



September 13, 2008

**Cost Comparison Report
Implementing the Regional Haze Rule by the Individual States and the WRAP
Air Managers Committee**

Executive Summary

EPA has reduced the level of funding support for regional planning organizations (RPOs) in the U.S., including the Western Regional Air Partnership (WRAP) in the West. For the fiscal year 2008, EPA has allocated \$2.5 million for all five RPOs in the country. The WRAP's share of this allocation is \$600 thousand, which is divided between NTEC for tribal support and WGA for state support. The WRAP is developing a workplan for directly expending about \$752 thousand for WRAP staff and projects through calendar year 2009, during the EPA SIP review and approval process and early stages of implementation of regional haze SIPs. Of that amount, \$120 thousand is contributed by the other 4 RPOs toward the national VIEWS data system. EPA has indicated that further federal funding of RPO support for regional haze, as well as other air programs should not be expected. Western states within the WRAP region strongly believe that their ongoing obligations to meet the requirements of the Regional Haze rule depends on maintaining a regional infrastructure and technical support systems such as the WRAP provides.

The WRAP Board of Directors requested an assessment of: (1) the costs to jurisdictions acting individually to replicate the support systems of the WRAP compared to cost estimates made by the WRAP in developing the [2008-12 Strategic Plan](#); and (2) what data and analyses could not provide without the support of the WRAP systems. The results of this assessment should provide a basis for ongoing discussions with EPA and others regarding relative efficiencies and value of the WRAP and its support systems, not only for ongoing haze obligations, but also for other air programs where regional analytical approaches make sense.

Thirteen states and three federal land management agencies responded to a survey designed to evaluate these issues. The survey results include quantitative cost estimates for additional FTE, contract and other costs, along with comments and opinions offered by the states during the survey about the need for ongoing support for regional planning and program implementation in the western United States. Also included is a discussion and assessment of variables in responses and other factors that may qualify the findings. Tribes were not surveyed, but have no capabilities to address regional haze without the technical support of the WRAP systems and would incur costs similar to the smallest of the states.

Summary of significant results are as follows:

- The cumulative annual state and FLM estimated costs for each of the support systems exceed the corresponding projected annual costs for each system in the WRAP 2008-12 Strategic Plan budget. For example, the cumulative state estimates for regional modeling are about \$3,000,000 – almost an order of magnitude above the WRAP projections of \$350,000.

- The cumulative state and FLM estimated costs for all support systems are about \$11 million per year. This compares with the WRAP budget projection in the 2008-12 Strategic Plan of about \$2 million per year. Not having estimates from all likely users of the systems means this cumulative value is probably on the conservative side.
- Regional Modeling across the WRAP region would not occur without the WRAP. Several states indicated they could contract through a university to perform some multi-state modeling on a sub-regional scale, but this would be an expensive enterprise. States with modeling capacity to serve their individual needs do not do regional modeling. The FLMs indicated they have limited regional modeling capabilities, but would use it for other purposes than regional haze SIP support.
- Without federal funding support, it is questionable if the WRAP Technical Support System (TSS) would continue, given the cost.
- Estimates for individual support systems varied widely among the states as expected due to several factors related to program size, number of sources and Class I areas and non-attainment area, existing technical capabilities, etc. Some variation may be due to differences in assumptions or approaches among the respondents, although the survey method attempted to minimize this variable.
- Tribes have indicated that they would rely entirely on WRAP technical support systems for regional haze and could not address regional haze through a TIP without this technical support. Costs for a tribe to replicate the support systems would be on the order of costs for a small state.

In conclusion, this survey contains no surprises. The support of the WRAP is much more cost-effective for required regional haze implementation in the West than if states and other jurisdictions operated on their own. The cumulative costs for the lowest 7 state estimates are about \$2 million – roughly equal to WRAP’s estimated mid-range costs in the 2008-12 Strategic Plan to support the whole region. This conclusion is consistent in direction and magnitude of cost differences found in previous surveys performed by WESTAR.

The results in this report are consistent with a 2003 survey by Western States Air Resources Council (WESTAR Council) that estimated state resource needs to develop regional haze SIPs¹

Every interviewee strongly emphasized in various ways that the funding support for the WRAP support systems has enabled the creation of real value-added assets, essential for haze, with co-benefits for many other air programs. Any regional approach to air pollution issues such as haze and other emerging regional issues requires a unifying entity that enables users to use common data sets and other technical support for collaborating on regional planning and policy decisions. Without this support, the whole concept of addressing regional air pollution problems in a meaningful way cannot exist.

