Sustainability Opportunities & Challenges

Sustainability of Concrete: The Role of Cement and Concrete in Improved Energy Efficiency and Reduced Carbon Emissions

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Southern California Edison

- 115 Year Old Company
- 50,000 Square Mile Service Territory
- 6 Million Meters (Accounts)
- 14 Million People Served
- 15,000 Employees
- 77,988,003 Megawatt-Hours Delivered
- 24,744 MW Provided During Peak Power
- Expect To Be In Business For Another 100 Years

What Do We Mean By “Sustainable” Operations?

- ✓ SCE provides safe, reliable and economic electricity today without compromising the ability of future generations to meet their own needs for electricity.
- ✓ Sustainability is fundamentally about resource efficiency …. while protecting the environment …. and enhancing options for others, in this and the next generation ….

sustainability involves “meeting the needs of the present without compromising the ability of future generations to meet their own needs.”[1]

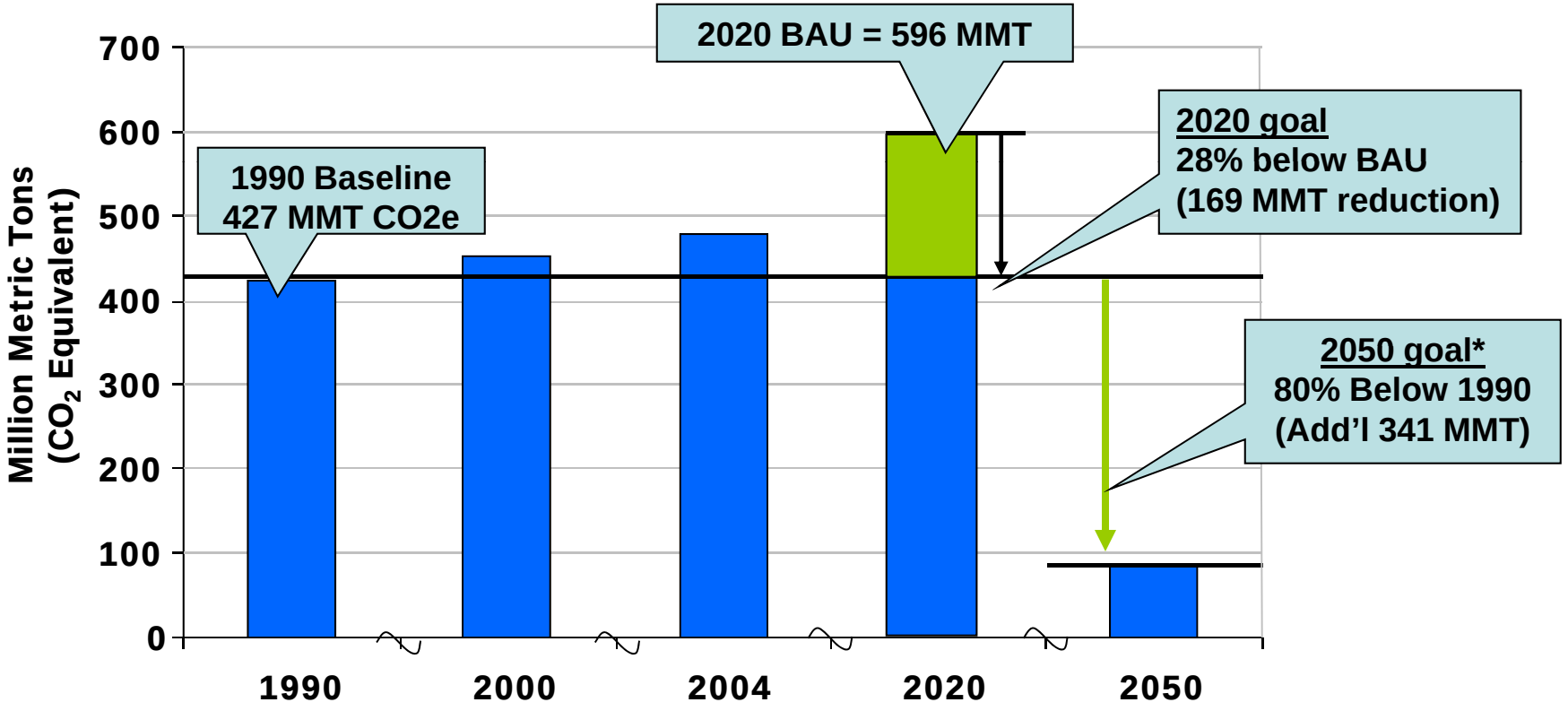
For the business enterprise, *sustainable development* means “adopting business strategies and activities that meet the needs of the enterprise and its stakeholders today while protecting, sustaining, and enhancing the human and natural resources that will be needed in the future.“[2]

