Utah State Implementation Plan

Section XX

Regional Haze

Addressing Regional Haze Visibility Protection for the Mandatory Federal Class I Areas Required Under 40 CFR 51.309

Adopted by the Air Quality Board
April 6, 2011

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A. EXECUTIVE SUMMARY

This document comprises the State of Utah's State Implementation Plan (SIP) submittal to the U.S. Environmental Protection Agency (EPA) under the Regional Haze Rule in Section 309 of Title 40 of the Code of Federal Regulations, Part 51 (40 CFR 51.309). Part B includes introductory and background information. The remaining parts identify the SIP requirements under Section 309 and detail how Utah is addressing those requirements, and appendices include more detail about certain parts. Table 1 is a brief summary of each of the 309 SIP requirements along with Utah's approach in addressing those requirements.

Table 1. Executive Summary of Long-Term Strategies

Clean Air Corridors *309(d)(3)*	Part C documents that emission growth inside and outside of the Clean Air Corridor is not shown to be contributing currently to impairment within the Clean Air Corridor.
Stationary Sources *309(d)(4)*	Part D includes proof of a 13% reduction in sulfur dioxide emissions between 1990 and 2000, Best Available Retrofit Technology (BART) for NO_x and PM , geographic enhancement provisions, and other stationary source materials.
Sulfur Dioxide Milestones and Backstop Trading Program *309(d)(4)*	Part E includes milestones for sulfur dioxide emissions along with a backstop market cap and trade program for sulfur dioxide emissions from specific sources.
Mobile Sources *309(d)(5)*	Part F demonstrates that federal programs (such as low sulfur diesel, vehicle emission standards, etc.) lead to decreasing mobile source emissions throughout the planning period.
Programs Related to Fire *309(d)(6)*	Part G demonstrates that Utah has developed a smoke management regulation (R307-204) that implements the Western Regional Air Partnership (WRAP) *Enhanced Smoke Management Programs for Visibility Policy*.
Paved and Unpaved Road Dust *309(d)(7)*	Part H discusses the WRAP finding that dust emissions are not now a significant regional contributor to visibility impairment within the Colorado Plateau 16 Class I areas.
Pollution Prevention *309(d)(8)*	Part I describes programs and policies within Utah related to renewable energy and energy efficiency. Utah's anticipated contribution to the pollution prevention goals is outlined.
Additional Recommendations *309(d)(9)*	Part J summarizes that Utah has not identified any other recommendations in the Grand Canyon Visibility Transport Commission Report to implement in Utah at this time. A report on each recommendation is included in the Utah Technical Support Document Supplement.

Projection of Visibility Improvement *309(d)(2)*	Part K projects visibility improvement for the 20% best and worst days for each of the Class I areas on the Colorado Plateau (Arches, Bryce, Canyonlands, Capitol Reef, and Zion National Parks in Utah and the other 11 Class I areas in adjacent states that were addressed by the Grand Canyon Visibility Transport Commission)
Periodic Revisions *309(d)(10)*	Part L commits the State of Utah to submit periodic revisions to this SIP every five years.
State Planning and Interstate Coordination *309(d)(11)*	Part M describes Utah's participation in the Western Regional Air Partnership.
Reasonable Progress for Additional Class I Areas *309(g)*	Utah has no additional Class I areas.

Technical Support Documents

Accompanying this implementation plan and associated appendices are two other documents. The first is a Technical Support Document (TSD) developed by the Western Regional Air Partnership (WRAP) that contains the results of numerous collaborative studies by the WRAP members on which the State of Utah relied in the development of the 2003 SIP. In the implementation plan, this is referred to as the "WRAP TSD." The WRAP TSD also includes appendices. In addition, there are other supplemental materials that are state-specific technical support information. In the implementation plan, these are referred to as the "Utah TSD Supplement."

In 2008, the Regional Haze SIP was updated to address changes in the regional haze rule and EPA's BART Guidelines. The WRAP developed a new TSD, a Technical Support System (TSS) that contains the results of updated modeling, and an Emission Data Management System (EDMS). In the implementation plan these combined materials are referred to as the 2008 WRAP TSD and updated state-specific materials are referred to as the 2008 Utah TSD supplement.

In 2011 the SO_2 milestones in Part E of the SIP were revised to address a reduced number of states participating in the regional backstop trading program, and changes in growth projections for electric utilities in the west.

B. BACKGROUND ON THE REGIONAL HAZE RULE

1. Introduction

Good visibility is important to fully enjoy the experience of visiting our national parks and wilderness areas. Visibility is impaired by light scattering and absorption caused by particulate matter and gases in the atmosphere that occur from both natural and human-caused activities. Visibility can be impaired by natural sources such as rain, wildland fires, volcanic activity, sea mists, and wind blown dust from undisturbed desert areas. Visibility also can be impaired by human-caused sources of air pollution such as industrial processes, (utilities, smelters, refineries, etc.), mobile sources (cars, trucks, trains, etc.) and area sources (residential wood burning, prescribed burning on wild and agricultural lands, wind blown dust from disturbed soils, etc.) These sources emit pollutants that, in higher concentrations, also can affect public health.

The State of Utah has implemented this section of the State Implementation Plan to address visibility protection in the mandatory Federal Class I areas (Class I areas) required under 40 CFR 51.309. It contains all measures necessary to address regional haze visibility impairment to ensure the State of Utah makes reasonable progress toward the national goal contained in 42 U.S.C. 7491.

2. Definitions

This Plan contains terms and phrases that have formal definitions under 40 CFR 51.301, 40 CFR 51.309(b), and other terms specific to the programs set forth in this Plan. These definitions are contained in Appendix A of this section and shall prevail over other interpretations as to the meaning and intent of this Plan.

3. 1977 Clean Air Act

In the 1977 Clean Air Act, Congress established requirements for the prevention of significant deterioration of air quality in areas within the United States and for the review of pollution controls on new sources.[1] Coupled with this, Congress established a visibility protection program for those larger national parks and wilderness areas designated as mandatory Federal Class I areas (Class I areas).[2] This program established a national goal of "...the prevention of any future, and remedying of any existing impairment of visibility in mandatory Federal class I areas, which impairment results from man-made air pollution" and requires states to develop long-term strategies to

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[1] *Clean Air Act Amendments of 1977*, United States Congress. 42 U.S.C. 7470-7479. Government Printing Office: Washington, D.C. August 7, 1977.

[2] *Clean Air Act Amendments of 1977, Section 169A*, United States Congress. 42 U.S.C. 7491. Government Printing Office: Washington, D.C. August 7, 1977.

assure reasonable progress toward this national goal. The program also requires states to address any visibility impairment caused by emissions of air pollutants from certain large industrial sources if the source was less than 15 years old as of August 1977, through the establishment of emission limits based on best available retrofit technology (BART). Congress also established mandatory criteria for states to use when establishing BART emission limits and developing long-term strategies for reasonable progress toward meeting the national goal.

4. Reasonably Attributable Visibility Impairment SIP

In 1980, the United States Environmental Protection Agency (EPA) issued final regulations to address the requirements of the 1977 Clean Air Act, requiring states with Class I areas to submit State Implementation Plan (SIP) revisions with new source review plans, monitoring plans, BART implementation plans, and long-term strategies to address reasonable progress toward the national visibility goal.[3] Utah's SIP for visibility protection was submitted to EPA on April 26, 1985, and approved on May 30, 1986.

In the mid-1980s, Governor Bangerter appointed a Task Force on Visibility Protection to determine the appropriate level of protection for Utah's Class I areas, and to determine the sources of impairment of visibility in those areas. The Task Force included representatives of industry, environmental groups, local governments, and citizens at large. The Task Force visited many sites within Utah's five Class I areas and heard presentations from technical experts in the science of visibility. After more than a year of investigation, the Task Force recommended that all Utah Class I areas need protection, and that the biggest cause of visibility impairment is not individual industrial sources, but rather the regional haze from a multitude of sources that is transported over long distances.

In 1985, the Interagency Monitoring of Protected Visual Environments (IMPROVE) program was established to coordinate the monitoring of air quality in national parks and wilderness areas and to ensure sound and consistent scientific methods were being used.[4] The IMPROVE Steering Committee established monitoring protocols for visibility measurement, particulate matter measurement, and scientific photography of the Class I areas. IMPROVE monitoring is designed to establish reference information on visibility conditions and trends to aid in the development of visibility protection programs. Monitoring from the IMPROVE network demonstrated that visibility in all the Class I areas is impaired to some degree by regional haze.

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[3] *40 CFR Part 51 - Protection of Visibility*, United States Environmental Protection Agency, 45 FR 80089. Government Printing Office: Washington, D.C. December 2, 1980.

[4] IMPROVE Home Page. http://vista.cira.colostate.edu/improve (accessed April 2003).

5. 1990 Clean Air Act

Although the 1980 regulations addressed reasonably attributable visibility impairment from specific sources, also known as plume blight, it did not adequately address visibility impairment from large collections of sources whose emissions are mixed and transported over long distances, creating a uniform haze (regional haze). In the 1990 amendments to the Clean Air Act, Congress established the requirements to address regional haze visibility impairment, giving the EPA authority to establish visibility transport commissions and promulgate regulations to address regional haze, and requiring the establishment of a visibility transport commission to investigate and report on regional haze visibility impairment in the Grand Canyon National Park located in northern Arizona.[5]

6. Grand Canyon Visibility Transport Commission

The Grand Canyon Visibility Transport Commission (GCVTC) was established by EPA in November of 1991, consisting of seven western governors (or their designees), and five ex-officio members representing federal land management agencies and EPA. When establishing the GCVTC, EPA designated a transport region including seven western states: California, Oregon, Nevada, Idaho, Utah, Arizona, Colorado, and New Mexico. Although part of the Transport Region, the State of Idaho declined the invitation to participate in the GCVTC. Utah's governor was vice-chair of the GCVTC. Although Congress required a commission to be established for the Grand Canyon National Park, the member states agreed to expand the scope of the GCVTC to address all 16 of the Class I areas on the Colorado Plateau. The GCVTC elected to use a stakeholder-driven process to accomplish its objectives. Ultimately, the organization included 200+ political, policy and technical stakeholders who staffed a variety of committees and subcommittees to perform policy analysis and technical studies, and to participate in the public debate. The GCVTC was funded by EPA grants and contributions from stakeholders, including substantial in-kind labor. During its four-and-one-half year development, the GCVTC was expanded to include the State of Wyoming and tribal leaders as members. The GCVTC appointed a Public Advisory Committee (PAC) representing broad stakeholder interests to provide input and feedback to the GCVTC. Many Utahns were members of the PAC, with two serving on the PAC Steering Committee, and one serving on the Executive Committee as Vice-Chair of the PAC. The 80+ member Public Advisory Committee developed a consensus report of recommendations for the GCVTC that was ultimately adopted by the GCVTC and submitted to EPA in June 1996.[6]

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[5] *Clean Air Act Amendments of 1990, Section 169B,* United States Congress. 42 U.S.C. 7492. Government Printing Office: Washington, D.C. November 15, 1990.

[6] Grand Canyon Visibility Transport Commission. *Recommendations for Improving Western Vistas*. Western Governors' Association: Denver, CO, June 10, 1996.

Recommendations of the GCVTC include the following:

- Policies based on energy conservation, increased energy efficiency and promotion of the use of renewable resources for energy production;
- Careful tracking of emissions growth that may affect air quality in clean air corridors;
- Regional targets for sulfur dioxide emissions with a backstop program, probably including a regional cap and possibly a market-based trading program;
- Cooperatively developed strategies, expanded data collection and improved modeling for reducing or preventing visibility impairment in areas within and adjacent to Class I areas, pending further studies of sources adjacent to Class I areas;
- Emissions cap for mobile sources at the lowest level (expected to occur in 2005) and establishment of a regional emissions budget, as well as implementation of national strategies aimed at reducing tailpipe emissions;
- Further study to resolve issues regarding the modeled contribution to visibility impairment of dust from paved and unpaved roads;
- Continued bi-national cooperation to resolve data gaps and jurisdictional issues around emissions from Mexico;
- Programs to minimize emissions and visibility impacts and to educate the public about impacts from prescribed fire and wildfire, because emissions are projected to increase significantly through 2040; and
- Creation of an entity like the GCVTC to promote, support and oversee the implementation of many of the recommendations in this report.

EPA initially proposed regional haze regulations in 1997.[7] The proposed regulations described a generic program to apply nationally and did not include provisions to address the recommendations of the GCVTC. The Western Governors' Association (WGA) engaged key stakeholders to develop a recommendation on how to transform the GCVTC recommendations into a Regional Haze Rule. WGA approved their recommendation and transmitted it to EPA in June 1998.[8] Based on this and other public input, EPA issued the final Regional Haze Rule in July 1999 with a national program (§ 308) that could apply to any state or tribe and an optional program (§ 309) relying on the work of the GCVTC that is available to the states and tribes in the nine-state GCVTC transport region.[9]

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[7] *40 CFR Part 51 - Regional Haze Regulations; Proposed Rule - 62 FR 41138*. United States Environmental Protection Agency, Government Printing Office: Washington, D.C. July 31, 1997.

[8] Leavitt, M. O., Governor of Utah, Letter to EPA Administrator Browner on behalf of the Western Governors' Association, June 29, 1998.

[9] *40 CFR Part 51 - Regional Haze Rule; Final Rule, 64 FR 35714*. United States Environmental Protection Agency, Government Printing Office: Washington, D.C. July 1, 1999.

7. Western Regional Air Partnership

The GCVTC recognized the need for a long-term organization to address the policy and technical studies needed to address regional haze. The Western Regional Air Partnership (WRAP) was formed in September 1997. The WRAP's charter allows it to address any air quality issue of interest to WRAP members, though most current work is focused on developing the policy and technical work products needed by states and tribes in writing their regional haze state implementation plans (SIPs) and tribal implementation plans (TIPs). The WRAP has been co-chaired by the governor of Utah and the governor of the Acoma Pueblo. The WRAP Board is currently composed of representatives from 13 states, 13 tribes, the U.S. Department of Agriculture, the U.S. Department of the Interior, and the Environmental Protection Agency. The WRAP operates on a consensus basis and receives financial support from EPA. The WRAP established stakeholder-based technical and policy oversight committees to assist in managing the development process of regional haze work products. Stakeholder-based working groups and forums were established to focus attention on the policy and technical work products the states and tribes need to develop their implementation plans.

The WRAP developed and submitted an Annex to the GCVTC recommendations to define a voluntary program of sulfur dioxide emission reduction milestones coupled with a backstop market-trading program to assure emission reductions. EPA proposed changes to the Regional Haze Rule to incorporate the GCVTC Annex, and the final rule was published on June 5, 2003.[10] The WRAP is completing a suite of work products to support states and tribes developing GCVTC-based regional haze implementation plans. Additional information about the WRAP can be found on the WRAP web site at http://www.wrapair.org.

8. Mandatory Federal Class I Areas Addressed in 2003 SIP

The Regional Haze Rule under 40 CFR 51.309 requires states to address visibility protection for regional haze in the 16 Class I areas studied by the GCVTC in the initial regional haze SIP submitted by December 31, 2003. Other Class I areas are to be addressed after interstate consultation. These will be addressed in future SIP revisions as necessary.

Five of the 16 GCVTC Class I areas are in Utah, and Utah has no other Class I areas not covered under this initial SIP for regional haze. The Class I areas addressed are shown in Figure 1. The areas within the state of Utah are shown in Figure 2.

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[10] *40 CFR Part 51 - Regional Haze Regulations; Final Rule, 68 FR 33764*, United States Environmental Protection Agency. Government Printing Office: Washington, D.C. June 5, 2003.

Figure 1. 16 GCVTC Class I Areas Addressed by 40 CFR 51.309

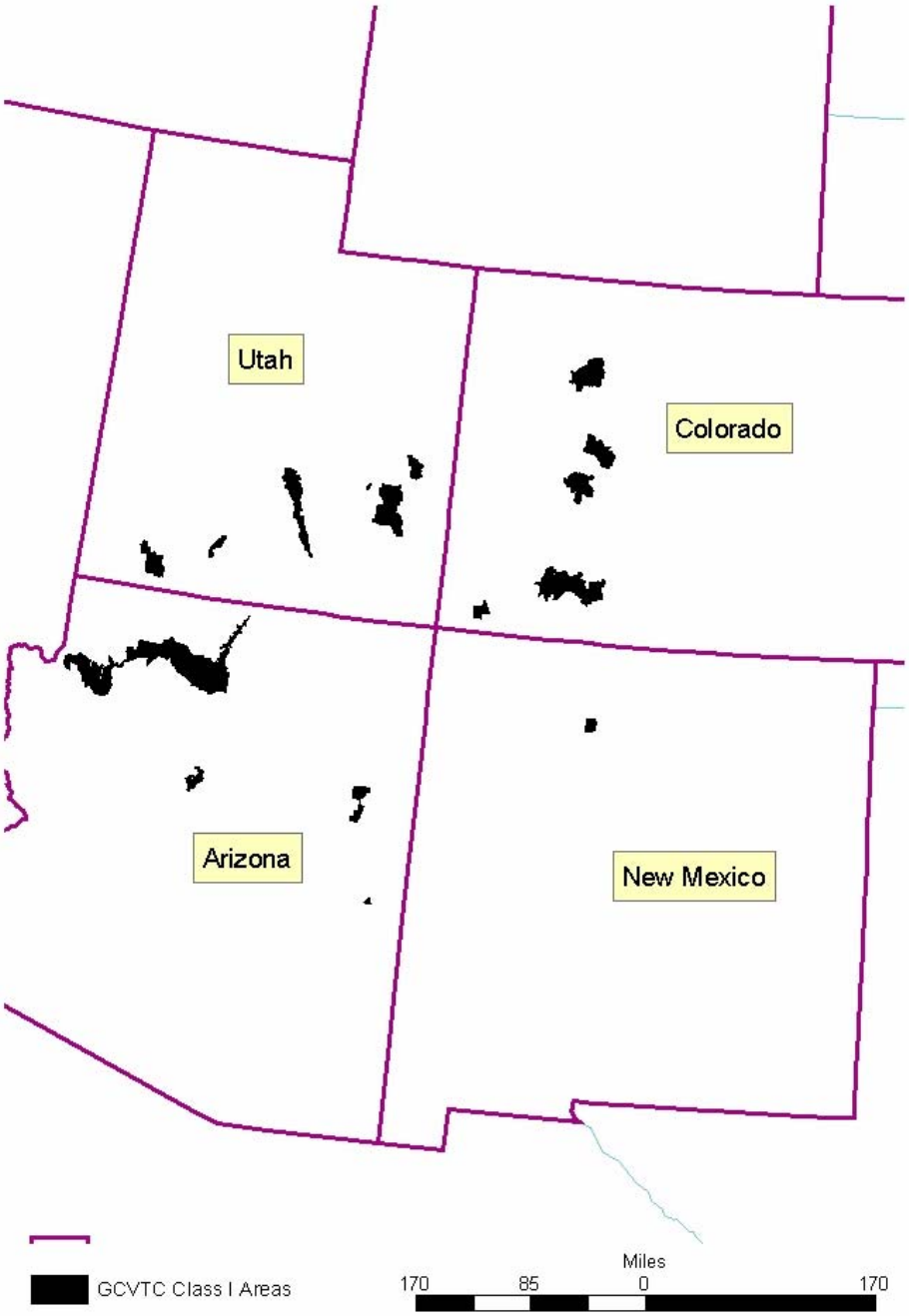
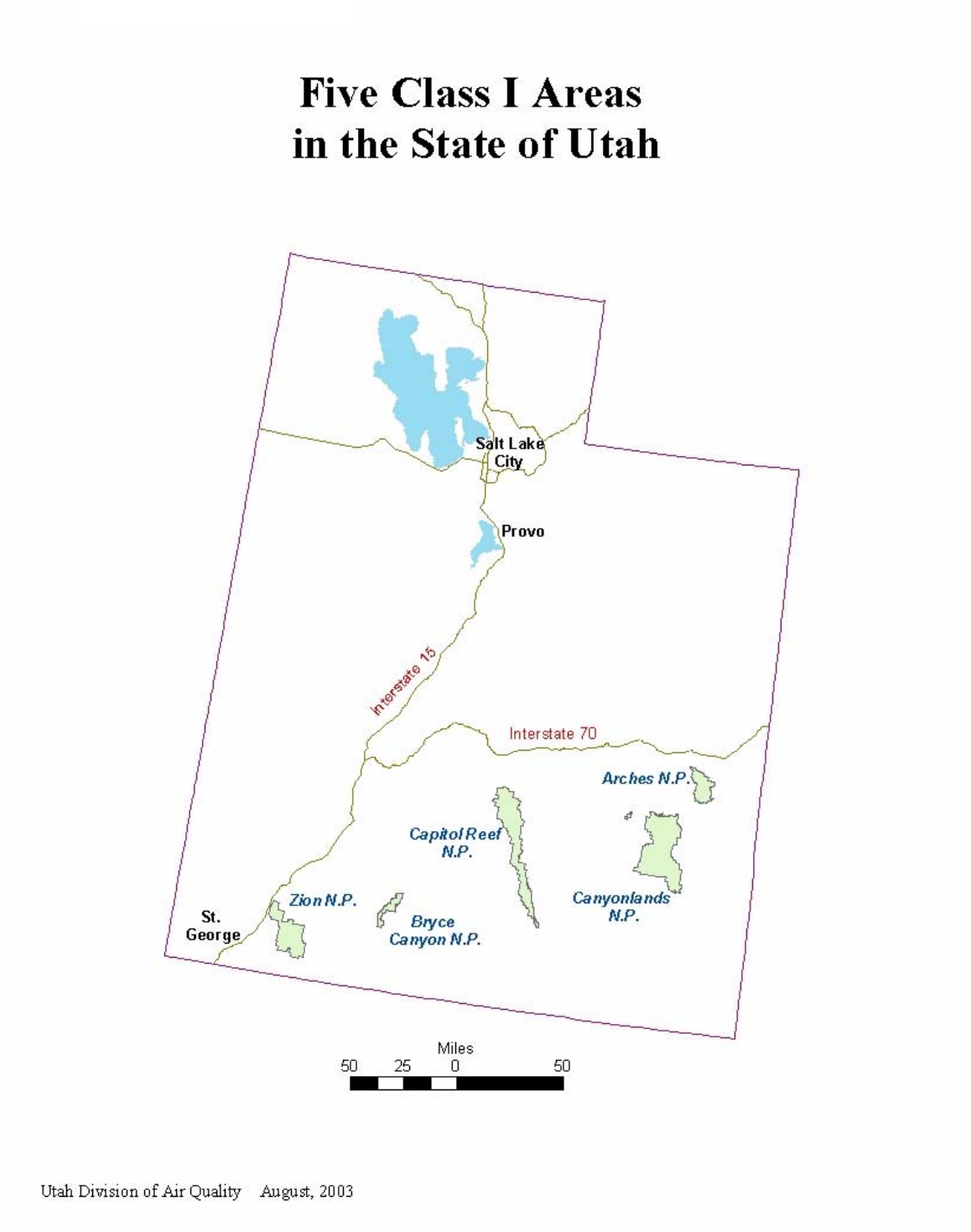


Figure 2. Utah Class I Areas Addressed by 40 CFR 51.309.



