

Date August 20, 2009 Item No. 5

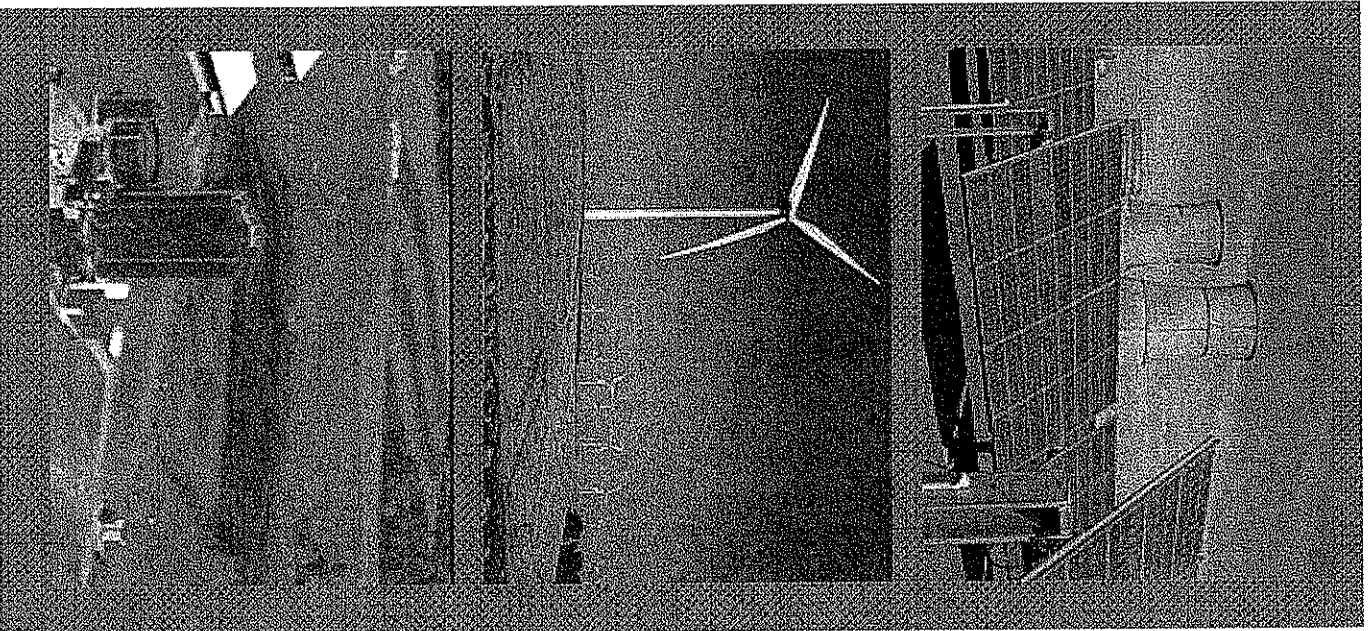
LOCAL AGENCY FORMATION COMMISSION
AGENDA PACKET CONTENTS LIST*

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Exceeds 20 pages; see file to review
Available for review at City Hall, Room 244

Completed by: Linda Wong Date: August 17, 2009

***This list reflects the explanatory documents provided**



Levelized Cost of Electricity
Associated With Out-of-City
Renewable Energy Resources
Considered Supply Candidates
for the