¹ Evaluation of Resources Needed by State Air Quality Agencies to Develop Regional Haze Control Plans WESTAR, April 25, 2003

Background

Most states in the west are in the middle to final stages in completing their initial round of planning for regional haze. Initial regional haze plans were due in December 2007. Most states indicate they expect to submit their SIPs to EPA in 2008 or 2009. At the moment, there are no tribal regional haze plans in the works. Over the last seven years, states, along with tribes, federal land managers and EPA, and a host of stakeholders have partnered in the Western Regional Air Partnership (WRAP) to support the regional planning efforts. The cost and resources for this undertaking are shared among the partners, with grant support from by EPA, and in-kind work of states, tribes and federal agencies. The WRAP's collaborative effort has resulted in a body of technical data bases and support services that significantly advance the understanding of regional air quality, transport and impacts in the western United States. Through the WRAP states have collaborated with each other, with tribes, federal agencies and with stakeholders, reaching agreements on consistent data bases, analysis protocols and policies to address regional haze in the West. In addition a suite of analysis tools or support systems have been developed to facilitate interpretation and consistent use of these databases. The support systems in turn are the foundation essential to complete the regional haze planning processes of states and tribes, and to fulfill the ongoing obligations of states and tribes under the haze rule.

In the last several years EPA has taken the position that the regional haze planning effort is winding down, and ongoing federal grant support for the WRAP and the other regional planning organizations (RPOs) working on haze should no longer be needed once the SIPs are submitted. Accordingly, EPA has reduced its contribution to the WRAP and other RPOs, although the most recent EPA allocation of about \$752 thousand is expected for WRAP activities through most of 2009, this will be at a bare minimum, supporting only essential regional haze support activities through the review and approval processes. The amount of regional analysis support available to WRAP members for haze plan review, approval, and implementation is limited by the amount EPA grants to WRAP, and the \$752 thousand does not provide regional support at the level identified in the WRAP 2008-12 Strategic Plan. EPA has clearly said that RPOs should not count on EPA support beyond calendar year 2009, and has indicated that states should provide future funding for regional planning support from their own resources.

States' and tribes' obligations to meet haze requirements continue after they complete their foundational haze plans. The Regional Haze Rule requires ongoing implementation, focused on verifying emissions reductions and tracking monitored visibility improvements every 5 years, beginning in 2012 through periodic SIP revisions, including re-establishment of reasonable progress goals and long-term strategies every 10 years beginning in 2018. The technical data and tools developed by the WRAP are seen by all respondents as essential to implement requirements for tracking progress toward reducing haze, documenting possible revisions and providing technical support for developing additional control measures and future SIPs. States and tribes believe that EPA, as a partner in the WRAP has an obligation to do its share to support the ongoing work needed for regional planning that is a growing need in the West.

Faced with losing this valuable resource due to EPA budget cuts, the WRAP Board requested estimates of what it would take in resources to replicate the WRAP support systems as individual states and to determine what data and analyses states could not perform on their own without the WRAP. These cost estimates and other information would provide a thought-out basis for further

discussions with EPA and others about the roles of states, tribes, EPA and other federal agencies in carrying out Clean Air Act and other environmental requirements.

For context and comparison of state and FLM survey results with projected costs for the WRAP-operated support systems, we used the average of the last 2-years' annual costs of WRAP activities-about \$2 million.

More recently, EPA has allocated \$752 thousand for the WRAP for the 2008 federal fiscal year budget, which is dedicated to Regional Haze support for calendar year 2009. A separate allocation is made to NTEC for tribal work; the tribal portion is not included in this discussion. With a small amount of carryover and other funding translates into a 2009 workplan budget to support states regional haze work of about \$752 thousand – about enough to carry a bare minimum level of WRAP support activity through most of 2009.

Method – Cost survey

Several previous surveys seeking state cost estimates have utilized questionnaires that were completed by each state and returned to the survey team, reviewed and compiled. The results of earlier questionnaires vary greatly, as one might expect due to large differences among states of air agency size, mix and number of other program variables, and to different interpretations of items on the questionnaire forms themselves. We decided to reduce the latter uncertainty by scheduling individual telephone interviews between the WESTAR and WRAP staff and the interviewees, using as a guide a list of specific WRAP support services as points of cost comparison. The telephone interviews served to answer questions about details of each support system, clarify state and federal \$/FTE, and assure that more consistent scenarios and assumptions underlie the FTE and cost estimates provided. For example, states were led to assume that if the WRAP support was not available due to lack of funding, most of the existing data bases on emissions, monitoring and modeling results would be archived and states could use them for initial technical support in the first round of SIPs. Also assumed was that most of the IMPROVE air quality monitoring in Class I areas would continue independently and that data would also be available, although without the display and modeling formats. The individual interviews also served to clarify and amplify comments made by states.

