



Combined Heat and Power

Perspective from a customer turned regulator

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Clean Fuels For
California And The West

September 19, 2006
Newport Beach, California



Presentation Outline

- My experience on the customer side of the meter
- California Energy Commission recommendations
- Recent Energy Commission work on distributed generation
- What should the Energy Commission and the state focus on from a policy and regulatory perspective?



One Customer's Perspective

- CHP, DG, DER, whatever. . . . **is difficult !**
- Have been involved in on-site generation since 1996
- Customer needs and perspectives trump policymakers
- CHP has an important role in meeting energy needs
- “Law of unintended consequences” at play



Role of the CEC

- **Mission:** Assess, advocate, and act through public/private partnerships to improve energy systems that promote a strong economy and a healthy environment
- **Vision:** For Californians to have energy choices that are affordable, reliable, diverse, safe and environmentally acceptable



California's Loading Order

- Decrease electricity demand
 - Increase energy efficiency (building and appliance standards, new equip. incentives)
 - Demand response (rate design and incentives)
- Meet new generation needs
 1. Renewable resources
 2. **Distributed generation**
 3. Clean fossil-fueled generation



Often Stated

Benefits of Distributed Generation

- Improved reliability and power quality for customers using distributed generation and customers close to distributed generation sites
- Customer ability to reduce system peak load
- Efficiency gains from avoiding line losses
- Increased fuel efficiency by using waste heat for heating and/or air conditioning
- Defer the need for new transmission and distribution infrastructure, reduce utility resource acquisition costs, and support ancillary services



State of State for CHP

- More than 9,000 MW of CHP installed
- CHP represents 17% of state capacity and is often key to preserving grid reliability
- CHP systems < 5 MW represent only about 3% of total CHP capacity in the state
- Much of state policy efforts past 7 years have focused on these smaller DG systems
- Despite these efforts, DG/CHP still have major barriers to market entry
- Many large CHP run under contracts signed in '80s and as much as 2,000 MW could shutdown before 2010



DG and Procurement

- Need to better account for the benefits of DG in utility procurement and distribution planning
- Distribution planning processes need to be more transparent so that policy makers can ensure cost effective and reliable distribution services for ratepayers
- State should broaden policy focus to include large-scale CHP, which could produce several thousand MW of additional generation capacity over the next 15 years



California Energy Commission Policy Recommendations

- California should encourage the use of CHP at California refineries to make them less vulnerable to power outages
- State should require utilities to design and build distribution systems that are more DG and CHP compatible
- CPUC should require utilities to develop and implement planning models to determine where DG and CHP would be most beneficial, from transmission and distribution perspectives
- California should explore establishing production credits for CO₂ reductions from CHP
- By the end of 2006, the CPUC should direct utilities to make transmission and distribution capacity payments to CHP projects

From CEC 2005 Integrated Energy Policy Report



What should the state's focus be?

- First rule for this Commissioner:
 - Listen to the end-use customers....



Recent R&D work for CEC

- Competitive Energy Insight (CEI) recently completed *Evaluation Of Policy Impacts On The Economic Viability Of California-based Combined Heat And Power From A Project Owner's Perspective* (CEC-500-2006-068) for the Energy Commission's Public Interest Energy Research Program



CEI Recommendations

- **Standardize the structures of tariffs from Utility to Utility**
 - Or new standard statewide structure for CHP
- **Ensure that energy/generation component of tariff includes all energy and other variable costs**
 - Consider off-peak and NEM pricing based on “marginal” energy cost not average ϕ /kwh
 - Establish energy cost recovery mechanisms that synchronize with gas prices
 - NEM BIO rates should reflect full retail energy value
- **Modify methods of assessment of demand charges**
 - Longer intervals - Perhaps weekly or daily
 - Minimize emphasis on “non-coincident” demand charges

From PIER Report, “Evaluation of Policy Impacts on the Economic Viability of California-Based Combined Heat and Power from a Project Owner’s Perspective, July 2006, CEC-500-2006-068.



