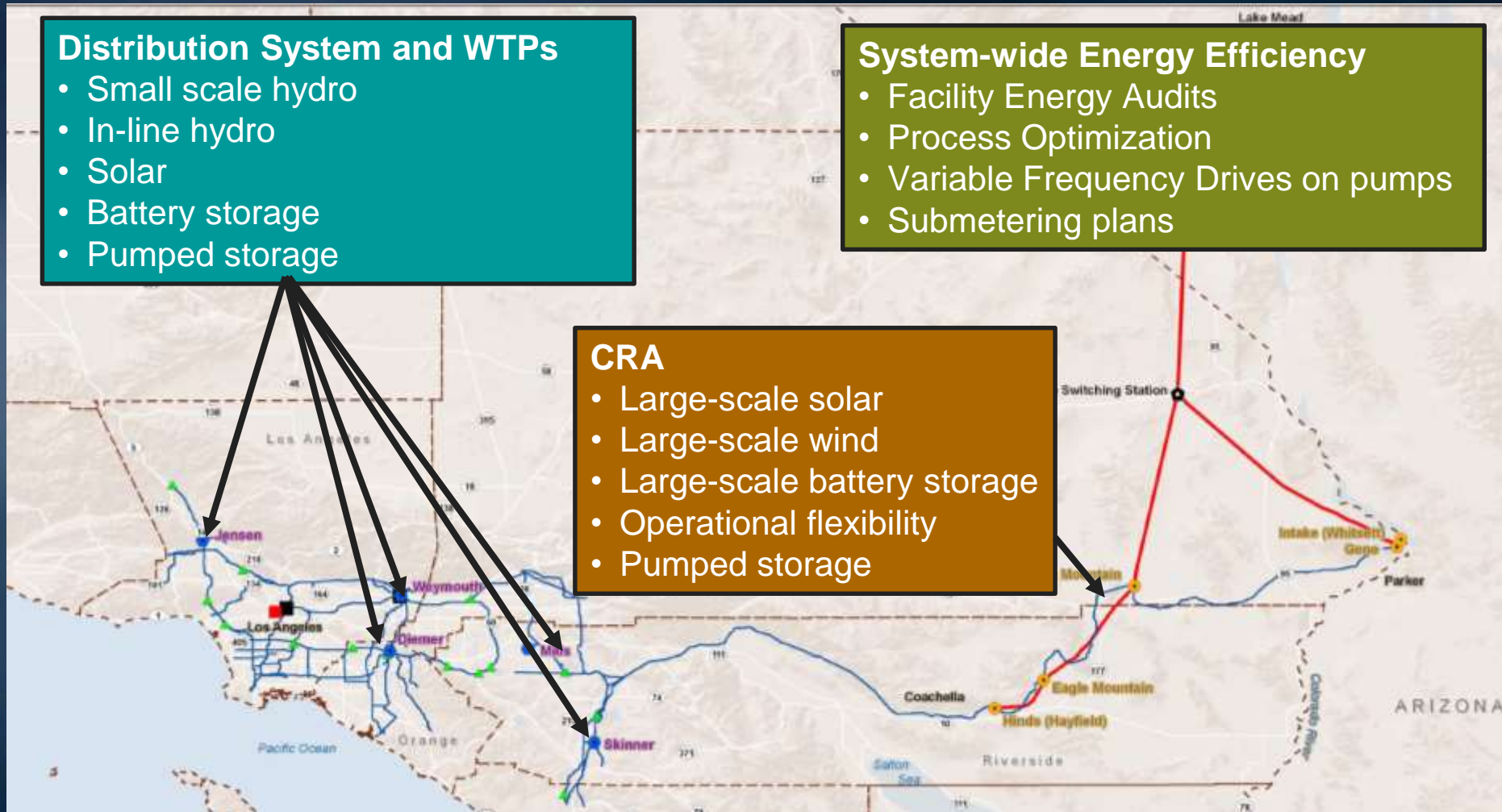
- Small scale hydro
- In-line hydro
- Solar
- Battery storage
- Pumped storage

System-wide Energy Efficiency

- Facility Energy Audits
- Process Optimization
- Variable Frequency Drives on pumps
- Submetering plans

CRA

- Large-scale solar
- Large-scale wind
- Large-scale battery storage
- Operational flexibility
- Pumped storage



Schedule

Energy Sustainability Plan (ESP)	2019			2020		
Kickoff Meeting	◆					
Peer Review of Best Practices		■				
Board Update - ESP		●				
Energy Sustainability Plan Development			■	■	■	
Board Update – Energy Landscape & Peer Review			●			
Board Update – Preliminary Findings				●		
Final Energy Sustainability Plan					◆	

■ Major Task

◆ Milestone

● Board Update