Similarly, we conducted a single interview with representatives of the three federal land management agencies most involved in regional haze and protection of Class I areas, National Park Service, Fish and Wildlife Service and U. S. Forest Service. As partners in the WRAP, FLMs have particular interest in regional haze plan development. The FLMs believe the WRAP support systems are valuable tools for evaluating the haze plans and as resources for related regional evaluations of environmental factors in Class I areas throughout the country. We treated the cost estimates from the three FLMs as a single group, expecting that these agencies would pool their resources for the benefit of all the FLM agencies.

To address the first question asked by the WRAP Board, that is cost estimates to replicate WRAP support systems, we requested estimates be made in three categories: Additional in-house FTE; Associated FTE costs, using a \$/FTE factor provided by the respondent, and; Costs for contracted services and other costs, such as system set-up, hardware and software additions for modeling. Prior to each call respondents were furnished a briefing paper (Appendix A). The briefing included a description of the survey process, the two basic questions asked by the WRAP Board and descriptions of each of the WRAP support systems. The WRAP support

systems listed in the briefing paper included each of the 7 technical support service projects that have been developed by the WRAP through contracted services, plus the WRAP staffing for project management and oversight, coordination of the WRAP forums and work groups responsible for guiding the projects, and meeting costs of the participating forums and workgroups. The results of each of the interviews were tabulated on individual worksheets that were sent back to each respondent, and returned with any additional comments, edits and corrections.

Analysis of the compiled cost information includes the Max/Min, mean and median and total values, number of responses and standard deviations of estimated resource requirements for each support system provided by states. These estimates represent the additional incremental resource demands on the individual states without the WRAP support systems in place. The totals for each support system were in turn summed to obtain cumulative resource estimates across the region for all of the WRAP support systems. The list of WRAP support systems was also ranked in descending order of Min, Max, Median and total values.

A summary spreadsheet of individual estimates for each support system and the initial cumulative analysis is in Appendix B.

The second question asked by the WRAP board related to data and analyses that users would be unable to provide in the absence of WRAP support. This question could not always be addressed with certainty. While respondents did provide cost estimates, it was understood that real evaluations and decisions about level of haze program commitments without the WRAP would depend on many unknown factors. In several cases, specific support systems, such as regional modeling and the Technical Support System would not even be considered, due mainly to the associated costs, time of startup, and difficulty getting information from other states in the region. All states projected major difficulties in executing the regional haze requirements without WRAP support; most saying they might be able to do some of the technical work for their state alone, such as emission inventories, monitoring and local modeling – functions states perform now for other air program needs. However, they recognize that use of these types of technical data and analyses for regional purposes would be limited, and generally states would quickly lose sight of the regional perspective.

Significant comments from the states and FLMs are paraphrased in Appendix C

Number of Participants and Responses

Thirteen of the fifteen western states in the WRAP region and three FLM agencies were interviewed. Montana had determined that it would not be preparing a regional haze SIP, and EPA region 8 has been developing a SIP for the state of Montana. Neither the state of Montana nor EPA believed they could respond to the questions asked in the interviews. Hawaii is in early stages of preparing a haze SIP and to date, has had limited occasion to use the WRAP support systems. Hawaii is geographically removed from the other states on the mainland, and from a regional planning point of view is unlikely to face issues of interstate impacts of haze pollutants. The data set from the survey does not include Montana or Hawaii. The FLM agencies, National Park Service, Fish & Wildlife and U.S. Forest Service, were interviewed together. The responses from the FLMs represent the three agencies combined.

States were selective about what cost estimates they could provide. Where there are no estimates given, the entry field is left blank and means only that the responding states did not have a basis for making any estimate, although they thought there would be some undetermined costs. Where states were definite about not incurring costs, or could not see a possibility of developing the needed capability, a value of “0” is entered in the field and is included in *n* for each category. For example, California would not envision adding staff to work on haze projects, anticipating that most of the technical and policy analyses for haze would already be part of non-attainment planning, and that modeling beyond what is needed for non-attainment and maintenance would not be attempted. So “0’s” are entered in all categories. Wyoming was unable to make estimates of additional staffing or costs in two areas (blank), and would not attempt to perform the regional analysis needed to demonstrate progress (“0”).

The cost estimates provided by the FLMs are shared among the three agencies. The number of combined state and FLM responses for each support system is indicated by (*n*) in the summary tables. Since the FLMs were interviewed jointly, their responses are counted once. Tribes were not interviewed, but tribes have indicated they would not be able to develop TIPs for regional haze without regional support. Costs for tribes to replicate the support systems would be on the order of a small state with limited technical capacity.