City and County of San Francisco
Community Choice Aggregation Program

Prepared for the
SFPUC and SF LAFCo

Presenter – Glenn C. Walker, Principal

August 20, 2009

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Introduction

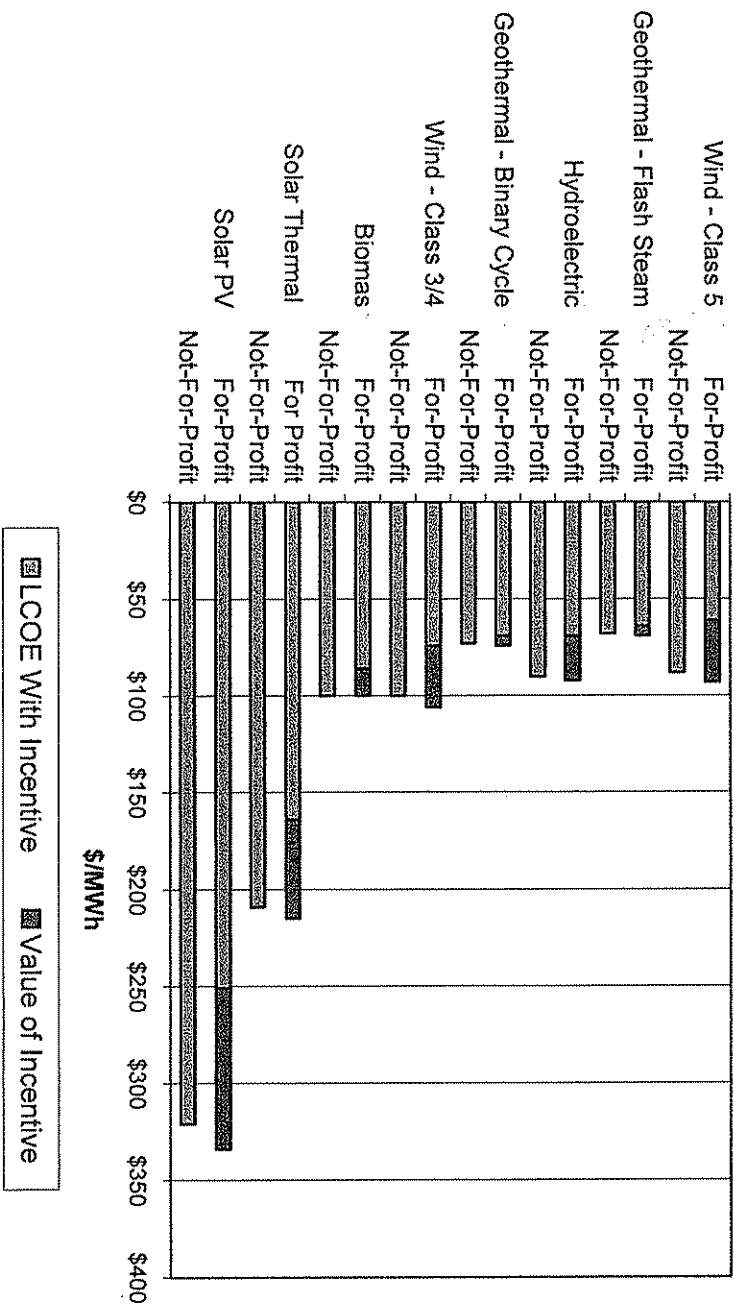
- GES was retained to provide a report on the levelized cost of electricity (LCOE) associated with out-of-city renewable energy resources considered supply options for the City and County of San Francisco (CCSF) Community Choice Aggregation (CCA) program
- The results to date of this analysis are being presented for comparison to in-city options

LCOE Associated With Out-of-City Resources – Task 3

- Current results of out-of-city supply options are based on technologies located throughout California
- Projects were selected based on commercial availability, attractive pricing, and significant market penetration
- Resource consideration included:
 - Large-scale solar photovoltaic (PV)
 - Solar thermal
 - Wind
 - Incremental hydroelectric
 - Geothermal
 - Biomass
- LCOE will vary due to resource availability and location
- Results are considered to represent reasonable estimates for each technology based on the underlying assumptions

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LCOE Associated With Out-of-City Resources – Task 3



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LCOE Associated With Out-of-City Resources – Task 3

