

Proposed Amendment between California Energy Commission and DOE- Lawrence Berkeley National Laboratory

Title: Atmospheric Measurements and Modeling for Verification of AB-32 Mandated GHG Emissions Reductions
Amount: \$0.00
Term: 6 months
Contact: Guido Franco
Committee Meeting: 9/15/2011

Recommendation

Approve this no cost time extension amendment with Lawrence Berkeley National Laboratory (LBNL) for six months to enable the Contractor to analyze new data sets being provided by the National Oceanic and Atmospheric Administration (NOAA), which will substantially enhance the final report for this project, commonly known as the California Greenhouse Gas Emission Measurement Project. Staff recommends placing this item on the consent agenda of the Commission Business Meeting.

Issue

To limit California's contribution to global warming, Assembly Bill 32 was signed in 2006. AB32 requires California to reduce its greenhouse gas (GHG) emissions to 1990 levels by 2020. Current inventories of GHG emissions are highly uncertain, especially for non-CO₂ gases such as methane and nitrous oxide (N₂O). Atmospheric measurements can be used to increase the accuracy of existing emission inventories and to identify the source categories for which improved methods to estimate emissions are needed. Improved emissions estimates are necessary for the success of the cap-and-trade program, including the participation of natural gas and electric utilities, two of the capped sources.

Under this project, researchers are measuring atmospheric GHG concentrations from two communication towers (Sutro Tower and Walnut Grove Tower) and a third site in Trinidad Head. The original work plan is scheduled to complete in December 2011. NOAA has been an integral collaborator for this research and recently has enhanced the laboratory analyses of sample air taken at the towers. The Air Resources Board (ARB) has started to measure methane at some of their standard ambient air quality stations. All of these recent measurements will allow more sophisticated analyses that could only be performed if more time is added to this project. Initial findings are being obtained from this project: Multi-year measurements show that emissions of several major non-CO₂ GHG (CH₄ and N₂O) from Central California significantly exceed current inventory estimates. Specific to the energy sector, intensive isotopic measurements, the first complete annual dataset of atmospheric fossil fuel CO₂ shows Central California's fossil fuel emissions are close to inventory estimates but more analyses are needed. To finalize these analyses for inclusion in final report, which will strengthen the significance of this work, six more months of additional work is required.

Background

This is the second phase of a multiyear project commonly known as CALGEM (California Greenhouse Gas Emission Measurement Project) that began in 2007 in collaboration with NOAA. Initially focusing on the Bay Area and Sacramento Valley regions of California, CALGEM began measurements of methane (CH₄) and other non-carbon dioxide (CO₂) GHGs measurements and modeling in October, 2007, at two tall towers: the San Francisco Sutro Tower and the Walnut Grove Tower. The second phase was commenced in 2009 to enhance these measurements by determining the isotopic composition of

carbon dioxide and more frequently measure N₂O, and also to test the Weather Research and Forecasting atmospheric model in estimation of the transport of GHGs to the towers using measured meteorological data.

NOAA and ARB are now fully engaged in this project which was reported as a ground breaking regional GHG monitoring project by the prestigious scientific journal Nature.

Proposed Work

This six-month extension will allow the Contractor to finalize the analytical component of the new findings and incorporate it into final report. The inclusion of this final analysis will strengthen the significance and usefulness of final report.

Justification and Goals

This project "[will] advance energy science or technologies of value to California citizens..." (Public Resources Code 25620.(c)), and is part of a "full range of research, development, and demonstration activities that . . . are not adequately provided for by competitive and regulated markets (Public Resources Code 25620.1.(a)); and supports California's goal to implement all strategies identified by the Climate Action Team as needed to meet the Governor's GHG emission reduction goals, including recommendations developed as part of the 2005 IEPR per the Energy Action Plan 2005.

This will be accomplished by:

- Estimating the validity of GHG emission estimates from the energy sector.
- providing means for verification of emissions reductions.