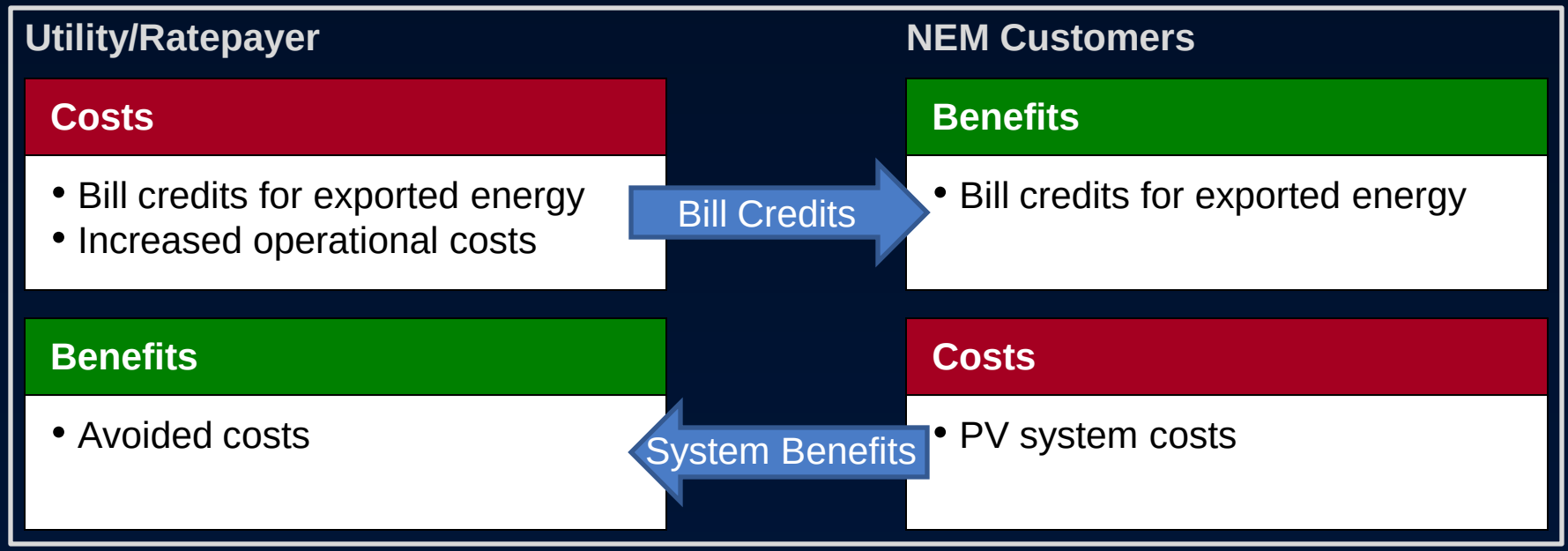
The CA Net Energy Metering Report: Approach, Results and Implications

