

West Coast Regional Carbon Sequestration Partnership

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The West Coast Regional Carbon Sequestration Partnership is one of seven partnerships established by the US Department of Energy (DOE) to evaluate carbon dioxide capture, transport, and sequestration (CT&S) technologies best suited for different regions of the country. The West Coast Region comprises Arizona, California, Nevada, Oregon, Washington, and Alaska. The Partnership will evaluate both terrestrial and geologic sequestration options through five major tasks:

- 1) Collection of data to characterize major CO₂ point sources, the transportation options, and the terrestrial and geologic sinks in the region;
- 2) Addressing key issues affecting deployment of CS&T technologies, including permitting, monitoring, and health and environmental risks;
- 3) Conducting public outreach and education work;
- 4) Integrating and analyzing data to develop supply curves and cost effective, environmentally acceptable sequestration options;
- 5) Identifying appropriate terrestrial and geologic demonstration projects in the Region

In order to address the broad range of issues associated with carbon sequestration, the Partnership has assembled a diverse consortium of state natural resource, environmental protection, and other agencies; national labs and universities; private companies working on CO₂ capture, transportation, and storage technologies; nonprofit organizations; commercial users of CO₂ such as the oil and gas industry; policy/governance coordinating organizations; and others.

Characterization of the CO₂ sources and sinks in the region provides the baseline data needed for analyses of best storage options. Overall, the West Coast region represents more than 11% of the nation's CO₂ emissions. However, it also has a large potential capacity in geologic sinks, a significant portion of which have potential for offsetting costs through enhanced oil recovery and enhanced gas recovery, as well as a wealth of forest and agricultural lands where improved management practices could sequester substantial quantities of carbon. To characterize the terrestrial sink, the partnership is developing two point baselines using data for the 1990s. Carbon data for land use/land cover classes includes: land use, land cover and land suitability, hydrology, land ownership, soil maps, crop yields, risk of loss and other data. Baseline data for geologic sequestration includes both source and sink data. Data on power producers and other energy intensive industrial point sources includes: location and amount of CO₂, plant efficiency performance factors; operations schedule and capacity, description of major components and equipment, energy and other resource consumption, and other data. Geologic characterization data includes formation depth, thickness, areal extent, porosity,

water salinity and total dissolved solids, permeability, pressure, and degree of fracturing. The terrestrial and geologic data are compiled in Geographic Information System (GIS) layers, which are then used for analysis of sequestration options. Supply curves for major classes of regional land use and forest activities are prepared. The geologic formation data layer is combined with other layers containing data on active faults, urban areas, transportation routes, point source locations, restricted lands, etc, in economic and other screening analyses of potential sequestration targets. Activities addressing technology deployment issues involve: compilation and assessment of regulations and permits, development of a geologic risk assessment framework, development of monitoring and verification protocols, and life cycle analysis of the effect of CS&T technologies on other emissions. Public outreach effort is considered to be an essential component of the Partnership effort. Activities include development of educational materials, materials for informing State and National policy, and stakeholders meetings.