1 U.N. World Commission on Environment and Development’s 1987 report, “Our Common Future”

2 Business Strategies for Sustainability Development: Leadership and Accountability

Magnitude of the Challenge: 28% Reduction

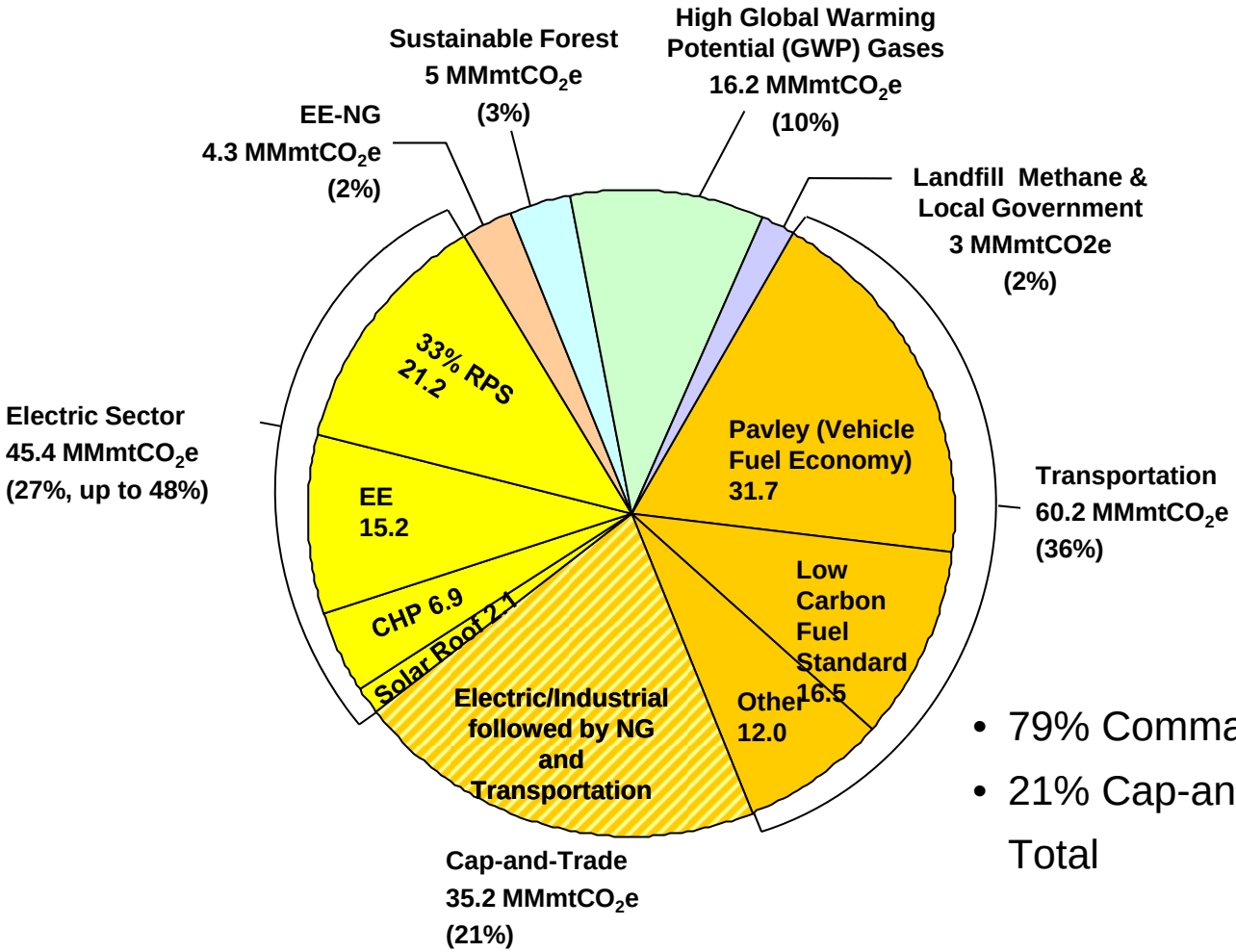
AB 32 Target: Reduce 2020 emissions by 169 MMTCO2e from Business as Usual (BAU) level of 596 MMT to 1990 level of 427 MMT.



* Governor's Executive Order (not explicitly mandated in AB 32)

