

DATA WAREHOUSE WITH REGIONAL MODELING CENTER

State and federal resource agencies recognize the need to consolidate resources and more efficiently and expeditiously address air quality analyses for the expanding number of oil and gas development projects on federal lands. Costs for such efforts in the Three-State Pilot Study area have exceeded \$18 million (federal, state and industry dollars) over the last three years (Chart 1). Further, monitoring/modeling and uncertainties have ultimately caused planning and permitting delays.

To address these needs, state and federal agencies have collaborated to create and operate a shared Data Warehouse with cumulative modeling for air quality management in the intermountain west region. Agencies involved in this effort have consolidated resources and designed a Three-State Pilot Project with an implementation timeline. The agencies involved in this effort include:

- Environmental departments of the States of Colorado, Utah and Wyoming
- Federal managers from the Bureau of Land Management (BLM), U.S. Forest Service (USFS) and National Park Service (NPS)
- The Environmental Protection Agency (EPA)

The intent and benefits of a shared data warehouse with air modeling are to:

- Save money and time over the long term
- Reduce or eliminate disagreements between stakeholders about modeling techniques
- Provide an easily accessible one-stop air quality data warehouse that has both the flexibility and robustness to sufficiently handle the rapidly changing data needs associated with oil and gas developments
- Provide consistency in data formats, data quality, data updates and analytical approaches
- Leverage existing databases and expertise
- Combine skills and resources across agencies
- Reduce redundancies and uncertainties and provide the benefit of “lessons learned” to agencies conducting analyses in other geographic areas



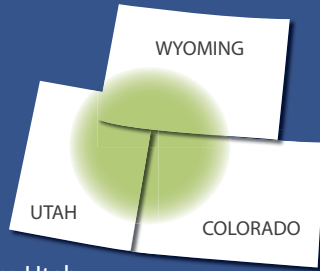
Data Warehouse with Regional Modeling Center

Three-State Study Pilot Project
Intermountain West

June 2010

PILOT STUDY AREA

The "Three-State Study" is a pilot project that will provide a regional assessment of air quality conditions focused initially on the oil and gas development area of northwestern Colorado, southwestern Wyoming and eastern Utah.



Although the pilot study is focused at portions of these three states, the data warehouse created through this effort may eventually serve a much larger geographic area, including adjacent states.

The pilot project focuses on the following activities:

- Expand air quality monitoring in the study area to establish baseline conditions, track air quality trends and evaluate the performance of air quality modeling systems
- Create and operate a frequently updated, robust centralized data warehouse to store, manage and share data among state/federal agencies, their contractors and industry to support air quality modeling and analyses for all pollutants
- Perform regional scale cumulative effects air quality modeling of current and projected conditions for all pollutants

Currently, BLM, EPA, and USFS are in the process of funding the monitoring stations and a portion of the data warehouse. To date, nearly \$5 million has been secured for the project by consolidating funds. All participating agencies have supplied significant in-kind support.

While additional funding may yet be made available, currently, there are no additional or foreseen appropriated dollars available to dedicate to this effort.

FUNDING NEEDED FOR THREE-STATE STUDY

In order to move forward with this project, additional funding is needed from interested stakeholder groups. This funding is necessary to complete the base and future case modeling, additional monitoring to better understand ozone formation, and funding for staff time for data warehouse modeling (Chart 2). The unfunded cost to complete this effort total is \$2,890,000, broken out as follows:

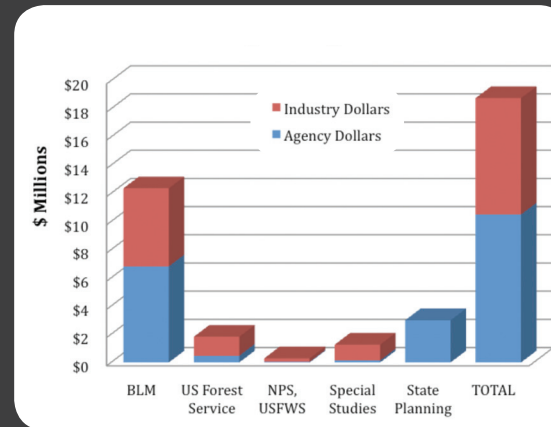
- \$467,000 Data Warehouse contract support
- \$600,000 Base Case Modeling
- \$855,000 State Modeling FTE (2 ½ years)
- \$250,000 State Project Manager FTE (2 ½ years)
- \$450,000 Future Case Modeling
- \$268,000 Additional monitoring (VOCs, aldehydes, NOy)

Estimated annual operating costs of the data warehouse;

- \$2,000,000 Annual operations and maintenance and additional modeling scenarios after year 3

CHART 1

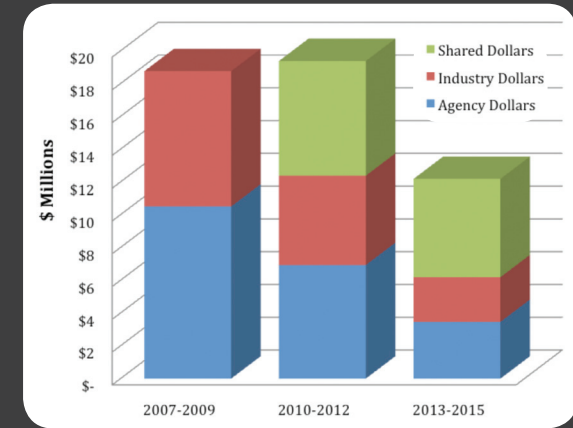
Estimated Expenditures for Air Quality Modeling Projects
(Colorado, Utah and Wyoming from 2007-2009)



Estimated expenditures for air quality modeling projects primarily associated with oil and gas development in Colorado, Utah and Wyoming from 2007-2009.

CHART 2

Comparison of Recent Expenditures to Projected Costs
(Three-Year Increments from 2007 - 2015)



Creation of the Three-State Study that includes monitoring, creation of the data warehouse and base case modeling is represented by the "shared dollars" (green bars), with initial start-up costs in 2010-2012 estimated at \$7,000,000. Agency and industry expenses during 2010-2012 are estimated at 2/3 of the 2007-2009 values because not all efficiencies from the data warehouse will be realized during start-up. Agency and industry expenses during 2013-2015 are estimated at 1/3 of the 2007-2009 values due to the data warehouse eliminating the need for each project to re-create data sets.

TIMELINE

2010

Monitoring information becomes available for use

- Initiate Data Warehouse design and hire staff
- Install additional monitoring stations

2011

Monitoring / Data Warehouse information becomes available for use

- Retain contractor(s) and develop Data Warehouse
- Install additional monitoring stations
- Perform base case / future case modeling

2012

Monitoring / Data Warehouse information becomes available for use

- Develop Data Warehouse
- Perform base case / future case modeling

2013

- ● ● ●
- Operation and maintenance
 - New analyses as identified by member agencies