General Results of the survey -

This section addresses each of the two questions asked by the WRAP Board:

1. Costs of replicating WRAP systems and data to support haze plan implementation, to the degree that each Jurisdiction could do so - the following tables summarize the cumulative estimated costs from the interviews. Individual state and FLM estimates are in Appendix B

Table 1. Additional FTE, Person-years

Support System	State and FLM Responses			
	Minimum	Maximum	Median	Total (n)*
TSS	0	3	1	9.5 (11)
IEWS	0	1	0.5	5.32 (12)
FETS	0	1	0.25	4.4 (11)
RMC	0	5	0.88	14.25 (10)
EDMS	0	2	1	10.2 (11)
Emissions Projects	0	3	0.5	6 (8)
Monitoring Projects	0	1	0.5	4.33 (9)
Project Management	0	3	0.5	10.52 (11)
All Systems	0	18	3.55	64.52

Where a range of values was given by a state, the average was used for this analysis

* n = number of state and FLM responses

Table 2. Additional FTE \$, in thousands

Support System	State and FLM Responses			
	Minimum	Maximum	Median	Total (n)*
TSS	\$0	\$250k	\$80k	\$1013k (11)
VEWS	\$0	\$90k	\$40k	\$483k (12)
FETS	\$0	\$90k	\$40k	\$350k (11)
RMC	\$0	\$450k	\$97.5k	\$1595k (10)
EDMS	\$0	\$188k	\$75k	\$951k (11)
Emissions Projects	\$0	\$270k	\$45k	\$670k (8)
Monitoring Projects	\$0	\$150k	\$40k	\$520k (9)
Project Management	\$0	\$270k	\$72k	\$1135k (11)
All Systems	\$0	\$1620k	\$346k	\$6767k

Where a range of values was given by a state, the average was used for this analysis

* n = number of state and FLM responses

Table 3. Additional Contract, Hardware, Software \$, in thousands

Support System	State and FLM Responses			
	Minimum	Maximum	Median	Total (n)*
TSS	\$0	\$330k	\$50k	\$480k (5)
VEWS	\$0	\$120k	\$50k	\$320k (5)
FETS	\$0	\$120k	\$75k	\$320k (6)
RMC	\$0	\$620k	\$75k	\$1563k (9)
EDMS	\$0	\$240k	\$50k	\$410k (5)
Emissions Projects	\$0	\$300k	\$30k	\$605k (5)
Monitoring Projects	\$0	\$120k	\$12.5k	\$145k (4)
Project Management	\$0	\$180k	\$95k	\$370k (4)
All Systems	\$0	\$1850k	\$170k	\$4263k

Where a range of values was given by a state, the average was used for this analysis* n = number of state and FLM responses

Most states and FLMs were able to provide some estimates of their individual costs to replicate selected WRAP support systems. Again these estimates represent the additional costs beyond what would be anticipated with the WRAP support systems in place. These are workload estimates, presented in the summary tables as (n states) are largely to cope with in-state requirements of the haze rule, recognizing the need for attempts at outreach and coordination with the other states, tribes and FLMs, as required by the Regional Haze Rule. The FLM estimates represent the joint workload, apportioned among the FLMs by agreements.

Among the states there are wide variations in estimates provided for each support system. Many of these are attributable to the different sizes of programs, current technical capabilities, number of sources and Class I areas, relative priority of regional haze, vs. other immediate air issues, e.g. ozone, etc, in an environment of shrinking resources. These estimates may be compared with corresponding estimates by the WRAP to operate each system and for WRAP staff support, which includes travel for staff and WRAP forum participants, meetings, conference calls, etc. The WRAP estimates represent the averages of costs over the past three years, during which the

activity levels were relatively high compared with the likely activity level over the next two years or so. The actual annual average WRAP costs would likely be lower over time, and would vary, depending on the level of regional activity and requirements of the regional haze rule.

As with the WRAP average cost estimates, several states noted that their haze workload would likely vary over the next several years, and the associated annual costs would not be constant. Several states based their estimates upon assumed low technical activity in the next two years, then ramping up to the 2012 SIP revisions. Other variants include \$/FTE factors, with some including only labor and fringe, others including overhead, such as supplies, office space, etc. No attempt was made in this report to normalize these differences.