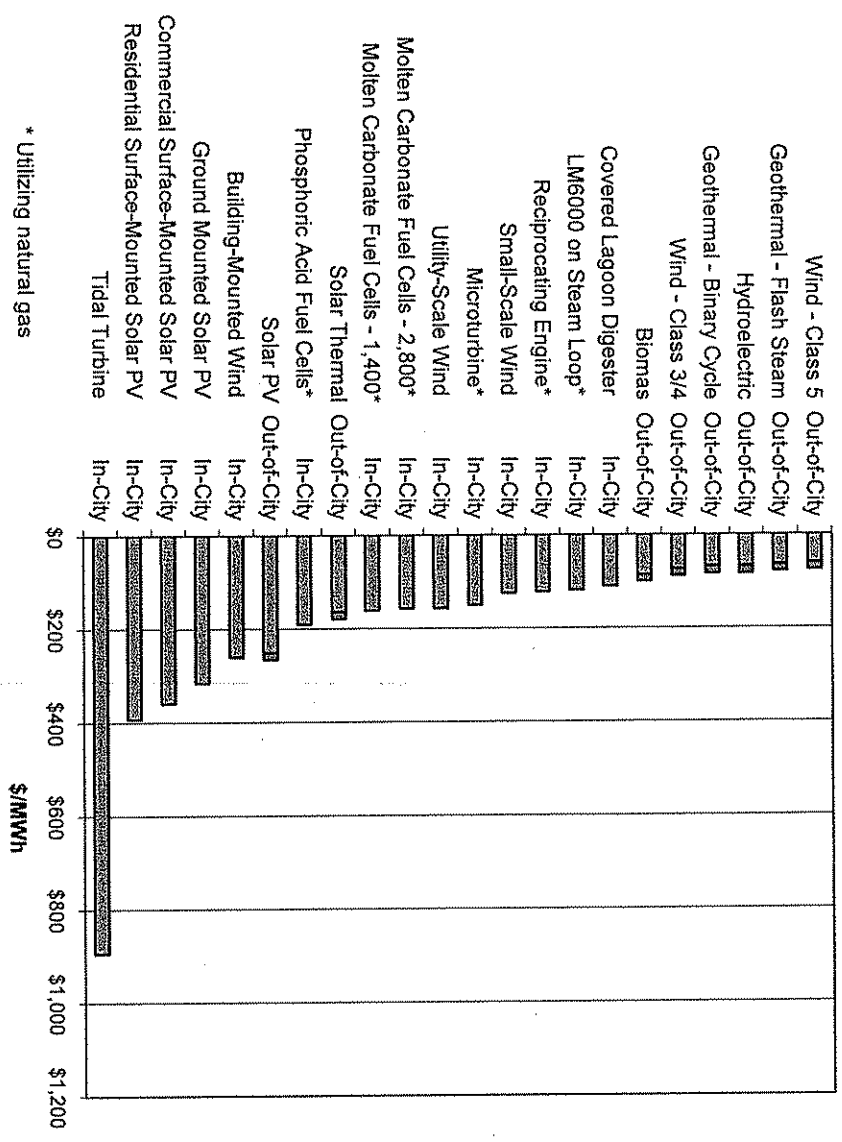
- Resources presented in prior slide **do not** include cost of transportation or “wheeling” the electricity into the CCSF
- Cost of wheeling is estimated at approximately \$15/MWh on a levelized basis and may be higher for remote locations that require substantial transmission infrastructure

LCOE Associated With Out-of-City Resources – Task 3

- LCOE associated with out-of-city resources plus transmission costs are typically lower than in-city options
- Out-of-city options benefit from better natural resources, larger scale, and lower costs of construction

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In-City and Out-of-City LCOE - For Profit Ownership Structure