Proposed Reduction Measures

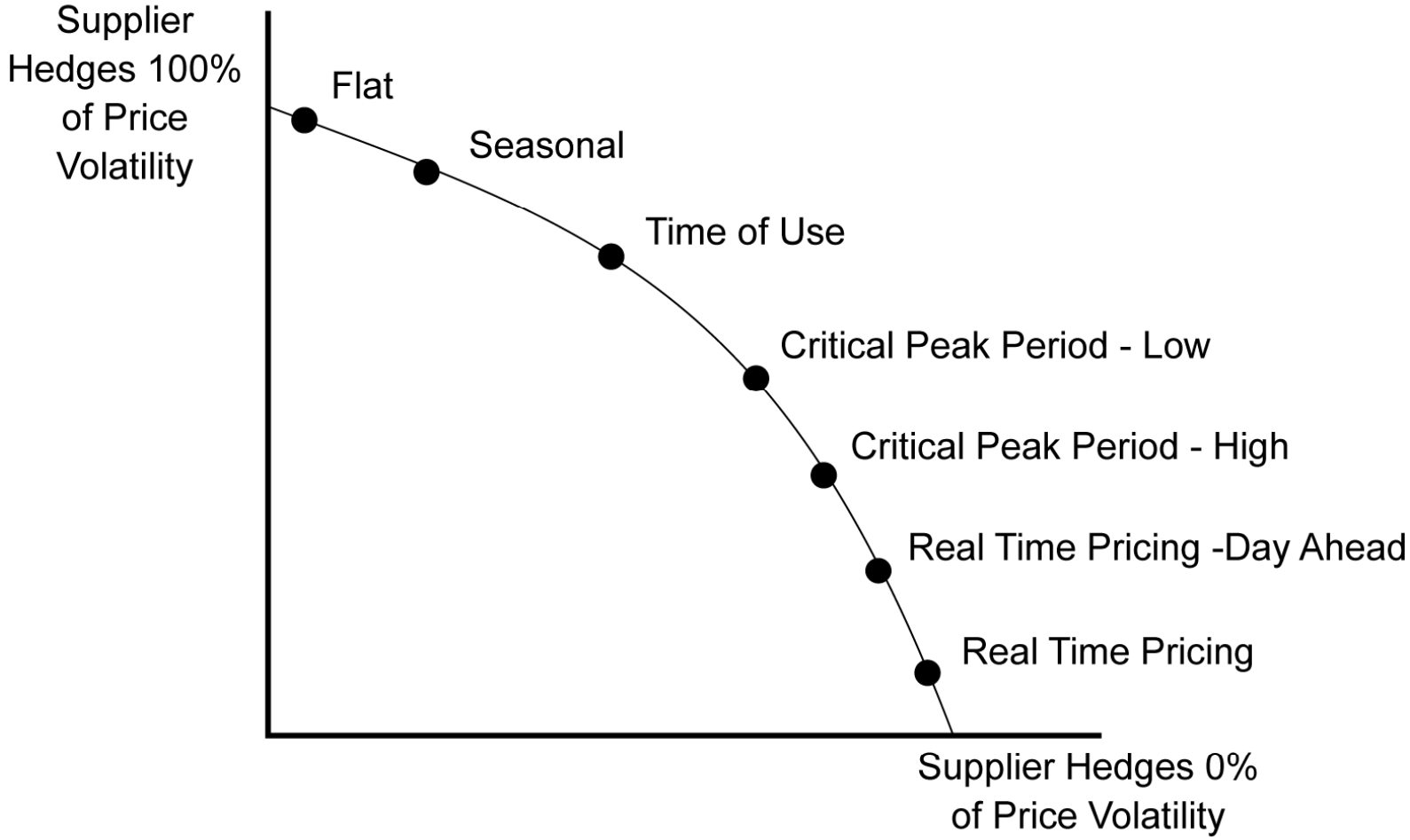
The electric sector faces GHG reductions ranging from 27% to 48%, depending on the impact of the cap-and-trade.

