

# Beyond Energy, Capacity & Line Losses: A New Look at the Benefits of CHP in California

California Energy Commission

**DOCKETED**

**14-CHP-1**

**TN 73348**

**JUL 10 2014**



**Tom Beach**

Crossborder Energy

On behalf of the California Cogeneration Council,  
Cogeneration Association of California, and the Energy  
Producers and Users Coalition

July 14, 2014

# CHP benefits beyond energy, capacity & losses

- Avoided Transmission Costs
- Reduced GHG Emissions
- Price Mitigation Benefits
- Enhanced Reliability – Resiliency
- Resource Diversity and Efficiency: CHP in the context of the 2050 carbon reduction goal
- Supports California's manufacturing, industrial and commercial base (refer to CMTA presentation)

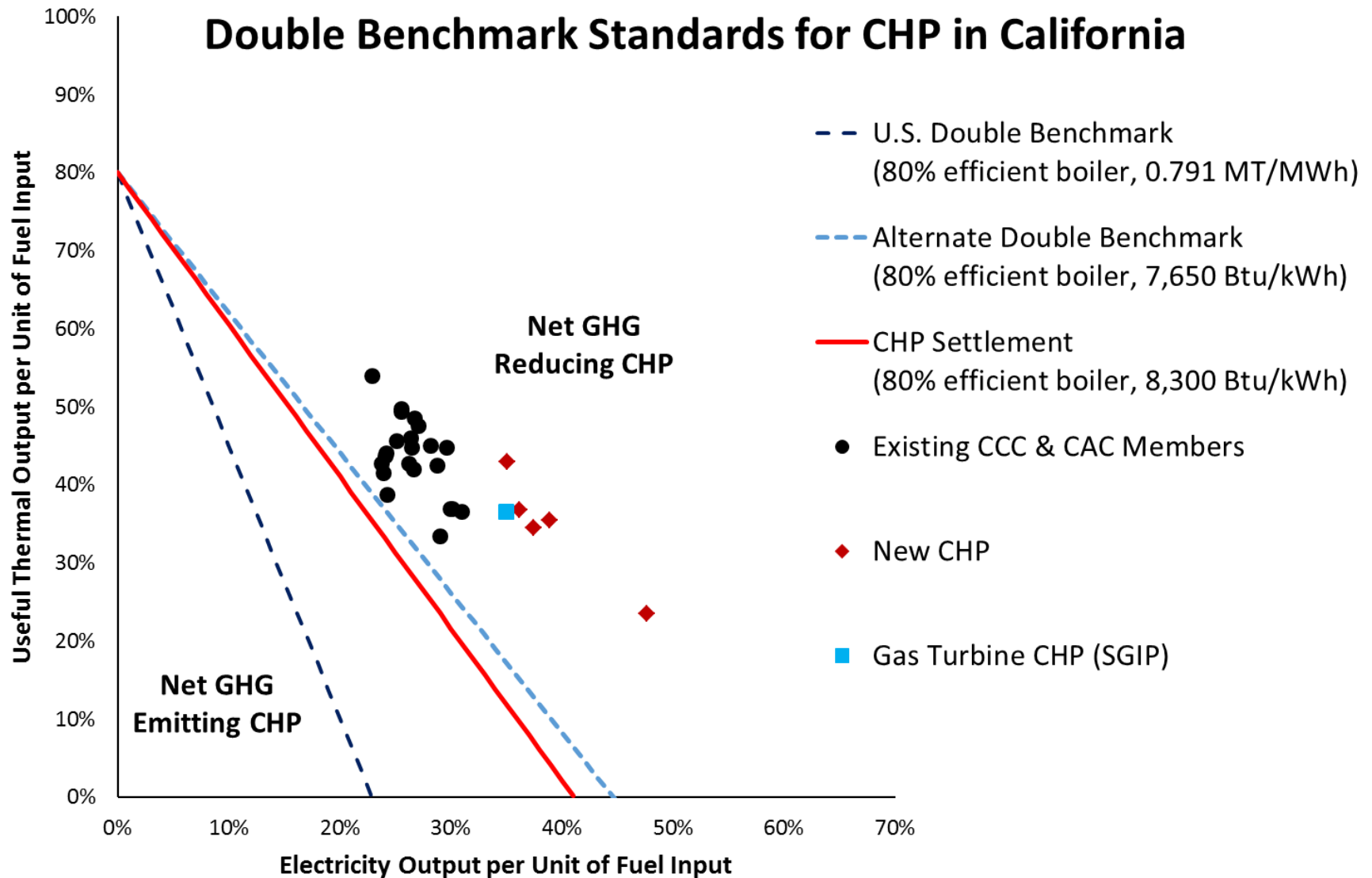
# Load Center CHP: Metrics for Avoided Transmission Capacity Costs