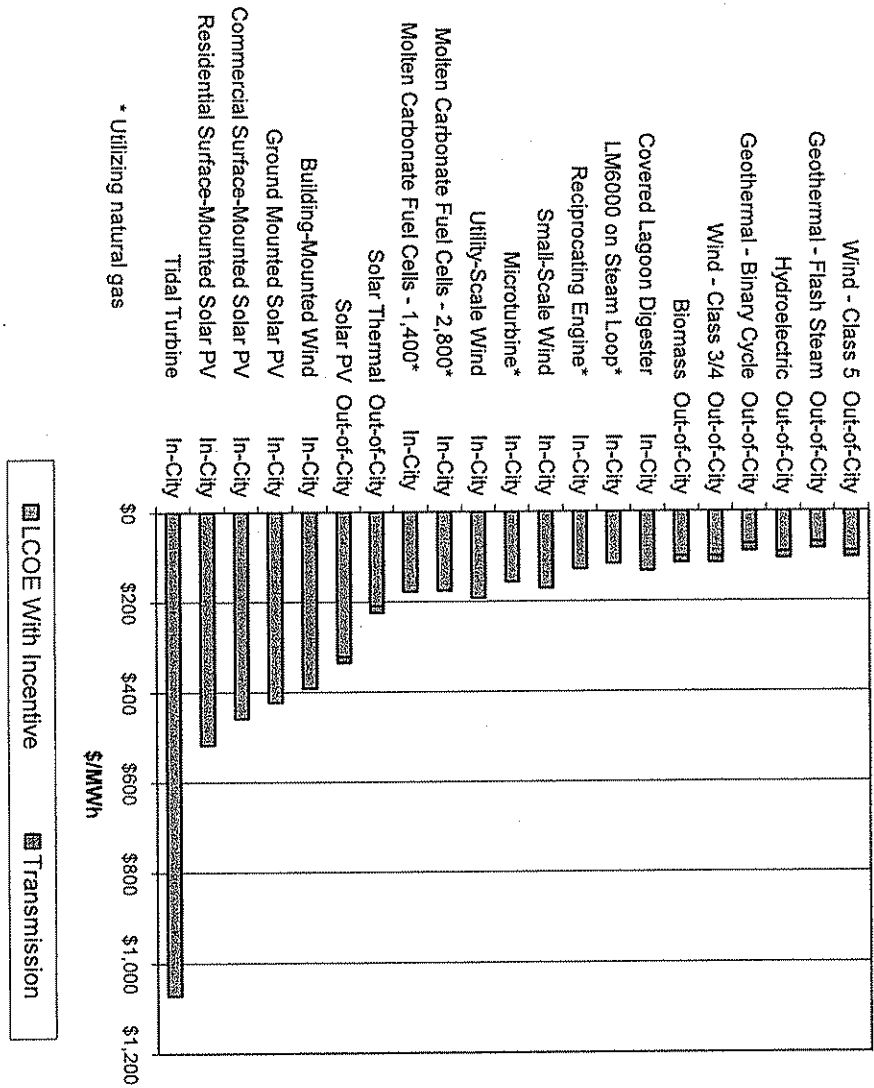
* Utilizing natural gas



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In-City and Out-of-City LCOE – Not-For-Profit Ownership Structure



* Utilizing natural gas

▨ LCOE With Incentive ■ Transmission

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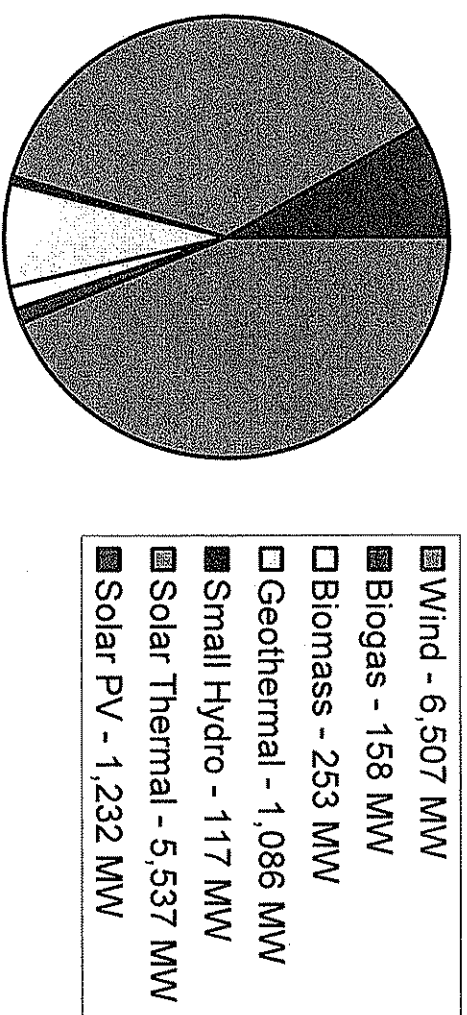


