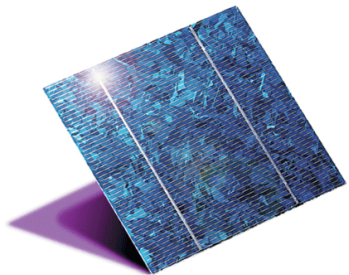




# Distributed Renewable Generation The Red-Headed Step Child

Sue Kateley, Executive Director  
CALSEIA  
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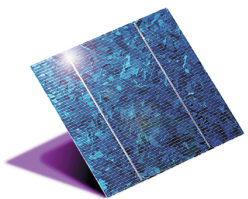


Photovoltaic (PV) and Thermal



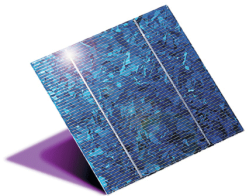
# What is CALSEIA

- Non-profit industry trade association of companies doing business in California
  - Manufacturers, contractors, utilities, local governments, designers, engineers, distributors, consultants
- 15-member Board elected by the membership
- Founded in 1977
- History of leadership and success
- Focus principally on Distributed Generation



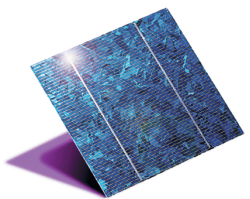
# Critical Industry Values!

- Safety – personnel and equipment
- Ethics
- Customer Satisfaction
- Expand markets for all solar technologies
  - Photovoltaics
  - Solar Thermal – domestic, recreational, process heat
  - Solar Thermal Electric – DG (air conditioning)
  - Hybrid Thermal and Electric



# What does DG look Like?

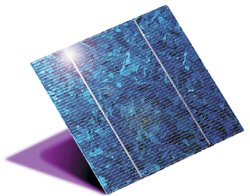
2 MW PV system = about 16 acres (right now)





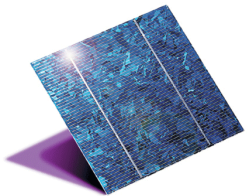
# Rooftop DG

50kW and 0.5MW examples



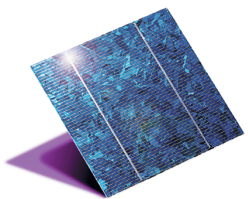
# Distributed Generation and RPS

- DG potential (source: CPUC Re-DEC Working Group):
  - 27,000 MW of 20MW sites
  - 11,500 MW of large (1/3 acre) sites
  - Smaller sites not quantified **but not zero**
- DG industry opportunities are new and programs just beginning to emerge (mostly focused on larger DG)
- DG utility procurement (example: SDG&E, SCE, and PG&E PV Procurement Program, SCE Crest Program, SCE )
- Proposed “RAM”
- DG is not instead of Large Scale – it is in combination with