C. LONG-TERM STRATEGY FOR THE CLEAN-AIR CORRIDOR

1. Regulatory History and Requirements

One of the required tasks of the Grand Canyon Visibility Transport Commission was to review whether clean-air corridors exist for the 16 GCVTC Class I areas. A clean-air corridor is a geographic region that contributes clean air to the Class I areas on the days with best visibility. If clean-air corridors were found to exist, the GCVTC was required to recommend whether additional control strategies were needed to manage emissions growth to protect visibility on the least impaired days in the Class I areas. For the purpose of assessment, the GCVTC considered the average of the days representing the 20% best visibility conditions to be the least impaired days. EPA also used this definition in defining the term in the Regional Haze Rule (40 CFR 51.308 and 51.309).

In 1995 the GCVTC Meteorology Subcommittee completed an analysis of the geographical source areas contributing to least impaired days in the 16 GCVTC Class I areas. The analysis, in a report entitled, *Clean-Air Corridors: A Framework for Identifying Regions that Influence Clean Air on the Colorado Plateau*,[11] showed that the area north and west of the Grand Canyon National Park does provide clean air to the Grand Canyon area primarily due to a combination of favorable meteorological conditions (rain washout and higher ventilating winds) and low emissions of pollutants from the sparsely populated area. The GCVTC Public Advisory Committee (PAC) reviewed the clean-air corridor analysis and emission projections and determined that, for the period through 2040, emissions growth is projected to be less than the amount that would degrade visibility on the least impaired days in the 16 Class I areas. Based on this finding, the PAC recommended emissions growth be monitored in the future but that no additional control strategies were needed in the clean-air corridor at that time. The GCVTC adopted this recommendation and included it in its final report to EPA, which was integrated into the Regional Haze Rule.[12]

The projections of visibility conducted by the WRAP and documented in Appendix C also indicate that visibility on the 20% best and worst days will improve through 2018.

The Regional Haze Rule requires states submitting implementation plans under 40 CFR 51.309 to determine if there are additional areas to be considered as clean-air corridors for emission tracking purposes in the GCVTC areas. The successor to the GCVTC, the Western Regional Air Partnership (WRAP), completed a technical analysis to validate the emissions growth projections in the clean air corridors. This analysis was included as

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[11] Meteorology Subcommittee of the Grand Canyon Visibility Transport Commission. *Clean Air Corridors: Framework for Identifying Regions that Influence Clean Air on the Colorado Plateau.* Western Governors' Association: Denver, CO, July 1995.

[12] 64 FR 35751, July 1, 1999.

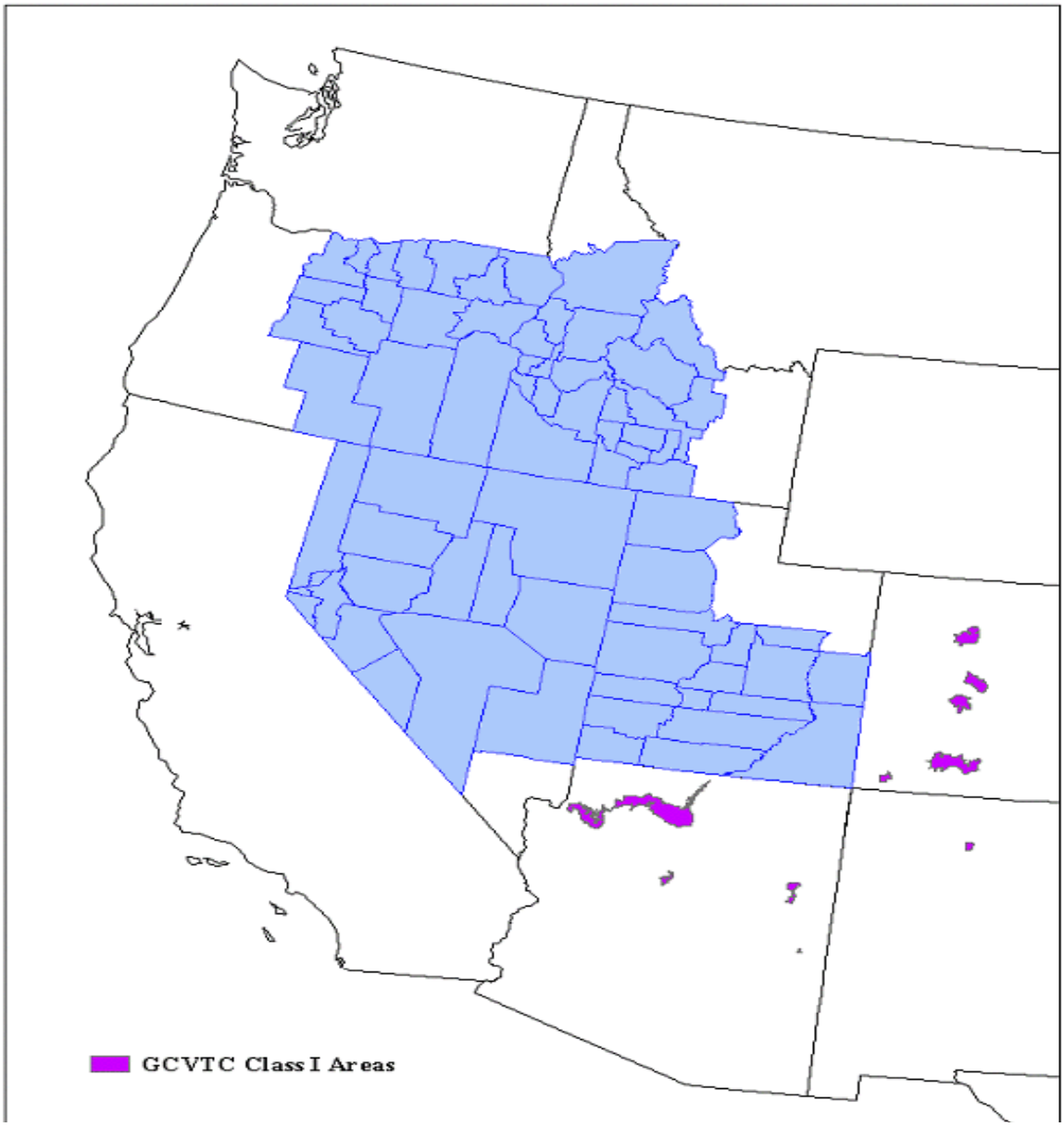
part of the WRAP consensus policy.[13] A copy of this policy is contained in the Utah TSD Supplement. The WRAP policy defined a clean air corridor previously identified by the GCVTC Meteorology Subcommittee, and modified to recognize county level emission inventory practices and an emissions tracking requirement in the clean air corridor. The technical studies and findings supporting the WRAP Clean-Air Corridor Policy are located in Chapter 3 of the WRAP Technical Support Document.

2. Identification of the Clean-Air Corridor; Other Clean-Air Corridors

Pursuant to 40 CFR 51.309(d)(3)(i), the State of Utah concurs with the identification of an existing clean-air corridor as defined in the WRAP Clean-Air Corridor Policy. The boundary of the clean-air corridor is indicated on the map in Figure 3 provided below. This clean-air corridor was identified using studies conducted by the Meteorological Subcommittee of the GCVTC, and updated in the WRAP technical and policy analysis of the area described in the WRAP Clean-Air Corridor Policy. A large portion of Utah resides in the identified clean-air corridor.

[13] *WRAP Policy on Clean Air Corridors,* adopted by Western Regional Air Partnership, November 13, 2002.

Figure 3. Map of the Clean Air Corridor in the Transport Region.



Source: Figure 1 from the WRAP Policy on Clean Air Corridors.

The State of Utah, pursuant to 40 CFR 51.309(d)(3)(v), has determined, based on the WRAP Clean-Air Corridor Policy and technical analysis, that no other clean-air corridors are identified at this time. The State of Utah commits to participating in a regional effort to review this determination as part of periodic plan revisions required under 40 CFR 51.309(d)(10).

3. Strategy for Clean Air Corridors

a. Comprehensive emissions tracking program.

Pursuant to 40 CFR 51.309(d)(3), the State of Utah commits to monitoring changes in emissions inside and outside the clean-air corridor with an emissions tracking program developed by the WRAP to ensure that visibility does not degrade on the least impaired days in any of the 16 GCVTC Class I areas. The State of Utah commits to providing statewide annual emission inventory data for use in the WRAP emissions tracking program. The state of Utah is working with the WRAP to develop a comprehensive emissions tracking system.[14] Utah, working with the WRAP, will summarize emission trends in order to identify any significant emissions growth that could lead to visibility degradation in the 16 Class I areas. Included in this summary will be an assessment of whether any significant emissions growth has occurred within or outside the clean-air corridor, in accordance with paragraphs C.3.b and c below. The State of Utah will work cooperatively with states not submitting a plan under 40 CFR 51.309 that have emissions within or outside the clean-air corridor that could affect air quality in the clean-air corridor, to ensure the emissions are incorporated into the tracking program through inter-state consultation.

b. Patterns of growth within the clean-air corridor.

Pursuant to 40 CFR 51.309(d)(3)(ii), the State of Utah has determined, based on the WRAP Clean-Air Corridor Policy and WRAP technical analysis, that current projections of emissions changes inside the identified clean-air corridor will not contribute to degradation of visibility on the least impaired days in the 16 Class I areas during the planning period through 2018. Future emissions growth will be tracked in accordance with the comprehensive emissions tracking system noted in paragraph C.3.a above. The WRAP will summarize annual emission trends within the clean-air corridor and assess whether any significant emission growth has occurred within the corridor as an analysis tool for states.

c. Patterns of growth outside the clean-air corridor.

Pursuant to 40 CFR 309(d)(3)(iii), the State of Utah has determined, based on the WRAP Clean-Air Corridor Policy and technical analysis, that current projections of emission changes in areas outside the identified clean-air corridor will not contribute to degradation of visibility on the least impaired days in the 16 Class I areas during the planning period through 2018. The State of Utah will ensure that WRAP will track emissions in areas outside the clean-air corridor and report to the State of Utah on any significant changes in emission projections that may require a reassessment of this determination in future SIP revisions, as required in 40 CFR 51.309(d)(10).

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[14] EA Engineering, Science and Technology, Inc, for the WRAP Emissions Forum. *Emissions Forum Data Reporting, Management, and Tracking System: Draft Final Report: Needs Assessment for Evaluation and Design of an Emissions Data Reporting, Management, and Tracking System.* July, 2003. From the WRAP Web site on August 20, 2003.

d. Actions if impairment inside or outside the clean-air corridor occurs.

The State of Utah, in coordination with other transport region states and tribes, will review the WRAP's annual summary of emission trends inside and outside the clean-air corridor and determine if significant emissions growth as identified within the corridor in accordance with paragraph C.3.b above, or was identified outside the corridor, in accordance with paragraph C.3.c above. If significant emissions growth is identified, the State of Utah, in coordination with other transport region states and tribes, will conduct, or seek WRAP assistance in conducting, an analysis of the emissions growth on visual air quality impacts on the least impaired days in any of the 16 Class I areas of the Colorado Plateau. Pursuant to 40 CFR 51.309(d)(3)(iv), if this analysis finds that this growth is causing visibility impairment in the 16 Class I areas, the State of Utah, in coordination with other transport region states and tribes, will evaluate the need for additional emission reduction measures and identify an implementation schedule for such measures, if needed. The implementation of any additional emission measures shall be coordinated with all appropriate transport region state and tribes, on a mutually agreed upon timetable, and reported to EPA in accordance with the periodic progress reports required under 40 CFR 51.309(d)(10)(i). If the WRAP regional planning process is unable to perform such an analysis for the Class I areas in Utah, or come to a consensus on the interpretation of such an analysis, the State of Utah will perform such studies and engage in independent interstate consultation provided for under 40 CFR 51.309(d)(11).

D. LONG-TERM STRATEGY FOR STATIONARY SOURCES

1. Regulatory History and Requirements

The Grand Canyon Visibility Transport Commission (GCVTC) studied the long-term projected changes of emissions from stationary sources. It was found that emissions of sulfur dioxide from stationary sources would decline by at least 13% between 1990 and 2000. Also, emissions of sulfur dioxide would continue to decline through 2040 when only 30% to 50% of the 1990 emission levels would remain. This decline was due to the normal turnover of source technology as older sources retire and are replaced by newer and cleaner technologies.

The GCVTC decided that the most appropriate way to address emissions of sulfur dioxide from stationary sources was to establish regional emission milestones and allow voluntary measures to achieve the emission reductions. If the emission milestones are not achieved, then a backstop market trading program would be implemented to guarantee the emission reductions are achieved. The GCVTC did not have sufficient time to develop the details of the emission milestones or backstop program, but committed to develop it and submit it to EPA.

In the 1999 Regional Haze Rule, EPA required the states to complete the development of the stationary source program for sulfur dioxide and to submit it as an Annex to the GCVTC recommendations. The WRAP submitted the Annex in September, 2000.[15] On June 5, 2003, EPA issued the final rules related to the sulfur dioxide program for stationary sources.[16] These rules incorporated the materials in the Annex.

EPA's approval of the Annex was challenged, and on February 18, 2005 the DC Circuit Court of Appeals vacated EPA's 2003 rules.[17] The Court determined that EPA had required a Best Available Retrofit Technology (BART) demonstration in the Annex that was based on a methodology that had been vacated by the Court in 2002.[18] On October

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[15] Western Regional Air Partnership. *Voluntary Emissions Reduction Program for Major Industrial Sources of Sulfur Dioxide in Nine Western States and a Backstop Market Trading Program, An Annex to the Report of the Grand Canyon Visibility Transport Commission.* Denver, CO. September 29, 2000.

[16] 68 FR 33764.

[17] Center for Energy and Economic Development (CEED) vs. Environmental Protection Agency, February 18, 2005.

[18] American Corn Growers Association vs. Environmental Protection Agency, May 24, 2002.

13, 2006 EPA revised the regional haze rule to establish the methodology for states to develop an alternative to BART that was consistent with the Court's decision.[19]

2. Achievement of a 13% or Greater Reduction of Sulfur Dioxide Emissions by 2000

The GCVTC projected a 13% or greater reduction of sulfur dioxide (SO_2) emissions between the years of 1990 and 2000. As shown in Table 2, regional SO_2 emission totals show that there was a 25% reduction in these emissions from 1990 to 2000.[20] There was a 33% decrease in SO_2 emissions during this time period from the three states that developed SIPs under 40 CFR 51.309 (New Mexico, Utah, and Wyoming, excluding emissions from sources in those states that are under tribal jurisdiction).

Table 2. State-by-State Comparison of 1990 and 2000 Stationary Source Sulfur Dioxide Emissions in the 9 GCVTC Transport Region States (tons per year)

States	1990	2000
Arizona	185,398	99,133
California	52,832	38,501
Colorado	95,534	99,161
Idaho	24,652	27,763
Nevada	52,775	53,943
New Mexico	177,994	117,344
Oregon	17,705	23,362
Utah	85,567	38,521
Wyoming	136,318	124,110
Totals	828,775	621,838

3. Strategy for Stationary Sources of Sulfur Dioxide

The long-term strategy for stationary sources implements the Grand Canyon Visibility Transport Commission (GCVTC) recommendation to develop regional sulfur dioxide (SO_2) milestones and a backstop trading program to ensure that the milestone goals are achieved. The GCVTC recommendations were further refined in an Annex to the Commission report that was submitted to EPA in September 2000.

The long-term strategy for stationary sources is implemented through the following documents:

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[19] 71 FR 60612

[20] E.H. Pechan & Associates, Inc. for the Western Governors' Association. *Year 2000 Point Source SO_2 Emissions Analysis - 9 State Western Region Report.* Denver, CO, May 2002.

- Sulfur Dioxide Milestones and Backstop Trading Program, Part E of this plan, describes the overall program and contains Utah's commitment to implement all parts of the program as outlined in the plan. The plan establishes the regional SO_2 milestones, emissions tracking requirements, and, if the Western Backstop SO_2 Trading Program (WEB Trading Program) is triggered, the plan also describes how Utah will determine allocations and manage the allowance tracking system that is needed to implement the program.

- R307-250, Western Backstop Sulfur Dioxide Trading Program, contains the requirements that will apply to major industrial sources of sulfur dioxide as a backstop regulatory program if the SO_2 milestones are exceeded. The rule may never be implemented if the goal to meet the regional SO_2 milestones through voluntary means is achieved. If the rule is implemented, it establishes the procedures and compliance requirements for sources in the trading program.

- R307-150 requires major industrial sources of SO_2 to submit an annual emissions inventory in the pre-trigger phase of the program to measure compliance with the regional SO_2 milestones. If the backstop program is triggered, then these requirements will eventually be replaced by more rigorous monitoring requirements in R307-250.

a. 2018 Milestone

The 2018 milestone of 141,849 tons represents an emission reduction of approximately 216,515 tons of SO_2 from the 1990 baseline emissions of 358,364 tons for the three participating states, and is well on the way to the GCVTC's goal of a 50-70% reduction by 2040. The 2018 regional sulfur dioxide milestone provides for greater reasonable progress[21] than would be achieved by application of best available retrofit technology (BART) for SO_2, as required by 40 CFR 51.309(d)(4) for both the 16 Class I Areas on the Colorado Plateau and other Class I Areas that are affected by sources in the 3-state region that are subject to BART. The participating states estimated that BART reductions would total approximately 48,737 tons of SO_2 by 2018. In accordance with 40 CFR 51.309(g)(ii), no further demonstration will be needed prior to 2018 for Utah's stationary sources identified in the Annex, in terms of satisfying BART for SO2 under 40 CFR 51.308(e).

b. Interim Milestones

Interim milestones were set based on expected emission reductions that were already planned between 2003 and 2018. These milestones show steady and continuing emission reductions, with most of the emission reductions occurring by 2013.

[21] October 6, 2010 Demonstration that the SO2 Milestones Provide Greater Reasonable Progress than BART

c. Triggering the Trading Program

States and tribes will collect an annual SO_2 inventory. Compliance with the milestones is determined by an annual comparison of the rolling 3-year average of total regional emissions with the rolling 3-year average of the milestones. For 2018, total emissions will be compared with the 2018 milestone. If a milestone is exceeded, the trading program is activated and emission allocations are made one year later with sources having five years from the year of exceedance to comply with their allocation. Sources may comply by retrofitting to bring emissions below their allocation, by buying credits to emit from other sources, by retiring the source, or by other means.

d. Certainty that 2018 Milestone Will Be Met on Time

Part E of this Plan includes a mechanism for the states and tribes to activate the trading program in 2013 if available evidence indicates the 2018 milestone will not be reached. In order to be in compliance with the 2018 milestone, the 2018 emissions must be less than the 2018 milestone. Sources that have not controlled their emissions in accordance with their allocations will be subject to financial penalties.

e. Trading Program Features

Details of the backstop trading program such as applicability, monitoring and reporting, trading procedures, compliance requirements and penalties, are defined in R307-250. Sources that reduce their emissions below their allocation will be able to sell excess allowances to other sources, within certain programmatic restrictions.

f. Allocations

If the program is triggered, 2,500 tons of SO_2 allocations will be set aside for tribal interests, acknowledging that tribal lands are largely undeveloped and that tribes would not benefit from a plan based only on past emissions. There will be a new source set-aside to accommodate growth within the region. Existing sources will receive a "floor" allocation based on a "clean unit" emission rate. The remainder of the allowances, which will decline over the years, will be allocated to existing sources. If the program is triggered, sources may buy and sell allowances to come into compliance.

g. State and Tribal Opt-In or Opt-Out

In the event that any other states or tribes choose to participate in the regional trading program in the future the milestones will be adjusted through a SIP revision to reflect the changes.

4. Geographic Enhancement Program

40 CFR 51.308(e)(2) allows states to submit a SIP, or tribes a TIP, which adopts an alternative measure to regional haze BART. Geographic enhancement is a voluntary approach provided in Section 308(e)(2)(v) that can be included in the plan for addressing reasonably attributable visibility impairment (RAVI) for stationary sources, under the provisions of 40 CFR 51.302(c). RAVI is different from regional haze in that it

addresses "hot spots" or situations where visibility impairment in a Class I area is reasonably attributable to a single source or small group of sources in relatively close proximity to the Class I area. In December 2004, the State of Utah signed a Memorandum of Agreement (MOA) with the Federal Land Managers to provide sources greater certainty regarding their potential risk of being certified as a RAVI source by a Federal Land Manager. Sources can incorporate this information into their business planning process, and use the efficiencies and reduced costs of the market to address potential RAVI issues.

a. Procedure for addressing Reasonably Attributable Visibility Impairment under the Regional Haze Rule.

If the National Park Service certifies impairment, the State of Utah will fulfill its obligations to determine attribution and if necessary determine BART for the applicable source or group of sources in accordance with Utah's SIP for visibility protection submitted to EPA on April 26, 1985, and approved on May 30, 1986. Additional information regarding possible technical approaches for determining attribution is contained in the WESTAR report, *Recommendations for Making Attribution Determinations in the Context of Reasonably Attributable BART*.

5. Report on Assessment of NO_x/PM Strategies

a. Assessment of Need for NO_x and PM milestones.

The State of Utah has evaluated the need for NO_x and PM emission control strategies, the degree of visibility improvement expected, and whether such milestones are needed to avoid any net increase in these pollutants. This evaluation was based on an assessment of NO_x and PM stationary source emissions made by the WRAP Market Trading Forum for all WRAP states, including the transport region states.[22]

Several conclusions were reached based on the analyses.

- For the vast majority of Class I areas throughout the WRAP region, stationary source NO_x and PM emissions are not a major contributor to visibility impairment on the average 20% best and 20% worst days. However, on some of the worst days nitrates and PM are the main components of visibility impairment.
- Stationary source NO_x emissions are projected to increase by 4% between 1996 and 2018. Stationary source NO_x emissions probably cause 2% - 5% of the visibility impairment on the Colorado Plateau.
- Stationary source PM emissions are projected to increase by 29% between 1996 and 2018. Stationary source PM emissions probably cause less than 2% of the regional visibility impairment.

