Demand Response: An Untapped Resource for Western Electricity Markets

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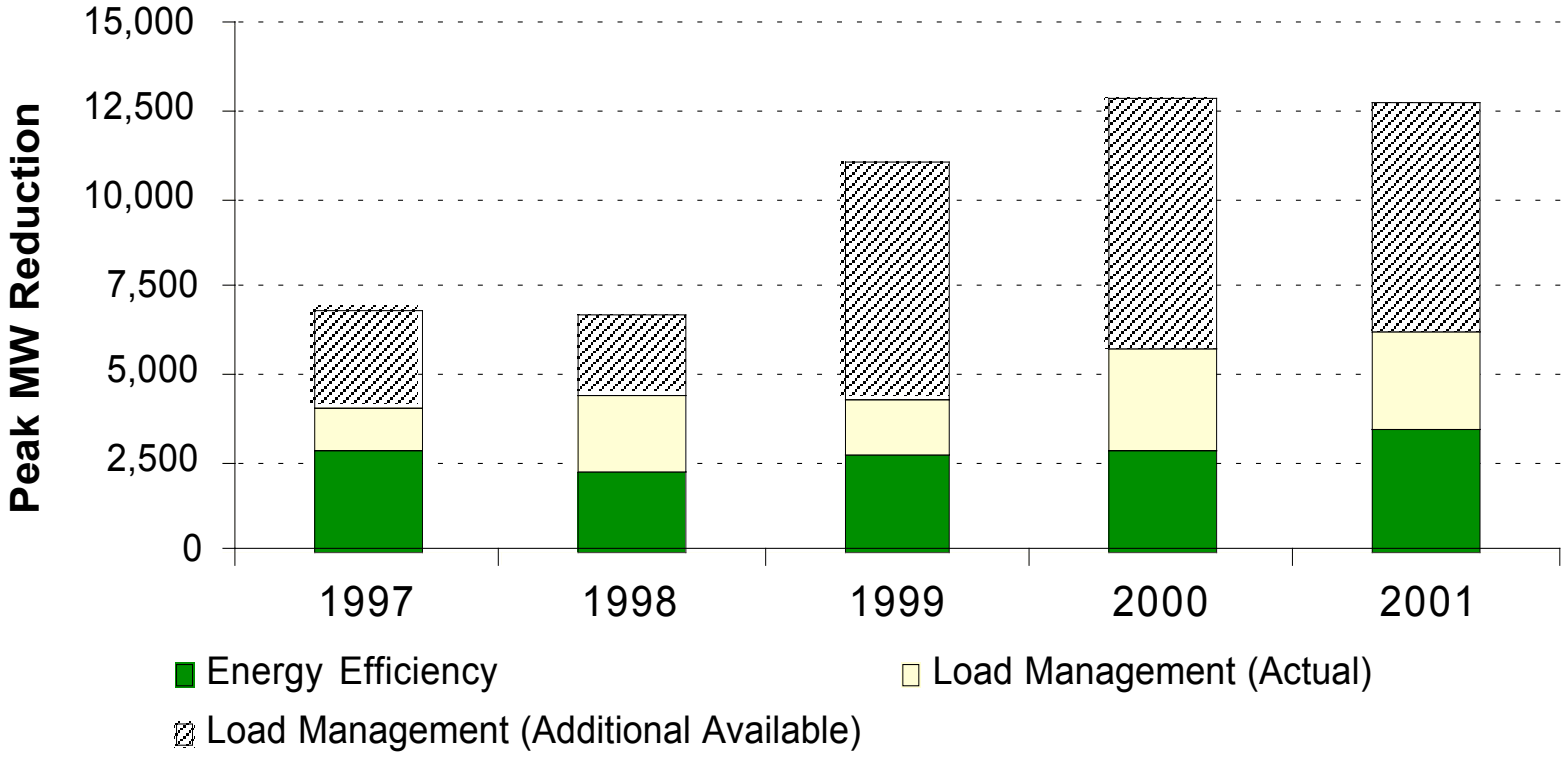
Demand Response Resources

- Broad perspective needed to capture full value of demand-side for electricity markets
  - Short-term Load Management
  - Dynamic Pricing
  - Energy efficiency
  - Distributed Generation
- All intentional modifications to electric consumption patterns of customers that are intended to modify the timing or quantity of customer demand and usage on power system