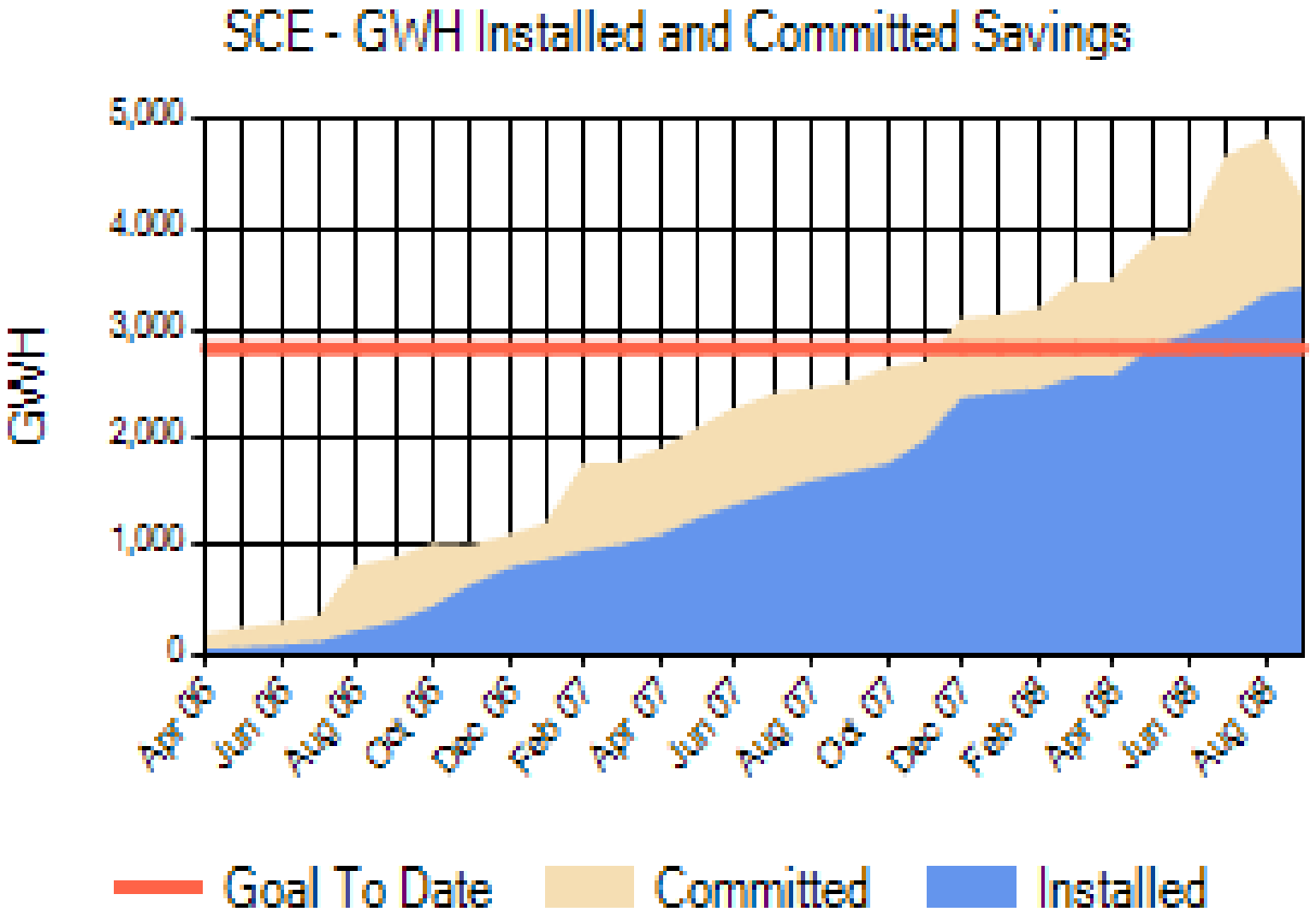


- 79% Command and Control 134
- 21% Cap-and-Trade + 35

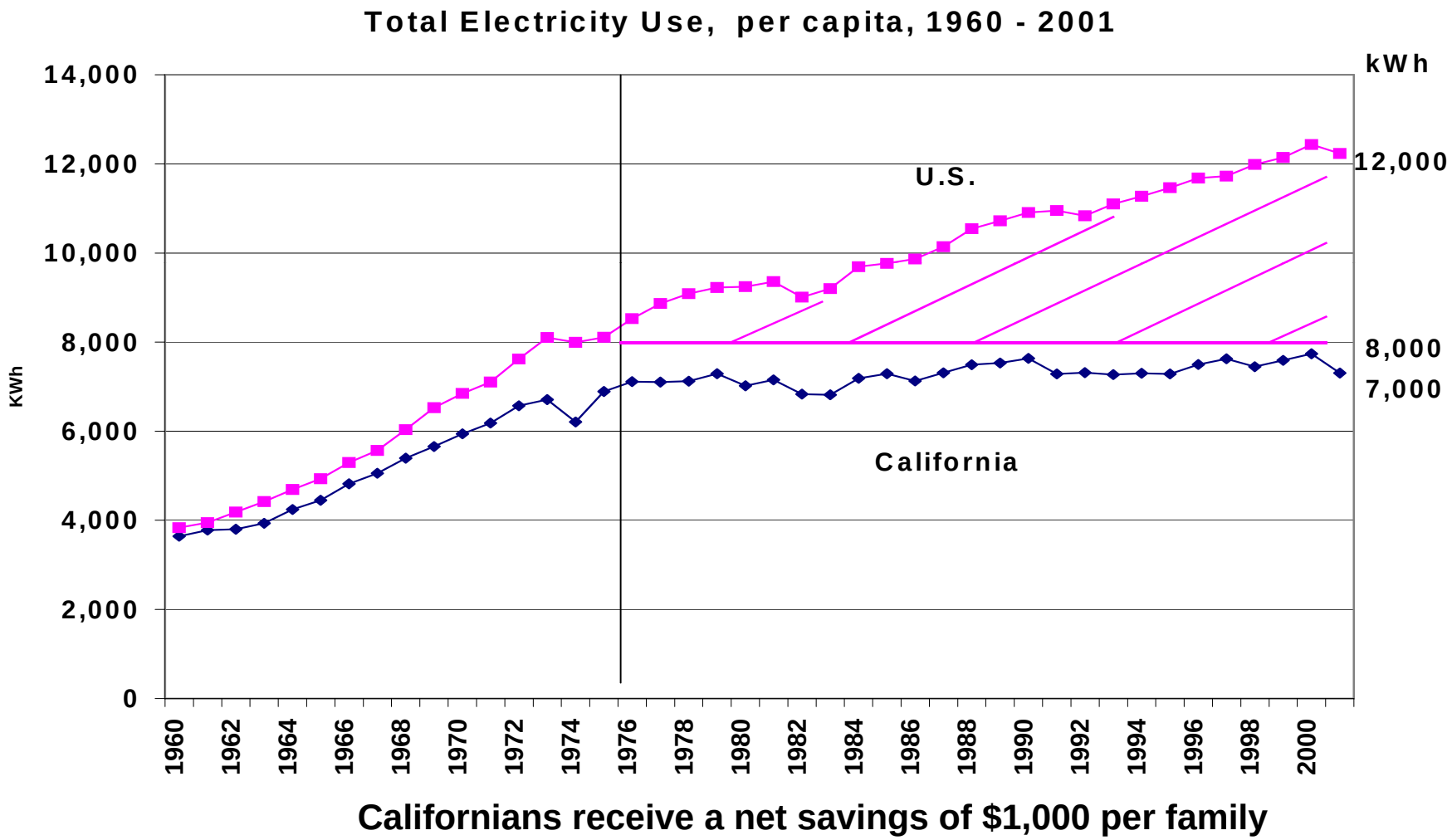
Total = 169

Flexible Rate Options Transfer Price Volatility Signals from Supplier to Consumer and Provide an Incentive for Demand Response