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[22] WRAP. *Stationary Source NOx and PM Emissions in the WRAP Region: An Initial Assessment of Emissions, Controls, and Air Quality Impacts.* Denver, CO. Presented to the WRAP Board October 15, 2003.

- The current regional modeling does a poor job of predicting nitrate concentrations in the winter when NO_x has the greatest impact on visibility impairment. The modeling also does a poor job of predicting the impact of localized fugitive dust impact. The WRAP is currently making significant improvements to the model and to the emission inventories to address these issues.
- There is a wide range of emission reduction techniques available to control NO_x and PM emissions, and many of the technologies are cost-effective. The current emission inventory does not contain enough information to determine what technologies are currently in place in the West and the cost of additional controls.
- RAVI remedies are available in cases where particular stationary sources may impact particular Class I areas.

The complete report is provided in the 2003 Utah TSD Supplement.

6. Best Available Control Technology (BART) Assessment for NO_x and PM.

a. Regional Haze Rule BART Requirements

Pursuant to 40 CFR 51.309(d)(4)(vii), certain major stationary sources are required to evaluate, install, operate and maintain BART technology or an approved BART alternative for NO_x and PM emissions. BART requirements can be addressed through a case-by-case review under 40 CFR 51.308(e)(1) or through an alternative program under 40 CFR 51.308(e)(2). The State of Utah has chosen to evaluate BART for NO_x and PM under the case-by-case provisions of 40 CFR 51.308(e)(1). BART for SO_2 is addressed through an alternative program under 40 CFR 51.309 that is described in Part E of this plan.

EPA issued guidelines for BART determinations on July 6, 2005 that are codified in Appendix Y to 40 CFR Part 51. These guidelines establish a three step process.

- States identify sources which meet the definition of BART eligible
- States determine which BART eligible sources are "subject to BART"
- For each source subject to BART States identify the appropriate control technology.

The determination of NO_x limits for fossil-fuel fired power plants having a total generating capacity greater than 750 megawatts must be made pursuant to the guidelines in 40 CFR 51 Appendix Y, Section E.5. [23]

[23] 40 CFR Part 51 Appendix Y Guidelines for BART Determinations under the Regional Haze Rule (70 FR 39158)

b. BART-Eligible Sources.

BART-eligible sources are those sources that fall within one of 26 specific source categories, were built during the 15-year window of time from 1962 to 1977, and have potential emissions of at least 250 tons per year of any visibility impairing air pollutant (40 CFR 51.301). Pursuant to 40 CFR 51.308 (e)(1)(i) a State is required to list all BART-eligible sources within the State.

Four BART-eligible electric generating units have been identified in the State of Utah: PacifiCorp's Hunter Units 1 and 2 and Huntington Units 1 and 2. The units are located at fossil-fuel fired steam electric plants of more than 250 million Btu per hour heat input, one of the 26 specific BART source categories. The units have potential emissions greater than 250 tons per year of a visibility impairing pollutant. The units had commenced construction within the BART time frame of August 7, 1962 to August 7, 1977.

Table 3. BART-Eligible Sources in Utah.

SOURCE	UNIT ID	SERVICE DATE	NET DEPENDABLE CAPACITY (MWn)	BART CATEGORY	COAL TYPE	BOILER TYPE
Hunter	1	1978	430	Fossil fuel fired	Bituminous	Tangential
Hunter	2	1980	430	Fossil fuel fired	Bituminous	Tangential
Huntington	1	1977	430	Fossil fuel fired	Bituminous	Tangential
Huntington	2	1974	430	Fossil fuel fired	Bituminous	Tangential

Note: Hunter Unit 3 commenced construction after 1977 and is therefore not BART-eligible.

c. Sources Subject to BART

Pursuant to 40 CFR 51.308(e)(1)(ii) the State is required to determine which BART-eligible sources are also "subject to BART." BART-eligible sources are subject to BART if they emit any air pollutant that may reasonably be anticipated to cause or contribute to any impairment of visibility in any mandatory Class I Federal area.

PacifiCorp's Hunter Units 1 and 2 and Huntington Units 1 and 2 were determined by the State to be subject to BART. The State utilized the technical modeling services of the WRAP Regional Modeling Center (RMC). Modeling was performed according to the RMC modeling protocols[24]. For the WRAP BART exemption screening modeling, the RMC followed the EPA BART Guidelines in 40 CFR 51, Appendix Y and the applicable CALMET/CALPUFF modeling guidance (e.g., IWAQM, 1998; FLAG, 2000; EPA,

[24] CALMET/CALPUFF Protocol for BART Exemption Screening Analysis for Class I Areas in the Western United States

2003c) including EPA's March 16, 2006 memorandum: "Dispersion Coefficients for Regulatory Air Quality Modeling in CALPUFF".[25]

The basic assumptions of the WRAP BART CALMET/CALPUFF modeling protocols are as follows:

- Three years of modeling (2001, 2002 and 2003) were used.
- Visibility impacts due to emissions of SO_2, NO_x and primary PM emissions were calculated
- Visibility was calculated using the Original IMPROVE equation and Annual Average Natural Conditions.
- The effective range of CALPUFF modeling was set at 300km from the sources
- For pre-control modeling, maximum 24-hour average actual emissions from the Acid Rain database were used in CALPUFF model.
- For post-control modeling, expected New Source Review (NSR) permitted limits were used in the CALPUFF model.

According to 40 CFR Part 51, Appendix Y, a BART-eligible source is considered to "contribute" to visibility impairment in a Class I area if the modeled 98th percentile change in deciviews is equal to or greater than the "contribution threshold." The State of Utah evaluated BART exemption screening modeling results at the EPA-suggested contribution threshold of 0.5 deciviews within a 300 Km radius of the BART-eligible sources.[26] BART-eligible sources Hunter Unit 1, Hunter Unit 2, Huntington Unit 1, and Huntington Unit 2 had a modeled impact greater than the threshold level of 0.5 change in deciviews in at least one of the seven Class I areas within a 300 km radius of the sources.

[25] Atkinson and Fox, 2006

[26] WRAP RMC BART Modeling for Utah Draft #6 April 21, 2007

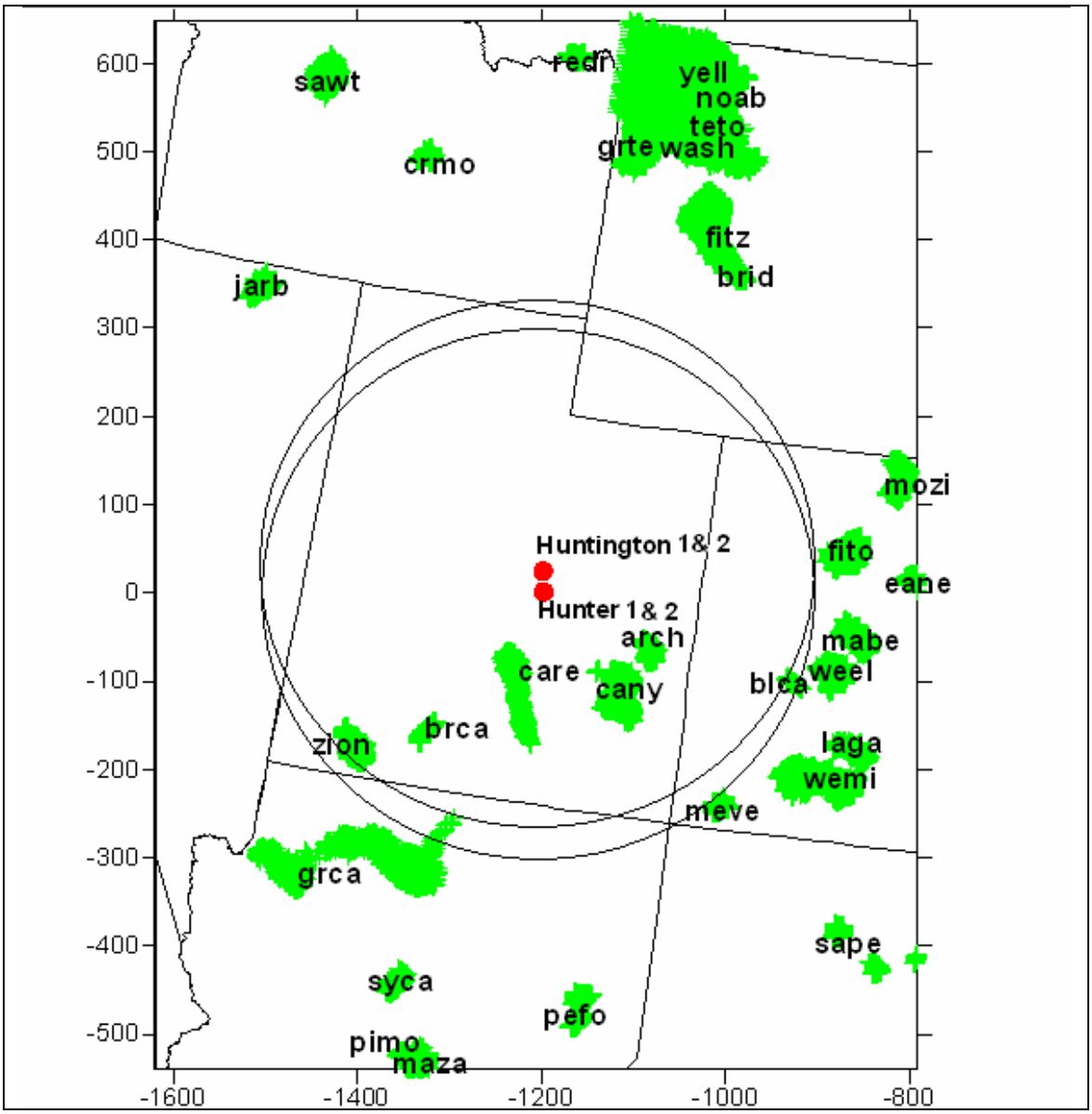

Figure 4. Relationship between Utah potential BART-eligible sources and Class I areas. Hunter Units 1 and 2 and Huntington Units 1 and 2 modeled separately at maximum 300 km.

Table 4. Subject to BART Modeling

	Subject to BART Modeling - 98th Percentile 3 year average Delta Deciview							
	Capitol Reef	Canyonlands	Arches	Bryce Canyon	Zion	Grand Canyon	Black Canyon Gunnison	Mesa Verde
Hunter 1	2.13	1.87	1.53	0.55	0.46	0.59	0.60	0.53
Hunter 2	1.89	1.62	1.36	0.47	0.41	0.52	0.53	0.47
Huntington 1	1.92	1.64	1.39	0.48	0.43	0.55	0.56	0.48
Huntington 2	2.43	2.26	1.89	.091	.078	.099	1.14	0.91

d. BART Determination

As required under 51.308 (e)(1)(A) the determination of BART must be based on an analysis of the best system of continuous emission control technology available. In the analysis the State must take in to account five factors:

- Available technology
- Costs of compliance
- Energy and non-air quality environmental impacts
- Existing control equipment and the remaining useful life of the facility
- The degree of improvement in visibility reasonably anticipated to result from the use of such technology

PacifiCorp has installed or has received permits to install the following retrofit control equipment at the Hunter Unit 1, Hunter Unit 2, Huntington Unit 1, and Huntington Unit 2 fossil fuel fired electric generating units (EGU):

Hunter Units 1 and 2:

- Conversion of existing electrostatic precipitators to pulse jet fabric filter bag-houses
- The replacement of existing, first generation low-NO_x burners with Alstom TSF 2000TM low-NO_x firing system and installation of two elevations of separated overfire air.
- Upgrade of existing flue gas desulfurization system to > 90% sulfur dioxide removal.

Huntington Units 1 and 2:

- Conversion of existing electrostatic precipitators to pulse jet fabric filter bag-houses
- The replacement of existing, first generation low-NO_x burners with Alstom TSF 2000TM low-NO_x firing system and installation of two elevations of separated overfire air.
- Installation of a new wet-lime, flue gas de-sulfurization system at Unit 2 (FGD).
- Upgrade of existing flue gas desulfurization system to > 90% sulfur dioxide removal at Unit 1.

Table 5. Emissions Rates (lb/MMBtu) for the Retrofitted Hunter and Huntington Units

Units		Utah Permitted Rates[27]			Presumptive BART Limits[28]	
Rate: lb/MMBtu		SO2	NOx	PM	SO2	NOx
Hunter 1		0.12	0.26	0.05	0.15	0.28
Hunter 2		0.12	0.26	0.05	0.15	0.28
Huntington 1		0.12	0.26	0.05	0.15	0.28
Huntington 2		0.12	0.26	0.05	0.15	0.28

Table 6. Change in Emissions (tons/yr) for Retrofitted BART Units

Unit	Pre-Control SO_2	Pre-Control NOx	Pre-Control PM_{10}	Post-Control SO_2	Post-Control NO_x	Post-Control PM_{10}	Delta SO_2	Delta NO_x	Delta PM_{10}
Hunter 1	2741	6833	533	2239	4851	280	-502	-1981	-253
Hunter 2	2425	5922	533	2185	4734	273	-240	-1187	-260
Huntington 1	2538	5676	444	2052	4445	256	-486	-1231	-188
Huntington 2	13703	5582	443	1743	3776	218	-11960	-1806	-225
TOTALS	**21,407**	**24,013**	**1,953**	**8,219**	**17,807**	**1,027**	**-13,189**	**-6,206**	**-926**

Pursuant to 51.308(e)(1)(C)(iv) each source subject to BART is required to install and operate BART no later than 5 years after approval of the implementation plan. The PacifiCorp schedule for the four EGUs at Huntington and Hunter sources is as follows.

Source	Notice of Intent Submitted	Permit Issued	Estimated In Service Date
Hunter 1	June 2006	March 2008	Spring 2014
Hunter 2	June 2006	March 2008	Spring 2011
Huntington 1	April 2008	August 2009	Fall 2010
Huntington 2	October 2004	April 2005	Dec 2006

EPA under the BART Rule requires coal-fired electric generating plants of greater than 750 MW to meet BART presumptive limits. While EPA considers presumptive limits to be appropriate for all coal-fired power plants greater than 750 MW, the State may establish different requirements if the State can demonstrate that an alternative is justified based on a consideration of the five BART factors.

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[27] Utah Division of Air Quality Approval Orders: Huntington Unit 2 - AN0238012-05, Huntington Unit 1 - DAQE-AN0102380019-09 (note – on January 19, 2010 an administrative amendment was made to the 2009 AO), Hunter Units I and 2 - DAQE-AN0102370012-08

[28] 40 CFR Part 51 Appendix Y Guidelines for BART Determinations under the Regional Haze Rule (70 Federal Register 39135)

> "States, as a general matter, must require owners and operators of greater than 750 MW power plants to meet these BART emission limits… a State may establish different requirements if the State can demonstrate that an alternative determination is justified based on a consideration of the five statutory factors."[29]
>
> "For Coal-fired EGU's greater than 200 MW located at greater than 750 MW power plants and operating without post-combustion controls (i.e. SCR or SNCR), we have provided presumptive NOx limits, differentiated by boiler design and type of coal burned. You may determine that an alternative control level is appropriate based on careful consideration of the statutory factors." (Appendix Y Part 51 – IV (E)(5).[30]

EPA determined presumptive limits for SO_2 and NO_x for EGUs based on a methodology equivalent to that required in 50 CFR 51 Appendix Y for BART Rule. The EPA determination of presumptive limits included:

- Identification of all potential BART-eligible EGUs (all BART-eligible EGU's were assumed to be Subject to BART)
- Technical analyses and industry research to determine applicable and appropriate SO_2 and NO_x control options,
- Economic analysis to determine cost effectiveness for each potentially BART-eligible EGU
- Evaluation of historical emissions and forecast emission reductions for each potentially BART-eligible EGU[31].
- NOx and SO_2 CALPUFF modeling of emission impacts at model Class I area.

> The analysis included 491 potential BART EGUs including Hunter Units 1 and 2 and Huntington Units 1 and 2. The technical analysis conducted by EPA to determine presumptive BART limits for SO_2 and NO_x is in effect a BART determination analysis for 419 EGUs including Hunter Units 1 and 2 and Huntington Units 1 and 2.[32]

Section IV (E) (5) of Appendix Y Part 51 clearly requires the implementation of presumptive NOx limits for coal-fired EGU's greater than 200 MW located at greater than 750 MW power plants. Under Appendix Y, states are given the discretion to

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[29] Ibid. (70 Federal Register 39131).

[30] 70 Federal Register 39171

[31] Ibid. (70 Federal Register 39134)

[32] "Methodology for Developing BART NOx Presumptive Limits" EPA Clean Air Market Division June 15, 2005 HQ-OAR-2002-0076-0445 and "Technical Support Document for BART NOx Limits for Electric Generating Units Excel Spreadsheet, Memorandum April 15, 2005 HQ-OAR-2002-0076-0369

challenge presumptive limits through a five factor analysis, but presumptive limits were developed by EPA as a reasonable, equivalent and mandated substitution for a five factor analysis.[33]

Utah's long-standing Prevention of Significant Deterioration (PSD) permitting program (SIP Section VII and R307-405), New Source Review permitting program (SIP Section II and R307-401) and Visibility program (SIP section XVII and R307-406) will continue to protect Class I area visibility by requiring best available control technology for new sources, and assuring that there is not a significant degradation in visibility at Class I areas due to new or modified major sources.

E. SULFUR DIOXIDE MILESTONES AND BACKSTOP TRADING PROGRAM

1. Milestones and Determination of Program Trigger

a. Regional Sulfur Dioxide Milestones

(1) Milestone Values.

The regional sulfur dioxide (SO_2) milestones for the years 2008 through 2018 are provided in Table 7. The milestones will be adjusted annually as described in paragraph E.1.a(2) of this plan.

Table 7. Sulfur Dioxide Emissions Milestones

For the year	the regional sulfur dioxide milestone is	and the annual SO_2 emissions for these years will determine whether emissions are greater than or less than the milestone
2008[34]	269,083 tons SO_2	Average of 2006, 2007 and 2008
2009	234,903 tons SO_2	Average of 2007, 2008 and 2009
2010	200,722 tons SO_2	Average of 2008, 2009 and 2010
2011	200,722 tons SO_2	Average of 2009, 2010 and 2011
2012	200,722 tons SO_2	Average of 2010, 2011 and 2012
2013	185,795 tons SO_2	Average of 2011, 2012 and 2013
2014	170,868 tons SO_2	Average of 2012, 2013 and 2014
2015	155,940 tons SO_2	Average of 2013, 2014 and 2015
2016	155,940 tons SO_2	Average of 2014, 2015 and 2016

[33] CFR Part 51 Appendix Y Guidelines for BART Determinations under the Regional Haze Rule (70 Federal Register 39171)

[34] The 2006 and 2007 annual milestones that are used to calculate the 2008 3-year average milestone in Table 8 have been adjusted to include only the three states that are part of the regional backstop trading program using the adjustment methodology in the 2003 Regional Haze SIP

For the year	the regional sulfur dioxide milestone is	and the annual SO_2 emissions for these years will determine whether emissions are greater than or less than the milestone
2017	155,940 tons SO_2	Average of 2015, 2016 and 2017
2018	141,849 tons SO_2	Year 2018 only
2019 forward, until replaced by an approved SIP	141,849 tons SO_2	Annual; no multiyear averaging

(2) Milestone Adjustments.

(a) All milestone adjustments will require a SIP revision. Paragraph E.1.c(3) of this plan outlines adjustments to be made to the emissions inventory to ensure a consistent comparison to the milestones. These adjustments will be incorporated into the milestones every five years as part of the periodic implementation plan revisions required by 40 CFR 51.309(d)(10). Adjustments to the milestones will be tracked in the annual emissions report described in paragraph E.1.c(4) of this Plan.

(b) Within ninety days of adoption by the Utah Air Quality Board of the periodic Implementation Plan revision incorporating adjustments based on paragraph E.1.c(3) or (4) of this Plan, the State of Utah will provide notice to sources whose records were used to calculate the adjustments, including the date of the SIP adoption and a statement that the source needs to retain the applicable records for at least five years from the date that the SIP was adopted, or ten years from the date of establishing the record, whichever is longer.

(c) Opt-in Provisions for States and Tribes. The regional milestones in Table 7 were developed for a 3-state region: New Mexico, Utah, and Wyoming. Other western states and tribes may choose to join this backstop trading program in the future. The addition of a state or tribe to the program will require a SIP/TIP revision of all participating states and tribes to adjust the regional milestones, and will not occur automatically. Any state or tribe that wishes to opt in to the program will propose milestone adjustments to the participating states and tribes using the same methodology that was used to develop the milestones in Table 7. A new participant must agree to develop a SIP and backstop trading rule that is consistent with those adopted by the other participating states and tribes.

b. Regional Program Administration

(1) Pre-trigger tracking of regional SO_2 emissions.

The executive secretary will work cooperatively with the states and tribes that are participating in the SO_2 Milestones and Backstop Trading Program to ensure that an emission tracking system for the regional SO_2 inventory is developed and maintained.

The executive secretary is responsible for all regional program administration functions as described in this plan. The executive secretary will perform these functions using the WRAP as the executive secretary's agent. The Western Regional Air Partnership (WRAP) compiled the SO_2 emission inventories that were used during the development of the Annex and subsequent SIP revisions, and the WRAP continues to refine and improve the overall tracking system for regional haze. The WRAP will maintain the pre-trigger emissions tracking functions described in this plan for the foreseeable future. If the WRAP is no longer able to fulfill this function, then the executive secretary will ensure that other arrangements are made, either through a different regional organization or through a contractor, to maintain the SO_2 tracking system that is described in this plan. The WRAP has no authority to make regulatory determinations. The WRAP has limited authority under this plan to perform tracking and accounting functions, prepare reports, and perform other administrative functions as directed by the executive secretary. The executive secretary will work expeditiously to correct any problems if the WRAP fails to perform any of the functions described in this plan in a timely manner.

(2) Designation of the Tracking System Administrator.
If the backstop trading program is triggered due to an exceedance of the SO_2 milestones as outlined in Part E.1.c of this plan, the executive secretary will work cooperatively with the other participating states and tribes to designate one Tracking System Administrator (TSA). The TSA will be designated as expeditiously as possible, but no later than six months after the program trigger date. In addition, before the TSA is designated, the executive secretary will enter into a binding contract with the TSA that will require the TSA to perform all TSA functions described in this plan. The State of Utah has sufficient authority under State contract law to ensure that the functions in this plan are carried out by the TSA.