Peak Demand Savings from Utility DSM in the West



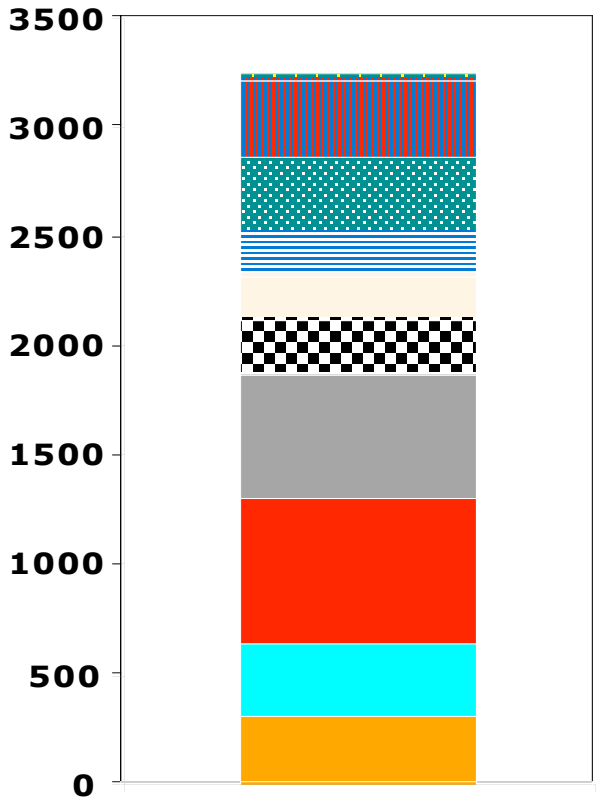
Data Source: Energy Information Administration, Form EIA-861 Database

Significant cost-effective potential for additional energy efficiency in the West

Region	Potential
California [1]	· 9,500 MW cost effective potential for peak demand savings by 2011 · 1,700-5,900 MW achievable, depending on funding levels · 3500 MW savings offsets 35% of forecast load growth
Southwest [2]	· Technical/economic potential for EE red uces demand growth from 2.7% to 0.7% per year · Reduce energy consumption in 2010 by 18% (relative to business -as-usual)
Northwest [3]	· 3,200 aMW cost -effective potential by 2025 · Offsets 60% of demand growth

1. Xenergy, "California's Secret Energy Surplus: the P otential for Energy Efficiency
2. Southwest Energy Efficiency Project, "The New Mother Lode"
3. Northwest Power Planning Council

PRELIMINARY *Assessment* of Cost-Effective Conservation Potential in Pacific NW (2025)



- Agricultural Sector - 25 aMW
- Non-DSI Industrial Sector - 350 aMW
- Commercial Sector Non-Building Measures - 300 aMW
- HVAC & Window Efficiency Improvements - 200 aMW
- New Commercial Building Lighting - 200 aMW
- Existing Commercial Buildings Lighting - 250 aMW
- Residential Space Conditioning - 575 aMW
- Residential Lighting - 660 aMW
- Residential Water Heating - 335 aMW
- Residential Appliances - 305 aMW

