



# The Pathway to the California Smart Grid Vision of 2020

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# Workshop Purpose



The purpose of this workshop is to:

- 1) Highlight the objectives, progress, and recommendations of the three Smart Grid research road mapping projects;
- 2) Provide information to workshop attendees on the PIER program's Smart Grid research; and
- 3) Give workshop attendees the opportunity to ask questions and provide comments

# Public Interest Energy Research (PIER) Program



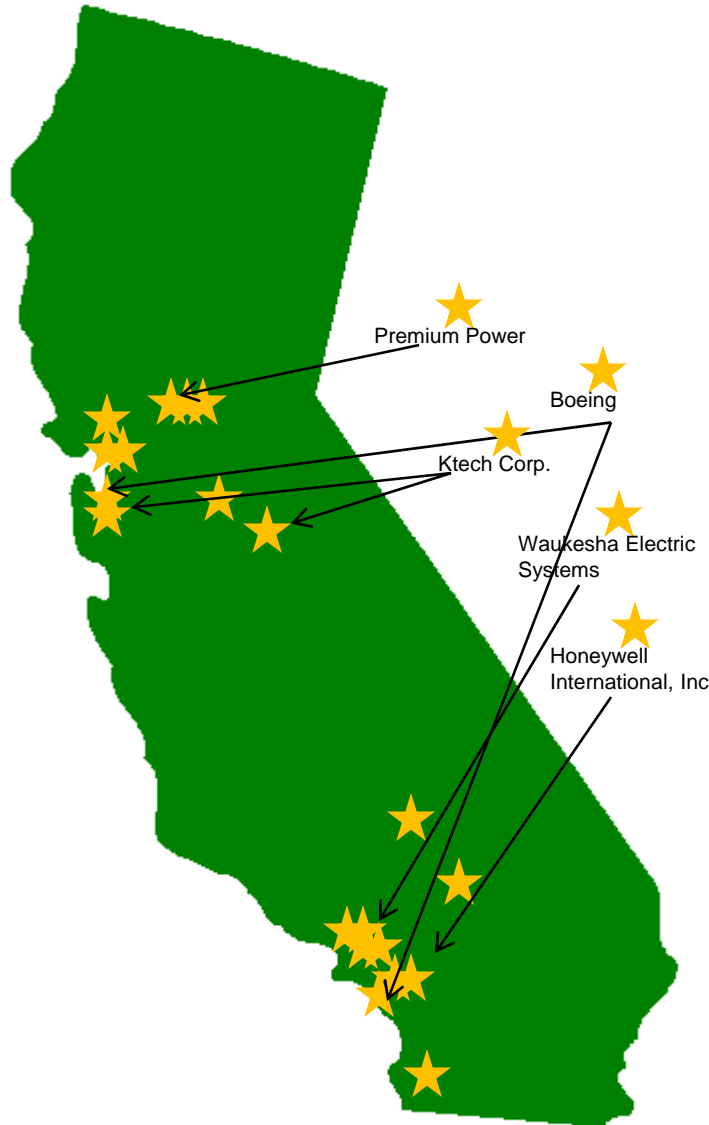
- IOU Ratepayer-funded program launched in 1997 by AB1890
- Addresses electricity, natural gas, and transportation sectors
- \$80M annual budget; over \$400M in active projects
- A leader in no/low-carbon science and technology programs
- Strong emphasis on collaborations

# Why Smart Grid



- **Good for the Environment**
  - Provides new options to reduce emissions & improve overall efficiency
  - Makes Green Grid a Reality
- **Cleaner, Lower Cost Operations, More Efficient**
  - New cost lowering technologies
  - Increased efficiency in operating existing systems--higher utilization rates
- **Improved Grid Operations**
  - Higher reliability
  - Less outage time / shorter outages / smarter decisions
- **More Options for Consumers**
  - Lower overall energy costs
  - More choices
  - More products and applications

# ARRA Smart Grid in California



## Total Project Value to CA - \$1.3 Billion

- City of Glendale Water & Power
- Modesto Irrigation District
- Burbank Water & Power
- City of Anaheim
- Electric Power Group (WECC sub-contractor)
- Pacific Gas & Electric (WECC sub-contractor)
- Sacramento Municipal Utility District
- San Diego Gas & Electric
- Honeywell International, Inc. (Headquarters in MA, work being done in Southern CA)
- Los Angeles Department of Water & Power
- Southern California Edison
- Boeing (Headquarters in MO, work being done in Sunnyvale and Huntington Beach, CA)
- Waukesha Electric Systems (Headquarters in WI, work being done in Irvine, CA)
- Primus Power
- SEEO Inc.
- Southern California Edison
- Pacific Gas & Electric
- Amber Kinetics
- Ktech Corp. (Headquarters in NM, work being done in Sunnyvale and Snelling, CA)
- Sacramento Municipal Utility District (sub-contractor to Premium Power, Headquarters in MA)

