The Role Of Demand-Side Management in Meeting 2005 Resource Adequacy

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In Summer 2005, SCE helped meet the needs of the State through expanded Demand-Side Management.

- In December 2004, California agencies concluded that resources in Southern California could be tight under extreme weather and operating conditions in the summer of 2005
  - SCE's analysis concluded that up to 540 MWs of additional resources may be needed in SCE and SDG&E's service territories
- With only a short time until summer, additional resource options to meet this identified need were limited
  - Edison identified options that could meet the estimated needs but required varying levels of utility and state support to implement
- Actions taken by SCE to meet this shortage were predominately met through expanded demand-side management (DSM)
  - Expanded SCE's existing DSM portfolio 383 MW
  - Contracted for mothballed generating facilities 175 MW

Total: 558 MW

"SP15" is one of the CAISO's transmission Zones – includes SCE & SDG&E utilities.

- SP15 is the region between Central and Southern California with double 500 kV transmission lines between Midway and Los Banos
- SCE is one of the largest U.S. electric utilities
  - 50,000 square miles including 430 cities and communities
  - Total Annual Sales ~85,000 GWh
- Population served in SCE
  - More than 13 million people
  - 4.7 million customers
- New SCE system peak load of 21,934 MW achieved July 22, 2005
  - 6% increase over previous years peak

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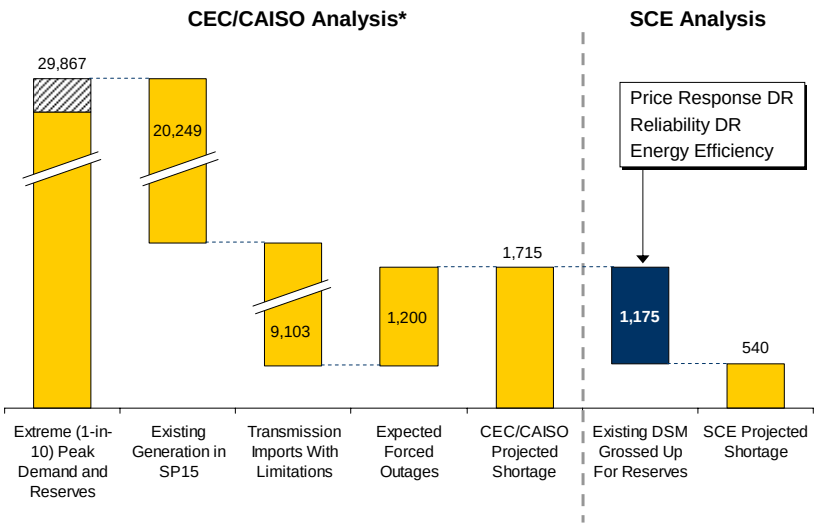
SCE's analysis showed up to 540 MW of additional resources may be needed by Summer 2005.

Supply Demand Balance in SP15
MWs



* CEC/CAISO analysis dated December 7th, 2004

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SCE identified supply and demand options for meeting 2005 resource needs.

Resources to Meet Identified Needs

- Expanding demand-side management about 273 MW
  - 20/20
  - Air Conditioning Cycling
  - Base Interruptible Program
  - Commercial Lighting Direct Install
- Curtailing MWD pumping load up to 110 MW
- Considering contracting for mothballed facilities up to 175 MW

Total: 558 MW

Cost effective and relatively easier to implement in time for summer

Additional Resource Options Above Need

- Temporary opacity waiver at Mohave, up to 75 MW additional
- Refurbishing up to 420 MW of existing generation units
- Installing up to 500 MW of additional peakers in SCE service territory
- Installing up to 650 MW of additional peakers in SDG&E service territory

Total: 1,645 MW

Obstacles to implementation included:
- Time required to implement an open competitive procurement processes
- Licensing, permitting and agency approvals
- Construction

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SCE developed these DSM resources through incremental market interventions.

- **Energy Efficiency** — **48 MWs**
  - **Target customer group with largest contribution to peak, maximize ease of implementation, increase incentive**
    - **Result - Commercial Lighting Direct Install Program (lighting retrofit provided at no cost to the customer)**
- **Integrated EE/DR** — **150 MWs**
  - **Capitalize on previous year's success, increase target audience**
    - **Result – Expanded 20/20 program (both commercial and residential customers were eligible for rebate)**
- **DR Reliability** — **185 MWs**
  - **Expand to market group with least penetration, increase incentive**
    - **Result – Expanded AC Cycling for residential with double the incentive**
  - **Exercise option to curtail MWD pump load during peak hours**

The program strategies implemented in this scenario are less cost effective than the standard EE/DR programs but were achievable and more cost effective when compared with supply side options

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SCE's DSM programs were flexible and timely enough to help meet summer 2005 peak demand.

- With the necessary infrastructures in place, new types of DSM programs could be deployed
  - Without undue delays
  - For minimum cost
  - For specific types of resources
  - Consistent with the State's Energy Action Plan
- Most of the supply side options were not capable of meeting resource needs by Summer 2005
  - Permitting delays
  - Construction and retrofitting costs

DSM programs provided the resources needed