Source: NWPPC, 2003

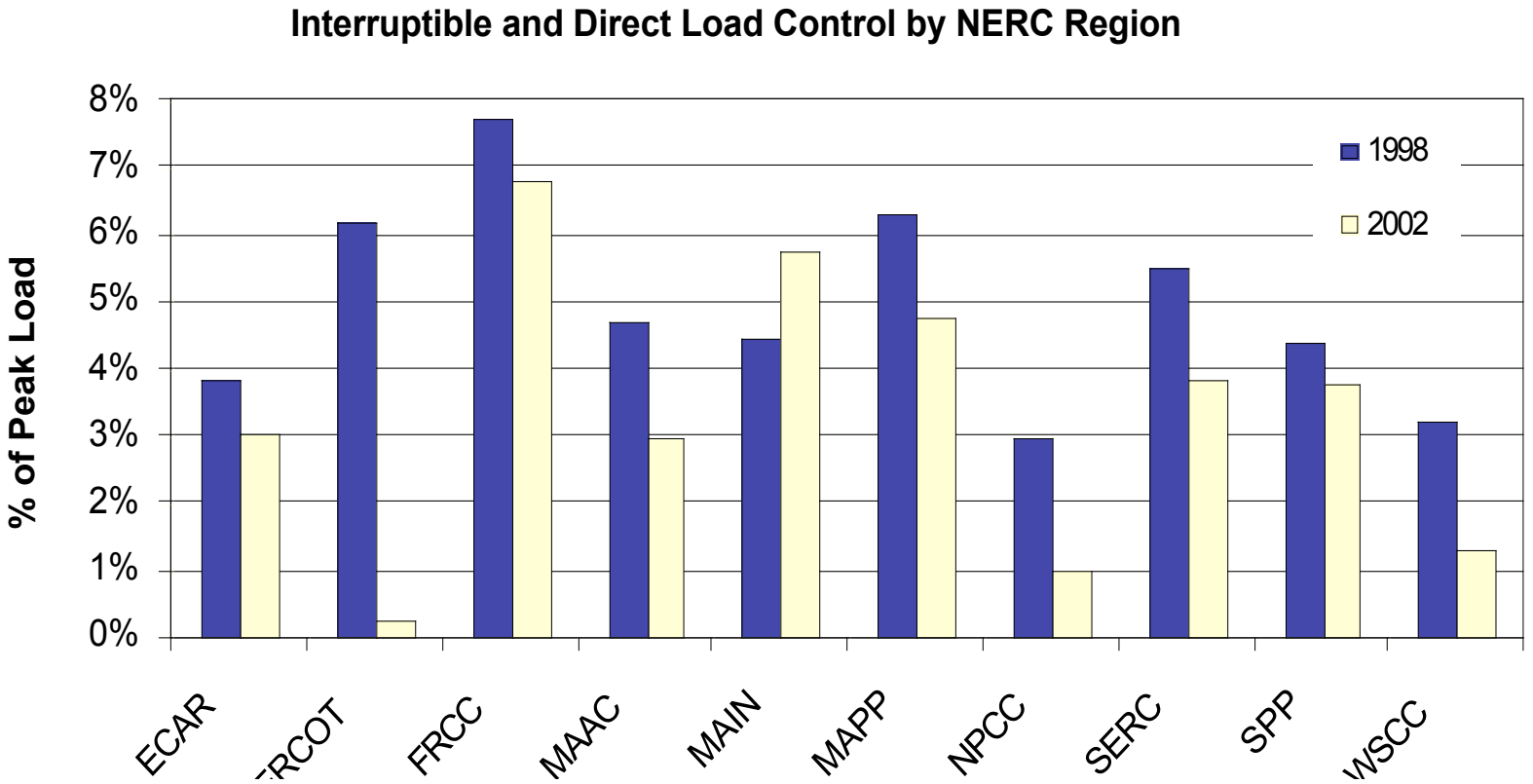
What needs to be done to better utilize demand response resources (DRR)?

- Resource Adequacy: Role and policies for DRR to compete fairly
- Deploy and expand advanced metering
- Short-term, “Emergency” Demand Response
  - States should set targets for LSEs
  - Develop strategy to transition legacy load mgmt programs
  - Set payments to reflect value of system reliability to customers

What needs to be done (cont)?