# Prior PIER Funded Research



## INTEGRATING NEW AND EMERGING TECHNOLOGIES INTO THE CALIFORNIA SMART GRID INFRASTRUCTURE A Report on a Smart Grid for California

*Prepared For:*  
**California Energy Commission**  
Public Interest Energy Research Program

*Prepared By:*  
Electric Power Research Institute (EPRI)

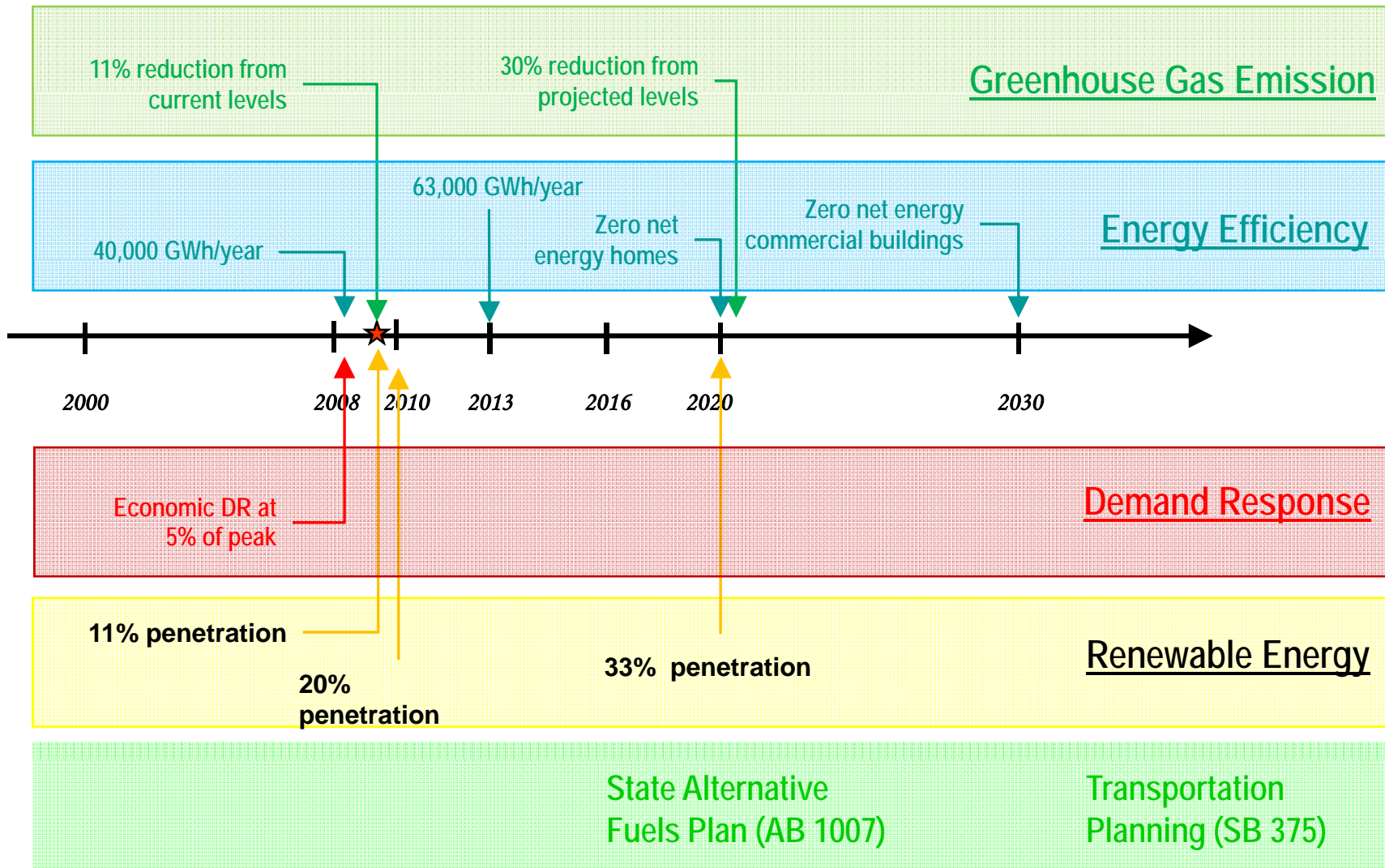


Arnold Schwarzenegger  
Governor

PIER FINAL PROJECT REPORT

September 2008  
CEC-500-2008-047