(3) Information Provided by other States and Tribes.
The executive secretary will accept the emission inventory and permitting information provided by the other participating states and tribes in order to determine the milestone value and program trigger if such other states and tribes have provided proper documentation and followed the public notification process in their federally approved implementation plans.

c. Determination of Program Trigger

(1) The executive secretary will submit an annual emissions report to the WRAP and all participating states and tribes by September 30 of each year. The report will document actual sulfur dioxide emissions during the previous calendar year for all sources subject to the Sulfur Dioxide Milestone Inventory requirements of R307-150. The first report for calendar year 2003 was submitted in 2004. If the WEB Trading Program is triggered as outlined in paragraph E.1.c(10) of this plan, annual reports will be prepared during the interim period for informational purposes until the trading program is fully implemented. The executive secretary will prepare the supporting documentation that is included with the annual emissions report as noted in (2) and (3) below.

(2) The annual emissions report for Utah will include a source emissions change report that contains the following information:

(a) identification of any new sources that were not contained in the previous calendar year's emissions report, and an explanation of why the source is now included in the program;

(b) identification of any sources that were included in the previous year's report and are no longer included in the program, and an explanation of why this change has occurred; and

(c) an explanation for increases or decreases of emissions at any applicable source of more than twenty percent from the previous year.

(3) The annual emissions report for Utah will include the proposed emissions adjustment to ensure a consistent comparison to the milestones. Actual emission inventories for sources that change the method of monitoring or calculating their emissions will be adjusted to be comparable to the emission monitoring or calculation method that was used in the 2006 base year inventory.

(4) The annual sulfur dioxide milestone and emissions report for Utah will document any adjustments that should be made to the milestone for the previous year as follows.

(a) Changes due to enforcement actions.

(i) Adjustments due to settlements arising from enforcement actions. Adjustments to the milestones will be made, as specified in subsection (iii) below, if:

(A) an agreement to settle an action, arising from allegations of a failure of an owner or operator of an emissions unit at a source in the program to comply with applicable regulations which were in effect during the base year, is reached between the parties to the action;

(B) the alleged failure to comply with applicable regulations affects the assumptions that were used in calculating the source's base year and forecasted sulfur dioxide emissions; and

(C) the settlement includes or recommends an adjustment to the milestones.

(ii) Adjustments due to administrative or judicial orders. Adjustments to the milestones will be made as directed by any final administrative or

judicial order, as specified in (iii) below. Where the final administrative or judicial order does not include a reforecast of the source's baseline, the executive secretary will evaluate whether a reforecast of the source's baseline emissions is appropriate.

(iii) Adjustments method and effective dates. The milestone will be decreased by an appropriate amount based on a reforecast of the source's decreased sulfur dioxide emissions. The adjustments will not be made to the milestone until after the source has reduced its sulfur dioxide emissions as required in the settlement agreement, or administrative or judicial order.

(iv) Documentation of adjustments for enforcement actions. The report will include the following documentation of any adjustment due to an enforcement action or a settlement agreement:

(A) identification of each source in Utah that has reduced sulfur dioxide emissions pursuant to a settlement agreement or an administrative or judicial order;

(B) for each source identified, a statement indicating whether the milestones were adjusted in response to the enforcement action;

(C) discussion of the rationale for the executive secretary's decision to adjust or not to adjust the milestones; and

(D) if SO_2 emissions reductions over and above those reductions needed for compliance with the applicable regulations were part of an agreement to settle an action, a statement indicating whether such reductions resulted in any adjustment to the milestones or allowance allocations, and a discussion of the rationale for the executive secretary's decision on any such adjustment.

(v) The State of Utah will include all accumulated milestone adjustments due to enforcement actions or settlement agreements in the periodic SIP revisions required under 40 CFR 51.309(d)(10).

(5) Compilation of Reports.

(a) The WRAP will compile the annual emissions reports submitted by all participating states and tribes into a draft regional emission report for sulfur dioxide. The WRAP will follow additional quality assurance procedures developed by member states and tribes to identify possible errors in the emissions data, including screening for missing or added sources, name changes, and significant changes in reported emissions. Any questions or anomalies regarding

Utah's report will be resolved by the executive secretary prior to the submission of the draft regional emission report.

(b) By December 31 of each year, the WRAP will submit the draft regional emission and milestone report to the executive secretary and all participating states and tribes and will post the report on the WRAP's web page. The report will include the following information:

(i) actual regional sulfur dioxide emissions in tons per year;

(ii) adjustments to account for changes in emission monitoring or calculation methods;

(iii) average adjusted emissions for the last three years for comparison to the regional milestone, if adjustments were made; and

(iv) regional milestone adjustments due to enforcement actions or settlement agreements.

(6) The executive secretary will evaluate the draft regional emissions report and will propose a draft determination that the sulfur dioxide milestone has either been met in the region, or has been exceeded. In the event that the WRAP has not submitted a draft regional emissions and milestone report to the executive secretary by the December 31 deadline for any year, the executive secretary will prepare the report for that year based upon the annual emissions reports submitted by all participating states and tribes to the WRAP for that year. The executive secretary will modify the data in these annual emissions reports, or use data where such report(s) have not been submitted, based upon direction received from the Environmental Protection Agency.

(7) The executive secretary will advertise availability of the draft regional emissions report and will notify the public of the draft determination by publishing a notice in newspapers of general circulation throughout Utah. A 30-day public comment period will be established, and a public hearing will be held during the public comment period. The executive secretary will also submit the draft determination to EPA for review and comment concurrently.

(8) The executive secretary will consider any comments received during the comment period, and will submit a copy of all comments to the WRAP and to all participating states and tribes along with a response that addresses the comments.

(9) The WRAP will compile the comments and responses from all participating states and tribes and prepare a draft final regional emissions report. The report will be submitted to the states and tribes that are participating in the program and, if necessary, the report will propose a common program trigger date.

(10) The executive secretary will review and approve the final regional emissions report. The executive secretary will then submit this report to the Environmental Protection Agency along with a final determination that the milestone either has been met in the region, or that the milestone has been exceeded and the WEB Trading Program has been triggered in Utah. This determination will be submitted to the Environmental Protection Agency by the end of March, fifteen months following the milestone year. The first determination was submitted in 2005, for the 2003 milestone. If the milestone has been exceeded, the common trigger date proposed in the regional report will become the program trigger date for purposes of implementing the WEB Trading Program. In the event that the program trigger date must be established by the executive secretary in the absence of a regional emissions and milestone report prepared by the WRAP, the program trigger date will be March 31 of the applicable year.

(11) The executive secretary will publish a notice of the final determination in newspapers of general circulation throughout the state of Utah. This notice will include the milestone and the final annual regional SO_2 emissions for that year. If the milestone has been exceeded, the notice will specify the program trigger date and the first year that WEB sources must be in compliance with the WEB Trading Program provisions as outlined in R307-250-12.

d. Year 2013 Assessment

(1) Initial Assessment in 2013 Periodic SIP Review.

(a) The executive secretary will work cooperatively through the WRAP with other participating states and tribes to develop a projected emission inventory for SO_2 through the year 2018, using the 2010 regional inventory as a baseline. This projected inventory will be included in the 2010 annual emission and milestone report that will be completed in March 2012 as outlined in paragraph E.1.c of this plan.

(b) The executive secretary will evaluate the projected inventory, and based upon this information will make an assessment of the likelihood of meeting the regional milestone for the year 2018. The executive secretary will include this assessment as part of Utah's progress report that must be submitted by December 31, 2013, as required by 40 CFR 51.309(d)(10).

(2) Regional Emissions Report for 2012.

(a) The executive secretary will prepare an SO_2 emission report for the year 2012 by September 30, 2013, as described in paragraph E.1.c(1) of this plan. The executive secretary will include a list of all known or anticipated sources in Utah that are anticipated to affect total SO_2 emissions in 2018. This may include permitted sources, projects that are still in the planning stage, or projections from the affected sources of anticipated emissions in 2018. The status of these projects

will be described to provide a better understanding of the degree of certainty that individual projects will be completed by 2018.

(b) The WRAP will compile the information from all participating states and tribes, prepare draft SO_2 inventory projections for the year 2018, and estimate the effect of known future sources on SO_2 emissions. Projected 2018 emissions will be compared to the 2018 milestone. This information will be included in the draft regional emissions report for 2012 that will be submitted to the executive secretary by December 31, 2013, as outlined in paragraph E.1.c(5) of this Plan. The draft report will be published on the WRAP web site for a period of public review and comment for not less than 30 days.

(3) Consensus Decision.

The executive secretary commits to meet with the participating states and tribes in March 2014 to discuss any comments received on the 2018 emission projections in the draft report. The participating states and tribes will decide, through a consensus process, whether it is necessary to trigger the WEB trading program early in order to meet the SO_2 emission reduction goals in 2018.

(4) Early Trigger: Timing.

If the participating states and tribes unanimously decide in the March 2014 meeting that an early trigger of the backstop trading program is necessary, the executive secretary will trigger the WEB Trading Program and the timing of the program elements will be adjusted as follows to ensure that the WEB Trading Program is in place in 2018.

(a) The date of the consensus decision by the participating states and tribes to voluntarily trigger the WEB trading program will become the program trigger date.

(b) Allowances for 2018 will be distributed to WEB sources by January 1, 2015.

(c) The first control period will be the year 2018. WEB sources will need to demonstrate at the end of the first control period that they have enough allowances to cover their 2018 SO_2 emissions.

(5) Public Notification.

The executive secretary will publish notice of the decision in newspapers of general circulation in Utah. If applicable, the notice will include a statement that the WEB Trading Program is in effect and will specify the program trigger date.

e. Special Penalty Provisions for the 2018 Milestone

If the WEB Trading Program is triggered as outlined in paragraph E.1.c of this Plan, and the first control period will not occur until after the year 2018, a special penalty will be assessed if the 2018 milestone is exceeded.

Details of the penalty provisions for violation of the 2018 milestone can be found in R307-250-13. In general, the penalty involves an assessment of the minimum $5,000 per ton of SO_2 emissions in excess of the WEB source's allowance limitation. The source can resolve its excess emissions violation by agreeing to the streamlined settlement approach outlined in R307-250-13.

The amount of the minimum monetary penalty in R307-250-13 will be evaluated at each five-year SIP review, and adjusted if needed, to ensure that the penalty per ton substantially exceeds the expected cost of allowances to ensure that this remains a stringent penalty.

The 2018 special penalty provision will continue to be applied each year after 2018 until the 2018 milestone has been achieved.

2. Pre-Trigger Emissions Tracking Requirements

a. SO_2 Emission Inventory

40 CFR 51.309 sets forth emissions inventory requirements for tracking compliance with the SO_2 milestones. R307-150 has been revised to supplement Utah's inventory requirements to satisfy the needs of this program.

(1) Applicability. The sulfur dioxide milestone inventory requirements of R307-150 require all stationary sources with actual emissions of 100 tons per year or more of SO_2 in the year 2000, or in any subsequent year, to submit an annual inventory of SO_2 emissions, beginning with the 2003 emission inventory. A source that meets these criteria and then emits less than 100 tons per year in a later year must continue to submit an SO_2 inventory for tracking compliance with the regional SO_2 milestones until 2018 or until the WEB Trading Program has been fully implemented and emission tracking is occurring under R307-250-9, whichever is earlier.

(2) R307-150 contains enforceable requirements for WEB sources.

(a) Each source will submit an annual inventory of SO_2 emissions.

(b) Each source will use appropriate emission factors and estimating techniques and document the emissions monitoring or estimation methodology used.

(c) Each source will include emissions from start up, shut down, and upset conditions in the annual total inventory.

(d) Each source subject to the federal acid rain program will use methods from 40 CFR Part 75 to report emissions from all sources.

(e) Each source will include the rate and period of emissions, the specific installation that is the source of the air pollution, composition of air contaminant,

type and efficiency of the air pollution control equipment and other information necessary to quantify operation and emissions, and to evaluate pollution control.

(f) Each source will retain records for a minimum of 10 years from the date of their creation, or if the record was the basis for an adjustment to a milestone, 5 years from the date of an implementation plan revision, whichever is longer.

(3) The executive secretary will quality-assure the submitted inventory data as outlined in the Inventory Preparation Plan. The executive secretary will screen the inventories to identify changes in emission measurement techniques that would require an inventory and milestone adjustment as outlined in paragraph E.1.c(3) of this Plan.

(4) The executive secretary will retain historical emission inventory records for non-utilities from 2006 that may affect milestone calculations under paragraph E.1.c(3) and allocation decisions under paragraph E.3.a of this plan until the year 2018 to ensure that changes in emissions monitoring techniques can be tracked.

b. Development of Emission Tracking System

The executive secretary will work cooperatively with the WRAP to ensure that an emission tracking system for the regional SO_2 inventory is developed and maintained.

c. Periodic Audit of Pre-Trigger Emission Tracking Database

(1) During the pre-trigger phase when the executive secretary is tracking compliance with the regional SO_2 milestones, the executive secretary will work cooperatively with the participating states and tribes to ensure that an independent audit of the tracking database is conducted to make sure that the WRAP is accurately compiling the regional emissions report.

(a) The first audit will occur during the year 2006 and will review data collected during the first two years of the program.

(b) Subsequent audits will occur in 2011, which will cover emissions years 2005-2009, and 2016, which will cover emissions years 2010-2014.

(2) The primary focus of the audit will be the process that is used to compile the regional inventory from the data provided by each state and tribe, and the tracking of accumulated changes during the period between SIP revisions. The audit will also review the accuracy and integrity of the regional reports that are used to determine compliance with the milestones. The audit will not be a full review of Utah's process for compiling and reporting SO_2 emissions, but will include a broad review of Utah's inventory management and quality assurance systems, including the presence and exercise of systems to assure data quality and integrity.

(3) The audit will discuss the uncertainty of emissions calculations, and whether this uncertainty is likely to affect the annual determination of whether the milestone is exceeded. It will identify any recommended changes to emissions monitoring or calculation methods or data quality assurance systems. It will also review and recommend any changes to improve the administrative process of collecting the annual emissions data at the state and tribal level, compiling a regional emission inventory, and making the annual determination of whether the WEB Trading Program has been triggered.

(4) Changes to the SO_2 Milestones and Backstop Trading Program, including any changes to the milestones due to the results of these periodic audits, will be submitted to EPA as a SIP revision as part of the five-year SIP review required by 40 CFR 51.309(d)(10).

(5) The executive secretary will advertise the availability of the draft audit report by publishing a notice in newspapers of general circulation in Utah. A 30-day public comment period will be established, and a hearing will be held during the public comment period. The executive secretary will respond to comments and provide notice of the availability of the final audit report. The executive secretary will submit the final audit report to the EPA regional office.

3. WEB Trading Program Requirements

a. Initial Allocation of SO_2 Allowances

(1) Draft Allocation Report.

Within six months of the program trigger date, as outlined in paragraph E.1.c(11) of this plan, the executive secretary will submit a draft allocation report to all participating states and tribes and to the TSA. This report will contain the following information:

(a) A list of all WEB sources in Utah as defined in R307-250-2 that groups the sources into two categories:

(i) Category 1: WEB sources that commenced operation prior to January 1, 2008. These sources will receive a floor allocation and will be eligible for the reducible portion of the allocation.

(ii) Category 2: WEB sources that commenced operation on January 1, 2008 or a later date. These sources will receive a floor allocation, but will not be eligible for the reducible allocation. The floor allocation for Category 2 sources will be deducted from the new source set-aside.

WEB sources that have received a retired source exemption under R307-250-4(4) will be included in the allocation process in the same manner as WEB sources that are currently operating. However, sources that were permanently shut down

prior to the program trigger date are not considered WEB sources under R307-250-4(1) and would therefore not be included in the allocation process.

(b) The floor allocation for all WEB sources in Utah.

(i) For non-utility category 1 WEB sources, the floor allocation will be as established in the E.H. Pechan Report, "Market Trading Forum Non-Utility Sector Allocation Final Report from the Allocations Working Group" (November 2002). If any additional category 1 sources are identified, the executive secretary will calculate a floor allocation using the methodology outlined in the E.H. Pechan Report.

(ii) For utility category 1 WEB sources, the floor will be calculated by first assigning a "clean unit" emission rate to each unit. The clean unit emission rate will then be multiplied by an annual heat input (MMBtu) that represents a realistic upper bound for the unit.

(Note: The floor level approach described above is designed to address equity issues regarding the allocation process for utilities. The State of Utah is participating in ongoing discussions with the other participating states, tribes and regional stakeholders to ensure that all equity issues have been addressed. The State of Utah will work with the other participating states and tribes to ensure that the floor allocation is calculated in a consistent manner for all participants. As outlined further in this allocation methodology, the floor for both utilities and non-utilities is limited by the utility/non-utility split in Table 10. The floor allocation methodology will ensure that credits are available for early reduction allocations. In addition, the regional number of allowances allocated for each year cannot exceed the milestone for that year under any circumstances.)

Principles

- Each unit will have enough allowances to operate as a clean source and at an operating rate (capacity factor) that is a realistic upper bound for the unit.
- There will not be significant winners and losers in this process.
- The focus is on a fair approach that is applied equally to all sources rather than on state and tribal budgets.
- The allocation process will use data that reflect current conditions, including current monitoring methodologies.

Equity Issues

- Sources that are currently burning very low sulfur coal may see changes in their supply in the future. Historic actual emissions may not reflect future operations.

- Sources that are currently operating at a low utilization may not reach full capacity in the future. Assumptions about growth that are realistic on the regional level may provide a windfall to some sources, and not provide adequate allowances for other sources.

- There are some utility units in the region that are not BART-eligible and are operating at a low level of control for SO_2. The relative responsibility of BART-eligible vs. non-BART-eligible is a consideration in the process.

- Sources that are operating at a high level of control are already bearing the cost of control and this affects their ability to compete in the market.

- Sources that have no SO_2 controls are facing a large expense that could affect their ability to continue to operate.

- Emission rate disparities exist throughout the region.

(iii) For Category 2 WEB sources the floor allocation will be the lower of the permitted SO_2 annual emissions for the WEB source, or SO_2 annual emissions calculated based on a level of control equivalent to BACT and assuming 100% utilization of the WEB source.

(c) A list of certified early reductions, expressed as tons of SO_2. Early reductions will be calculated and certified as follows:

(i) Any WEB source that installs control technology and accepts new permit emissions limits that are, for a non-utility source, below its floor as established in this section, or, for a utility source, below BACT, may apply for an early reduction bonus allocation as outlined in R307-250-7(5). The bonus allocation will be available for reductions that occur between 2008 and the program trigger year. The application must show that the floor was calculated in a manner that is consistent with the monitoring requirements of R307-250-9(1)(a) and the new permit must contain monitoring requirements that are consistent with R307-250-9(1)(a). Emission units that are monitored using the less stringent monitoring requirements of R307-250-9(1)(b) are not eligible for early reduction bonus allocations. The bonus allocations accumulate from the time the new controls come on line until the program trigger date and will be allocated to the WEB source over a 10 year period. The use of early reduction bonus allocations in any control period is limited to no more

than five percent, systemwide, of the existing available allowances, as provided in paragraph E.3.a(2)(e) of this plan.

(ii) The executive secretary will review the application and will certify early reductions for each full year between 2008 and the program trigger year that meet the requirements of R307-250-7(5) and this plan.

(iii) A source's certified early reductions for all years will be added together to obtain the total certified early reductions for that source.

(d) Historical SO_2 emissions data for all Category 1 sources for the purposes of calculating the reducible allocation.

(i) For utilities, annual SO_2 emissions for the year 2006. Another time period may be used for individual emission units, if needed, to be representative of normal operating conditions.

(ii) For non-utilities, the annual SO_2 emissions for the year 2006.

(e) Changes due to settlements arising from enforcement actions or due to administrative or judicial orders. The adjustment will be determined in accordance with paragraph E.1.c.(4)(b)(3)(c) of this Implementation Plan. The difference between the WEB source's allocations prior to enforcement and after the enforcement action will be removed from the allocation pool.

(2) Compiled Allocation Report.

The TSA will compile the information provided by all participating states and tribes into a draft regional allocation report, and will submit this draft regional report to the executive secretary and all participating states and tribes for review and comment thirty days after receiving the preliminary allocation reports. The draft regional allocation report will include a proposed budget for each state and tribe and the proposed allocation for each WEB source in Utah.

The State of Utah will work closely with the other participating states and tribes to ensure that the regional allocation is distributed consistently and fairly and to address any change in status that may affect this process.

The following methodology distributes the allowances available under the milestone in the following order: tribal set-aside, new source set-aside, floor, renewable energy credit, reducible allocation. The allocation process is limited by the number of allowances available under the milestone. It is not possible under this methodology to distribute more allowances that are available under the milestone. The State of Utah expects that there will be allowances available for all of the categories listed above. However, if at any time in the process there are not enough allowances available to fully cover a particular category, then the sources eligible for that category will receive a pro-rated

allowance, and the process will stop. For example, if the renewable energy allocation is greater than the remaining available allowances under the milestone, then each of the renewable energy sources would receive a reduced renewable energy allocation, and there would be no reducible allocation.

(a) Table 8 shows the major categories that will be used to allocate allowances under the milestone. The methodology to calculate the available allocation for existing sources is described below. The milestone for the 4-state region is the starting point.

Table 8. Utility/Non-utility Split

	Milestone from Table 7	**Tribal Set-Aside**	**New Source Set-aside**	**Remaining Allocation**	**Utility Portion**	**Non-utility portion**
2008	269,083 tons	2,500 tons	6,143 tons	260,444 tons	210,480 tons	76,635 tons
2009	234,903 tons	2,500 tons	6,143 tons	226,260 tons	176,299 tons	76,635 tons
2010	200,722 tons	2,500 tons	6,143 tons	192,079 tons	142,119 tons	76,635 tons
2011	200,722 tons	2,500 tons	6,143 tons	192,079 tons	142,119 tons	76,635 tons
2012	200,722 tons	2,500 tons	6,143 tons	192,079 tons	142,119 tons	76,635 tons
2013	185,795 tons	2,500 tons	12,286 tons	171,009 tons	121,048 tons	76,635 tons
2014	170,868 tons	2,500 tons	12,286 tons	156,082 tons	106,121 tons	76,635 tons
2015	155,940 tons	2,500 tons	12,286 tons	141,154 tons	91,194 tons	76,635 tons
2016	155,940 tons	2,500 tons	12,286 tons	141,154 tons	91,194 tons	76,635 tons
2017	155,940 tons	2,500 tons	12,286 tons	141,154 tons	91,194 tons	76,635 tons
2018	141,849 tons	2,500 tons	12,286 tons	127,063 tons	80,402 tons	75,935 tons

(b) Subtract the floor allocation for all WEB sources in the region that were identified as Category 2 from the new source set-aside to determine the available allocation for new sources that begin operation after the program trigger date.