SCE - GWH Installed and Committed Savings
GWH
5,000
4,000
3,000
2,000
1,000
0
Apr 06
Jun 06
Aug 06
Oct 06
Dec 06
Feb 07
Apr 07
Jun 07
Aug 07
Oct 07
Dec 07
Feb 08
Apr 08
Jun 08
Aug 08
Goal To Date
Committed
Installed

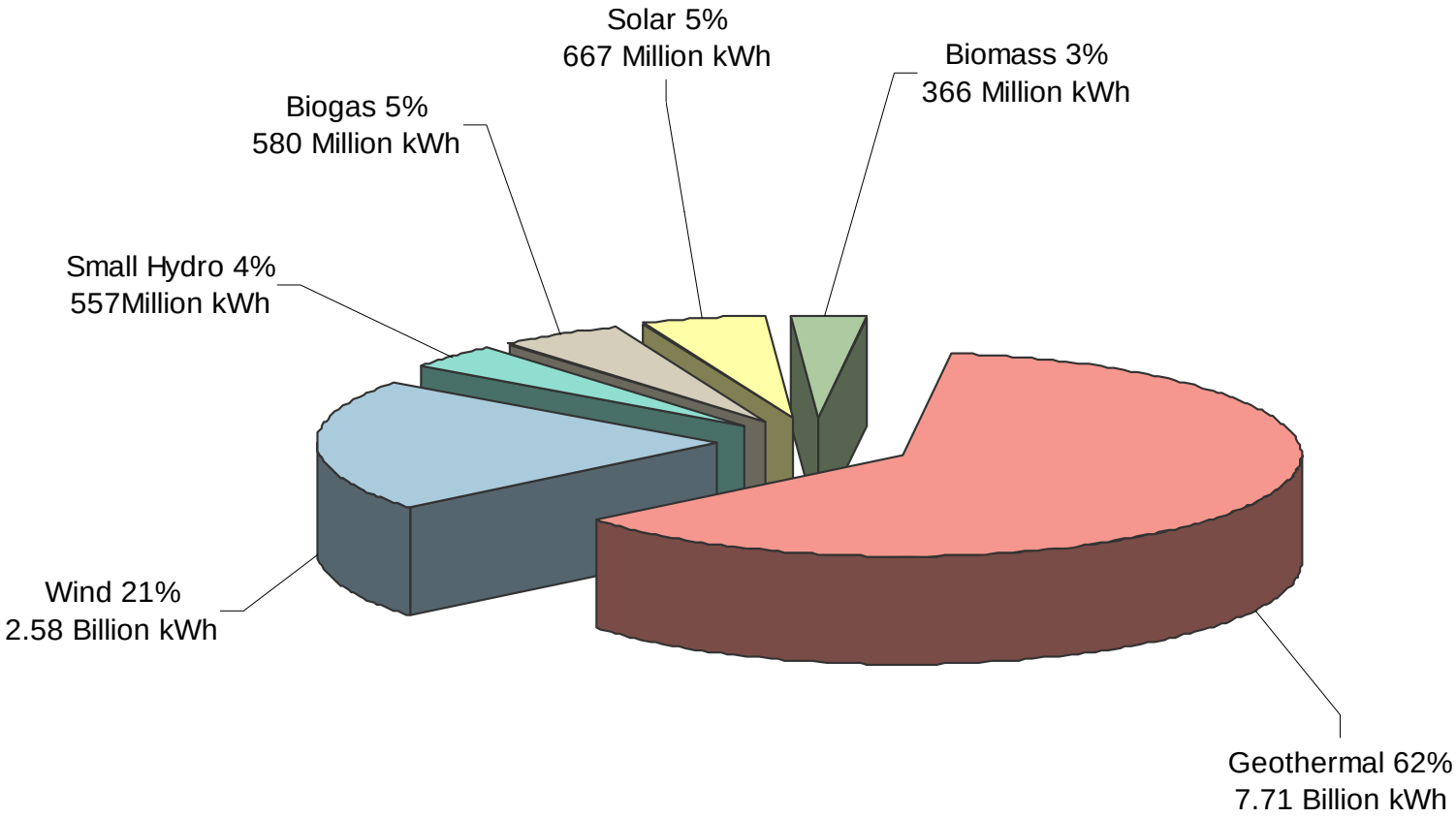
California and US Energy Efficiency – 1960 -- 2004