A webinar for the Solar Alliance
April 16th, 2010

CPUC study evaluated cost of net metering

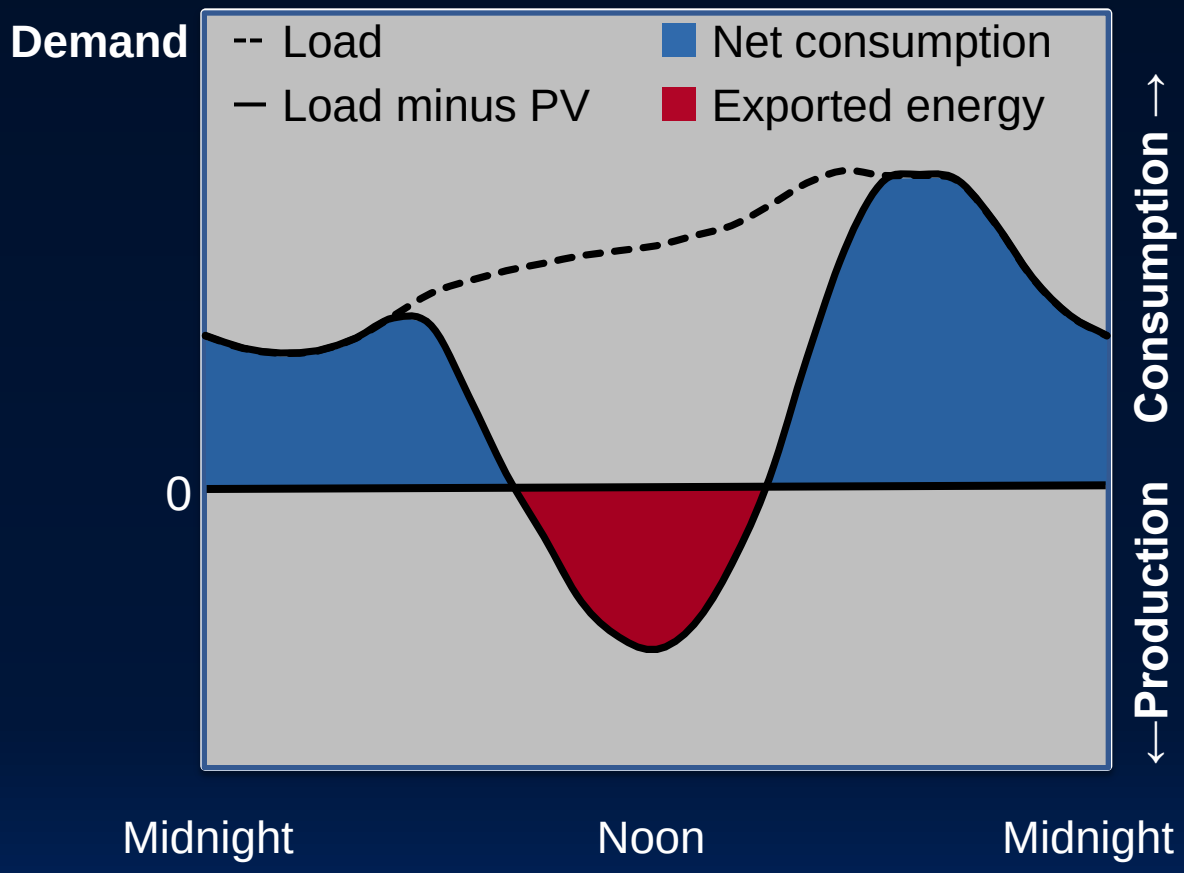
- E3 – project lead
  - E3 is an electricity consulting firm experienced in marrying engineering-economic analysis with public policy decision-making
  - Clients span local, state and federal government, public- and investor-owned utilities and energy technology companies
- Clean Power Research
  - A clean energy research, consulting, and software firm
  - Manages and operates a comprehensive suite of PV software tools including: PowerClerk®, SolarAnywhere®, PVSimulator, Clean Power Estimator®, PVCheck™, PowerTariffs, and Utility Bill Calculator

Cost (or benefit) of NEM is result of a simple calculation



Bill credit for exported energy + **Incremental operational costs** − **Avoided costs** = **Net cost (benefit) of NEM**

The NEM study focused on exported energy



Steps required to compute the cost/benefit of NEM

1. Obtain customer hourly net load
2. Calculate billing impact of net metering
3. Apply billing impact to population of PV users to determine total NEM credits
4. Obtain incremental operational costs
5. Calculate avoided costs

