

The Role of Energy Efficiency in Implementing San Francisco's Energy Resource Investment Strategy

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The State of Electricity Planning in San Francisco, mid-2001

- Aggressive media campaigns to encourage the public to conserve electricity to avoid recurring rolling blackouts
 - Not necessarily to invest in more efficient technology
- On-going local and State proceedings to permit a 540-MW gas-fired power plant to be developed by out-of-state power company
 - Single generation owner could exercise market power
 - Serious concerns about proposed cooling water use
 - Community resistance over environmental justice issues



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Electricity Planning Must Address San Francisco's Energy Vulnerabilities

- Limited transmission capacity to import power
- Best renewable resources sites across the Bay
- In-city generation comes from old, unreliable and polluting power plants (need to close one)
- Excessive dependence on natural gas
- Concentrated ownership of in-city power plants (risk of potential market power)



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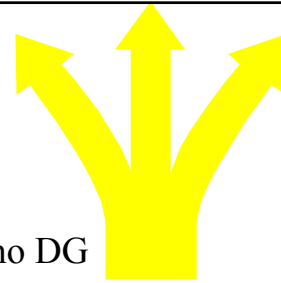


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Scenario Analysis 2002-12

- Central Generation
 - Potrero #7 (540 MW CCGT)
 - Minimal energy efficiency, solar, no DG
- Reliance on Imports and New Transmission
 - Jefferson to Martin 230-kV line (PG&E)
 - Moderate energy efficiency, solar, wind and DG
- Distributed Resources
 - Efficient in-City peakers or cogeneration
 - Aggressive energy efficiency, solar, wind and DG



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Results and Use of the Scenarios

- Basic Quantitative Conclusions:
 - All scenarios keep the lights on, reduce total emissions
 - Overall costs, total fuel use very similar in each case
 - Each has different risks of delays in implementation
- Qualitative Differences:
 - Market power of single generation owner
 - Environmental inequity of single large in-City generator
 - Local economic development from distributed resources
- Therefore:
 - The proposed 540-MW CCGT is not the only game in town for solving the City's energy problems!
- Next Step:
 - Preliminary plan constructed from scenarios 2 & 3



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SF electricity demand breakdown

Sector	Share of Total Electricity Consumption (2000)
Commercial	55% (summer peak)
Residential	27% (winter peak)
Municipal	16%
Industrial	2%



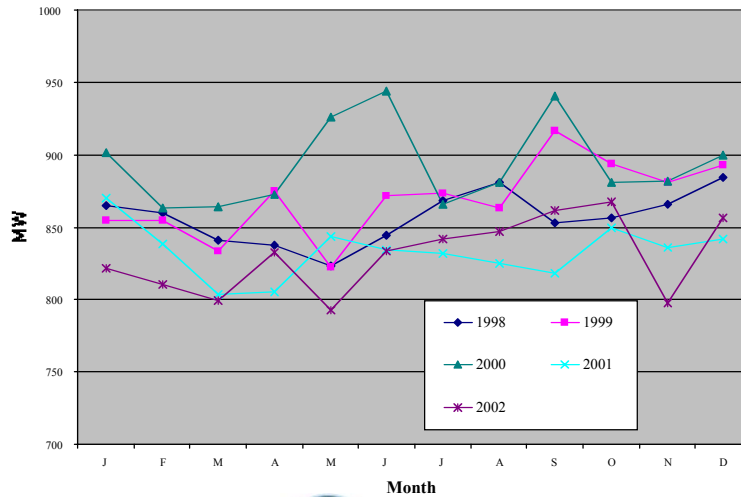
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SF peak demand can occur at any time of year

SF Monthly Peak Loads



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Energy efficiency in future SF resource portfolios