Californians receive a net savings of $1,000 per family

SCE Delivered 12.47 billion kilowatt hours (kWh) of renewable energy in 2007

Represents 17% of SCE's total energy portfolio

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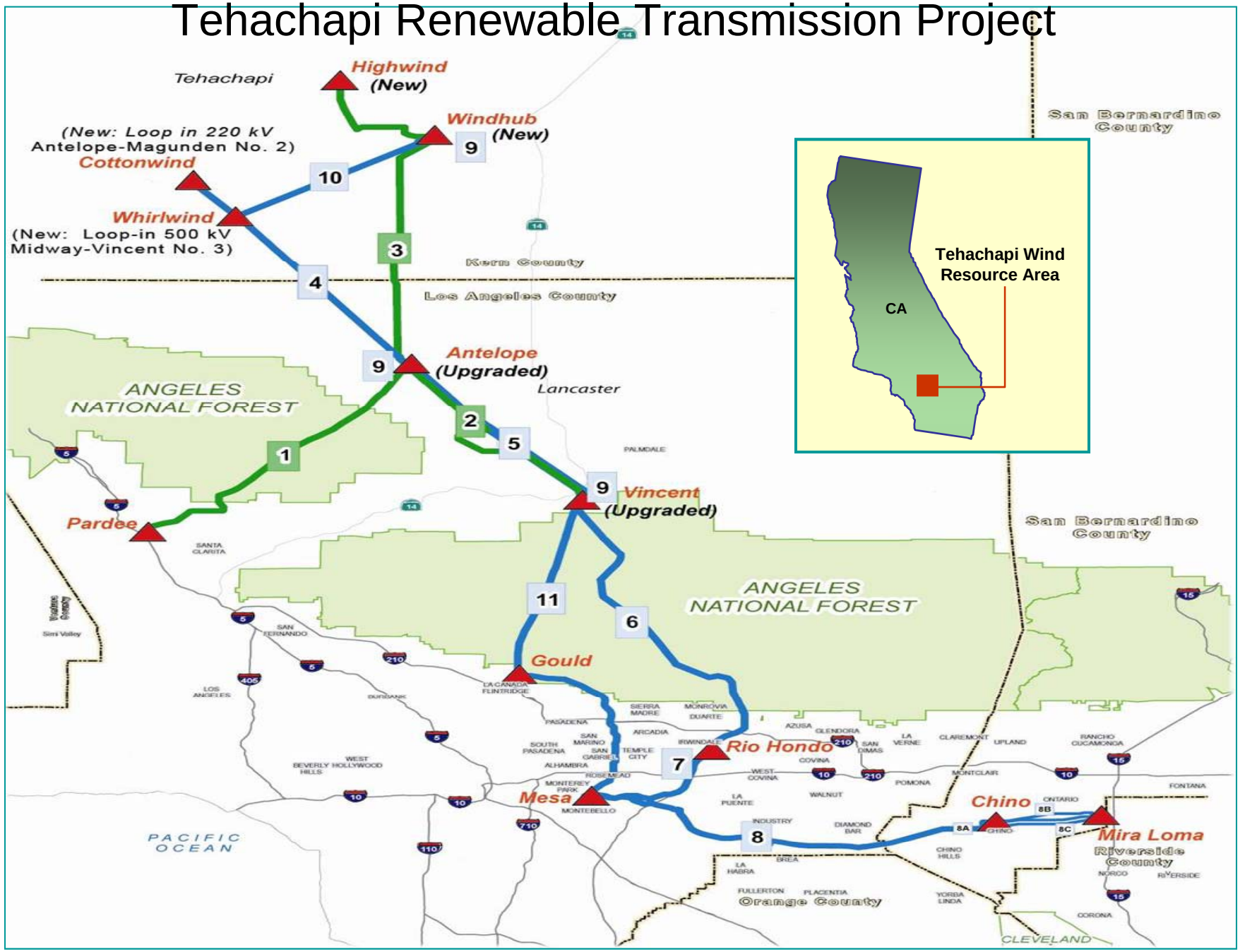
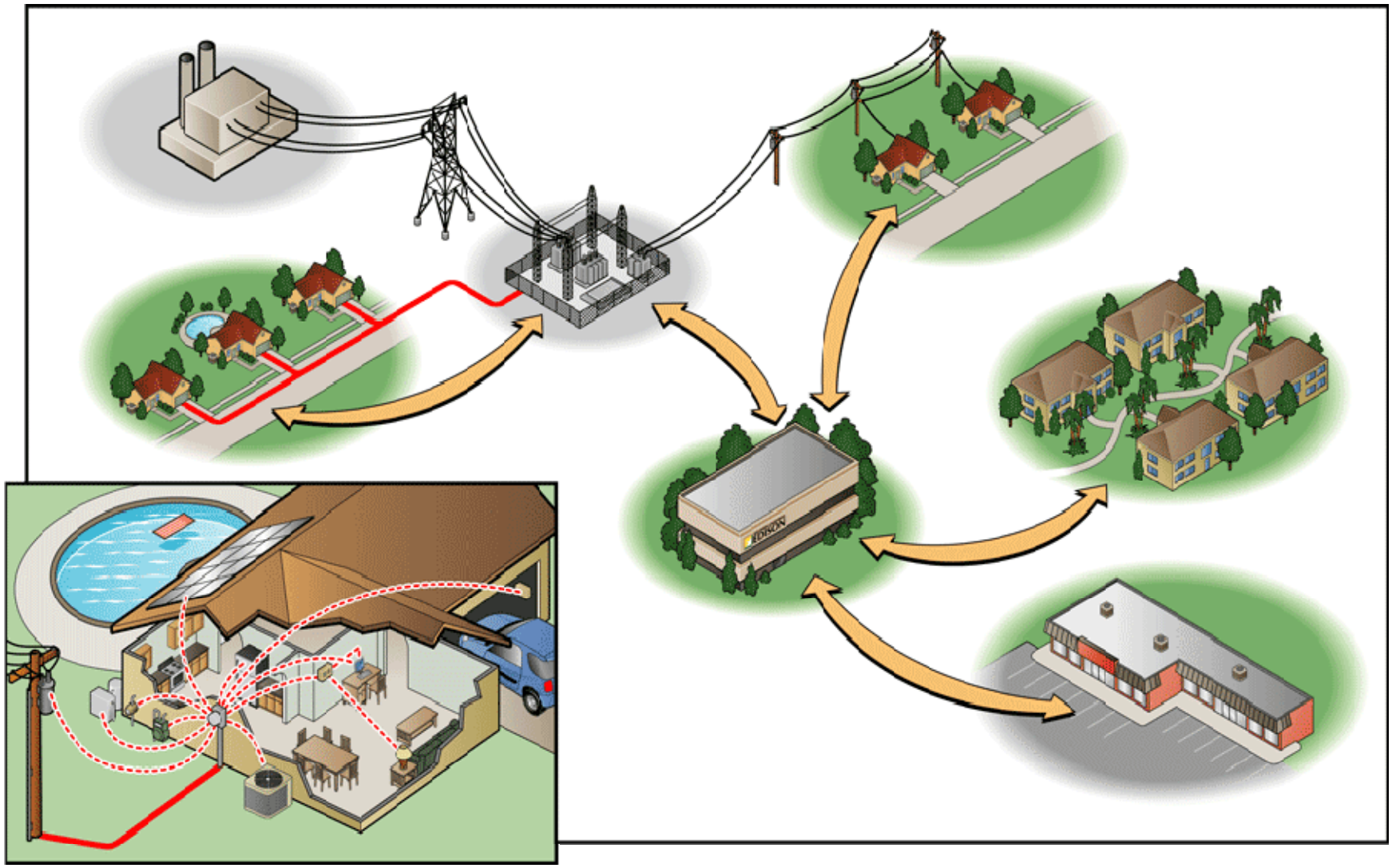
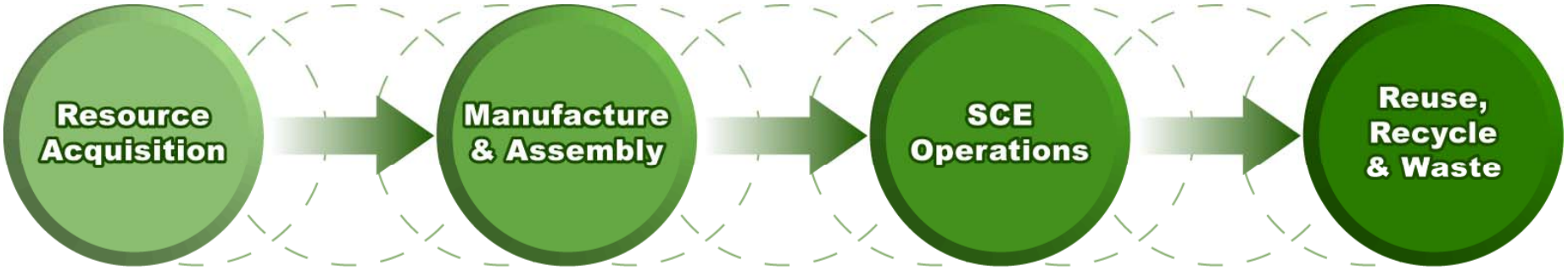
Tehachapi Renewable Transmission Project