# California Smart Grid Related Energy Policy

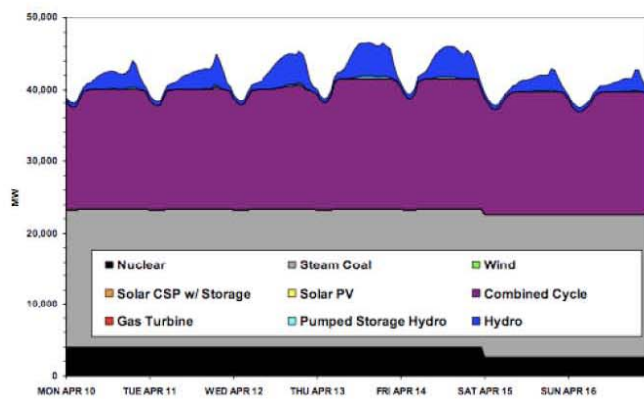


# Future Challenges

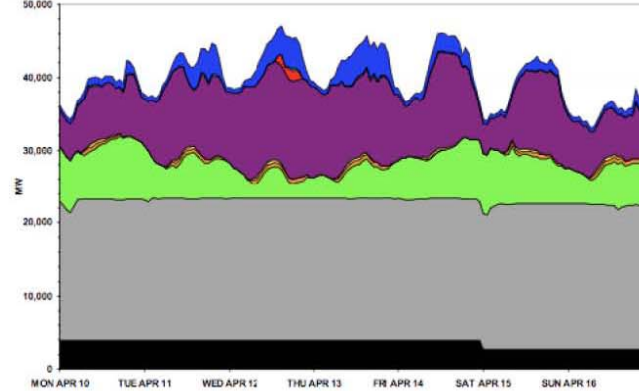


## OE - Variable Generation Affects Grid Operations

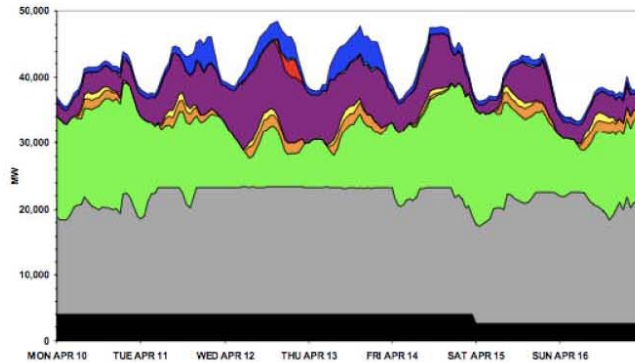
No wind



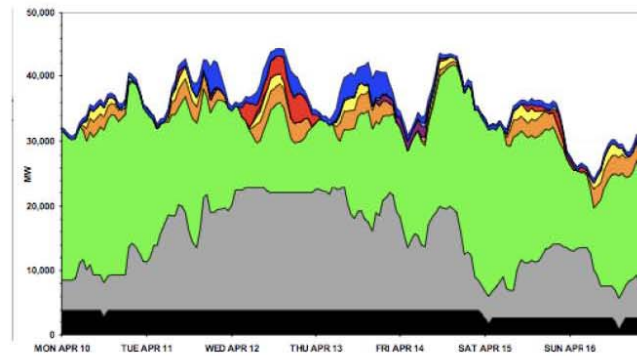
11% renewables



23% renewables



35% renewables



Lew et. al. "How do Wind and Solar Power Affect Grid Operations: The Western Wind and Solar Integration Study". National Renewable Energy Laboratory. (September 2009). p. 6