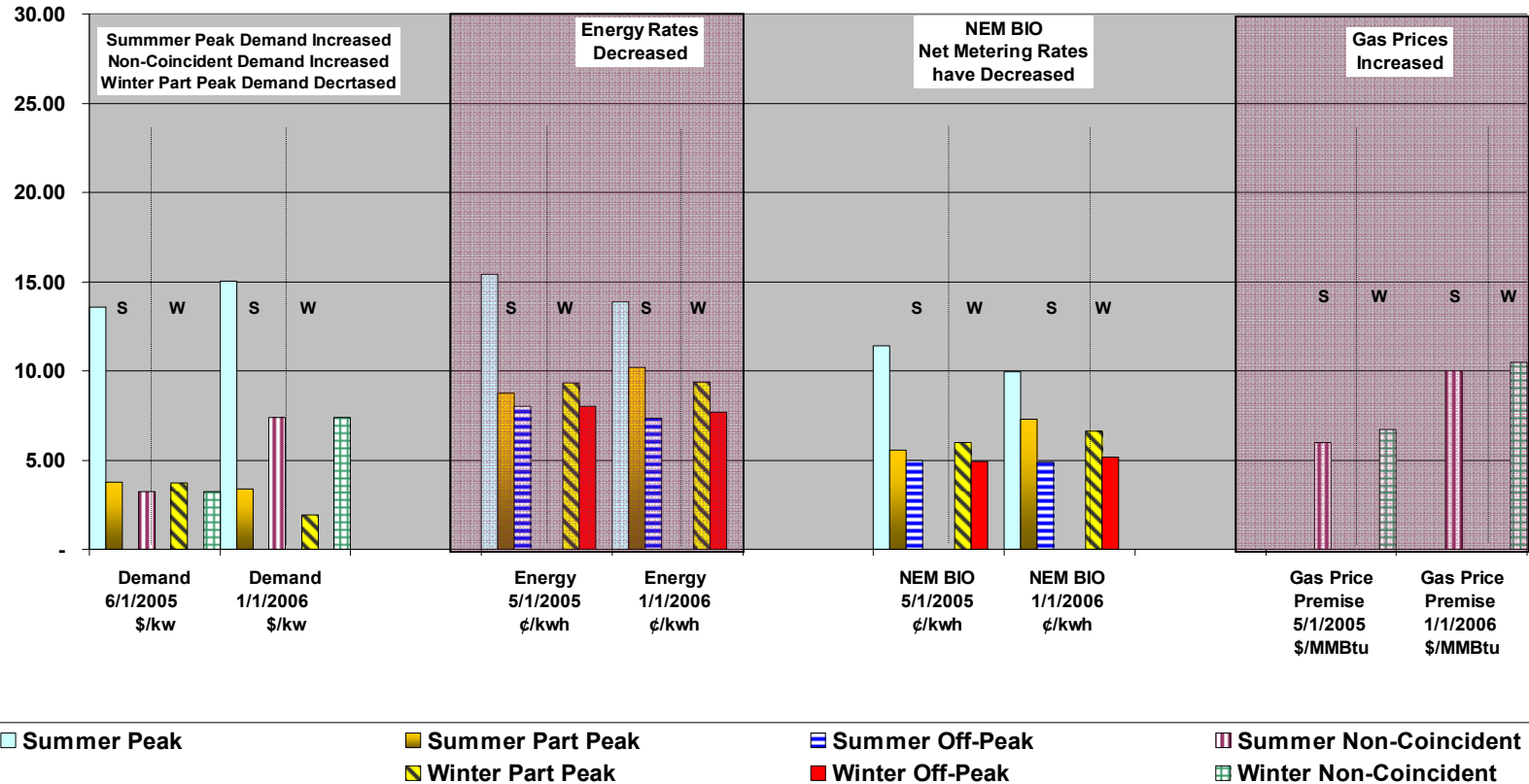
CEI Recommendations

- **Apply exemptions from departing load charges to the 1st 1000kw**
 - Rather than exempting only projects under 1000 kW **Modify SGIP program to include operating incentives**
- **Establish criteria for CHP Facilities that provide “net societal benefit”**
 - Provide special considerations for those facilities
 - Consider waiver of standby charges
 - Consider programs that can add further incentives for externalities
- **Maintain ongoing and proactive analysis of impact of tariff considerations on owner’s economics**



Shifting of Tariffs from Energy to Demand Rates (PG&E Example)

