CCS and Energy Policy Development in California

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National Context - 2009

- Financial Meltdown
- A New President
- American Recovery and Reinvestment Act (ARRA) has a strong focus on Clean Technologies – DOE, DOT, EPA, DOL
- Greenhouse Gas Reduction Legislation

DOE RECOVERY ACT FUNDING

- Energy Efficiency and Renewable Energy
- Clean Up of Cold War Nuclear Sites
- Loan Guarantees for Renewable Energy
- Smart Grid and Efficient Electrical Transmission
- Carbon Capture / Storage
- Scientific Research
- Advanced Research Projects Agency – Energy

TOTAL = $36.7 BILLION
California Context - 2009

- Financial Meltdown
- Leveraging ARRA for Energy in California
  - State Energy Program, Efficiency
  - Block Grants, Weatherization, Energy Star
  - Transportation Electrification, Clean Cities, Biofuels
  - Smart Grid
  - Geothermal
  - CCS
- AB 32 Implementation – GHG Reduction Targets for 2020; CCS in the Picture but longer term opportunity, Low Carbon Fuels Standard
- Legislature Focused on 2030 RPS Goals

CCS in California – Where It Fits

When WESTCARB began

- The Loading Order was firm policy – Efficiency, Renewables, Natural Gas
- No Coal likely in the future of California
- Large Central Valley saline formations, depleted oil & gas reservoirs eligible for Carbon Storage
- Likely targets – Large Industrial sources, refineries
CCS in California – Where It Fits

- Rethinking the Future

- Power Plant Siting at the CEC
  - Operational since 2001: 43 plants; 14.6 GW; all Natural Gas
  - Approvals since 1999
    - Under Construction: 7 projects; 2.0 GW Natural Gas; 50 MW solar
    - Approved and available for Construction: 13 projects; 6.3 GW Natural Gas; 213 MW Geothermal
    - Approved but will not be built: 8 projects; 2.5 GW, all Natural Gas
  - Under Review: 30 projects – 13.1 GW
    - 17 projects Natural Gas – 7.6 GW
    - 11 projects Renewables – 4.5 GW
    - 1 Hybrid Natural Gas/Solar – 570 MW, 10% Peak from Solar
    - Hydrogen from Pet coke and Coal: 390 MW

CCS in California – Where It Fits

- National and California GHG Reduction Goals for Electricity Sector may not be met by Renewable Capacity goals

- In California, Natural Gas plants will likely have to contribute to GHG Reductions

- CEC/PUC have been engaged in discussions with NETL and relevant California agencies
  - Develop a carbon capture project design for a natural gas power plant – PG&E and NETL
  - Develop an interagency approach for legislation on critical policy issues: liability and ownership;