- Must address energy use, both summer/winter peaks!
- Short-term focus: capacity savings to close Hunters Pt.
 - Demand-response to limit commercial peak
 - Continued effort with PG&E in commercial lighting, HVAC
 - New focus on multifamily residential lighting, heating
 - Municipal efficiency programs: City buildings, water works
- Longer-term goal is to limit, reduce maximum demand
 - Minimize new loads, avoiding lost opportunities
 - Target programs to support T&D grid, local development
 - Re-visit the largest municipal load: SFO airport
 - Integrate distributed co-generation, solar to manage peaks



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Goals of an Energy Resource Investment Strategy (ERIS)

- Adequate supplies to meet expected growth
- Reliable service with few interruptions
- Affordable bills (rates X usage)
- Stable and predictable prices
- Use of proven technologies at reasonable costs
- Shutdown of the Hunters Point plant by 2005
- Minimal environmental impacts
- Fair sharing of environmental burdens
- Opportunities for economic development



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ERIS Presents a Long-Term Vision for SF's Energy Future

- Developed through extensive consultation with various constituencies
- Adopted unanimously by Board of Supervisors 12/02
- Establishes ERIS goals to guide City energy actions
- Acts as a catalyst for other agencies to take action including California ISO, CPUC, California Power Authority and California Energy Commission
- Discusses specific actions that need to be taken to shut down the Hunters Point Power Plant by 2005



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Actions Initiated from ERIS Adoption-2003

- Cal-ISO conducts detailed power flow studies for SF and Peninsula for various new transmission and generation scenarios
- CCSF and Attorney General settle legal dispute with Williams Corp. resulting in CCSF obtaining 4 combustion turbines and development funds
- CCSF enters into agreement with CDWR on power purchase agreement enabling CCSF to finance construction of the 4 CTs
- Cal-ISO sets out terms and conditions for removal of RMR contract for Hunters Point Unit 4
- SFPUC begins exploring community aggregation



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More Actions: 2004-2005

- Demand reduction through energy efficiency measures and price responsive load (16+ MW)
- SFPUC/PG&E to expedite 115 kV transmission line between Hunters Point, Potrero switchyards
- PG&E/SFE file work plan for targeted energy efficiency measures in SF (more on this later...)
- PG&E files permit to upgrade Peninsula transmission line from 60 kv to 115 kv
- SFPUC/SFE enter into MoUs with US DoE and the California Energy Commission to promote energy efficiency, renewable energy and fuel cells



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City Facility Energy Efficiency Projects

- Funded from surplus revenues from power sales to municipal customers: ~ \$15 million past 2 years
- LEDs at 1100 traffic lights – 82% energy savings and 2.5 MW peak demand reduction
- Replacing and recycling 2000 refrigerators in various housing projects – 200 kW peak reduction
- Lighting retrofits at SF General Hospital – 700 kW peak demand savings
- Relamping 7 garages – 116 kW peak savings
- Lighting and controls at Moscone Convention Center: 715 kW peak demand reduction (integrated with energy efficiency measures & controls)



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Renewable Energy Bond Authority

- Allows SF to issue up to \$100 million in revenue bonds for solar or other renewable energy facilities and energy efficiency equipment
- Bonds to be repaid from sales of renewable electricity and savings from energy efficiency
- Limits renewable energy and efficiency projects to City agencies, department or enterprises
- First project: Moscone Convention Center – 675 kW, \$4.2 million, design-build contract with Powerlight of Berkeley, completion expected 8/03
- Next projects: Southeast Wastewater Treatment Facility Buildings (300 kW), Pier 96 (100 kW)



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Dept. of Environment's Energy Actions with the Private Sector

- Meet with business and neighborhood org's
- Meet with state agencies to secure support and resources
 - Create links but not alter existing programs
 - Linked some programs to our small business lighting program
 - Access upcoming programs:
 - Peak Tariffs and Demand Response
 - Public Goods Charge
 - Community Aggregation



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Dept. of Environment Actions (cont'd)

- Complete small business program (6MW)
- Craft local legislation
 - Advanced adoption of new construction code
 - Rental efficiency cost pass-through to tenants
 - Time of sale or renovation
 - New requirements on largest existing buildings



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