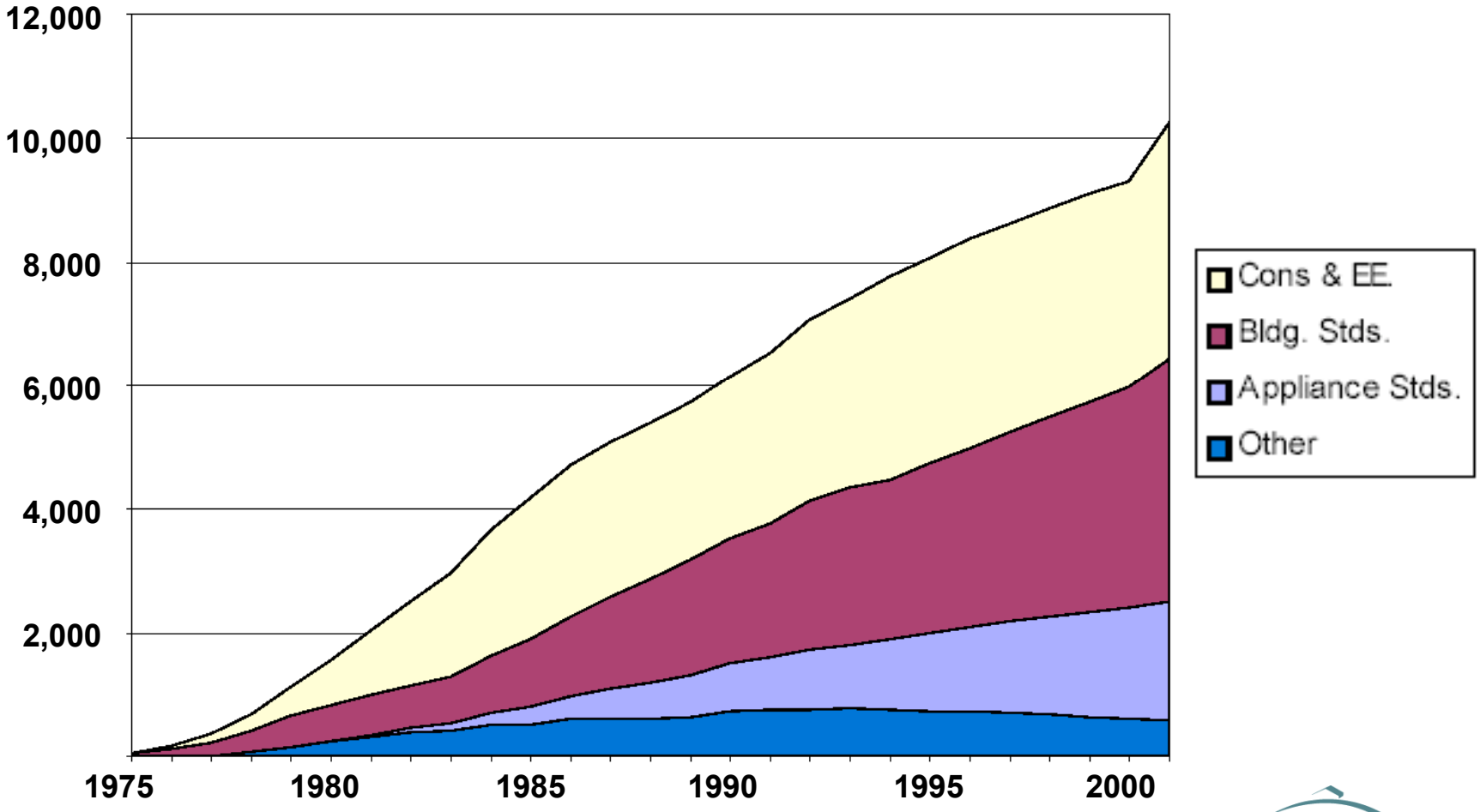
- Energy Efficiency
  - EE resource potential can be most effectively captured through appliance/equipment standards, building codes, ratepayer-funded programs, and other policies/strategies
  - Utility/DISCO planning processes should consider all resource options to meet system needs
  - Establish or increase ratepayer or system benefit funds to implement cost-effective EE programs
  - Consider establish EE performance standards (TX)
  - Address ratemaking disincentives to utilities and/or consider other entities to administer EE programs

Is DR becoming a stranded resource?