None of the respondents was able to make estimates for all of the WRAP systems. Even so, the total combined estimates of about \$11 million that were given are far greater than the \$2 million average costs for the corresponding support systems in the WRAP 2008-12 Strategic Plan, even greater compared with more recent 2009 budget projections. The proposed 2009 workplan for the WRAP currently shows about \$752 thousand directly available for the operations of the support systems discussed in the survey. The cumulative total of the seven lowest estimated costs to replicate the WRAP systems is about \$2 million, about what WRAP average costs have been over the last two most recent years. The total combined estimates from this survey, state and FLM are about \$11 million, including cumulative in-house FTE (64.5), at about \$6.8 million, and contractor costs of about \$4.2 million, again, compared with the WRAP average costs of about \$2 million. These comparisons may be conservative due to missing estimates from some states.

The Max/Min estimates are broken out for each of the WRAP support systems and for all responses. Means, medians and standard deviations for each set of values are also presented. “0”, was the minimum value given, representing “no resources would be committed for (support system), and “0’s” were used to calculate median values. Where no estimate was provided, the resulting blanks were not included in the calculations. Maximum values were, 5 FTE at \$450k, plus an additional \$620k for contractor assistance for a single support system (RMC).

The spreadsheet in Appendix B shows the responses for FTE, FTE \$, and contract \$ respectively for each support system, and the corresponding (*n*) responses, max/min, means, standard deviations.

2. The data and analytical results that cannot be provided in the absence of the WRAP regional effort.

All respondents emphasized that unified regional coordination such as the WRAP provides is clearly essential for multi-jurisdictional approaches to haze and other emerging air quality issues. They said without it they believed they could not fulfill their obligations under the haze rule for tracking reasonable progress, regional coordination, data sharing, etc.

These comments are paraphrased in Appendix C.

Regional Modeling Center

Regional Modeling is the most costly to replicate overall, with the highest cumulative estimated costs of over \$3 million for 10 responses.

Modeling also showed the greatest range of responses, receiving the lowest minimum (\$0) and the highest maximum (\$1.1million- $n = 10$) from one state.

Where states currently have modeling capability, it has been, and in large part would continue to be used for in-state sources and receptors. No state in the survey currently performs regional modeling. Because of the high costs and complexity of state-managed regional modeling, few, if any of the states would take it on for regional haze alone. If, to support combined needs of several states, it could be worthwhile to expand modeling capabilities, and a state could consider contracting, along with other states for the service, possibly through university resources, much like the WRAP now does with the Regional Modeling Center. Several states mentioned that these options carry high overhead expenses that would be significant barrier.

The FLMs currently have, or can develop regional modeling capabilities for their purposes. They pointed out, however that modeling, whether for haze or other purpose is highly reliant on consistent emissions and monitoring data input, and the FLMs would rely on state data for emissions. The EDMS makes this issue far less important.

Technical Support System (TSS)

The Technical Support System (TSS), operating as the portal to the various data bases would be very difficult to replicate. Most of the combined costs of \$1.3 million to replicate TSS were assigned to in-house FTE. The value of the TSS is that all the technical information needed for planning, tracking, progress demonstrations and, for the FLMs, conducting review and comments on haze plans is contained in one place. It is unclear from the interviews whether maintaining a state TSS portal could be possible, or at what level.

Additional Emissions Inventory Improvements

All respondents recognize that there are gaps in the current emission inventory, though current data for fire, dust, offshore, expanding oil and gas production are far better than anything prior to the WRAP effort. States and FLMs also place a high priority on maintaining up-to-date EIs to demonstrate progress toward cleaner air in general, and to evaluate the overall effectiveness of particular control measures, and in other modeling applications. These EI updates would be used as technical support for the SIP revisions due in 2012. Most states would continue to do their best to continue to improve the quality of their EIs within their respective borders. The total cumulative costs are about \$1.3 million. They see this effort split roughly evenly between in-house FTE and contracted services, several states thought it would be possible to go together on a joint contract for emission inventories, especially if the work is on a specific source category common to several states. This approach would also address issues of common methodologies, etc raised by the FLMs. States are also aware that EPA is planning to retool its national emissions inventory protocol, so the EI data states are required to submit to NEI now (which is available to all) may be more useful for a variety of needs.

Staffing, meetings, technical support –

Estimated cumulative costs for staffing and program support were the second highest of all the support systems, at about \$1.5 million. Most of this would be FTE, indicated by the number of responses (*n = 11 for FTE, vs. n = 4 for contracted services*). Some of the work would be direct technical effort; other work would be project management. It was not clear what support level states thought would be needed for logistic support, travel, meeting costs, etc. Several states are participating in geographic initiatives with other states and used their experiences to make these estimates.