This allocation methodology treats all Category 2 sources as existing sources because these sources will be operating on the program trigger date. However, the allowances for all Category 2 sources are actually drawn from the new source set-aside. If new source growth exceeds the projections used to develop this plan, it is possible that the above calculation will result in a negative number. Therefore, to address this problem, Category 2 sources will be ranked based on the date the permit is issued for each source. Sources will then be removed from the list of Category 2 sources, starting with the most recent permit, until the new source set-aside is no longer depleted. The last source on the list will receive a partial allocation. The sources that were removed from the list will be considered new sources as described in Part E.3.c of this plan. These sources will need to purchase allowances to cover their emissions because the new source set-aside for sources that begin operation after the program trigger date would be calculated as zero until it is replenished in the next 5-year period. The allocation process for these new sources is described in Part E.3.c of this plan.

Example calculation of the new source set-aside.
The example uses the following assumptions:

- Emissions exceed the milestones based on an average of the years 2004-2006.
- The program trigger date is March 31, 2008.
- The first 5 years of the program are 2012-2016.
- New sources that commenced operation between January 1, 2008 and the program trigger date have a total floor allocation of 600 tons.

	2012	**2013**	**2014**	**2015**	**2016**
Maximum Possible Set-Aside	6,143	12,286	12,286	12,286	12,286
Floor for Category 2 Sources	-600	-600	-600	-600	-600
Remaining New Source Set-aside	5,543	11,686	11,686	11,686	11,686

(c) The remaining allocation shown in Table 8 is available for distribution to category 1 sources. The final two columns in Table 8 split this remaining allocation into a utility allocation and a non-utility allocation.

(d) Subtract the floor allocations for all category 1 utility and non-utility sources in the region from the utility allocation or the non-utility allocation.

In the unlikely event that the total floor allocation for either utility or non-utility sources submitted by the participating states and tribes exceeds the total allocation available for that category, the TSA will notify the participating states and tribes of the discrepancy. The State of Utah commits to work with the participating states and tribes through a consensus process to ensure that the floor allocation has been calculated in a consistent manner for all participants and to ensure that the floor allocation does not exceed the total allocation available for that category. The total number of allowances distributed can not exceed the milestone for any given year.

(e) Calculate the early reduction bonus allocation.

(i) Divide the number of certified early reductions for all WEB sources in the region by ten.

(ii) Add the utility allocation for 2018 to the non-utility allocation for 2018 and then multiply this total by 0.05.

(iii) If the product of paragraph (i) is no more than the product of paragraph (ii), the product of paragraph (i) is the early reduction bonus

allocation, and each source is allocated ten percent of its early reduction bonus allocation.

(iv) If the product of paragraph (i) is more than the product of paragraph (ii), the early reduction bonus allocation for the region is the product of paragraph (ii). To determine a source's allocation, divide the product of paragraph (ii) by 0.10 times the total number of early reduction bonus allocations and apply that ratio to the certified early reductions for the source.

(v) Split the regional early reduction bonus allocation based on the ratio of utility to non-utility allocations in 2018 and subtract the early reduction bonus allocation from the utility and non-utility allocation totals.

(vi) The early reduction bonus allocation will be calculated in a similar manner for the second five-year allocation period under this program, and will then be discontinued for any future allocation periods.

(f) Any remaining allowances in the utility allocation or the non-utility allocation after subtraction of the early reduction allocation is considered the reducible allocation and will be assigned to Category 1 sources.

(i) For non-utility sources, add together the historic SO_2 emissions in accordance with paragraph E.3.a(1)(d) of this plan for all Category 1 non-utility sources in the region to determine an historic emission total. Determine a percent contribution of SO_2 emissions for each WEB source to the historic emission total. Multiply the non-utility reducible allocation by the percent contribution for each WEB source to determine a reducible allocation for each WEB source.

(ii) For utility sources, the reducible allocation will be distributed to sources that emitted above their floor in the baseline period (2006) based on their percentage of total floor emissions for sources emitting above the floor times the number of reducible allowances available for the first five years of the WEB Trading Program. The number of allowances for any source receiving a reducible allocation will not exceed a recent historic emission rate times a heat input that represents a realistic upper bound for the unit.

[Note: The approach for distributing the reducible utility allocation described above is designed to address equity issues regarding the allocation process for utilities. The State of Utah is participating in ongoing discussions with the other participating states, tribes and regional stakeholders to ensure that all equity issues have been addressed. The principles and equity issues that are under discussion are listed in paragraph E.3.a.(1)(b)(ii) of this plan.]

(g) Add together the floor allocation, early reduction allocation, and reducible allocation for each WEB source to determine the proposed allocations for the first five years of the WEB Trading Program.

(h) Add together the proposed allocations for all of the WEB sources in the jurisdiction of each participating state and tribe to determine a draft SO2 allowance budget for each state and tribe.

(3) Public Comment Period.

The executive secretary will publish notice of availability of the draft regional allocation report in newspapers of general circulation throughout Utah. A 30-day public comment period will be established, and a hearing will be held during the comment period. The executive secretary will consider the comments, and will revise the draft report as needed if the recommended changes are consistent with the allocation process outlined in this plan. The executive secretary will prepare a written response that explains why each comment has either been accepted or has been determined to be inconsistent with the allocation process outlined in this plan.

(4) Proposed Changes Submitted to Tracking System Administrator.

The executive secretary will submit a copy of all comments received, the response to those comments, and any proposed changes to the budget and source allocations to the TSA within sixty days of receipt of the draft regional allocation report.

(5) Compilation of Changes.

The TSA will compile the comments, responses, and proposed changes to the report and will submit a final draft regional allocation report that is consistent with the allocation methodology outlined in this plan to the executive secretary within 90 days of the receipt of the draft regional allocation report.

Final Regional Allocation Report.

The executive secretary will review the final regional allocation report and will determine the budget for Utah and allocations for WEB sources within Utah in accordance with the allocation methodology outlined in this plan within thirty days of receipt of the final draft allocation report. The executive secretary will submit the budget and allocations for all WEB sources in Utah to EPA, and will notify the TSA that the WEB source allocations should be recorded in the allowance tracking system.

(6) Notification.

The executive secretary will notify all WEB sources within Utah of the number of allowances that have been recorded in their compliance account. The notice will include a warning to the WEB sources that reported annual sulfur dioxide emissions may change due to the implementation of new monitoring methods as required by R307-250-9. Allocations for the first five years of the program will not be adjusted to account for changes due to the new monitoring method. However, allocations during the next five-year distribution will be adjusted as needed to account for paper changes in emissions due to changes in monitoring methodology.

b. Distribution of Allowances for Future Control Periods

By December 1 of the year five years after the initial allocation, the executive secretary will follow the process outlined in paragraph E.3.a of this plan to distribute allowances for the next five-year period. This process will continue every five years until allowances have been allocated through the year 2018.

c. Distribution of the New Source Allocation

(1) The new source set-aside will be available for two categories of sources.

(a) A new WEB source is eligible to receive an annual floor allocation equal to the lower of the annual sulfur dioxide limit in the source's approval order, or sulfur dioxide annual emissions calculated based on a level of control equivalent to BACT and assuming 100% utilization of the WEB source, beginning with the first full calendar year of operation and in accordance with the provisions of R307-250-7(6).

(b) An existing WEB source that has increased production capacity after obtaining a new approval order issued under R307-401 is eligible to receive an allocation from the new source set-aside equal to:

(i) the permitted annual sulfur dioxide emission limit for a new unit; or

(ii) the permitted annual SO_2 emission increase for the WEB source due to the replacement of an existing unit with a new unit or the modification of an existing unit that increased the production capacity of the WEB source.

Permitted emission increases due to fuel switching or other process changes that are not directly related to increased production capacity are not eligible for allocations from the new source set-aside. The allocation from the new source set-aside in the first year of operation will be adjusted to account for the number of days that the source is operating in that first year.

EXAMPLE. A new unit with a nameplate capacity of 400 MW is constructed at a power plant with two existing units with nameplate capacities of 400 MW and 300 MW. The two existing units install SO_2 controls and reduce emissions to meet PSD requirements for the construction of the new unit. In this example, the source would continue to receive a floor and a reducible allocation for each of the existing units, and would also be eligible to receive an allocation from the new source set-aside for the new unit. Even though total SO_2 emissions will decrease at this plant due to the construction of the new unit, the allowances allocated to the source will increase to reflect the increase in production capacity of 400 MW of electricity. If the new unit comes on line on July 1 the allocation for the first year will be reduced by 50 percent because the unit was operational for half of the year.

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(2) Allocations from the new source set-aside will remain constant for the applicable WEB source and will be made on an annual basis by March 31 of each year for the current control period. When the next five-year allocation block is distributed as outlined in paragraph E.3.b of this plan, all sources with an allocation under the new source set-aside will receive a five-year allocation block from the new source set-aside, and will continue to receive this allocation in future five-year allocation blocks.

(3) Owners or operators of new WEB sources or modified WEB sources that meet the eligibility requirements of (1) may apply for an allocation from the new source set-aside by submitting a written request to the executive secretary as outlined in Subsection R307-250-7(6).

(4) The executive secretary will review the application for an allocation for accuracy and completeness, and will notify the source of intent to distribute allocations from the regional new source set-aside pending verification that allowances are available in the new source set-aside account. The executive secretary will then forward the request to the TSA.

(5) The TSA will document the date that the request is received by the TSA. Requests for allocation of allowances from the new source set-aside will be processed in the order received. The TSA will deduct the number of allowances requested from the regional new source set-aside that was established by the participating states and tribes, and will then record an equal number of allowances in the source's compliance account for each remaining year of the five-year period. The TSA will then send written notification to the source and to the executive secretary that the allowances have been recorded in the source's compliance account.

(6) If there are insufficient allowances remaining in the new source set-aside to fulfill the request, the source must purchase the allowances required to demonstrate compliance. Any eligible WEB source that does not receive an allocation from the new source set-aside because the set-aside was depleted will be first in line to receive an allocation when the new source set-aside is increased in the next five-year period as outlined in Table 8 of this plan. If there is more than one such source, their allocation requests will be processed in the order they were received by the TSA.

(7) A source that has received a retired source exemption and continues to receive an allocation as a retired WEB source is not eligible to receive an allocation from the new source set-aside.

d. Regional Tribal Set-aside

(1) Each year after the program is triggered for which allowances are allocated, 2,500 allowances will exist as a tribal set-aside.

(2) The tribal caucus of the WRAP has stated its intent to determine the means for distributing the allowances among the tribes within one year after the program trigger date. The executive secretary understands that there will be a process that will meet the tracking and data security requirements of the allowance tracking system by which a tribe will move its set-aside allowances into the trading program for the purposes of trading.

(3) The executive secretary recognizes that the tribal set-aside allowances are bonus allowances for the tribes and, as such, are separate and additional to any allowances included in a tribal budget or the new source set-aside as outlined in the allocation report that is prepared in accordance with paragraph E.3.a(6) of this plan.

e. Opt-in Sources

The WRAP Market Trading Forum has recommended including provisions in this plan that would allow smaller sources to opt in to the program. Opt-in sources may provide a more cost-effective way to reduce overall regional SO_2 emissions, and therefore may strengthen the market incentives of this program. While the benefits of allowing sources to opt in to the program are important, the program must also provide safeguards to ensure that the integrity of the program is not affected. For example, it would be counterproductive to allow sources that were already planning to shut down to opt in to the program and then sell allowances to an existing source. In this example, regional emissions could slowly creep upward in a manner that is not consistent with the goals of the SO_2 milestones.

The State of Utah is deferring inclusion of provisions for opt-in sources until a future SIP revision to allow time to thoroughly consider how to provide the flexibility and potential benefits to the market by expanding the program while also ensuring that the SO_2 emission reduction goals are maintained.

f. WEB Emissions and Allowance Tracking System (WEB EATS)

The participating states and tribes will provide a centralized system for the tracking of allowances and emissions. The centralized system will be referred to as the WEB Emissions and Allowance Tracking System (WEB EATS or EATS). The WEB EATS must provide that all necessary information regarding emissions, allowances, and transactions is publicly available in a secure, centralized database. The EATS must ensure that each allowance is uniquely identified, allow for frequent updates, and include enforceable procedures for recording data.

The executive secretary will work cooperatively with other states and tribes participating in the WEB Trading Program to design this system. The executive secretary will be responsible for ensuring that all the EATS provisions are completed as described in this plan.

The EATS will not exist unless the program is triggered. Prior to the implementation of the WEB Trading Program, a separate emissions tracking database will be employed to

track the ongoing emissions of sources emitting SO_2 at amounts equal to or greater than 100 tons per year. The emissions tracking database, which was used to track and measure SO_2 emissions against the milestones, will still exist once the WEB Trading Program is triggered; however, it will become incorporated into the SO_2 Emissions and Allowance Tracking System. Both the emissions tracking database and the EATS will be centralized systems and data will be posted in an electronic, Web-based program and available to all persons.

The participating states and tribes will contract with a common TSA to service and maintain the WEB EATS. It is envisioned that the EATS will require the use of a contracted consultant or database design engineer to create a secure, efficient and transparent tracking system. Because the EATS will be utilized by all states and tribes participating in the program, the design will require a uniform approach and level of security that will satisfy regional needs and concerns as well as meet the electronic, Web-based, access needs and security provisions. Due to the dynamic needs of the marketplace, the EATS will require a database that will reflect the current status of allowances and allowance transactions. The EATS will be operational within one year after the program trigger date.

Specifications of the WEB EATS such as emissions tracking, the recording of allowance transactions, account management, system integrity and transparency are outlined in the Utah TSD Supplement. The specifications will be used as a guideline for developing the EATS if the program is triggered. However, the overall design will be greatly affected by computer software and hardware changes that will occur between the adoption of this Plan and the program trigger date. The on-going experience gained from other trading programs also may lead to improvements in the design of the system. The specifications and related sections of R307-250 detail how a WEB source will register for the EATS and how the source will, through an account representative, establish accounts, transfer allowances, and track unused allowances from a previous year.

Neither the executive secretary nor the TSA will adjudicate any dispute between the parties concerning the authorization of any account representative with regard to any representation, action, inaction, or submission of the account representative.

As an example of how the WEB EATS will generally function, once the WEB Trading Program is triggered, a WEB source will have its allowance allocation determined. At the same time, the WEB source's account representative will register for the EATS under R307-250-6, and a compliance account will be established under R307-250-8. Each allowance will be assigned a serial number. The allowance serial number will be used by the WEB EATS to track allowance allocations, transfers (R307-250-10), and deductions, and to account for any unused allowances from a previous year (R307-250-11). The serial number also will be assigned to each allowance recorded in a general account, which is an account for allowances that are not held to meet program compliance requirements. Furthermore, the EATS will track tribal allowance set-asides and new source allowance set-asides not yet assigned to either a compliance or general account.

It is important to note that while this plan has provided a design for and an operational understanding of the EATS, the components of the EATS will need to be examined and possibly altered upon each required SIP revision.

g. Allowance Transfers

(1) Allowance transfers are defined as the conveyance from one account to another account (compliance account or general account) of one or more allowances by whatever means, including but not limited to purchase, trade, or gift in accordance with the procedures established in R307-250-10. This includes the transfer of allowances for the purpose of retirement. Once an allowance is retired, it is no longer available for transfer to or from any account. Allowances may be purchased by any person for the purpose of retirement.

(2) The TSA will have specific recording duties involving transfers. These required procedures will be detailed in the service contract and will include the following activities.

(a) Recording of Allowance Transfers.

(i) Within five business days of receiving an allowance transfer, except when the transfer does not meet the requirements of R307-250-10, the TSA will record an allowance transfer by moving each allowance from the transferor account to the transferee account as specified by the request, provided that the transfer is correctly submitted and that the transferor account includes each allowance identified in the transfer.

(ii) Any allowance transfer that is submitted for recording following the allowance transfer deadline and that includes any allowances allocated for a control period prior to or the same as the control period to which the allowance transfer deadline applies will not be recorded until after completion of the compliance account reconciliation.

(iii) Where an allowance transfer submitted for allowance transfer recording fails to meet the requirements of R307-250-10, the TSA will not record the transfer.

(3) Notification of the Recording of Allowance Transfers. The TSA has specific responsibilities involving the notification of the recording of any transferred allowances, including the failure to record any transfer of allowances. Again, these required procedures will be outlined in the service contract, but include the following.

(a) Within five business days of the recording of an allowance transfer, the TSA will notify the transferor's and transferee's account representatives of both accounts, and make the transfer information publicly available on the Internet.

(b) Within five business days of receipt of an allowance transfer that fails to meet the requirements of R307-250-10, the TSA will notify the account representatives of both accounts of the decision not to record the transfer, and the reasons for not recording the transfer.

h. Use of Allowances from a Previous Year

(1) Background.

Unused allowances may be kept for use in future years in accordance with R307-250-11 and there are restrictions on the use of the allowances in accordance with R307-250-11. R307-250-11 prohibits the use after the year 2017 of allowances allocated for the years 2003 – 2017. This provision ensures that actual emissions will be less than the 2018 milestone because only allowances allocated for the year 2018 could be used to show compliance in that year. The provision also maintains flexibility by resetting the baseline to the year 2018 and then allowing sources to once again use extra allowances to show compliance in any future year. This flexibility is important for sources that have variable operations because the source may build up a reserve of unused allowances for use in a high production year.

The Annex explains the benefits of allowing the WEB source to use unused allowances from previous years, including increased flexibility and early reduction stimulus. The risk in allowing the use of allowances carried from a previous year could be an increase in emissions in later years as the unused allowances are withdrawn for compliance.

Because the regional haze SIP is based on reasonable progress requirements related to the remedying or prevention of any future visibility impairment, it is important to assure the use of these allowances will not interfere with attainment or maintenance of any reasonable progress goals. The safeguard employed here to mitigate this type of risk is termed, “flow control”, and is described in paragraph (2) below.

(2) Flow Control Provisions.

(a) At the end of each control period, WEB sources may transfer allowances in and out of their compliance account for a period of 60 days to ensure that the account will contain enough allowances to cover sulfur dioxide emissions during the previous year. At the end of the sixty-day transfer period, allowances will be deducted from the compliance account of each WEB sources in an amount equal to the sulfur dioxide emissions of that source during the control period.

(b) After the deductions have been completed, the Tracking System Administrator will perform the following calculations and prepare a report according to paragraph E. 3.k(1)(b) of this Plan.

(i) Determine the total number of allowances remaining in the allowance tracking system that were allocated for the just completed control period and all previous control periods.

(ii) If the number calculated in (i) exceeds 10 percent of the milestone for the next control period, then the flow control procedures in R307-250-11 will be triggered for that next control period. These flow control provisions will discourage the excessive use of allowances that were allocated for an earlier control period without establishing an absolute limit on their use. WEB sources will maintain the option to use allowances allocated for an earlier control period, but will be required to use two allowances for each ton of SO_2 emissions. Flow Control operates as follows.

(A) The flow control ratio will be calculated by multiplying 0.1 times the milestone for the next control period, divided by the total number of unused allowances remaining in the system.

(B) To calculate the number of prior-year allowances that can be used without restriction by a source for the next control period, the TSA will multiply the prior-year allowances by the flow control ratio. The resulting number of allowances may be used on a one-to-one ratio to show compliance with the source's allowance limitation as outlined in paragraph E.3.j of this Plan.

(C) The remaining prior-year allowances may be used on a two-to-one ratio to show compliance. Thus, WEB sources will maintain the option to use allowances allocated for an earlier control period, but will be required to use two of those allowances for each ton of SO_2 emissions.

Example: On March 1, 2010 (the compliance transfer deadline for the 2009 control period) the Tracking System Administrator deducts allowances from the compliance account for each WEB source to cover 2009 SO_2 emissions from that source. After completing these deductions, the TSA reports the following information:

Total number of allowances still in the system for the years 2003 – 2009		=	30,000
2010 milestone	=	200,722	
Percent of milestone		=	14.94 %

Because the number of allowances not used in previous control periods is greater than 10% of the milestone, flow control procedures are triggered. In the annual report required in paragraph E.3.k of this Plan, the TSA will then calculate the flow control ratio for 2010:

0.1 x 2010 Milestone ÷ prior year allowances = flow control ratio
0.1 x 200,722 ÷ 30,000 = 0.70

On March 1, 2011 (the compliance transfer deadline for the 2010 control period) the TSA will apply the 2010 flow control ratio before deducting allowances from each WEB source's compliance account

WEB Source A		
2010 Allowances	=	1,000
Remaining Prior Year Allowances	=	600
2010 Emissions	=	1,580

In this example, the TSA would multiply the prior year allowances by 0.70 to determine the number of prior year allowances that could be used without restriction, at a one-to-one ratio. This would equal 420. The remaining prior year allowances would then be used at a 2:1 ratio. 360 allowances would be needed to cover the remaining 180 tons of SO_2 emissions. The TSA would therefore deduct a total of 1,780 allowances (1,000 + 420 +360) to cover 1,580 tons of SO_2 emissions.

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i. Monitoring/Recordkeeping

(1) For WEB sources subject to 40 CFR Part 75, the TSA will use data that has been quality assured and finalized by the EPA. For WEB sources subject to the monitoring protocol in Appendix B of this Plan, the executive secretary will quality assure and finalize the data in accordance with these provisions for submission to the TSA.

(2) The executive secretary will verify and submit the data to the emissions tracking database as soon as reasonably feasible after annual emissions are reported by the WEB sources. These timelines will be modified, as necessary, according to the monitoring protocols.

(3) Special Reserve Compliance Accounts. The WEB Trading Program requires most WEB sources to install continuous emission monitoring systems (CEMS) that meet the monitoring, recordkeeping and reporting requirements of 40 CFR Part 75. However, there are some emission units that are not physically able to install CEMS and there are also emission units that do not emit enough sulfur dioxide to justify the expense of installing these systems (see R307-250-9(1)(b)). The WEB Trading Program allows these emission units to continue to use their pre-trigger monitoring methodology, but does not allow the WEB source to transfer any allowances that were allocated to that unit for use by another WEB source. The restriction on transferring these allowances is needed to ensure that an emission reduction of sulfur dioxide and the corresponding increase in sulfur dioxide are equal. The allowances associated with emission units that continue to use their pre-trigger monitoring methodology are placed in a special reserve compliance account, while allowances for other emission units are placed in a regular compliance account. Allowances may not be traded out of a special reserve compliance account, even for use by emission units with CEMS at the same WEB source. However,

the WEB source may transfer allowances into the account as needed to demonstrate compliance with the WEB source's allowance limitation.