Background Slides

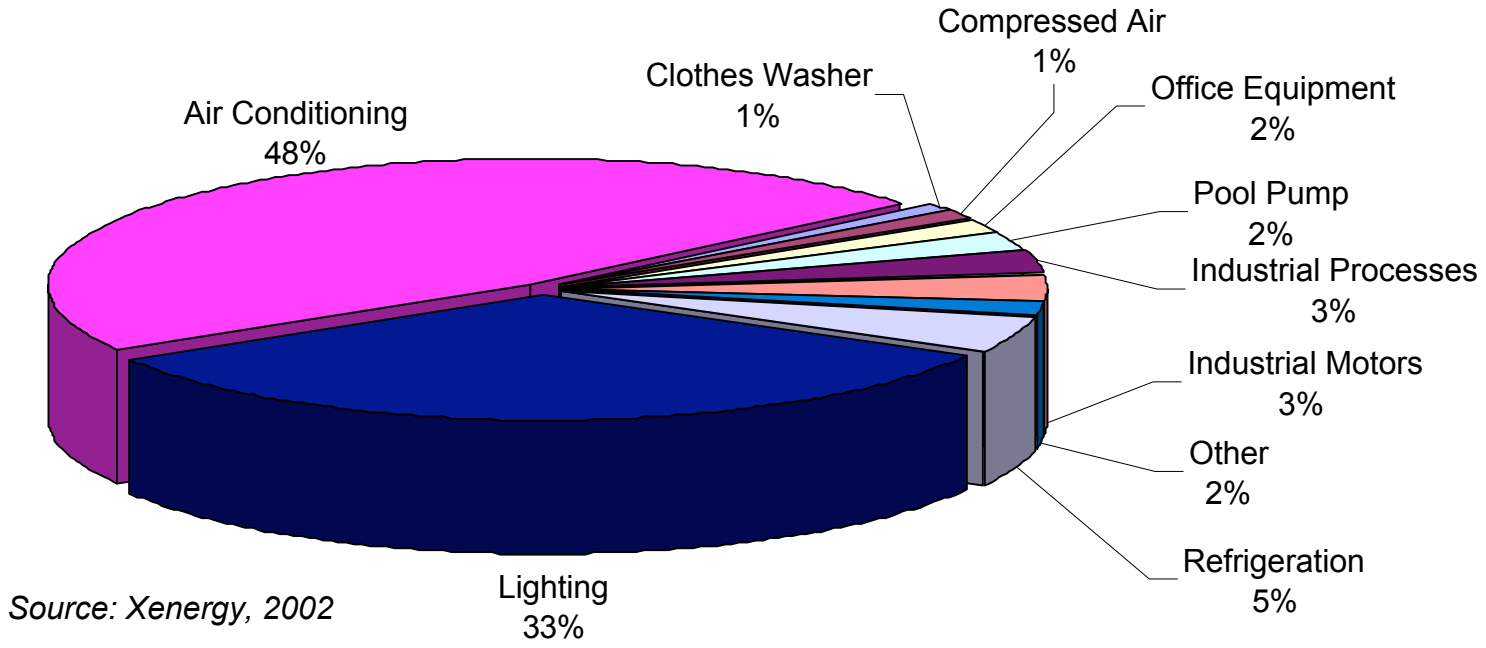
Peak Demand Savings from Energy Efficiency in California



CA Energy Efficiency: Achievable Potential

Energy Efficiency Achievable Potential at Two Times Current Program Funding

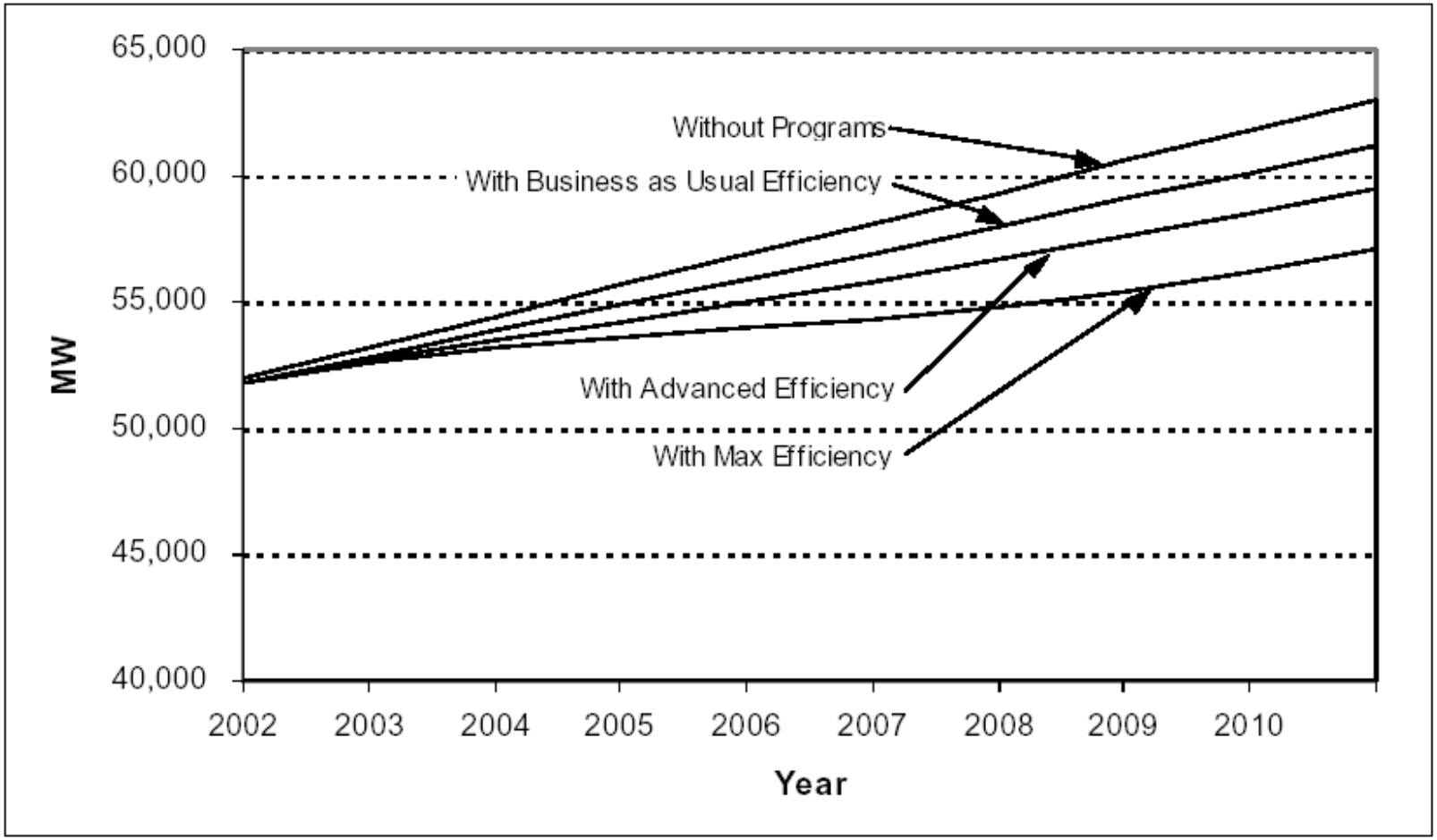
Total Peak Demand Reduction = 3,500 MW in 2011