Summary

As indicated throughout this report, respondents were unanimous in their assessment of the value of the WRAP and the probable need to address a number of air issues in the West on a regional scale. This survey, in the minds of most, confirms the sense that regional approaches to solve a growing list of current issues is far more efficient and effective than it can accomplish through individual efforts. Without a common support framework, the concept of a regional technical approach falls apart. The question of how to enable this is not yet clear. EPA states, tribes and other partners in the WRAP have advanced the concept of the regional approach. The experience with regional haze has shown that it can work for other air pollution problems as well.

Appendices:

- A. Briefing paper sent to states and FLMs prior to the survey
- B. Combined state responses, calculation worksheets
- C. Significant Comments from surveys



Appendix A

Preparing Estimates of 2009 Costs & Effort to Implement Regional Haze SIPs in the WRAP Region

March 10, 2008 - DRAFT

Background

At their February 19-20 meeting, the WRAP Board adopted the 2008-12 Strategic Plan, and directed that specific estimates of costs and effort for implementation of haze plans during calendar year 2009 be developed by the end of March 2008. These estimates are to address efforts by individual states and for the WRAP region as a whole, as well as noting the work each state will not be able to complete if WRAP regional resources are not available. To date, the EPA has not identified funding sufficient to maintain WRAP data and systems to implement the Regional Haze Rule across the West during 2009 and onward. The purpose of this project is to assist states with decisions about funding the WRAP during 2009.

Don Arkell and Tom Moore will discuss via conference call with each state:

- 1) Costs of each state replicating WRAP systems and data to support haze plan implementation, to the degree that each state could do so; and
- 2) The data and analytical results that each state cannot provide in the absence of the WRAP regional effort.

Tom Moore will refine estimates in alignment with the WRAP 2008-12 Strategic Plan for existing WRAP tools and systems to determine:

- 1) Costs to maintain and operate regional data tools and systems to support each state's haze plan implementation needs during 2009, including analyses needed for EPA review and approval; and
- 2) Organize these cost estimates into 3 scenarios:
 - a. **Minimum regional effort** required to complete needed regional analyses to get the haze SIPs approved, and continue tracking to lay the groundwork for 2012 haze SIP updates;
 - b. **Average regional effort** for haze SIP implementation commensurate with the levels of assistance, services, and data provided over the past 3 to 5 years; and
 - c. **Value-added regional effort** to move to a one-atmosphere approach discussed in the WRAP 2008-12 Strategic Plan – adding an increment of funding beyond haze implementation to address regional analysis and transport for the Ozone and PM NAAQS and nitrogen and mercury deposition issues.

The analysis and data for costs and effort from discussions with each state and the regional scenarios will be combined in a report, as complementary pieces for consideration in prioritizing 2009 WRAP project funding.

WRAP Activities and Regional Haze Implementation Timeline

(NOTE: These are contract activities with ongoing effort, requiring active participation by WRAP member agency staff and management, as well as financial support; both are needed to assure continued success in the operation and activities of the organization in alignment with technical analysis and control strategy development projects.)

Activities:

- **Support and assist in refining data and tools to improve the ability of states, tribes, FLMs, and EPA to predict regional haze impacts and attribute sources.**
 - Apply these data and tools to help states, tribes, FLMs, and EPA be more strategic in securing future emissions reductions, meet or exceed reasonable progress goals, and make mid-course corrections as needed.

- **Maintain and update technical capabilities for regional haze related to visualization, tracking, and analysis of data and analytical results through regional data and decision support systems:**
 - Technical Support System (TSS - decision support) is the regional haze SIP technical data resource, and includes:
 - VIEWS (IMPROVE visibility monitoring data, analysis tools);
 - CoHA (analysis of historical meteorological and particulate monitoring data); and
 - FETS (fire activity/emissions data, prescribed fire regional coordination, analysis tools).
 - Emissions Data Management System (EDMS - tracking of all emissions inventory data, analysis); and
 - Regional Modeling Center (RMC - comprehensive photochemical aerosol modeling studies, testing of source category/source region impacts, training, technical data file transfer, and user support).

Timeline:

- As noted above, support for the states, tribes, FLMs, and EPA during review and approval of the haze SIPs will begin in 2008 and likely continue through 2009.
- Beginning in late 2009 and pending approval of haze SIPs by EPA, work identified by WRAP Committees, Forums, and Workgroups will begin on the implementation for the Haze SIPs, becoming the major focus for 2010 through 2012; 2012 is the due date for Haze SIP revisions confirming progress or making mid-course adjustments to improve progress toward the 2018 Reasonable Progress Goals for each Class I area.
- It is expected that the need for collection, preparation, and dissemination of technical data and analytical results will need to continue at least at the average of the 2005 through 2007 levels of WRAP effort, to support both these efforts across the 2009 through 2012 time period.
- The process support by staff from the state agencies will need to continue at 2005 through 2007 levels as well.
- The funding on hand and presently available for technical data and analyses for use during 2008 is very limited, and will run out by early 2009. Funding will need to return to pre-2006 levels to support ongoing haze SIP review, analysis, and ongoing implementation leading to the 2012 haze SIP revision.