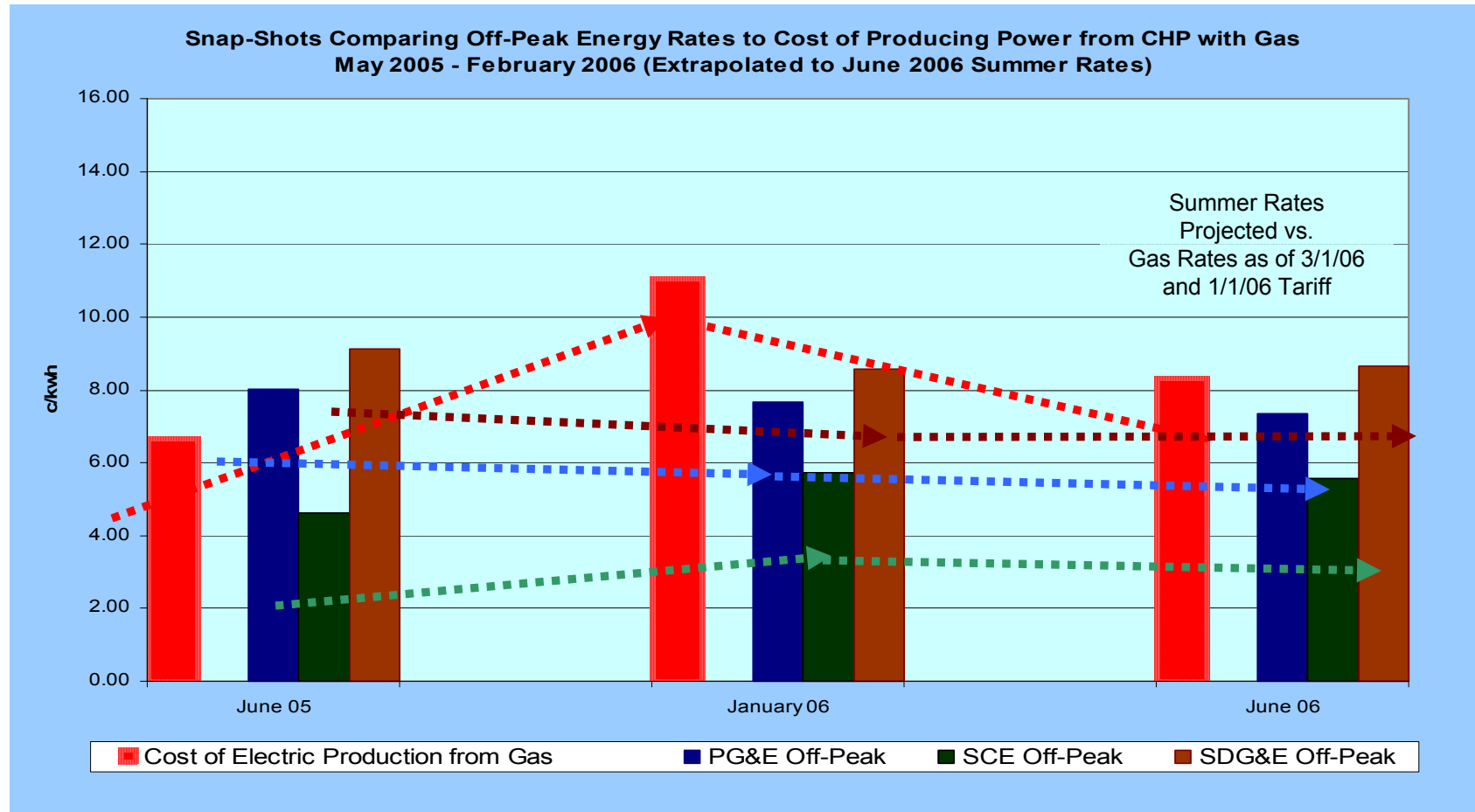
Comparison of PG&E E20 S Electric Rates and Study Premised Gas Rates 6/1/05 to 2/1/06
(S = Summer, W = Winter)



From CEI presentation to the California Energy Commission, April 2006



Comparison of Trends of Gas and Off-Peak Electric Rates



From CEI presentation to the California Energy Commission, April 2006