Source: Xenergy, 2002

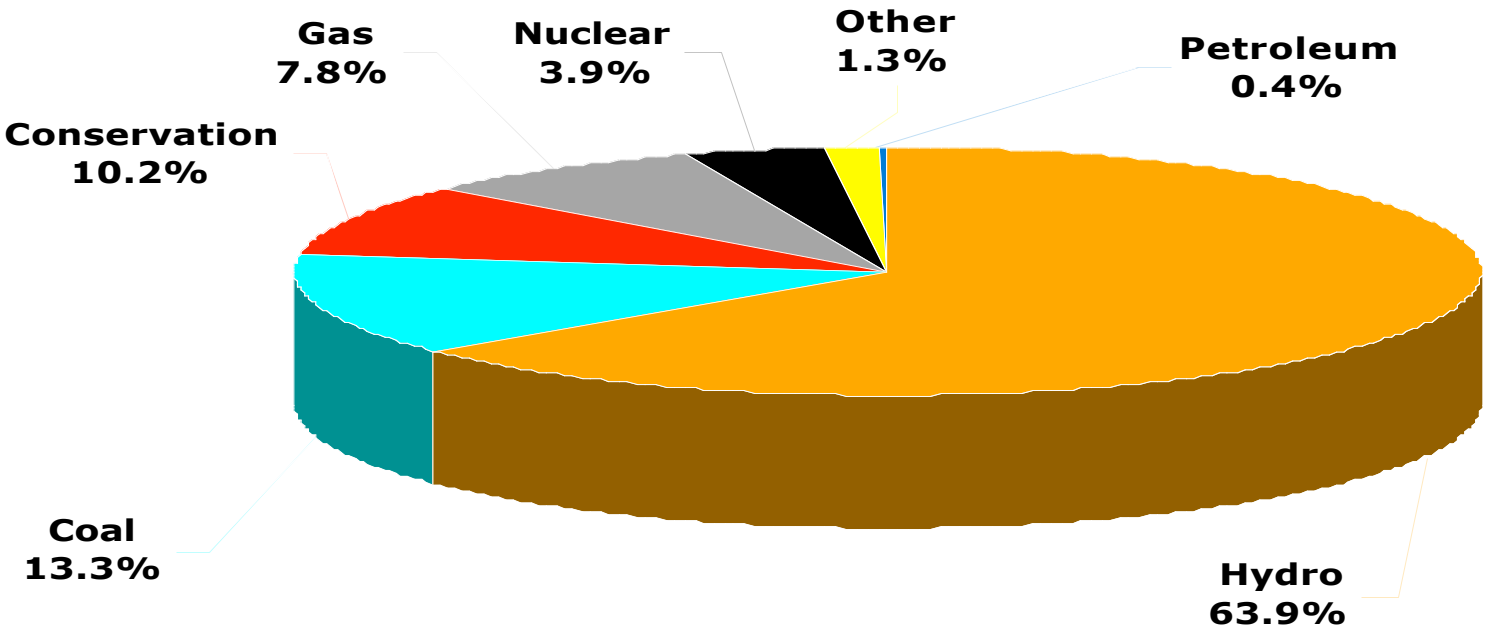
- Energy Efficiency savings offset 35% of growth in peak demand