Starting Point:

WRAP Systems & Tools to be Compared - Regional vs. Individual State Efforts

Technical Support System (TSS - haze implementation, regional technical basis of SIP review and approval process by EPA, tracking of progress for reasonable progress)

listed separately below are:

Delivery and analysis of IMPROVE monitoring data results through the **VEWS** subsystem, and Fire emissions tracking and Smoke Management Program coordination through the **FETS** subsystem

- **Basic ongoing TSS contractor effort – continue haze implementation support through technical decision support work**
 - Analysis/display of answers to EPA questions for plan approval
 - Display/storage of analyses/results from haze planning
 - Ongoing monitoring data from IMPROVE
 - Periodic EI summary and analysis for SIP trends using data from states (2005, 2008), as well as display of regional EI trends for natural and uncontrollable emissions

Note: "Average Regional Effort" annual cost estimate \$275,000 from Strategic Plan

Visibility Information Exchange Web System (VEWS – subsystem of TSS - haze implementation)

- **Basic ongoing VEWS contractor effort – reporting and analysis of IMPROVE monitoring data for all Class I areas**
 - Analysis/display of answers to EPA questions for plan approval
 - Tracking progress and source impacts as required for Regional Haze implementation

Note: "Average Regional Effort" annual cost estimate \$100,000 from Strategic Plan

Fire Emissions Tracking System (FETS - subsystem of TSS - haze implementation)

- **Basic ongoing FETS contractor effort – compiling data base for wildfire, planned and accomplished prescribed burning activities**
 - Analysis/display of answers to EPA questions for plan approval
 - Calculating and reporting smoke emissions from fire for trend analysis
 - Point of contact and coordination between Smoke Management Programs for prescribed fire activity approval

Note: "Average Regional Effort" annual cost estimate \$100,000 from Strategic Plan

Regional Modeling Center (RMC - followup haze questions and implementation)

- **Basic ongoing RMC contractor effort – continue haze implementation support through regional modeling studies**
 - Emissions/modeling analysis of EPA questions for plan approval
 - Modeling sensitivity studies for potential additional control strategies and source apportionment studies for potential additional control strategies for reasonable progress
 - Modeling studies and analysis of periodic EIs from states/tribes (2005, 2008)
 - Preparation/training/transfer of modeling data inputs/results for state/tribal/FLM use

Note: "Average Regional Effort" annual cost estimate \$350,000 from Strategic Plan

Emissions Data Management System (EDMS - tracking for all pollutants reported by states and tribes - haze implementation)

- **Basic ongoing EDMS contractor effort -- continue haze emissions data tracking, storage, and analysis**
 - **Analysis/display of answers to EPA questions for plan approval**
 - **Emissions tracking/trend analysis - periodic EIs from states/tribes (2005, 2008)**

Note: "Average Regional Effort" annual cost estimate \$200,000

Emissions Projects (studies to improve emissions data for 2012 haze SIP revisions - haze implementation)

- **Basic contractor project effort -- continue haze EI improvement, development, and analysis**
 - **Develop answers to EPA questions for plan approval**
 - **Studies to correct incomplete/inaccurate data**
 - **Augment natural/uncontrollable sources EIs to support trend analysis**

Note: "Minimum Regional Effort" annual cost estimate \$250,000 from Strategic Plan

Monitoring Data Analysis Projects (studies to analyze monitoring data for 2012 haze SIP revisions, in concert with RMC studies - haze implementation)

- **Basic contractor project effort -- continue haze monitoring data analysis**
 - **Analysis/display of answers to EPA questions for plan approval**
 - **Assess ongoing IMPROVE monitoring data and network adequacy**

Note: "Minimum Regional Effort" annual cost estimate \$100,000 from Strategic Plan

WRAP Project Management & Staff through WGA (prepare RFPs, provide contract assistance/support, and direct contractor supervision)

- **2 FTE for 2009 – direct and indirect costs (staff salaries, travel, overhead, office space, supplies, other costs)**
- **Covers project administration activities:**
 - **WRAP Committee/Forum/WG coordination and support**
 - **Meeting and conference call costs + organization and administration**
- **Travel reimbursements for state staff and WRAP members per WRAP travel policy**

Note: "Average Regional Effort" annual cost estimate \$650,000 from Strategic Plan average from past several years

Appendix C

Significant comments and issues (paraphrased from interview notes)

... AK is not in same modeling regime as contiguous states. UofA probable modeling contractor... WRAP adds much value in interaction with villages in AK...