# The Missing Element

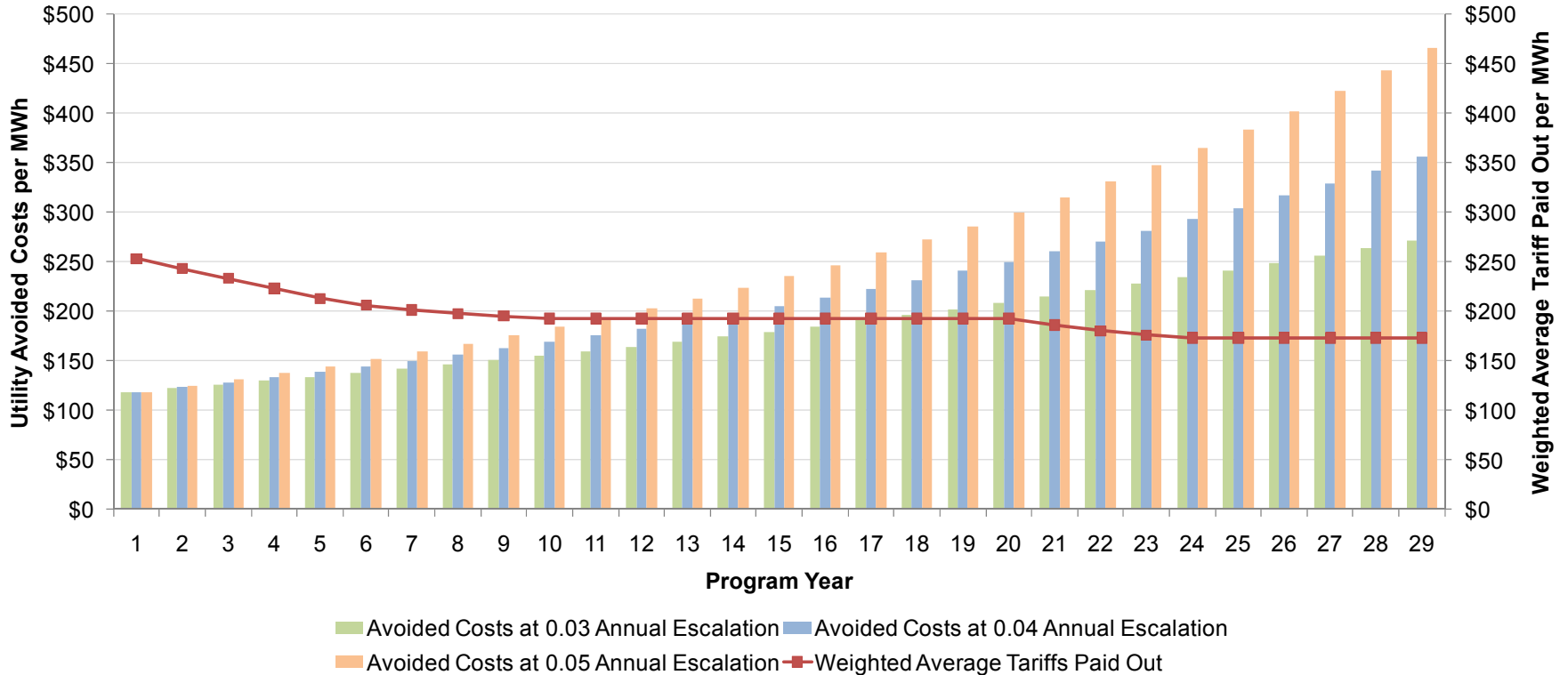
- Feed in Tariff
  - Standard Contract
  - Published Price
  - Price based on Value, i.e., close to load higher value than remote (aka attributes – time of delivery, congestion offset, environmental and health benefits)
  - Provides certainty and financing-ability at lower interest rates
- Statute authorizes FIT:
  - SB 32 (Negrete-McLeod, 2009)
  - Awaiting CPUC implementation
  - Projects up to 3 MW



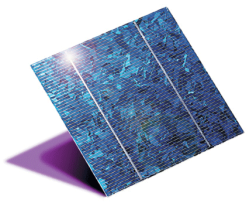
# Feed in Tariffs

## Short Run Costs – Long Run Benefits

Cost Components of Solar Feed-in Tariff Program



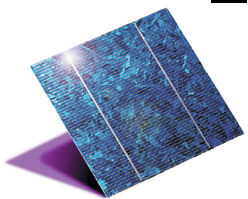
Source: Los Angeles Business Council, Proposed 600 MW Feed in Tariff





# Opportunities

- Renewable generation costs are declining, module efficiency improvements
- Balance of system costs improving
- Equipment Standards and construction codes maturing
- DG:
  - permitting small projects on disturbed land: reduced permitting complexity
  - located close to load, reducing some transmission/distribution needs
  - Local environmental/health benefits
  - reduce time of delivery congestion on lines



# Renewable DG Challenges

1. Federal rules on Buyer-Seller market for DG (Federal Power Act and PURPA) hamper state level utility regulatory commissions (not municipal utilities)
2. RPS Compliance: REC trading
  - out of state RECs
  - RECs don't include all renewables
3. Interconnection – how projects are connected to 'the grid' at transmission level or distribution line level
4. Fragmented policies (FERC, CPUC, CEC, CAISO, ARB)
5. Speculators
6. Venture capital project financing vs. traditional VC IP financing
7. Time is of the essence