CA Load Growth under Alternate Energy Efficiency Program Funding Scenarios



Source: Xenergy, 2002

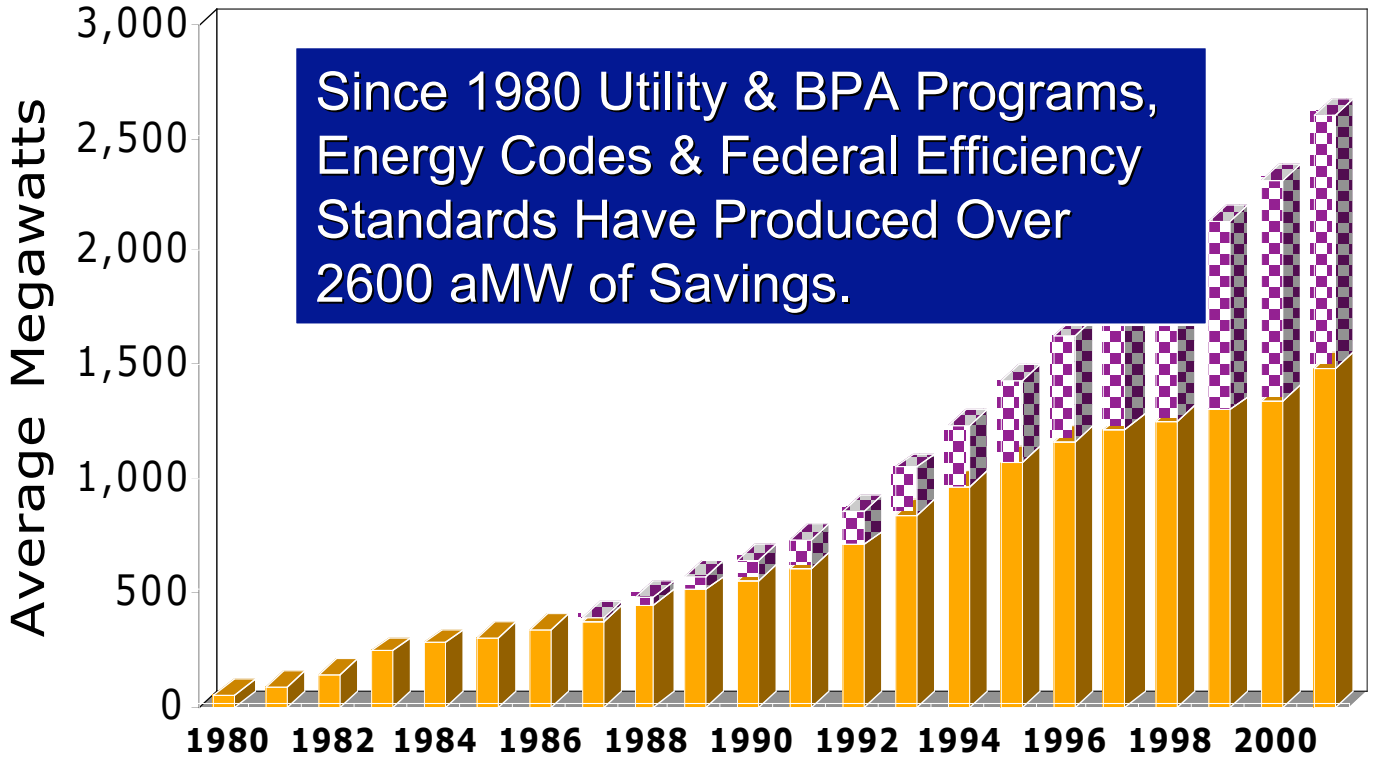
Electricity Supply Resource Mix in the Pacific Northwest (2000)



Conservation savings of 2600 aMW in Pacific Northwest (1980-2000)

Source: NWPPC, 2003

Energy Efficiency Savings in the Pacific Northwest: 20 Years of Progress



Source: NWPPC, 2003