Overcoming difficulties obtaining net load

1. Obtain customer hourly net load

2. C

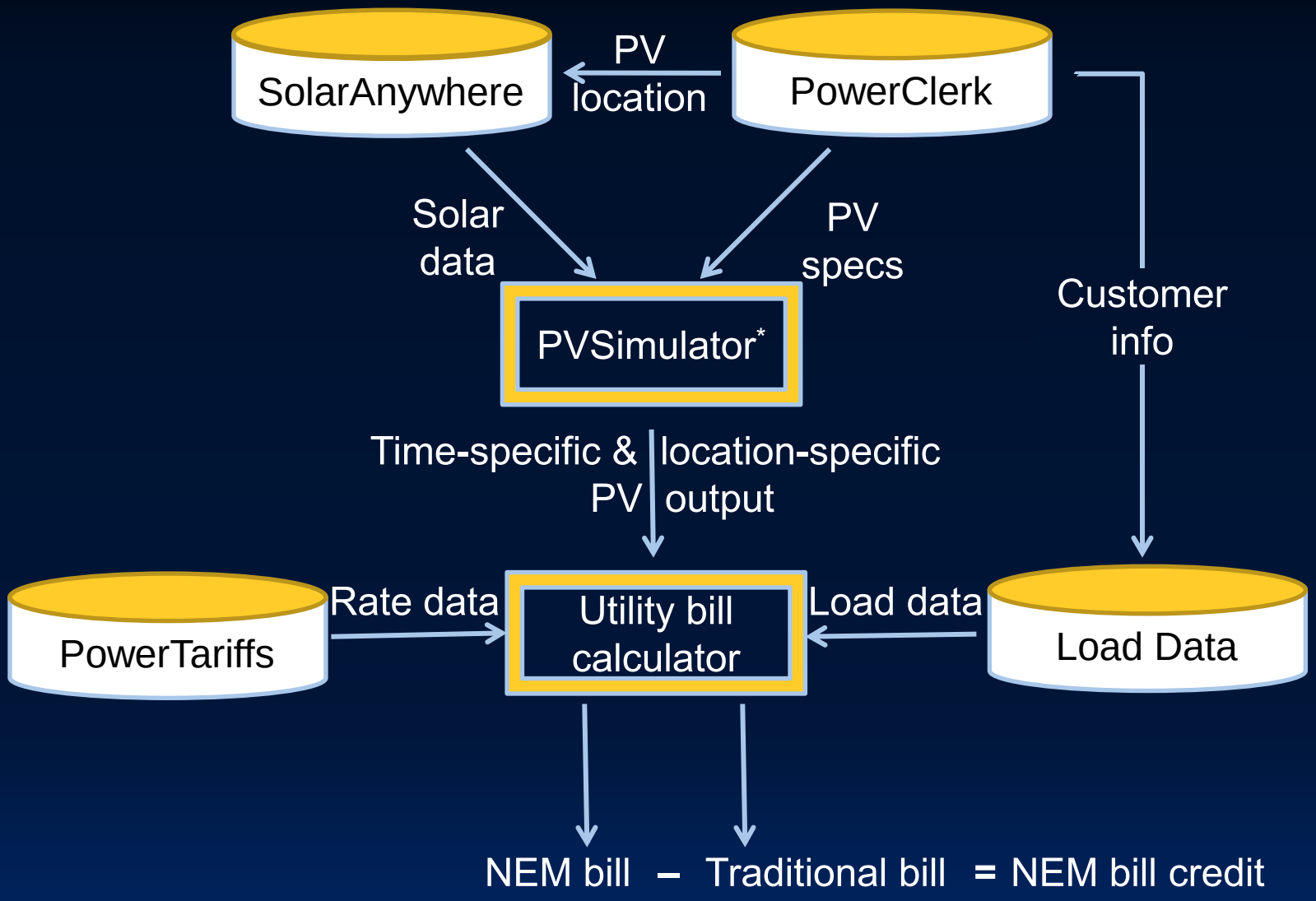
3. A
   u

4. C

5. Calculate avoided costs

- Metered hourly load data is often not tracked by utilities for specific residential customers
- Take alternative approach and simulate hourly PV generation to match with hourly load profiles

