



## WESTCARB Phase II Kickoff

### *CO<sub>2</sub> Capture Technology Evaluation*

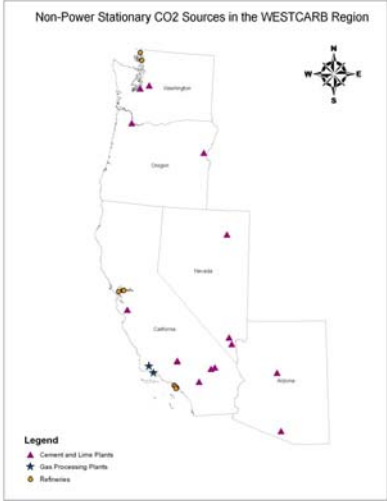
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## Phase II Activities—Sources

- Power generation data will be updated and expanded to include new and planned facilities
- Non-power-generation industry sources will be asked to provide data for CO<sub>2</sub> and other emissions
- If the industries are reluctant to provide data, as was the case in Phase I, several plants will be selected and examined individually

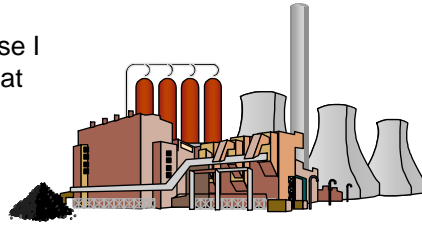


WEST COAST REGIONAL CARBON SEQUESTRATION PARTNERSHIP 2



## Phase II Activities—Sources (cont'd)

- Our current assumptions in Phase I are that new plants will be sited at existing plant locations
- To test this assumption, a study will be initiated on future siting of new plants
- Consideration will be given to the tradeoffs between fuel, power load location, and CO<sub>2</sub> storage location in siting new plants
- Three types of plants will be evaluated—natural gas, coal, and a refinery producing coke as fuel
- Sites for consideration will be near the CO<sub>2</sub> validation test locations



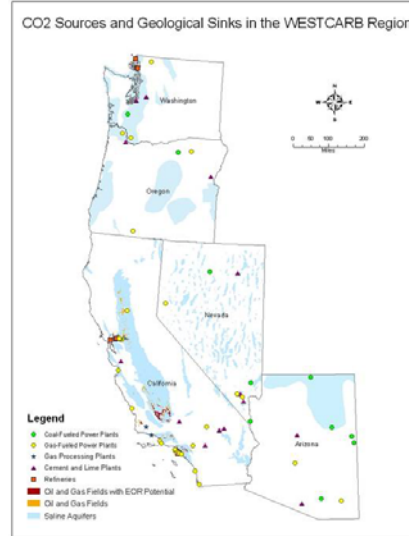
## Phase II Activities—Site-Specific Studies of Capture

- To gain a better understanding of how the options at a specific plant differ from the generic evaluation used for the regional options study, several site-specific studies will be undertaken
- Currently planned for plant sites being considered for the CO<sub>2</sub> storage validation projects
- Each evaluation will examine the appropriate separation and capture technologies and estimate the impacts of their installation on the performance and costs of existing plants
- Separation and capture technology developers will be contacted to update estimates of performance, costs, and commercial readiness of their processes
- Engineering documents to be produced include process energy and material balances, major equipment lists, cost estimates, and drawings to show how separation and capture facilities will be arranged on-site
- Results will be compared to the generic evaluations to help determine the uncertainty in results from the regional options work



## Phase I Source-Sink Matching

- Match sources to sinks
  - Iterative process
  - Use minimum transport distance/cost algorithm
- Complete marginal cost curve

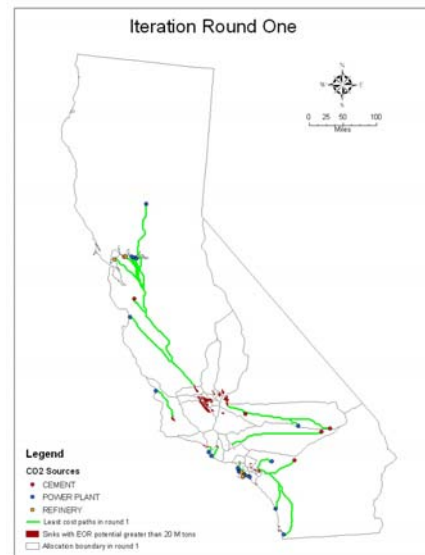


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## Phase I Source-Sink Matching (cont'd)

- Simplified costing for capture
  - Limited capture processes
- Limited to California for detailed evaluation
- Used only EOR sinks due to data limits



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## Phase II Activities—Source-Sink Matching

- Improved screening criteria (to determine best prospective reservoirs)
  - Phase II: Expand to gas reservoirs, saline formations, and coal beds
- Improved data for reservoirs (spatial extent, thickness, porosity)
- Improved methodology to determine fraction of pore space accessible for storage

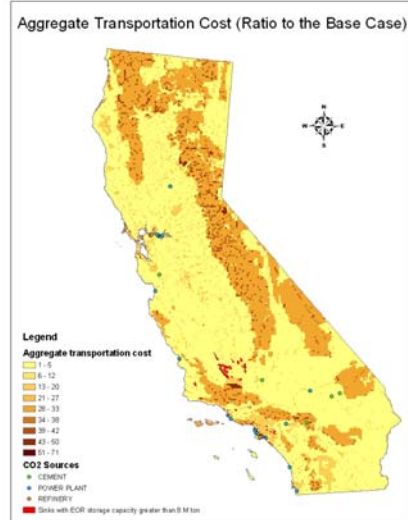


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## Phase II Activities—Source-Sink Matching (cont'd)

- Consider topography and existing rights-of-way in determining paths between sources and sinks
- Balance capacities of sources and sinks when doing match



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## Phase II Activities—Source-Sink Matching (cont'd)

- Review all capture algorithms and update with current information
- Revise capture cost algorithm from generic model used in Phase I to specific models for each type of CO<sub>2</sub> source