- Marginal load-related transmission costs
  - Source: IOU DR Filings / IOU GRCs / San Diego Solar DG Study

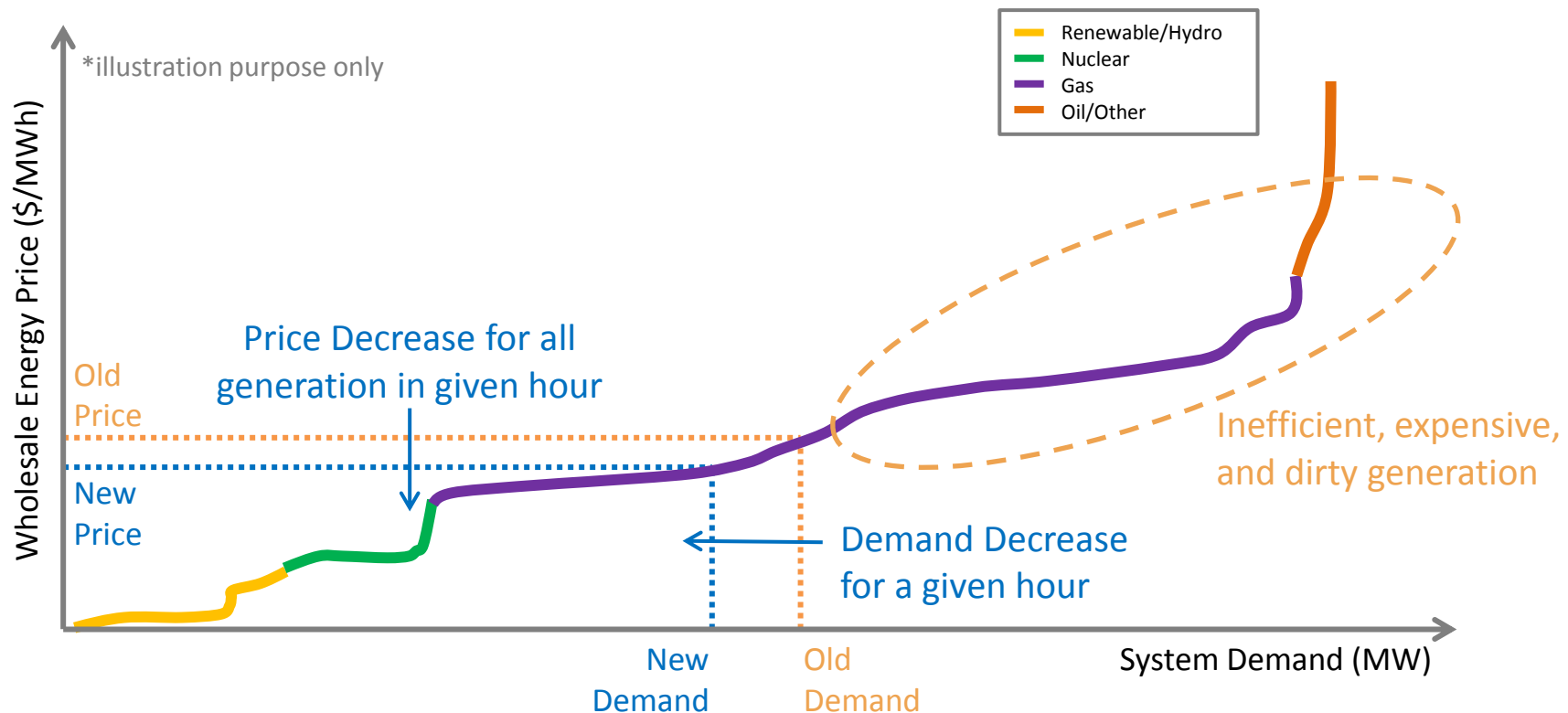
Utility	CAISO High Voltage (\$/kW-yr)	IOU Subtransmission (\$/kW-yr)
PG&E	19	20
SCE	59	24
SDG&E	103	22

- 10% adder for AB 1613 CHP in LCR areas
- ICF: \$50/kW-yr T&D capacity deferral from CHP less than 20 MW
- Transmission costs for new renewables
  - E3 Report on 50% RPS in California
    - 4.6 c/kWh for out-of-state renewables
    - 3.4 c/kWh for in-state renewables