...Even if cost estimates are realistic and reasonable, states acting individually are not able to mount a credible, regional-scale effort, unless through a central organization with the resources and technical expertise to coordinate and manage contracts for all jurisdictions in the region. The whole dynamic of WRAP effort is essential to regional-scale planning and implementation. Care and feeding of databases and tools is essential to keep pace with changing circumstances. The time required (about 2 yrs.) to get modeling capability established is a large consideration...

...Regional Haze is a regional problem and must be handled regionally. CA supports the regional approach for multi-state analysis. The annual emissions inventory and special inventory improvements are the only WRAP-provided support elements that are already ongoing air program activities in CA. CA staff must maintain and improve its own inventory for plans and control measure updates for NAAQS in California's non-attainment areas and for other program areas statewide. Emission reductions in CA will continue due to these special program and attainment needs. However, WRAP regional modeling analysis for source attribution and for future deciview level projections are critical. California does not do regional air quality modeling for the western states domain. Therefore all tasks associated with this regional modeling, including gridding out the emissions inventory and their projected emission changes prior to modeling, are critical for demonstrating the AQ impact analyses of all emission reductions on Class I areas in California AND in all the neighboring western states. In any future scenario, California is assuming that the current support for collection, analysis, and posting of IMPROVE data will continue as is...

...FTEs working on emissions, monitoring, CA modeling for NAAQS. Those data would also be used for haze, without much extra FTE commitment beyond current level...

...Interstate coordination is invaluable. Resources (time & personnel) for agendas, meeting facilitation, presentations, minutes, and recordkeeping for future consultation is needed, even if all work is by internet and conference call...

...Most of the additional workload would address CO issues only. Additional FTE needed to coordinate with surrounding jurisdictions. Some of the modeling would involve Oil and Gas impacts, which CO would be doing for NAAQS...

...Regional haze cannot be addressed at the individual State level. The facilitation of common approaches by WRAP will prevent compartmentalized decision making by individual States and tribes. If States use different approaches for monitoring, emissions inventory, and modeling, the results will be subject to much debate. States with larger budgets and better expertise will overwhelm less well positioned States with technical arguments. Nevada can address most of the technical work performed by WRAP, either in-house or with the assistance of contractors.

However, we strongly believe that shifting these responsibilities to the individual States is not keeping with the consultation requirements of the regional haze process...

...States would need to coordinate interstate working relationships - Each state cannot develop and implement regional air programs alone...

...Most of the support elements, like FETS provides comprehensive and consistent data base for fire emissions across the West. Without the FETS there would be major inconsistency and data gaps between states on fire emissions. Without the EDMS, Oregon would spend time contacting immediate neighboring states to get their EIs. Showing regional emission trends would be difficult... While some states with large regional haze budgets have the staff and capability to conduct regional scale modeling, most states like Oregon do not. Regional modeling is a critical element for RH SIPs to show reasonable progress in meeting the RH rule, identifying contributing sources, developing additional strategies, and ensuring EPA SIP approvability

...In general, if UT were required to provide these support elements at a level that would meet regional haze requirements, it would strongly consider not providing them, perhaps defaulting on some implementation requirements, asking EPA to assume regional haze responsibility...

...Loss of EDMS means lost ability to look broadly at emissions across the region. Loss of regional modeling would handicap our ability to determine where boundary conditions start.... In general, the concept of a regional or geographic approach to solve air quality issues would be lost. Loss of project management staff and technical support capability means losing consistent approaches for reasonable progress analyses, BART determinations...

...Unable to replicate TSS,,, WY is incapable of, and would not do regional modeling at all.... Loss regional support mechanism for of continuity, consistent use of data, collaboration consultation...

... TSS is initially a very important tool used by FLMs in their review and comments on draft SIPs. It provides a portal to the technical analyses used by states to support the RPGs and long-range strategies in their draft SIPs. Over the longer time period TSS and its subsystems provide emissions, monitoring and modeling analyses, the essential indicators of reasonable progress.

Several SIPs that FLMs have reviewed clearly count on the WRAP maintaining the TSS, VIEWS, FTS, EDMS systems for their reasonable progress demonstration and tracking. Without this regional support, and resulting inability to make adequate demonstrations, the SIPs could be deficient.