Out-of-City Resource Potential

- Resource availability and LCOE will determine market share of renewable supply resources
- Examples of this are the contracts entered into by the California utilities since 2002 which include approximately 15,000 MW of renewable supply resources
- Contracts include a variety of resource types but certain resources represent larger amounts of both contracted supply and on-line supply

Existing or Planned Utility Projects in California

Contracts Entered Into With California Utilities Since 2002 by Resource Type



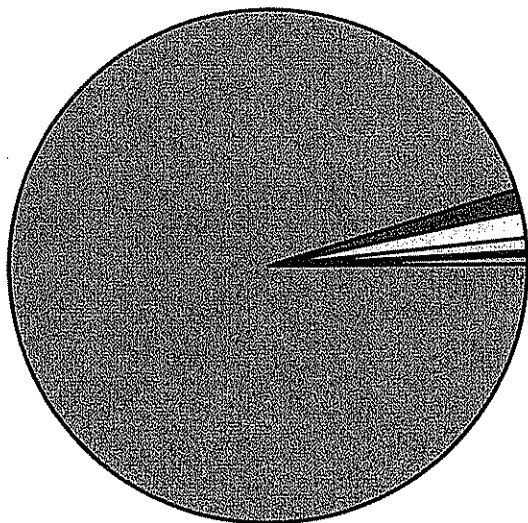
Source: www.energy.ca.gov/portfolio/contracts_database.html

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California Renewable Projects On-Line to Date

Capacity On-Line To Date Since 2002



■	Wind - 1,907 MW
■	Biogas - 27 MW
□	Biomass - 32 MW
□	Geothermal - 16 MW
■	Small Hydro - 5 MW
■	Solar PV - 13

Source: www.energy.ca.gov/portfolio/contracts_database.html

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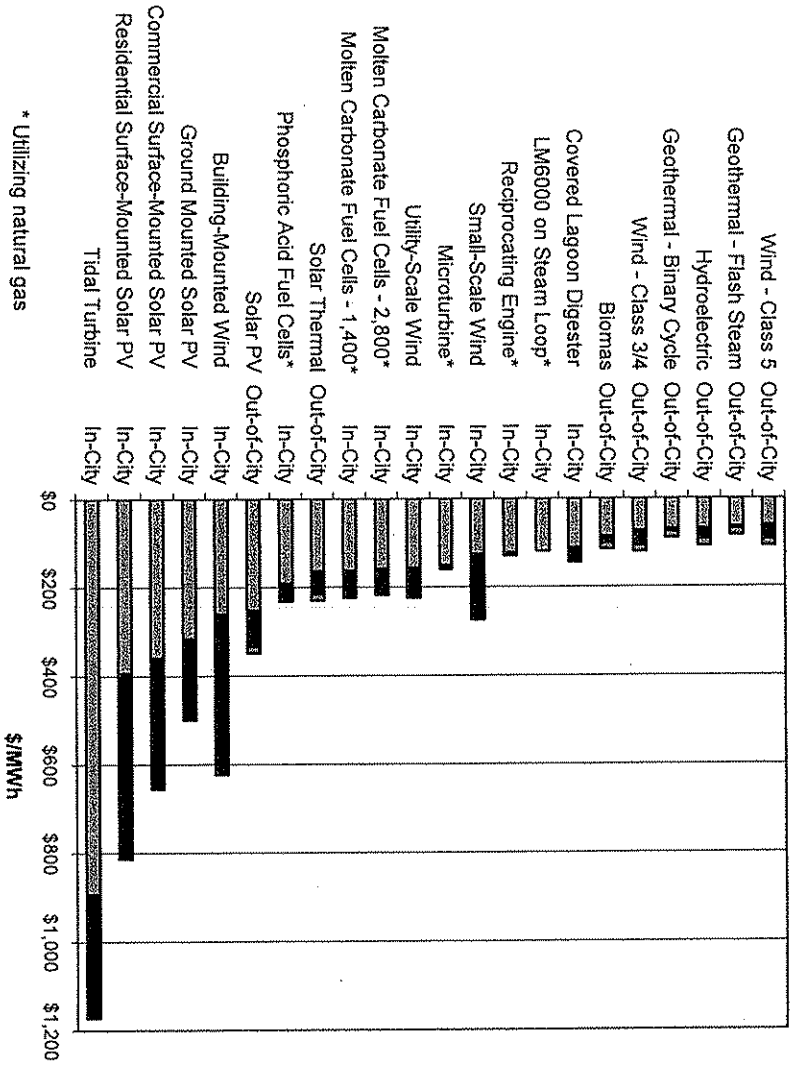