# GHG Emission Reductions: Double Benchmark Standards for CHP in California

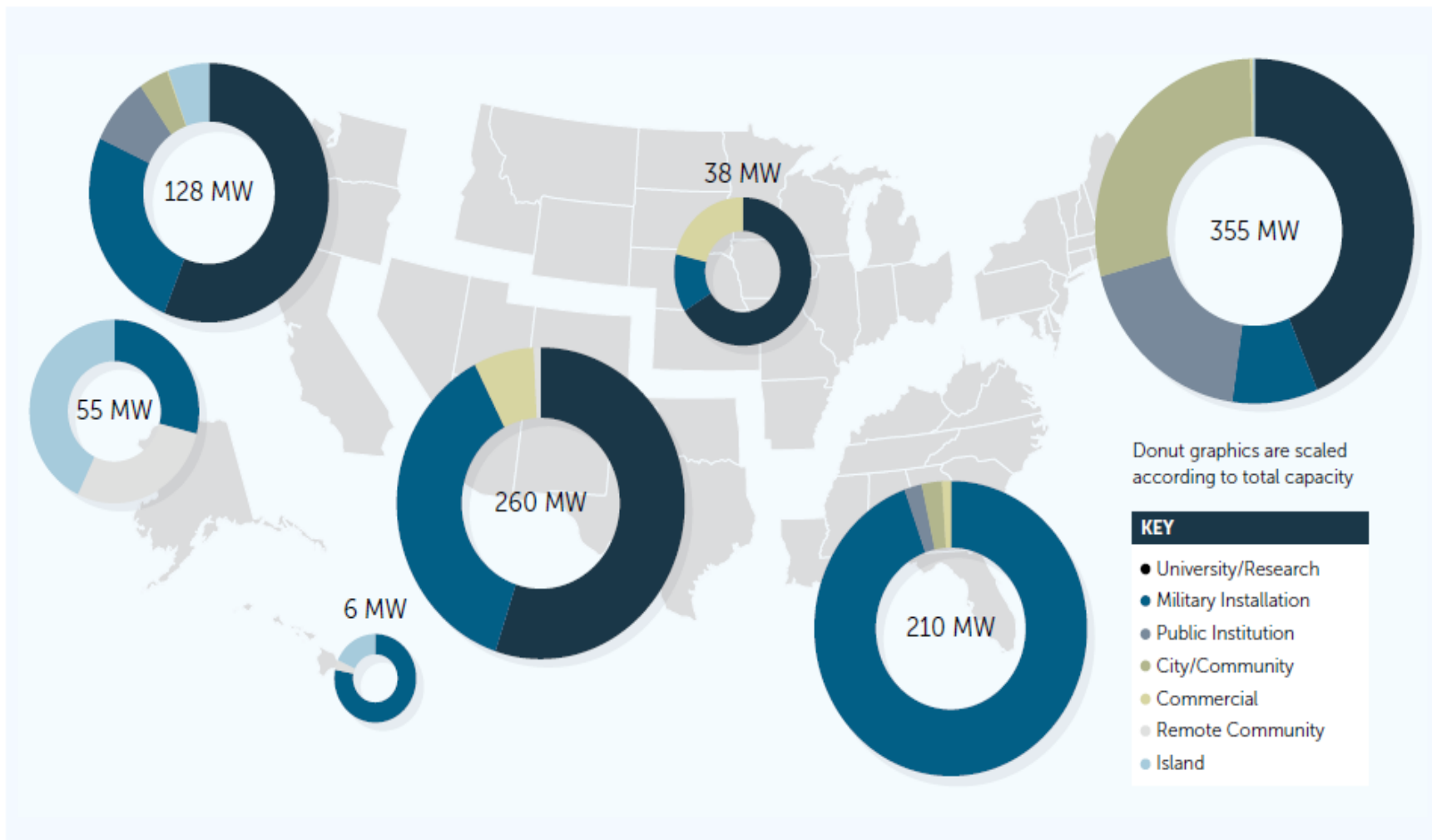


# Etagen Analysis of DG/CHP Market Benefits: Impact of Demand Decrease on CAISO Prices



➡ Lowering system demand in a given hour results in having lower price setter, and therefore lower energy price

## Microgrid Capacity by End-User Type and Region (MW)



Source: Klemun, Magadelana, "North American Microgrids 2014: The Evolution of Localized Energy Optimization" (Greentech Research, 2014).

# 2050: Resource Diversity and Efficiency

- 2050 goal: 80% reduction from 1990 emissions.
  - Electrification of multiple sectors: transportation, buildings & low-value heat.
  - Fuel use must be highly efficient.
- CHP allows any fuel to be burned efficiently, with cogeneration of electricity.
- Resilient generation w/access to load centers will be favored.
- Resource diversity is essential.
  - Need baseload & flexible resources as wind & solar penetration grows.
  - Customers will seek choices in electric service.