Advanced Technology Creates Connected Systems



Integrated Life Cycle Environment and Resource Sustainability



Sustainable ‘Lean, Clean & Green’ Supply Chain Partnerships

Lean Reduces:

- ✓ Resources & Materials
- ✓ Water
- ✓ Energy Intensity
- ✓ Defects
- ✓ Overproduction
- ✓ Transport

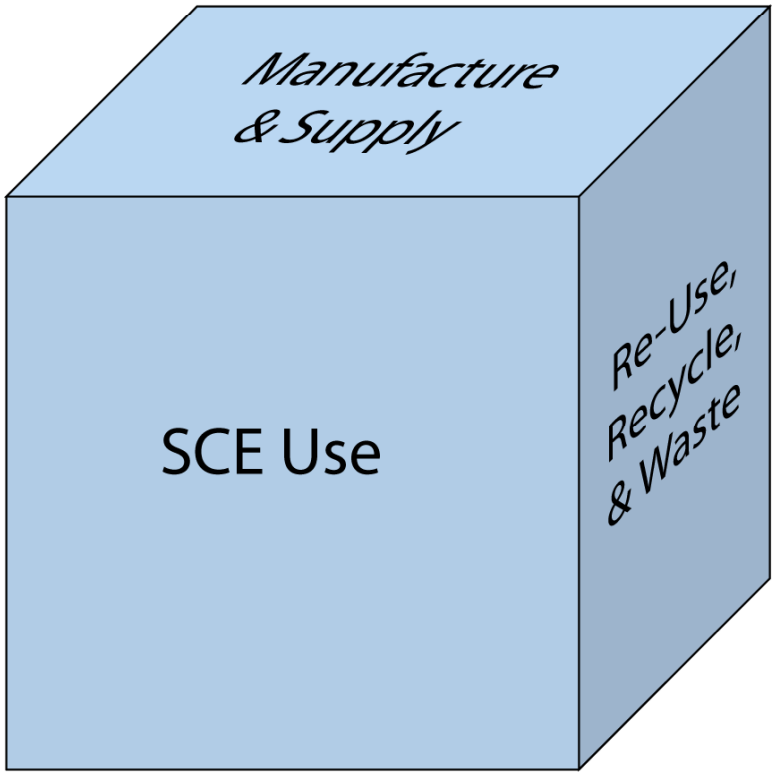
Clean Requires:

- ✓ Hazardous Material Substitution
- ✓ Reduce toxic Emissions
- ✓ Waste Management
- ✓ Compliance:
  - ❑ Environment
  - ❑ Safety
  - ❑ Public Safety

Green Adds:

- ✓ Durability
- ✓ Life-cycle Assessment
  - ❑ Ownership
  - ❑ Collaboration
  - ❑ Priorities
- ✓ Multi-Generational Perspective

SCE Supply Chain Sustainability:
Life-Cycle Cost Assessment & Priorities



Traditional Value Expectations

1. Quality
2. Quantity
3. Schedule
4. Cost

Current Value Expectations

Sustainable Operations

1. Quality
2. Quantity
3. Schedule
4. Cost
5. Safety & Public Safety
6. Environment
7. Environment and Resource Efficiency
8. Women & Minority Owned Business

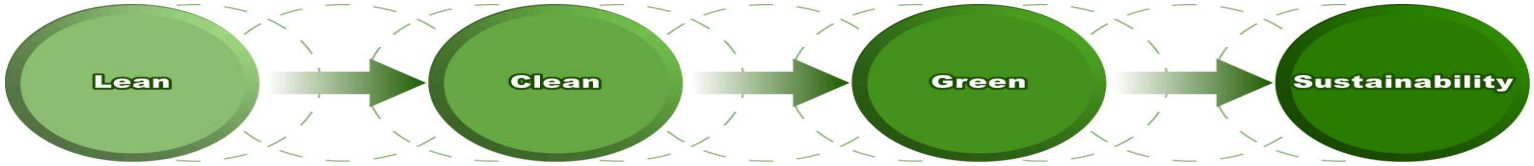
California's AB32 Sectors

Agriculture | Energy | Forest | High GHG Potential | Local Initiatives & Land Use | Oil & Refining | Transportation | Waste & Recycling

- Semiconductor Industry PFCs Reduction
- Blended Cements
- California Cement Facilities Energy Efficiency
- California Glass Manufacturing Industry
- Energy Efficiency & Co-Benefits Audits for Large Industrial Sources

- Water Use Efficiency & Water System Energy Efficiency
- Water Recycling & Reuse Urban Runoff
- Increase Renewable Energy Production
- Landscape Irrigation Efficiency Standards
- Water-Energy (WET-CAT) Subgroup of the CAT

Water – Electricity Sustainability



1. Water Supply Systems
2. Waste Water Collection Systems
3. Residential Use
4. Commercial and Industrial Use
5. Storm-water Run-off

2013 Environment and Resource Sustainability Vision

Leading the Way by providing safe, reliable, economic and sustainable electricity for today and future generations.