R307-250-9(b) allows WEB sources with any of the following emission units to apply to establish a special reserve compliance account:

> (a) any smelting operation where all of the emissions from the operation are not ducted to a stack; or
>
> (b) any flare, except to the extent such flares are used as a fuel gas combustion device at a petroleum refinery; or
>
> (c) any other type of unit without add-on sulfur dioxide control equipment, if the unit belongs to one of the following source categories: cement kilns, pulp and paper recovery furnaces, lime kilns, or glass manufacturing.

The emission units described in (a) and (b) cannot physically be monitored using a CEM. The emission units described in (c) do not typically have add-on controls for sulfur dioxide. These units, described in R307-250-9(1)(b), are expected to operate within their floor-level allocation and therefore will not be affected by the market, unless they make a process change and wish to sell allowances on the market. Other sources that are meeting the more rigorous monitoring requirements opf R307-250-9(1)(a) and emit sulfur dioxide above their expected allocation will either need to purchase allowances or install sulfur dioxide controls. Therefore, it is important that all emission units that participate in emission trading have an accurate monitoring methodology that is comparable to other sources in the program to ensure that a ton of reductions is the same regardless of where the reductions originate.

The executive secretary will review the application to monitor under R307-250-9(1)(b). If the emission units meet the criteria in R307-250-9(1)(b), the executive secretary will determine the portion of the WEB source's allocation that is associated with the emission units that will be monitored under R307-250-9(1)(b) and will require the TSA to record that portion of the WEB source's allocation in the special reserve compliance account. The executive secretary will use the methodology for determining allocations described in paragraph E.3.a of this Plan to determine the portion of the allocation that is associated with the Subsection R307-250-9(1)(b) emission units. The executive secretary will notify the WEB source that the application has either been accepted or rejected, including a notification of the allowances that are to be recorded in the WEB source's regular compliance account and the special reserve compliance account.

If an emission unit that is monitored under R307-250-9(1)(b) is permanently retired, the TSA will transfer the portion of allowances that were associated with that emission unit from the WEB source's special reserve compliance account to the source's compliance account. These allowances will then be available for use or sale by the WEB source. The allowances will be transferred after the compliance deduction has taken place for the last control period that the unit was in operation.

j. Compliance, Excess Emissions, and Penalties

When a WEB source exceeds its allowance limitation in R307-250-12, the executive secretary will require the TSA to deduct allowances from the following year's allocation in an amount equal to three times the WEB source's emissions of SO_2 in excess of its allowance limitation. This deduction will be made from the WEB source's compliance account after deductions for compliance are made under R307-250-12. If sufficient allowances do not exist in the compliance account for the next control period to cover this amount, the executive secretary will require the TSA to deduct the required number of allowances, regardless of the control period for which they were allocated, whenever the allowances are recorded in the account.

Sources may also be liable for each day of violation of any other provision of the market trading program.

k. Periodic Evaluation of the Trading Program

(1) Annual Report.

(a) Beginning one year after compliance with the trading program is required, the executive secretary will obtain from the TSA an annual report that contains the following information:

(i) the level of compliance program-wide;

(ii) a summary of the use and transfer of allowances, both geographically and temporally;

(iii) a source-by-source accounting of allocations compared to emissions;

(iv) a report on the use of unused allowances from a previous year, in order to determine whether these emissions have or have not contributed to emissions in excess of the cap; and

(v) the total number of WEB sources participating in the trading program and any changes to eligible sources, such as retired sources, or sources that emit more than 100 tons of SO_2 after the program trigger date.

(b) Within 2 months after the allowance transfer deadline for each control period when compliance with the trading program is required, the TSA will prepare a draft report that lists:

(i) the total number of allowances deducted for the control period,

(ii) the total number of allowances remaining in the Allowance Tracking System allocated for that control period and any earlier control period,

(iii) a proposed determination that flow control procedures have either been triggered or have not been triggered for the next control period, and

(iv) if flow control procedures have been triggered, a draft flow control ratio calculated according to paragraph E.3.h(2) of this Plan.

(c) The executive secretary will evaluate the draft report, and will propose a determination that flow control procedures either have been triggered or have not been triggered for the next control period.

(d) The executive secretary will publish a notice of availability of the draft report in newspapers of general circulation in Utah, and will hold a 30-day public comment period.

(e) After the comment period the executive secretary will make a final determination that the flow control procedures either have been triggered or have not been triggered for the next control period. If the flow control procedures have been triggered, the executive secretary will notify all WEB sources in Utah that flow control procedures will be in effect during the next control period.

(2) Five-year Evaluation.

(a) The executive secretary will work cooperatively with other participating states and tribes to conduct an audit of the WEB Trading Program no later than three years following the first full year of the trading program, and at least every five years thereafter. This evaluation does not replace the Plan assessments in 2008, 2013, and 2018. The evaluation will be conducted by an independent third party and include an analysis of:

(i) whether the total actual emissions could exceed the values in Table 7 of this Implementation Plan of the WEB Trading Program even though sources comply with their allowances;

(ii) whether the program achieved the overall emission milestone it was intended to reach;

(iii) the effectiveness of the compliance, enforcement and penalty provisions;

(iv) a discussion of whether states and tribes have enough resources to implement the WEB Trading Program;

(v) whether the trading program resulted in any unexpected beneficial effects, or any unintended detrimental effects;

(vi) whether the actions taken to reduce sulfur dioxide have led to any unintended increases in other pollutants;

(vii) whether there are any changes needed in emissions monitoring and reporting protocols, or in the administrative procedures for program administration and tracking;

(viii) the effectiveness of the provisions for interstate trading, and whether there are any procedural changes needed to make the interstate nature of the program more effective; and

(ix) the integrity of the emissions and allowance tracking system, including whether the procedures for recording transactions are adequate, whether the procedures are being followed and in a timely manner, whether the information on sources' emissions are accurately recorded, whether the emissions and allowance tracking system has procedures in place to ensure that the transactions are valid, and whether back-up systems are in place to account for problems with loss of data.

(b) The public will have an opportunity to participate in this trading program evaluation.

(c) In the event that any audit results in recommendations for program revisions, the State of Utah, in consultation with the WRAP, will make appropriate modifications to this Plan. The State of Utah will revise this Plan if the program is not meeting its emission reduction goals.

(d) The executive secretary will submit a copy of the report to the EPA regional office.

l. Retired Source Exemption

R307-250-4(4) outlines the procedure that a WEB source must follow to receive a retired source exemption. The exemption would allow the source to continue to receive an allocation, but would exempt the source from monitoring and recordkeeping requirements that would serve no useful function for a source that has ceased operations. The executive secretary will notify the source of its obligation to apply for a retired source exemption upon the cancellation or relinquishment of a permit.

To receive a retired source exemption, the source must submit a request for the exemption to the executive secretary. The executive secretary will review this request, and within 60 days of receipt of the request will notify the source that the retired source exemption has been granted or has been rejected. If the exemption has been rejected, the notification will contain an explanation of the reasons for rejecting the request.

The TSA will continue to record an allocation to a WEB source that has received a retired source exemption. However, the allowances will be recorded in a general account rather than a compliance account for the source. The TSA will transfer any existing allowances in the retired source's compliance account or special reserve compliance account into the general account for the retired source, and will close the compliance accounts.

A WEB source that is permanently retired and that does not request a retired source exemption will forfeit all abandoned allowances in that source's compliance account, as outlined in R307-250-4(4)(e). The forfeited allowances will not be redistributed to other sources, and will be permanently retired from the Allowance Tracking System, as outlined in R307-250-10(3). During the next five-year allowance distribution period the retired source will not receive an allocation, and the allowances that would have been distributed to that source will be added to the new source set-aside.

m. Integration into Permits

It is expected that all WEB sources at least initially will be subject to Utah's Title V permitting requirements. Under R307-415, Utah's delegated Title V permitting program, the pre- and post-trigger requirements of the market trading program fall under the definition of "applicable requirement," and will be incorporated into each source's Title V permit according to the schedules and procedures contained in that rule. R307-250-14 requires that any source that for any reason and at any time is not required to have a permit under R307-415 must obtain a New Source Review permit pursuant to R307-401 et seq. that incorporates the same requirements by submitting a Notice of Intent within 90 days of the program trigger. Both types of permits are enforceable both federally and by citizens pursuant to Utah's SIP.

4. 2013 SIP Revision; Backstop for Beginning of Second Planning Period

In addition to the requirements of 40 CFR 51.309(d)(10), the periodic SIP revision due in 2013 will include the following information:

a. Source specific allocations for all WEB sources in Utah for the year 2018; and

b. Either the provisions of a program designed to achieve reasonable progress for stationary sources of SO_2 beyond 2018 or a commitment to submit a SIP revision containing the provisions of such a program no later than December 31, 2016. The program will ensure that the requirements of 40 CFR 51.309 are achieved for the first planning period, including requirements that cannot be measured until after 2018, such as the determination of compliance with the 2018 milestone.

This 2013 SIP revision will provide certainty to sources regarding their potential liability under the special penalty provisions for the year 2018 outlined in paragraph E.1e of this Plan. The calculation of these allocations is delayed until 2013 to provide certainty about

the number of sources that will qualify as WEB sources at that time; the allocations needed for new sources in the region, and early reductions that will be included in the allocation process. It is difficult to estimate the impact of these factors in 2003 because circumstances may change during the next 10 years.

If the 2018 milestone is not met, the starting point for the next planning period will be the 2018 milestones, not actual emissions in 2018.

F. LONG-TERM STRATEGY FOR MOBILE SOURCES

1. Regulatory History and Requirements

In its June 1996 Report, the GCVTC recommended EPA move forward on new national vehicle emission and fuel standards to reduce emissions from mobile sources. The GCVTC also recommended other regional and local strategies be considered to manage mobile source emissions. One of the local strategies was to establish emission budgets for those pollutants in urban areas shown to significantly contribute to visibility impairment in any of the 16 GCVTC Class I areas. The budget caps were to be set at the 2005 emission levels.

When EPA finalized the regional haze rule in July 1999, the rule acknowledged the GCVTC recommendations related to national vehicle emission and fuel standards. EPA included a status of planned actions on those recommendations as of July 1999 (Preamble to the regional haze rule, 64 FR 35753). EPA noted these new measures were over and above those included in the regional haze rule for mobile sources that simply required a cap on emissions in significantly contributing urban areas at the 2005 level. EPA also indicated that emission reductions resulting from new standards adopted after the regional haze rule was approved would be creditable toward reasonable progress. EPA also committed to work with the states if new national standards impacted the efficacy of regional or local strategies.

After the regional haze rule was finalized, EPA established new standards for on-road vehicle emission and fuel standards (65 FR 6698) as well as standards for diesel vehicles and diesel fuel (66 FR 5002). As a result, current mobile source emission projections developed by WRAP for the GCVTC Transport Region indicate overall mobile source emissions will decline continuously from 2003 through the end of the SIP planning period in 2018, which is more than the level of emission reductions that EPA approved to meet reasonable progress by holding mobile source emissions constant from their 2005 level. In addition, new standards for off-road vehicles were proposed by EPA on April 15, 2003, and are expected to be finalized, which will further reduce overall mobile source emissions.

At the April 2003 WRAP Board meeting, the WRAP approved a recommendation for EPA to modify the regional haze rule eliminating the current requirements related to mobile source emission significance determination and budgets for urban areas (40 CFR 309(d)(5)), and replacing those requirements with a new requirement focused on tracking mobile source emission reductions resulting from national standards to assure reasonable progress. This action was based on the finding that emissions of all pollutants from on-road and off-road mobile sources are expected to decline significantly through 2018 except for sulfur dioxide from non-road sources. If EPA adopts new low-sulfur standards for off-road mobile sources then off-road mobile source sulfur dioxide emissions will also decline continuously through 2018. The WRAP Board deliberations did not define

criteria for mobile source significance, leaving the determination of significance under the current rule (40 CFR 51.309(d)(5)(ii)) to the states and tribes.

On July 3, 2003, EPA proposed a direct final rule (68 FR 39842) to amend the mobile sources provision of the Regional Haze Rule consistent with the recommendations of the WRAP. The rule was promulgated on December 22, 2003 (68 FR 71009). The revisions amended 40 CFR 51.309(d)(5)(i) and eliminated the requirements under 40 CFR 51.309(d)(5)(ii) and (iii) for setting mobile sources emissions budgets using the lowest projected level as a planning objective and performance indicator for each area. Instead, the new Section 51.309(d)(5)(i) requires statewide inventories to demonstrate a continuous decline in emissions of each pollutant of concern over the planning period. Should mobile source emission not decline as expected, the State of Utah will review control options for mobile sources and determine if additional controls are needed, consistent with the criteria for reasonable progress. If the State of Utah determines that additional controls are needed, Utah will prepare a revision to the implementation plan.

In addition to the revisions to Section 51.309(d)(5)(i) and the elimination of Sections 51.309(d)(5)(ii) and (iii), a backstop provision as outlined by the WRAP was added. The new Section 51.309(d)(5)(i)(B) requires the State of Utah to assess the need for any long-term strategies to address SO_2 from non-road mobile sources by no later than December 31, 2008. States may determine if a SIP revision is necessary to address SO_2 from mobile sources by considering whether the emission reductions anticipated or achieved by any Federal standards in place addressing fuel sulfur content for non-road engines are sufficient to meet reasonable progress. The direct final rule also renumbered the requirement to review other GCVTC mobile source strategies from (d)(5)(iv) to (d)(5)(ii).

2. Inventory of Current and Projected Emissions from Mobile Sources

a. Inventory of Current and Projected Emissions from Mobile Sources.

Pursuant to 40 CFR 51.309(d)(5)(i)(A), the State of Utah, in collaboration with the WRAP, assembled a comprehensive statewide inventory of mobile source emissions. This emission inventory showed the year with the lowest level of emissions will be at the end of the SIP planning period in 2018 instead of 2005 as anticipated by the GCVTC. The substantial reduction of projected mobile source emissions from 2003 to 2018 is due to the adoption of new on-road vehicle emission and fuel standards by EPA.

The values shown in Table 9 cannot be used for conformity determinations under 40 CFR 51 and 40 CFR 93, Subpart A. Subsection 40 CFR 93.102 states that conformity applies to nonattainment and maintenance areas. The visibility provisions of 40 CFR 51.301 - 309 are not health-based standards resulting in nonattainment designations.

Table 9. Mobile Source Inventory for 2003 and 2018

Utah Emissions by Source Category		Sulfur Dioxide (SOx)	Nitrogen Oxide (NOx)	Organic Carbon <2.5 Microns (OC)	Elemental Carbon <2.5 Microns (EC)	Other Fine Mtrls <2.5 Microns (Soils etc) (OFM)	Course Material (Soils, dust) >2.5 & <10 Microns (CM)	Volatile Organic Carbon Gases (VOC)
Mobile Sources-On-Road	1996	1.4	79.6	0.6	0.3	1.4	0.1	63.0
	2018 w/309	0.1	22.2	0.1	0.1	0.3	-	19.7
	% Change	-93%	-72%	-83%	-67%	-79%	-	-69%
Mobile Sources-Non-Road	1996	10.2	52.3	1.2	0.6	2.0	0.2	27.4
	2018 w/309	17.1	38.8	1.0	0.6	1.8	0.2	20.0
	% Change	68%	-26%	-17%	-25%	-10%	0%	-27%
TOTAL MOBILE EMISSIONS IN UTAH	1996	11.6	131.9	1.8	1.1	3.4	0.3	90.4
	2018 w/309	17.2	61.0	1.1	0.7	2.1	0.2	39.7
	% Change	48%	-54%	-39%	-24%	-38%	-33%	-56%

b. Program to assure continuous decline in mobile source emissions.

Pursuant to 40 CFR 51.309(d)(5)(i)(A), the State of Utah commits to monitoring the emissions from mobile sources to assure a continuous decline in emissions as defined in 40 CFR 51.309(b)(6). If Utah determines that a continuous decline in emissions is not being achieved, additional control measures will be reviewed to determine if they are needed to make reasonable progress. If Utah determines such measures are needed, Utah will submit an implementation plan revision to address the identified control measures.

c. Backstop provision to address potential increase in non-road emissions in the event Federal standards are not finalized.

Pursuant to 40 CFR 51.309(d)(5)(i)(B), the State of Utah commits to provide for a SIP revision no later than December 31, 2008, containing long-term strategies necessary to reduce emission of SO_2 from non-road mobile sources consistent with the goal of reasonable progress. The need for a SIP revision will be determined by a consideration of the emission reductions achieved or anticipated to be achieved by Federal standards should those standards addressing fuel sulfur content for non-raid engines not be in place.

3. Other GCVTC Strategies for Mobile Sources

Pursuant to 40 CFR 51.309(d)(5)(ii), the State of Utah has reviewed the other mobile source recommendations contained in the GCVTC report. The results of that review are included in Part J of this implementation plan that addresses all recommendation of the GCVTC report, including mobile source recommendations.

G. LONG-TERM STRATEGY FOR FIRE PROGRAMS

1. Regulatory History and Requirements

In its 1996 final report, the GCVTC recognized that past land management practices, including decades of fire suppression, have led to an increase of accumulated forest fuels. Thus, wildfires are becoming larger in size, unnaturally destructive, and more dangerous and costly to control. Fire is a component of most natural ecosystems in the West and must be a component of processes to meet land management, human health and visibility objectives. The GCVTC recognized that prescribed fire and wildfire levels are projected to increase significantly for decades to come, and that programs to minimize emissions and visibility impacts and educate the public should be implemented.

The Regional Haze Rule (40 CFR 51.309(d)(6)) requires documentation that all federal, state and private prescribed fire programs in the state evaluate and address the degree of visibility impairment from smoke in their planning and application; that a statewide inventory and emissions tracking system be established for volatile organic compounds, nitrogen oxides, elemental and organic carbon, and fine particle emissions from fire; that any administrative barriers to the use of alternatives to burning be identified and removed where possible; that enhanced smoke management programs considering visibility as well as health and nuisance objectives be included and that they be based on specific criteria; and that annual emission goals for fire be established in cooperation with states, tribes, federal land managers and private entities to minimize emissions increases from fire to the maximum extent feasible.

The WRAP's effort to document and understand the incidence of fire and its effect on visibility in Class I areas has been extensive and productive. WRAP modeling shows that prescribed fire will continue to affect visibility. See the WRAP TSD Chapter 6 for details.

2. Prescribed Fire Program Evaluation

Pursuant to 40 CFR 51.309(d)(6)(i), the State of Utah has evaluated all federal, state, and private prescribed fire programs in the state, based on the potential to contribute to visibility impairment in the 16 Class I areas of the Colorado Plateau, and how visibility protection from smoke is addressed in planning and operation. The State of Utah relied upon the WRAP report *Assessing Status of Incorporating Smoke Effects into Fire Planning and Operation*[35] as a guide for making this evaluation. The State of Utah has also evaluated whether these prescribed fire programs contain the following elements: actions to minimize emissions; evaluation of smoke dispersion; alternatives to fire; public notification; air quality monitoring; surveillance and enforcement; and program

[35] All WRAP documents cited in Part G are available in the Utah TSD Supplement.

evaluation. A description of the evaluation that was made in accordance with 40 CFR 51.309(d)(6)(i) follows.

a. Wildlands Fire

The Utah Smoke Management Plan (SMP), revised March 23, 2000, provides operating procedures for federal and state agencies that use prescribed fire, wildfire, and wildland fire on federal, state and private wildlands in Utah. The SMP includes the program elements listed in 40 CFR 51.309(d)(6)(i), with the exception of alternatives to fire. In a letter dated November 8, 1999, the EPA certified the Utah SMP under EPA's April 1998 *Interim Air Quality Policy on Wildland and Prescribed Fires (Policy).* EPA's Policy also includes the elements that are listed in 40 CFR 51.309(d)(6)(i).

In 2001, the Utah SMP requirements were codified through rulemaking and comprise R307-204 of the Utah Administrative Code. R307-204 applies to all persons using prescribed fire or wildland fire on land they own or manage, including federal, state, and private wildlands. The Utah TSD Supplement includes copies of the Utah SMP.

Under R307-204, Land Managers are required to submit pre-burn information including the location of any Class I areas within 15 miles of the burn, a map depicting the potential impact of the smoke from the burn on any Class I areas, a description of fuels and acres to be burned, emission reduction techniques to be applied, and monitoring of smoke effects to be conducted. In addition, Land Managers are required to submit a more detailed burn plan that includes, at a minimum, information on the fire prescription or conditions under which a prescribed fire may be ignited.

Under R307-204, prescribed fires requiring a burn plan cannot be ignited and wildland fire used for resource benefits cannot be managed before the executive secretary of the Air Quality Board (AQB) approves or conditionally approves the burn request. The burn approval requirement provides for the scheduling of burns to reduce impacts on visibility in Class I areas.

After the burn is completed, the Land Manager is required to submit post-burn information to evaluate the effectiveness of the burn and provide a record of acres treated by the burn. The procedures listed above serve as an evaluation of the degree of visibility impairment from smoke from prescribed fires that are conducted on federal, state, and private wildlands.

Information on the types of management alternatives to fire considered by Land Managers are included in programmatic or long-term management plans. These programmatic plans are developed in accordance with the National Environmental Policy Act (NEPA) and are reviewed by the Division of Air Quality (UDAQ) on an individual basis. Typically, the Land Manager does not evaluate alternatives to fire once the decision has been made to use fire and the subsequent burn plan developed.

b. Agricultural Fire

The WRAP inventory and a survey[36] conducted by Utah State University (USU) Extension indicate that agricultural burning is a very small portion of total emissions in Utah, and also of agricultural burning in the West. See Table 10 below. The USU survey results are included in the Utah TSD Supplement.