Questions

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12

Reference – For-Profit Ownership Structure

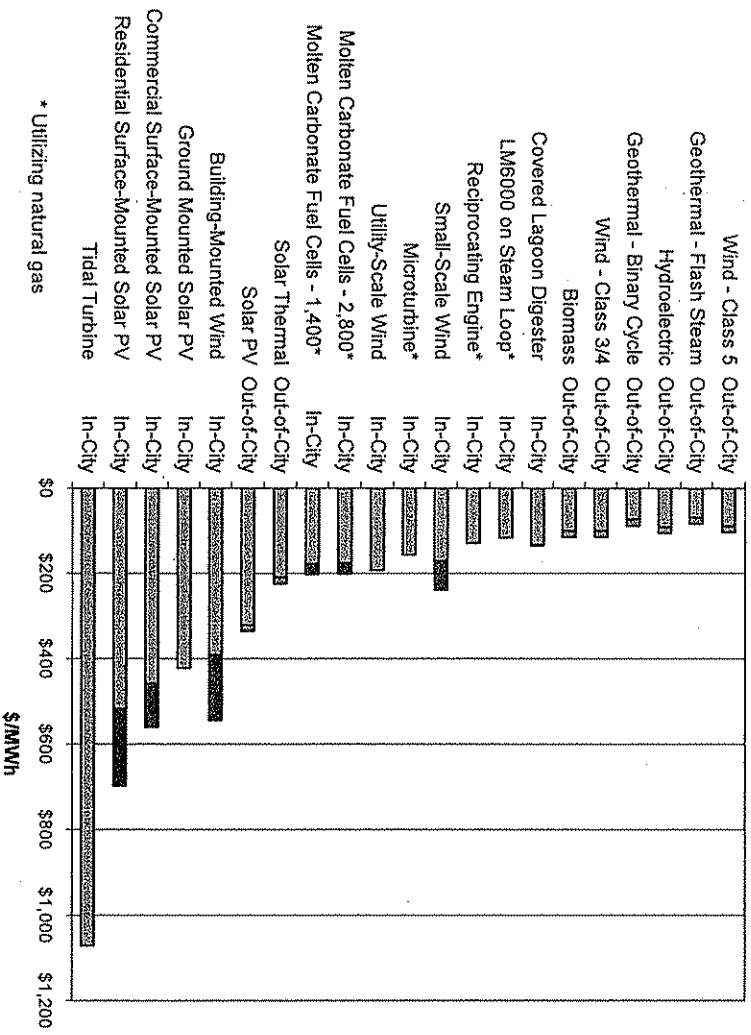


LCOE With Incentive
 Value of Incentive
 Transmission

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Reference – Not-For-Profit Ownership Structure



LCOE with Incentive
 Value of Incentive
 Transmission

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