How to calculate net load and the NEM cost



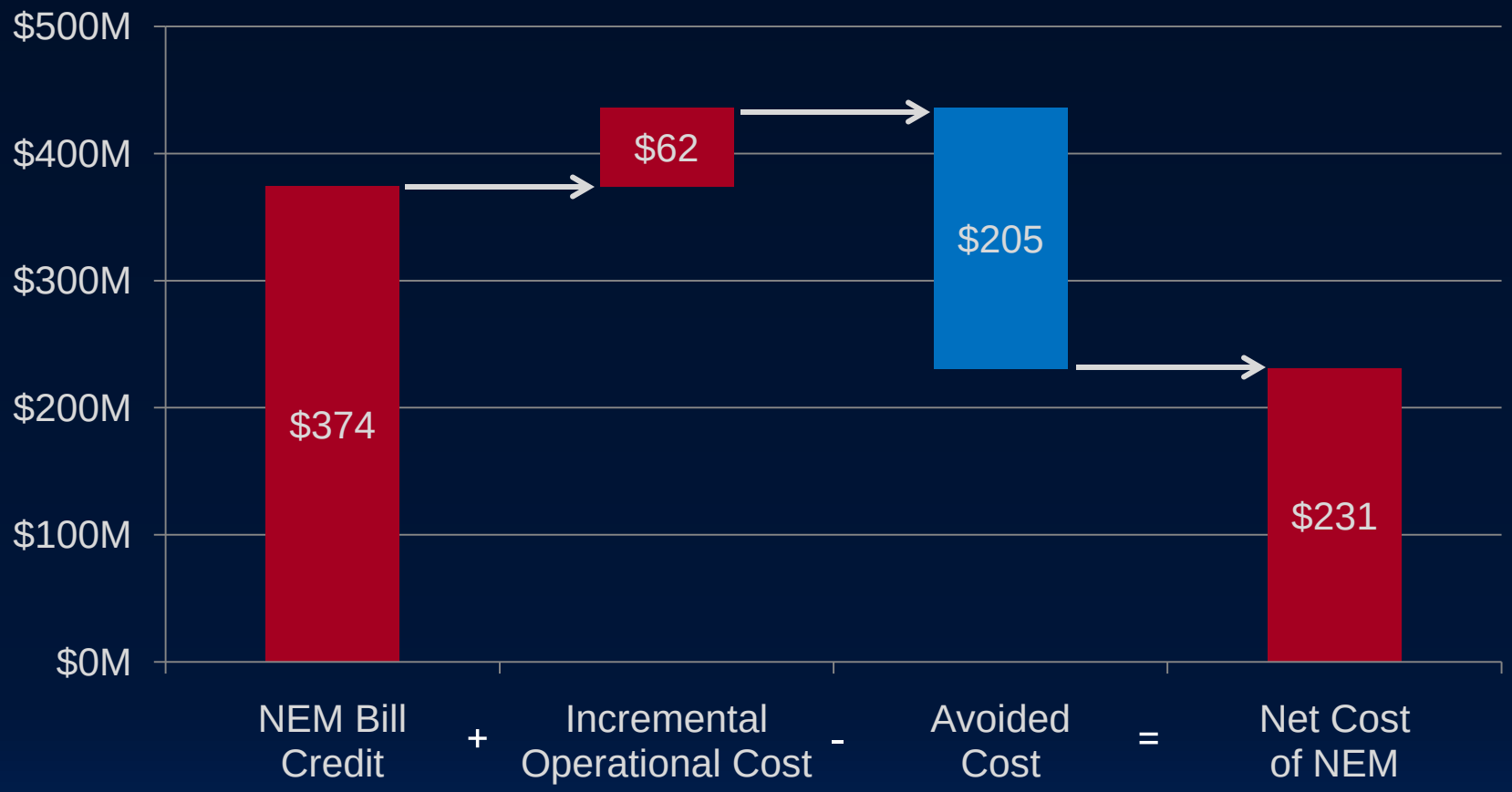
* Augmented with metered PV production data when available

note: CA utility bill calculator available online at http://service.utilitybillcalculator.com/Demonstrator/Default.aspx

Customer distribution used to determine total cost

- Specific customer load data needed to estimate net load, but data unavailable for the majority of customers
- Grouped customers into segments
  - 86 customer groups by climate, utility, rate, class
  - Further separated annual consumption and generation
  - 1,253 groups in final analysis
- Applied statistically selected load profiles to customers
- Aggregated results to determine total cost of program