# 2013 Solar Ramps will be an issue to manage

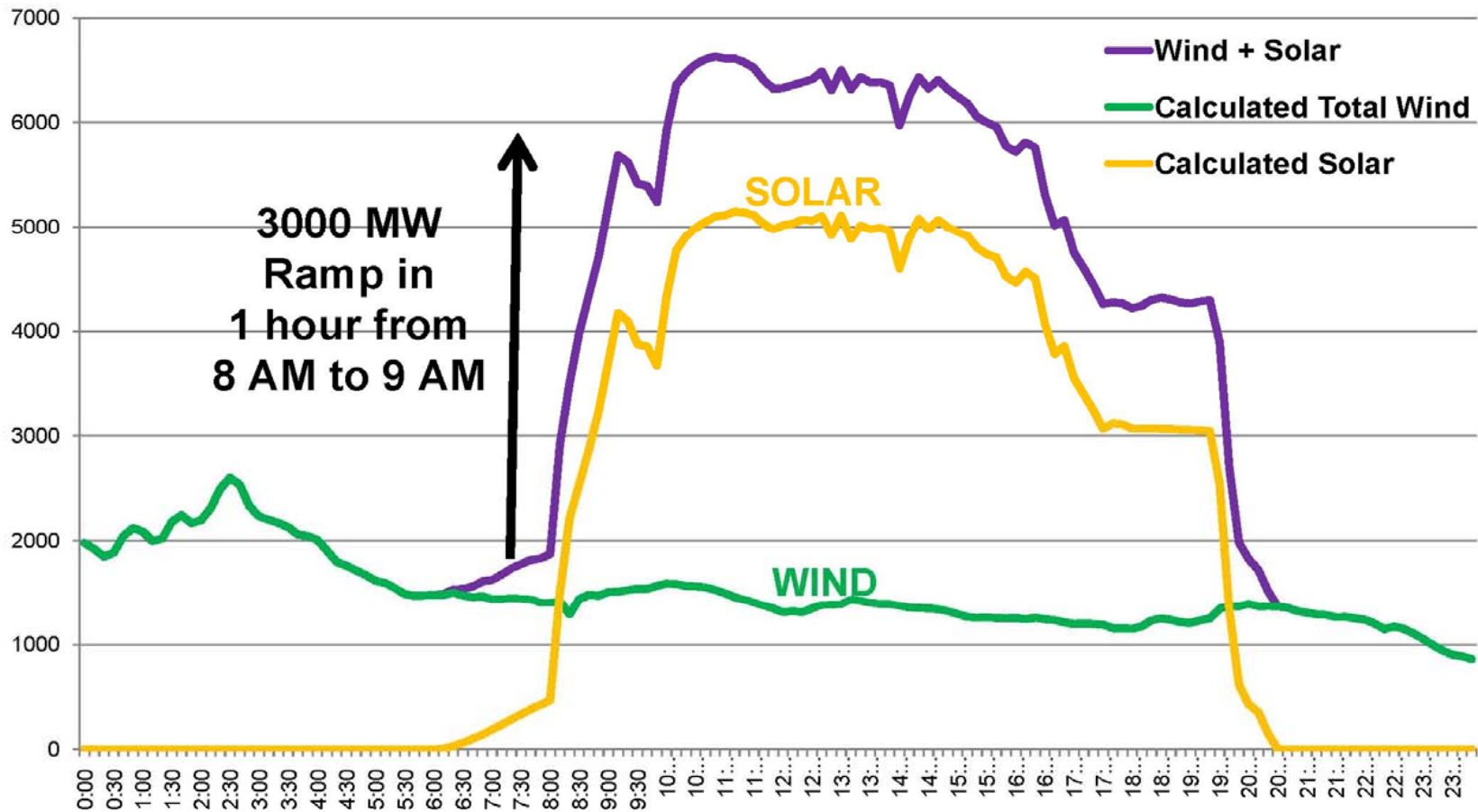


Chart based on March 2010 actual data and escalated to amount of renewables expected in 2013



# Workshop Agenda Review

# Agenda



- 10:00 Introduction**  
Suzanne Korosec, IEPR Lead
- 10:10 Opening Comments**  
Chairman Karen Douglas, Presiding Member  
Commissioner Jeff Byron, Associate Member  
Commissioner Robert Weisenmiller  
Commissioner Nancy Ryan, CPUC
- 10:30 CAISO Smart Grid Road Map & Architecture**  
Heather Sanderson, CAISO
- 10:40 Smart Grid Contract Overview and History**  
Mike Gravely, Energy Commission
- 10:50 Defining the Pathway to the California Smart Grid of 2020 for Investor Owned Utilities**  
Angela Chaung, EPRI, Kevin Dasso, PG&E, Mike Montoya, SCE, Lee Krevat, SDG&E
- 11:40 Question & Answer Period**
- 12:00 Lunch**

# Agenda



- 1:00**      **Defining the Pathway to the California Smart Grid of 2020 for Vendors and Manufacturing**  
David M. Tralli, JPL
- 1:30**      Question & Answer Period
- 1:50**      **Defining the Pathway to the California Smart Grid of 2020 for Publicly Owned Utilities**  
Steve Rupp, RW Beck
- 2:20**      Question & Answer Period
- 2:40**      **Status Report on SB 17 Implementation**  
Chris Villareal, California Public Utilities Commission
- 2:50**      **Public Comments**
- 3:45**      **Action Items Recap**
- 3:50**      **Closing Comments**  
Chairman Karen Douglas, Presiding Member  
Commissioner Jeff Byron, Associate Member  
Commissioner Robert Weisenmiller  
Commissioner Nancy Ryan, CPUC
- 4:00**      **Adjourn**

# Follow-up Questions



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