Table 10. Agricultural Burning Emissions Comparison

Agricultural Burning Emissions Comparison						
Numbers were obtained from the Emission Inventories Spreadsheets in the						
Technical Support Document provided by the WRAP for Section 309 SIPs.						
These spreadsheets are available at www.wrapair.org.						
		(tons per year)				
	PMC	$PM_{2.5}$	SO_x	NO_x	VOC	CO
Utah Agricultural Burning	12	212	10	101	216	2,327
Total Ag Burning in WRAP region	1,125	20,901	1,352	10,094	20,310	216,732
*Total Utah emissions from all sources	63,718	85,347	66,796	269,557	172,231	1,685,503
Utah Ag burning as a % of WRAP Ag Total	1.03%	1.01%	0.77%	1.00%	1.06%	1.07%
Utah Ag burning as a % of Utah Total Emissions	0.02%	0.25%	0.02%	0.04%	0.13%	0.14%
*Total Utah emissions were obtained from WRAP spreadsheets by summing Utah's county emissions and then adding total emissions due to Wild Fire, Ag Burning and Rx Fire.						

Emissions from agricultural burning are less than 0.25% of total Utah emissions and therefore do not result in significant impacts on visibility in the 16 Class I areas or on regional haze in general. Since agricultural burning emissions are minimal and half of them occur far from the Colorado Plateau, agricultural land managers are currently not subject to the Utah Enhanced Smoke Management Plan.

(1) Decline in Agricultural Burning Since 1996. The USU survey makes clear the decline in agricultural burning--a reduction of 48% statewide--between 1996 and 2002, and documents the reasons for the change. Only 31,999 acres were burned in 2002 out of a total of 8.7 million acres harvested. Of the total acres harvested, only about one million acres is cultivated; the majority of land is rangeland. The survey documents three reasons for the decline in agricultural burning: stubble or residue was sold rather than burned, the stubble or residue was mowed or chopped and worked back into the soil, and livestock were used to graze the stubble or residue. One reason for the change in practices is that the drought that began in 1999 has reduced the available forage for

[36] Utah State University Extension, in collaboration with the Utah Farm Bureau Federation. *Agricultural Burning in Utah and the Regional Haze Rule. Logan, Utah. July 2003.*

livestock that normally graze native vegetation, thus making straw more valuable as a feed crop. However, the survey concludes that more stubble and residue was being grazed by livestock or tilled into the soil or baled and sold in 2002 than in 1996.

(2) Emission Reduction Techniques. Of Utah's 29 counties, there are seven in which no burning occurred in 1996 or 2002 and two more in which there was no burning in 2002. The USU survey documents county-by-county the specific Emission Reduction Techniques commonly in use. Emission reduction techniques are common practice in seventeen of the counties.

(3) Local Government Control Measures. Finally, more than half (16,600) of the acres burned are in Box Elder County in the northwestern corner of Utah, nearly 100 miles from any Class I area. Box Elder County has an ordinance in place to regulate when, where and how much burning can take place. A copy of the ordinance is in the Utah TSD Supplement.

(4) Program Evaluation. The State of Utah has determined that the appropriate local government controls and voluntary emission reduction techniques are in place and these efforts meet the requirements of 40 CFR 51.309(d)(6)(i).

3. Emission Inventory and Tracking System

a. Wildlands Inventory

Under R307-204, Land Managers are required to submit an emissions inventory for particulate matter. A tracking system has been established to record the required inventory information. Pursuant to 40 CFR 51.309(d)(6)(ii) and R307-204, the emissions inventory and tracking system for fire sources has been revised within the State of Utah to include volatile organic compounds, nitrogen oxides, elemental and organic carbon, and fine particulate.

For consistency, the State of Utah will use the emissions tracking system developed by the WRAP as defined by the WRAP *Fire Tracking System Policy*.[37] This policy identifies a process for gathering the essential post-burn activity information necessary to consistently calculate emissions for both man-made or anthropogenic and natural sources of fire and uniformly assess fire impact on regional haze. This policy is the basis for creating a fire emissions inventory for visibility purposes within the State of Utah, using an emission calculation mechanism developed by the WRAP. In addition, fire emission inventory updates will be provided in future progress reports as part of the reasonable progress demonstration specified in 40 CFR 51.309(d)(10)(i). See the Utah SMP in the Utah TSD Supplement for copies of the tracking forms and further information on the emissions inventory and tracking system in the State of Utah.

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[37] All WRAP documents cited in Part G are available in the Utah TSD Supplement.

b. Agricultural Lands Inventory

To meet the requirements of 40 CFR 51.309(d)(6)(ii), the State of Utah will work collaboratively with the Utah Farm Bureau Federation and Utah State University Extension to develop and implement an inventory and emissions tracking system for agricultural burning. The survey conducted in 2003 by the Utah State University Extension, in collaboration with the Utah Farm Bureau Federation, will be used as a baseline for future emissions tracking activities. Since agricultural burning has been documented in Subsection 2.b above to be a very small proportion of total emissions in Utah and a very small proportion of agricultural burning in the West, the emission tracking activities will be conducted on a periodic basis to determine if any significant changes have been made since the 2003 survey. Results from the periodic emission tracking activities will be provided in future progress reports to EPA, as part of the reasonable progress demonstration specified in 40 CFR 51.309(d)(10)(i).

4. Identification and Removal of Administrative Barriers

During the annual meeting for establishing the Annual Emissions Goal, the UDAQ staff and Land Managers for fire will assess whether administrative barriers to the use of non-burning alternatives exist. If a specific administrative barrier is identified during this annual meeting, UDAQ will investigate how this barrier may be removed, if feasible, and will work collaboratively with the Land Managers to remove the barrier as required by 40 CFR 51.309(d)(6)(iii).

An evaluation of the administrative barriers to the use of the non-burning alternatives, if any, will be included in the formal progress report to EPA every five years as required by 40 CFR 51.309(d)(10)(ii).

In addition, the State of Utah will use two documents prepared by the WRAP for this effort: (1) *Nonburning Alternatives for Vegetation and Fuel Management*, and (2) *Burning Management Alternatives on Agricultural Lands in the Western United States*.

5. Enhanced Smoke Management Program

Pursuant to 40 CFR 51.309(d)(6)(iv), all smoke management programs that operate within Utah are consistent with the WRAP *Enhanced Smoke Management Programs for Visibility Policy*. This policy calls for programs to be based on the criteria of efficiency, economics, law, emission reduction opportunities, land management objectives, and reduction of visibility impacts. The Enhanced Smoke Management Plan (ESMP) is found in the Utah TSD Supplement.

The following is a list of the elements of the Utah ESMP and the revisions made to the Utah SMP and R307-204 in order to meet the requirements of 40 CFR 51.309(d)(6)(iv).

a. Actions to Minimize Fire Emissions

Utah's ESMP focuses on three general approaches that are designed to minimize emissions from prescribed fire and wildland fire use for resource benefits: use of

emission reduction techniques, establishing emission goals, and use of existing burn manager qualification programs.

b. Evaluation of Smoke Dispersion

Under the Utah ESMP, the Land Managers will focus on improved weather data for more accurate spot weather forecasts, scheduling of prescribed fires by the executive secretary of the Air Quality Board to minimize cumulative effects of smoke from fires on Class I areas, burner qualification and certification programs, use of the latest modeling programs to assist in the evaluation of dispersion conditions, and use of field level data such as maps showing where smoke is likely to settle.

c. Alternatives to Fire

Under the Utah ESMP, the types of management alternatives used and the acres treated on an annual basis will be tracked using Land Manager databases that are being developed. Land Managers evaluate and will continue to evaluate the use of alternatives to fire in programmatic or long-term management plans, and the ESMP requires Land Managers to provide a summary of the management alternatives that were used in a given year.

d. Public Notification of Burning

Under the Utah ESMP, a one-stop information center will be added to the Utah SMP website to provide a list of upcoming projects as a means to notify the public about prescribed fire or wildland fire projects.

e. Air Quality Monitoring

Under the Utah ESMP, Land Managers will monitor the effects of prescribed fire and wildland fire on visibility in Class I Areas. At a minimum, visual monitoring and documentation of the direction of the smoke plume will be performed. Under R307-204, the executive secretary of the Air Quality Board may direct Land Managers to operate real-time air quality sampling equipment on large fires that are expected to last more than one day, or fires close to Class I areas. Monitoring of smoke impacts on visibility will lead to improved future operations and a better understanding of smoke accumulation problems and solutions. In addition, the Utah ESMP will provide a detailed description of the monitoring equipment that is available and its location within the region.

f. Surveillance and Enforcement

The Utah ESMP builds upon the relationship that was established between the Land Managers and the UDAQ for the development of the Utah SMP. A good working relationship between the Land Managers and UDAQ can significantly reduce the need for surveillance and enforcement. UDAQ staff conduct site inspections on prescribed fires that are close to Class I areas to verify compliance with the burn plan on an as-needed basis. Reports are generated when site inspections are conducted.

g. Program Evaluation

The UDAQ staff and Land Managers will conduct an annual effectiveness review for the Utah ESMP. A formal progress report will be completed every five years as required by 40 CFR 51.309(d)(10)(ii).

h. Burn Authorization

Under R307-204, since March 2000, Land Managers have been required to submit pre-burn information including the location of any Class I areas within 15 miles of the burn, a burn plan if requested, a map depicting the potential impact of the smoke from the burn on any Class I areas, and a description of fuels and acres to be burned. Prescribed fire requiring a burn plan cannot be ignited before the executive secretary of the Air Quality Board approves or conditionally approves the burn request. See the Utah SMP in the Utah TSD Supplement for more details on the burn authorization requirements.

i. Regional Coordination

Coordination of fire projects is imperative to avoid cumulative smoke impacts in Class I areas. The Utah ESMP is designed to provide for information sharing among the Land Managers, UDAQ, and the public within Utah, as well as in neighboring states.

j. ESMP for Agricultural Burning

The State of Utah has determined that appropriate emission reduction techniques and control measures for agricultural burning are in place in the agricultural community and at the local government level. This satisfies the requirements of 40 CFR 51.309(d)(6)(iv).

6. Annual Emission Goals

Pursuant to 40 CFR 51.309(d)(6)(v), efforts will be made within the State of Utah to minimize emission increases in fire, excluding wildfire, to the maximum extent feasible, through the use of annual emission goals, in accordance with the WRAP *Annual Emission Goals for Fire Policy*. The State of Utah intends to use this policy to quantify the emission reduction techniques that are being used within the state on a project-specific basis to reduce the total amount of emissions increases being generated from areas where prescribed fire is being used. The Utah TSD Supplement describes this process in more detail.

H. ASSESSMENT OF EMISSIONS FROM PAVED AND UNPAVED ROAD DUST

1. Regulatory History and Requirements

The Grand Canyon Visibility Transport Commission, in its 1996 report to EPA,[38] believed that dust emissions from paved and unpaved roads are generally near-field transport issues rather than long-range transport issues, especially with respect to larger coarse materials that settle out of the atmosphere before being transported long distances. However, the GCVTC also recommended additional studies would be necessary to verify this assumption since the state of the science the GCVTC relied upon for characterizing the emissions and transport of dusts from roads was limited, and the projected growth of on-road emissions could contribute to regional haze, based on the projected growth of population and vehicle-miles-traveled.

The Regional Haze Rule (40 CFR 51.309(d)(7)) requires states to assess the impact of dust emissions from paved and unpaved roads on regional haze in the 16 Class I areas located on the Colorado Plateau in the first implementation plans due December 2003. The Western Regional Air Partnership analyzed this issue, including efforts to improve methods for estimating road dust emission inventories as applied to regional scale modeling and characterization of the transport and deposition processes. Results of WRAP modeling work have demonstrated road dust is not a significant contributor to visibility impairment in the 16 Class I areas on the basis of regional transport. Due to this finding, no additional road dust control strategies are needed in the current SIP.

2. State of Utah Long-term Strategy for Road Dust Sources

a. Assessment of Paved and Unpaved Road Dust Emissions.

Pursuant to 40 CFR 51.309(d)(7), an assessment was made by the WRAP of the impact of dust emissions from paved and unpaved roads from transport region states on the 16 Class I areas of the Colorado Plateau. A complete description of this assessment is provided in Chapter 7 of the WRAP Technical Support Document. The State of Utah, in consultation with the WRAP, will track emissions and perform further assessments of road dust impacts on visibility in the 16 GCVTC Class I areas in the progress updates and status reports, and will submit implementation plan revisions as needed to make reasonable progress in the SIP amendments due in 2008, 2013, and 2018.

[38] *Recommendations for Improving Western Vistas*, page 46.

b. Contribution to Visibility Impairment Finding.

Pursuant to 40 CFR 51.309(d)(7) and the results of the assessment of the impact of road dust emissions described above, the State of Utah, in collaboration with other states through the WRAP, determined that road dust emissions are not a significant contributor to regional haze visibility impairment within the Colorado Plateau 16 Class I areas. Based on these findings, no emission management strategies have been identified at this time. The technical and policy foundation for this determination can be found in Chapter 7 of the WRAP TSD.

I. POLLUTION PREVENTION AND RENEWABLE ENERGY PROGRAMS

The Public Advisory Committee of the Grand Canyon Visibility Transport Commission (GCVTC) recognized the importance of pollution prevention as a way to minimize per capita emissions that contribute to visibility impairment from regional haze. Thus, in 1996, the GCVTC recommended that one of the goals of states in the transport region "should be to achieve annual additions in order that renewable energy will comprise 10% of regional power needs by 2005 and 20% by 2015. Progress towards this goal should be evaluated every five years, in conjunction with regular reviews of emissions reductions and progress toward the national visibility goal."[39]

Section 51.309 of the Regional Haze Rule outlines the information that must be included in each state's first Regional Haze Implementation Plan to address visibility impairment in the 16 Class I areas covered by the Commission's Report. By meeting these requirements, Utah can address visibility in all of its Class I areas. Section 51.309(d)(8) of the Regional Haze Rule specifies the air pollution prevention requirements eligible States must meet and outlines the information each State must include in its Regional Haze Implementation Plan to address the use of renewable energy and energy efficiency measures to reduce the emissions causing regional haze. Table 11 summarizes the information requirements contained in Section 51.309(d)(8).

[39] *Recommendations for Improving Western Vistas*, page 30.

Table 11. Summary of Information Requirement for Pollution Prevention

Citation	Information Item
309(d)(8)(i)	Item 1. An initial summary of all air pollution prevention programs currently in place.
	Item 2. An inventory of all renewable energy capacity and production in use or planned as of 2002 (expressed in megawatts and megawatt-hours).
	Item 3. Total energy generation capacity and production for the state.
	Item 4. Percent of total energy generation capacity and production that is derived from renewable energy.
	Item 5. The state's anticipated contribution toward the 10/20 goals (based on the programs and policies each state relies on to achieve its renewable goals).
309(d)(8)(ii)	Item 6. Programs providing incentives to reward efforts that go beyond compliance and/or achieve early compliance with air pollution related requirements.
309(d)(8)(iii)	Item 7. Programs to preserve and expand energy conservation efforts.
309(d)(8)(iv)	Item 8. An identification of specific areas where renewable energy has the potential to supply power where it is now lacking and where renewable energy is most cost-effective.
309(d)(8)(v)	Item 9. Projections of the short- and long-term emissions reductions, visibility improvements, cost savings, and secondary benefits associated with the renewable energy goals, energy efficiency and air pollution prevention activities.
309(d)(8)(vi)	Item 10. A description of the programs relied on to achieve the state's contribution toward the 10/20 goals and a demonstration of the progress made toward achievement of the renewable energy goals in the years 2003, 2008, 2013, and 2018. This description must include documentation of the potential for renewable energy resources, the percentage of renewable energy associated with new power generation projects implemented or planned and the renewable energy generation capacity and production.

The Western Regional Air Partnership (WRAP) was established in 1997 as the successor organization to the Grand Canyon Visibility Transport Commission. The WRAP was created by western states and tribes to coordinate and oversee the implementation of recommendations made by the GCVTC and to "identify regional or common air management issues, develop and implement strategies to address these issues, and formulate and advance western regional policy positions on air quality." The WRAP develops policies, strategies and technical tools through an inclusive stakeholder-based process that includes state air agencies, the U.S. Environmental Protection Agency (EPA), tribes, federal and state land management agencies, local government, industry, utilities, environmental groups, academia and other interested parties.

The Air Pollution Prevention Forum (the Forum) was created in September, 1998 by the WRAP's Initiatives Oversight Committee (IOC) and charged to "recommend legislative actions, economic incentives and regulatory policies states can adopt to meet the 10/20 renewable energy goal and increase the use of energy efficiency technologies in the Grand Canyon Visibility Transport region." Stakeholders and regulators from the State of Utah were actively involved in the work of the Forum.

The objective of the Forum and its 25 members has been to provide the states and tribes in the WRAP region with the policy and analytical framework needed to respond to the requirements of 40 CFR 51.309(d)(8). To accomplish this purpose the Forum's work plan called for the Forum to:

- Examine barriers restricting the penetration of renewable energy, energy efficient technologies, and adoption of energy efficient practices in the Transport Region;
- Identify and evaluate economic incentives, legislative actions, and regulatory policies that will increase investments in renewable energy and energy efficiency, including actions currently underway in the Grand Canyon Visibility Transport Region; and
- Recommend market-based incentives and public policies that will support increased investment in renewable energy within the Grand Canyon Visibility Transport Region and improve the efficiency of the region's energy production and end-use sectors.

The Forum developed recommendations over a three-year period through a stakeholder-based consensus process supported, in part, by nationally recognized renewable energy and energy efficiency experts, including the National Renewable Energy Laboratory. The Forum and workgroups held more than 11 meetings and workshops to examine barriers and identify policies that would lead to increased investment in renewable energy and energy efficiency in the Grand Canyon Visibility Transport Region. The Forum also commissioned ICF Consulting Group to analyze the potential emissions reductions, energy cost savings, and secondary environmental and economic benefits of meeting the Grand Canyon Visibility Transport Commission's 10/20 goal and implementing a suite of cost-effective energy efficiency programs and policies the Forum identified as "best practices" for the region.

Following the findings of the Grand Canyon Visibility Transport Commission and the Air Pollution Prevention Forum, the Western Regional Air Partnership (WRAP) found that energy efficiency and renewable energy can be effective tools to reduce regional haze and can reduce emissions, improve visibility, reduce energy costs and provide secondary environmental and economic benefits to the region. The WRAP also concluded that implementing both renewable energy and energy efficiency program and policy measures together will yield larger emissions benefits than either energy efficiency or renewable energy measures would alone. The U.S. Environmental Protection Agency made similar presumptions in promulgating Section 309(d)(8) of the Regional Haze Rule.

The inclusion of energy efficiency and renewable energy programs in the State Implementation Plan and estimated emission reductions and impacts from them does not cause such programs and estimates to become mandatory and/or federally enforceable. These programs are voluntary state and local programs that were never intended to be federally enforceable.[40] The WRAP has explicitly expressed its expectation that these programs will be implemented consistent with local economic, regulatory, and political conditions while protecting cultural resources and values. As such, these programs may be modified, changed, expanded, redirected or eliminated and new programs may be adopted and implemented without seeking approval from the federal government. The projected emission reductions are estimates only. It is expected that these programs and their associated emissions impacts will change over time without requiring a SIP revision. Utah will, as required, report its progress toward meeting the regional 10/20 renewable energy goals in the periodic SIP reviews required under 40 CFR 51.309(d)(10).

1. Description of Existing Pollution Prevention Programs in Utah

Utah's pollution prevention programs focus on improving the efficiency of energy usage by end-use consumers and increasing supplies of electrical power generated from renewable sources for Utah customers. Detailed descriptions of them can be found in the Utah TSD Supplement.

2. Inventory of Renewable Energy Generation Capacity and Production in 2002

The State of Utah has based its inventory of existing installed renewable energy generation capacity on publicly available reports published by federal government agencies responsible for gathering energy information and/or licensing power plants. These sources maintain reliable data on larger renewable generating plant capacity and electric energy production. To supplement this information, the Utah Energy Office conducted surveys to estimate the capacity and electric energy production from medium, 25 kW to 10 MW, and small, less than 25 kW, renewable power generation systems installed within Utah that would not have been included in regularly maintained federal energy databases.

The State of Utah generates a substantial amount of power from hydroelectric sources. None of this hydroelectric capacity has been certified to meet the Low-Impact Hydropower Institute criteria that would be necessary for hydroelectric generation to be considered "renewable energy" under the definition endorsed by the Air Pollution

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[40] The GCVTC goal is 10 percent of generation from renewable resources in 2005 and 20 percent in 2015. With respect to the requirements of Section 309(d)(8), achieving the 10/20 goal is not mandatory or "enforceable." This section of the rule simply establishes an "enforceable" requirement for States "to assess progress toward a goal established by the GCVTC with respect to renewable energy". To the extent they are not able meet the goal, States are required to provide an explanation of why the goals cannot be met. See *Federal Register,* Vol. 64, No. 126, page 35754, July 1, 1999. *Regional Haze Regulations Final Rule.*

Prevention Forum of the WRAP. As a consequence no hydroelectric power or capacity has been included in the inventory of existing Utah renewable energy generation. Some existing hydroelectric plants in Utah may be certified in the future. If certified, they will be included as contributors toward meeting the regional renewable energy goals in future renewable energy inventories reported in the revisions to the Utah Regional Haze Implementation Plan.

Total renewable power generating capacity in Utah at the end of 2002, excluding all hydroelectric generation, was 42.136 Megawatts. Table12, prepared by the Utah Energy Office, summarizes renewable energy generation capacity installed within Utah by 2002.

Table 12. Utah Renewable Electric Power Industry Capacity (Megawatts)

Year	1999	2000	2001	2002
Utility Hydro	275	275	275	275
Non-Utility Hydro	10.496	10.496		10.496
Hydro Small Survey	0.037	0.046	0.055	0.059
Total Hydroelectric*	285.533	285.542	285.551	285.555
Geo Blundell (EIA)	26.1	26.1	26.1	26.1
Geo Cove Fort	13.7	13.7	13.7	13.7
Total Geothermal	39.8	39.8	39.8	39.8
Solar/PV Small Survey	0.013	0.016	0.018	0.018
Solar/PV Medium Survey	0.220	0.220	0.220	0.220
Total Solar/PV	0.233	0.236	0.238	0.238
Wind Small Survey	0.134	0.176	0.220	0.240
Wind Medium Survey	0.033	0.258	0.258	0.258
Total Wind	0.167	0.434	0.478	0.498
MSW Landfill Gas	1.6	1.6	1.6	1.6
Wood and Wood Waste	na	na	na	na
Other Waste	na	na	na	na
Total Renewable Capacity	327.333	327.612	327.667	327.691
Total w/o Hydro	41.800	42.070	42.116	42.136

*No Utah hydroelectric sites are currently certified as low-impact hydro by the Low Impact Hydropower Institute (LIHI).