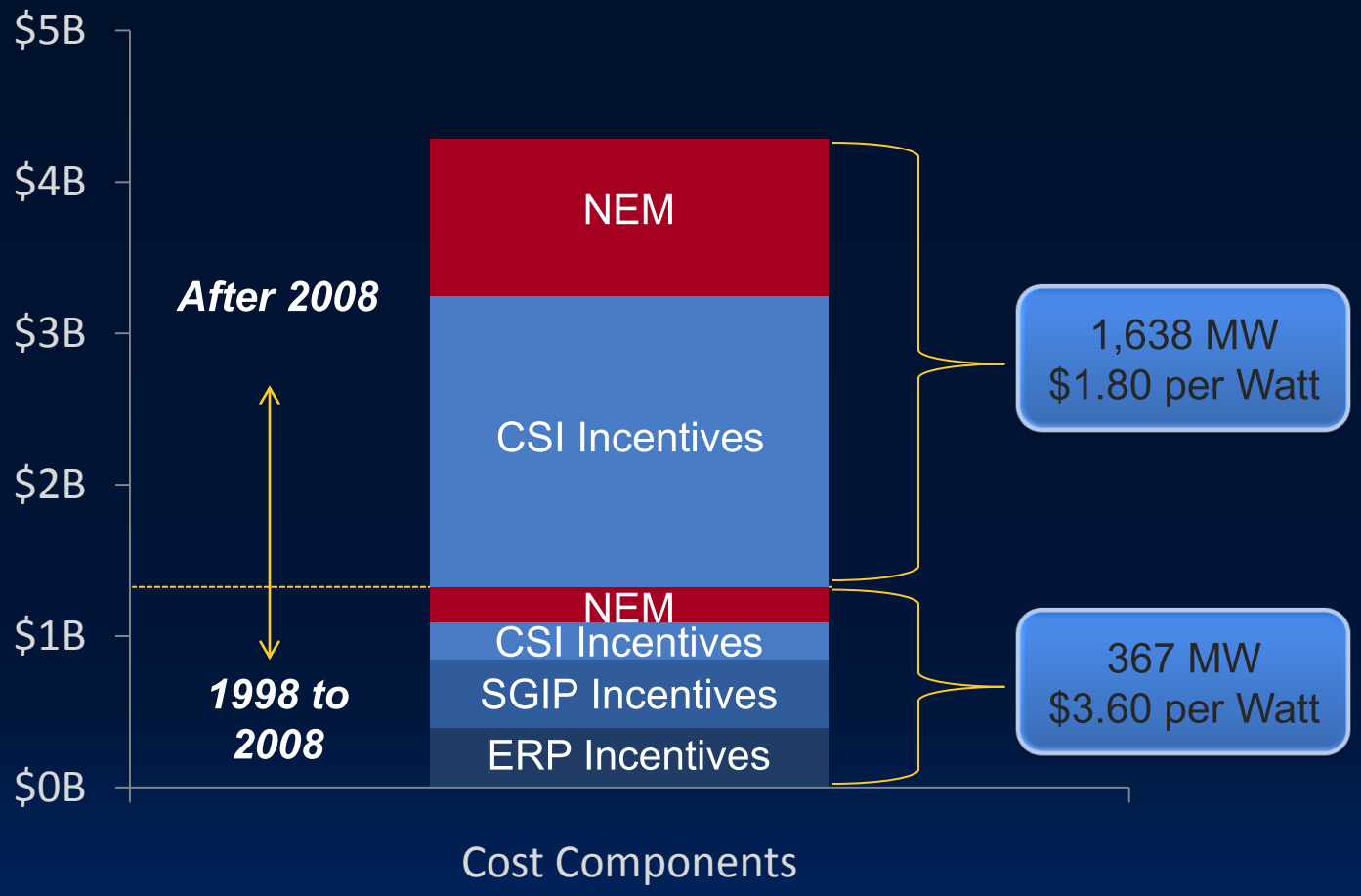
20-year NPV cost of NEM is about $230M



Source: *NEM Cost-Effectiveness Evaluation* for the CPUC

How do these results fit in with the overall PV program in CA?

2 GW of PV for CA will cost about $4B, 30% of cost is NEM



Calculating total cost of NEM & incentives for PV

	Capacity (MW)	Incentive Cost ($M)	NEM Cost ($M)
ERP	122	396	
SGIP	133	454	231
CSI (before '08)	112	242	
CSI (after '08)	1,638	1,925	1,034
Total	**2,005**	**3,017**	**1,264**

- Numbers represent cost associated with PV portion of NEM
- Fully subscribed CSI program is 1,750 MW
- 255 MW installed prior to the CSI program
- Multiply NEM cost before 2008 by ratio of remaining installation (1,638 MW) to 2008 NEM participation (366MW) to determine remaining NEM cost after 2008

Source: *NEM Cost-Effectiveness Evaluation* for the CPUC, PowerClerk data, CPUC budget, CPR analysis

Implications of NEM methodology and results

- Cost (benefit) of net metering is specific to each utility
- Avoid drawing generalized conclusions because rate structures have significant impact on calculation
- Methodology can calculate total cost (benefit) of PV policy
- Similar methodology can determine impact of rate structure change (e.g., PG&E proposed change to 3-tiers)

Clean Power Research®