Sources: "Inventory of Electric Utility Power Plants in the U.S. 1998, 1999, and 2000"; "Inventory of Nonutility Electric Power Plants in the U.S. 1998, 1999, and 2000"; FERC "Hydroelectric Projects Under Commission License" and "Hydroelectric Projects Exempted from Licensing Requirements," NREL REPiS; Utah Energy Office Small and Large Renewable Plant Surveys.

Table13, prepared by the Utah Energy Office, summarizes electric energy production from renewable generation sources in Utah over the past four years. Electric energy production from renewable sources over the last four years averaged 200,995 MWh annually. In 2002, 223,664 MWh of power were generated from renewable sources located within Utah.

Table 13. Utah Renewable Electric Power Industry Generation (Megawatt-hours)

Year	1999	2000	2001	2002
Utility and Non-Utility Hydro	1,255,142	746,125	500,203	484,357
Hydro Small Survey Generation*	107	133	159	170
Total Hydroelectric**	1,255,249	746,258	500,362	484,527
Total Geothermal	185,926	186,461	185,989	211,565
Solar/PV Small Survey Generation	23	29	32	32
Solar/PV Medium Survey Generation	385	385	385	385
Total Solar/PV	408	414	417	417
Wind Small Survey Generation	235	308	385	420
Wind Medium Survey Generation	58	452	452	452
Total Wind	293	760	837	872
MSW Landfill Gas	8,169	9,110	1,534	10,810
Wood and Wood Waste	na	na	na	na
Other Waste	na	na	na	na
Total Renewable Generation	1,450,044	943,003	689,139	708,191
Total w/o Hydro	194,796	196,745	188,778	223,664

*All medium survey hydro plants were included in EIA Utility and Non-Utility Data

**No Utah hydroelectric sites are currently certified as low-impact hydro by the Low Impact Hydropower Institute (LIHI)

Sources: EIA, Form EIA-759, "Monthly Power Plant Report"; Form EIA-867, "Annual Nonutility Power Producer Report"; Form EIA-860B, "Annual Electric Generator Report - Nonutility"; Form EIA-906 Database, "Monthly Utility Power Plant Data" and "Monthly Nonutility Power Plant Data"; and Utah Energy Office Small and Medium Renewable Plant Surveys

3. Inventory of Total Utah Capacity and Production in 2002

Total installed generation capacity within Utah in 2002 was 5,485 MW. Non-hydroelectric renewable energy generation capacity represented 0.77 percent of the total installed capacity. Table14, prepared by the Utah Energy Office, summarizes the installed generation capacity in Utah.

Table 14. Utah Capacity by Source (Electric Power Annual). (Megawatts)

Year	1999	2000	2001	2002
Coal	4,705	4,781	4,781	4,781
Petroleum	54	47	47	47
Natural Gas	320	327	327	327
Petroleum/Natural Gas or Other Gas (Combined)	50	2	2	2
Hydroelectric	286	286	286	286
Other Renewable	42	42	42	42
Total	5,456	5,485	5,485	5,485
% Renewable	5.999%	5.973%	5.974%	5.975%
% Non-Hydro Renewable	0.766%	0.767%	0.768%	0.768%

Sources: "Inventory of Electric Utility Power Plants in the U.S. 1998, 1999, and 2000"; "Inventory of Nonutility Electric Power Plants in the U.S. 1998, 1999, and 2000"; and Utah Energy Office Estimates for Hydroelectric and Other Renewables.

4. Percent of Total Energy Generation Capacity and Production Derived from Renewable Energy

Power plants located in Utah produced 36,496,500 MW-h on average over the past four years. In 2002, Utah generators produced 36,640,000 MW-h of electric energy. Renewable power contributed 0.61 percent of this total. Table15, prepared by the Utah Energy Office, summarizes electric energy production from all generation sources in Utah over the past four years.

Table 15. Utah Net Generation by Source, 1999-2002 (Thousand Megawatt-hours)

Year	1999	2000	2001	2002
Coal	34,695	34,477	33,678	34,348
Petroleum	31	57	58	31
Natural Gas	668	1,146	1,454	763
Hydroelectric	1,255	746	500	485
Other Renewable	195	197	189	224
Total	36,844	36,623	35,879	36,640
% Renewable	3.94%	2.57%	1.92%	1.93%
% Non-Hydro Renewable	0.53%	0.54%	0.53%	0.61%

Sources: Form EIA-906 Database, "Monthly Utility Power Plant Data" and "Monthly Nonutility Power Plant Data"; and Utah Energy Office Small and Medium Renewable Plant Surveys.

Updated: 04/10/03

5. Anticipated Contribution Toward Meeting the 10/20 Renewable Energy Goals

Utah has relied on the Air Pollution Prevention Forum's guidance to interpret this provision. The Air Pollution Prevention Forum determined that the proper metric for measuring progress toward the regional goals is the amount of renewable energy Utahns bring on-line through their programs and incentives to serve indigenous loads. The Air Pollution Prevention Forum chose this metric to foster economic efficiency in the development of renewable energy within the region. The choice of this metric allows states to take credit for renewable energy generated anywhere within the interconnected grid so long as that State relies on the renewable energy facility to serve its loads, one of its renewable energy programs supports the development and/or its consumers are paying for the power output. Table 16 prepared by the Utah Energy Office summarizes Utah's consumption of power from renewable sources compared to all generating sources over the past three years .

Table 16. Utah Consumption of Renewable Power; 2000-2002 (Gigawatt-hours)

	2000	2001	2002	Average
Total Non-Hydro RE Off-Grid/Small-Scale	1.174	1.255	1.290	1.239
Blue Sky	0.673	3.799	7.810	4.094
Other Green Pricing	-	-	-	-
Non-Hydro RE Pcorp	87.533	99.900	112.439	99.957
Non-Hydro RE Non-Pcorp	34.618	33.247	29.681	32.515
Non-Hydro RE Non-Utility	9.110	1.534	10.810	7.151
Total Non-Hydro RE Consumption	133.108	139.734	162.030	144.957
Total Electricty Consumption	23,198.084	23,390.443	23,384.241	23,324.256
% Non-Hydro RE	0.57%	0.60%	0.69%	0.62%

Sources: Utah Small and Medium Renewable Energy Surveys; Form EIA-906 (utility and non-utility) and EIA-826 Databases; Form EIA-759; Form EIA-867; Form EIA-860B; ScottishPower Environmental Performance Report 2001/2002.

a. States' Contributions to the Regional Renewable Energy Generation Goal

Because only five of the nine transport region states plan to file state implementation plans under 40 CFR 51.309, it is not possible to allocate shares of the renewable energy generation goals to individual states. Even if an allocation of the goal to individual states were possible, any forecast of program performance would be uncertain. The states submitting implementation plans under Section 309 do not know if the nine-state

transport region will achieve the regional goals of 10 percent of electric energy generation from renewable sources by 2003 and 20 percent by 2015.

Although only five states may submit plans under Section 309, efforts by other states in the transport region will contribute to achieving the regional goals. In addition to the efforts expected from the five states planning to address regional haze under Section 309, California and Nevada are aggressively pursuing renewable resources.

Nevada has adopted a renewable portfolio standard (RPS) requiring utilities in the state to obtain 15 percent of their electricity from renewable resources by 2004.

California, representing 48 percent of electricity sales in the nine-state transport region during 2000, recently enacted a more aggressive RPS than its earlier standard. The statutory requirements governing California's expanded RPS are contained in Senate Bill 1078 and Senate Bill 1038, which took effect on January 1, 2003, and are codified in Public Utilities Code (PUC) sections 399.11 through 399.15, and sections 381, 383.5, and 445.

SB 1078 establishes an RPS program that requires retail electricity sellers, such as investor-owned utilities, to increase the renewable content of their electricity deliveries by one percent per year over a baseline level to be determined by the California PUC. Retail sellers must meet a target of 20 percent renewable content in their electricity portfolio by December 31, 2017. SB 1038 revises the structure and funding allocation for the California Energy Commission's Renewable Energy Program, linking payments it makes to new renewable electricity generating facilities to the RPS, with the goal of increasing the amount of renewable generation in California.

The states filing plans under Section 309 will report on regional progress toward the renewable energy goals for the nine-state transport region in their 2008 submittals.

b. Utah's Anticipated Contribution Toward Meeting the 10/20 Renewable Energy Goals

Utah has relied on the Air Pollution Prevention Forum's guidance to interpret this provision. The Forum determined that the proper metric for measuring progress toward the regional goals is the amount of renewable energy that Utahns bring on line through their programs and incentives to serve indigenous loads. The Forum chose this metric to foster economic efficiency in the development of renewable energy within the region. The choice of this metric allows each state to take credit for renewable energy generated anywhere within the interconnected grid so long as that state relies on the renewable energy facility to serve its loads, one of its renewable energy programs supports the development, and/or its consumers are paying for the power output. Table 15 prepared by the Utah Energy Office summarizes Utah's consumption of power from renewable sources compared to all generating sources over the past three years.

The Forum estimated that approximately 20 GW or 20,000 MW of new renewable energy generating capacity would need to be added to the interconnected grid by 2018 for the region to meet its goals of producing 10% of its power from renewable sources by 2005 and 20% by 2015. Using information from the Energy Information Administration and the Western Electricity Coordinating Council (WECC), the Utah Energy Office estimates that Utah's peak summer electricity demand is about 2.8% of the overall WECC peak summer electricity demand. WECC includes all of the states comprising the Grand Canyon Visibility Transport Region. If Utah consumers were allocated a portion of the 20,000MW required to meet the regional 10/20 goals based on the proportion of peak summer electricity demand they now represent, Utah would need to contribute 560 MW of new renewable generation capacity toward meeting the goals. Utah estimates that it will contribute about 550 MW of new renewable generating capacity through its various programs to meet the regional goals by 2013. At this time, there is not enough information available to reasonably estimate what additional renewable generating capacity Utah will bring on line to serve indigenous loads from 2013 to 2018. The WRAP's Air Pollution Prevention Forum and Utah both expect wind power production to provide most of the new capacity. In addition to reporting on its progress toward meeting the regional renewable energy goals, Utah will update and revise its current estimate of its contribution to the goals when it makes its 2008 submittal.

6. State of Utah Programs to Encourage Early Compliance

a. Western Backstop SO_2 Trading Program Early Reduction Credits.

As further described in Part E.3.a(1)(c) of the stationary source provisions of this plan, industrial sources of SO_2 subject to the trading program which, upon verification by the State, reduce emissions to levels below their floor amount prior to the program trigger date shall receive additional emission allowances. Such allowances may be used by the source for compliance purposes or may be sold to other parties, hence providing an incentive for sources to go beyond compliance (i.e., their floor) or to achieve early compliance (i.e., reductions prior to the program trigger date).

b. Western Backstop SO_2 Trading Program Renewable Energy Credits.

As further described in Part E.3.a(1)(c) of the stationary source provisions of this plan, allowances shall be provided to the owners of renewable energy facilities installed since October 1, 2000. Such allowances will hold a market value and therefore provide an incentive for power suppliers to invest in renewable energy facilities with zero or very low air pollutant emissions.

7. Summary of Utah Programs to Expand Energy Conservation

Pursuant to 40 CFR 51.309(d)(8)(iii), Table 17 lists programs that are offered in Utah to preserve and expand existing energy conservation efforts. Detailed information about these programs is provided in the Utah TSD Supplement.

Table 17. Programs to Preserve and Expand Energy Conservation Efforts

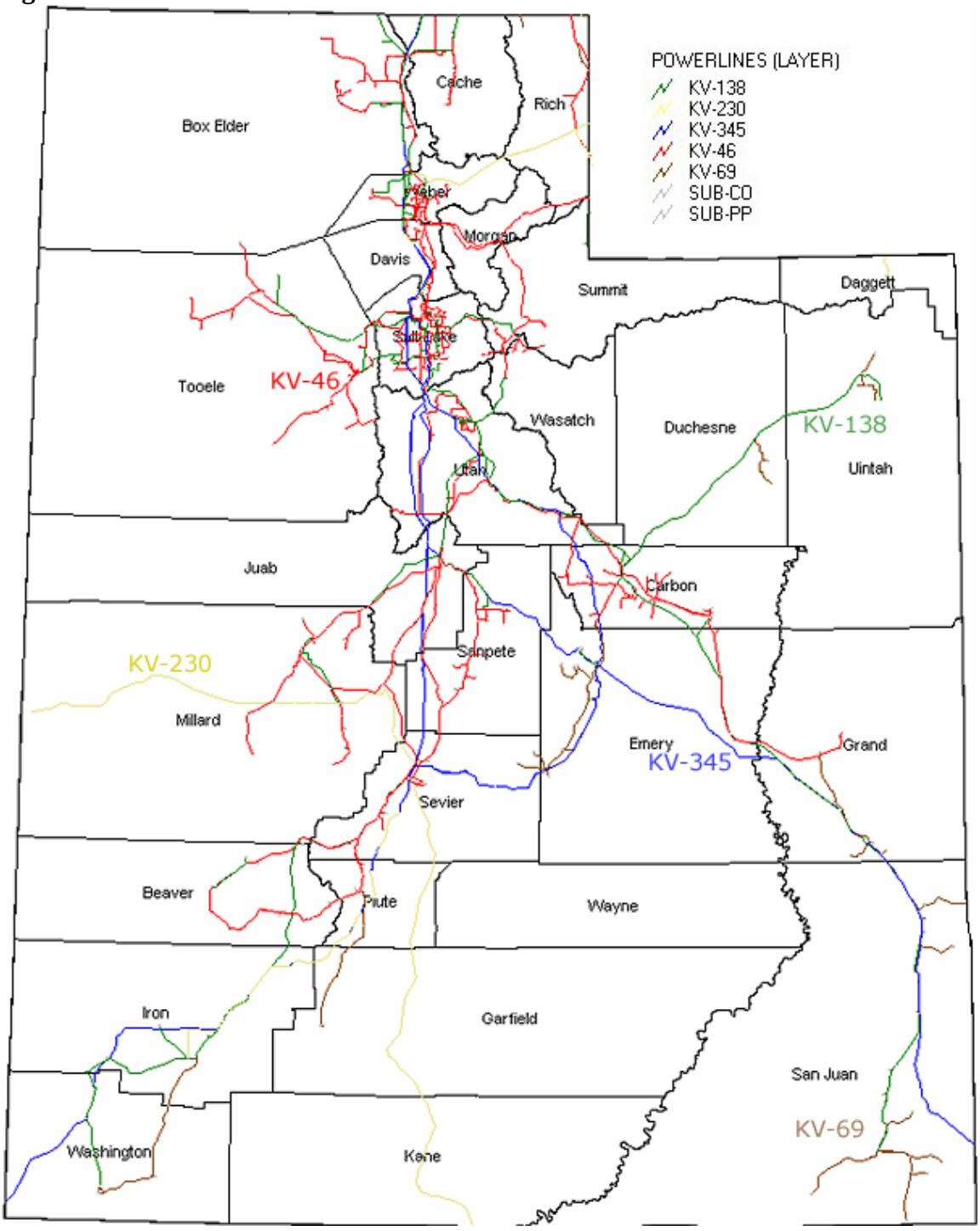
PROGRAM TYPE	INDIVIDUAL PROGRAMS
Utility Integrated Resource Planning	PacifiCorp Integrated Resource Planning – Demand Side Management
	UAMPS Integrated Resource Planning – Demand Side Management
Residential Energy Efficiency	Low-income Weatherization Program
	Residential Energy Efficiency Program
Commercial and Industrial Energy Efficiency	Commercial and Industrial Energy Efficiency Demonstration Program
	Industries of the Future Program
Schools and Public Buildings Energy Efficiency	State Buildings Energy Efficiency Program
	Schools and Public Buildings Energy Efficiency Program
	Salt Lake City Climate Action Plan Program
	Salt Lake Airport Electricity Conservation Program
Technical Assistance	Energy Education in Schools Program
	"PowerForward" Program

8. Areas Where Power Is Lacking and Renewable Sources Can Supply It

Supplying power from renewable sources where it is now lacking is linked fundamentally to whether or not line extensions are affordable compared to off-grid renewable power applications. Most populated areas of Utah and their associated electrical loads are being served from the interconnected transmission and distribution system. There are very limited opportunities to supply power from renewable sources to areas without existing service. Where off-grid power production is appropriate, it probably will be solar generation and will offset on-site diesel generation. In areas without electrical service, the cost-effectiveness of renewable energy generation can only be determined within the context of site-specific resource availability, the conversion technology and its capital costs, alternative power generation costs, fuel prices and volatility, proximity to grid-connected distribution lines, the cost of line extensions, and other relevant variables. Utilities' line extension policies may also encourage or dissuade off-grid renewable power development. In general, small loads located more than 3 miles from the transmission and distribution grid have the highest potential for being served cost effectively by on-site renewable power generation. A map of Utah's transmission system is shown below. It can be compared to the maps depicting Utah's renewable energy

resource distribution (Figures 12 - 15) to get a rudimentary sense for the areas where renewable power might be used to serve loads that do not have power today.

Figure 5. Utah's Transmission and Distribution Network.



9. Projections of Emissions Reductions, Visibility Improvements, Cost Savings and Secondary Benefits from Pollution Prevention and EERE Measures

a. Regional Approach to Analyses

The goal of serving 10 percent of "the regional power needs" from renewable generation sources by 2005 and 20 percent by 2015 is a regional one. The goal was not apportioned to the individual states comprising the Grand Canyon Visibility Transport Region. Instead, each state has been required to take steps that contribute to achieving an overarching regional outcome. This approach appropriately reflects the nature of the western electricity grid. Load growth in one area of the western electricity system is regularly met by generation additions in another, geographically separated location within the interconnected western system. This fosters economic efficiency and helps to keep electricity rates for retail customers low. While it may be feasible to forecast where load growth is most likely to occur within the western region, it is not realistic to suggest anyone can predict where and when new generation additions from renewable or any other sources might come onto the interconnected system to serve it.

Because they depend largely on how the interconnected electricity system expands and may be developed, the emissions reductions, visibility improvements, cost savings, and secondary benefits associated with meeting the regional renewable energy goals, preserving and expanding energy conservation efforts and operating pollution prevention programs cannot be rationally tied prospectively to any particular state. Further, these derived benefits are small. The pollution prevention recommendations of the GCVTC were part of an overall strategy for reducing haze causing emissions across the entire geographic region affecting the visibility at Class I areas on the Colorado plateau. All benefits whether environmental or economic were intended to be accrued to the region. Attempting to apportion them to individual states is not reasonable and could be misleading.

The WRAP analyzed the emissions reductions, cost savings, and secondary benefits the Transport Region, all nine states and the tribal lands within them, could expect from implementing the pollution prevention recommendations of the Grand Canyon Visibility Transport Commission. The analysis focused on stationary sources, including electricity generation and industrial steam production plants and refineries, smelters and other facilities that emit SO_2 from processing. The assessment assumed every state would participate to implement the pollution prevention recommendations. Five of the Transport Region states are preparing Regional Haze Implementation Plans under Section 309. Two others, California and Nevada, have adopted aggressive sets of policies including Renewable Portfolio Standards and System Benefits Charges to promote the development of new renewable power plants before 2018. Because these states are all taking steps to achieve the regional 10/20 goal and represent an overwhelming portion of the load within the Transport Region, the assumptions used by WRAP to model emission reductions, cost savings, and secondary benefits should be

representative. Utah has relied on their analysis[41] to prepare this section of the Utah Regional Haze Implementation Plan. Additional modeling using different or state-specific assumptions seems unlikely to yield any significant, substantive improvement over the projections the WRAP has developed.

b. Projections of Emissions Reductions, Visibility Improvements, Cost Savings and Secondary Benefits from Pollution Prevention and EERE Measures

(1) Modeling Method and Assumptions.

The Air Pollution Prevention Forum of the WRAP developed a three-phase analytical framework to assess the potential emissions reductions, cost savings and secondary regional economic impacts of implementing the 10/20 goals and preserving and expanding energy conservation efforts within the Transport region. These included: (1) assumptions and scenario development, (2) modeling of the electric, steam and process source sectors, and (3) modeling of the secondary regional economic impacts.

The Air Pollution Prevention Forum developed two types of scenarios to examine the emissions reductions, cost savings and secondary regional economic impacts of meeting the 10/20 goals and preserving and expanding energy conservation efforts. The first was a Business-As-Usual scenario that characterized how the future might unfold with the proposed, "backstop," regional SO_2 trading program but without any policy measures designed to achieve the 10/20 goals or enhance energy efficiency. The second set of scenarios reflected a future with the regional SO_2 trading program and policy drivers designed to meet the 10/20 goals or preserve and expand energy conservation efforts, or both. Assessments of emissions reductions, cost savings and secondary regional economic impacts were estimated by analyzing the differences between the policy scenarios compared to the Business-As-Usual scenario.

(2) Forecast Power Supply Changes.

Achieving the 10/20 goals and implementing the Air Pollution Prevention Forum energy efficiency recommendations will stimulate significant renewable energy capacity additions, 20,000 MW by 2018. Figure 6 summarizes the growth in renewable energy capacity spawned by meeting the 10/20 goals. Figure 7 contrasts the generation mix in 2018 between the Business-As-Usual and 10/20 goal policy scenario.

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[41] Prepared for the Western Regional Air Partnership Air Pollution Prevention Forum. *Economic Assessment of Implementing the 10/20 Goals and Energy Efficiency Recommendations.* Draft Report of October, 2002;

Figure 6. Forecast Renewable Energy Capacity Additions to Meet 10/20 Goals.

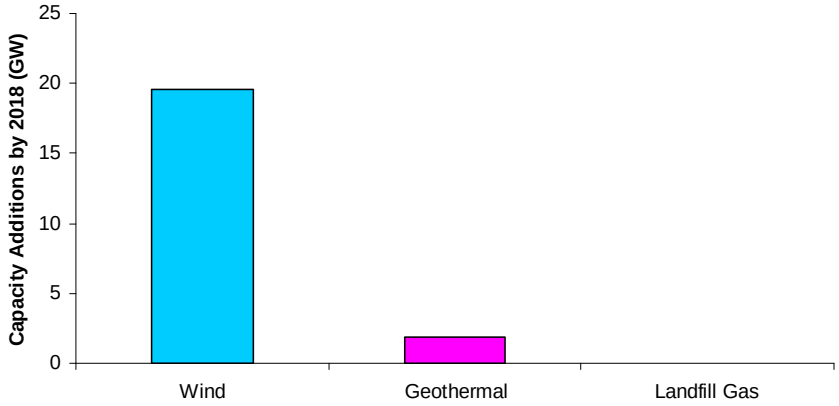
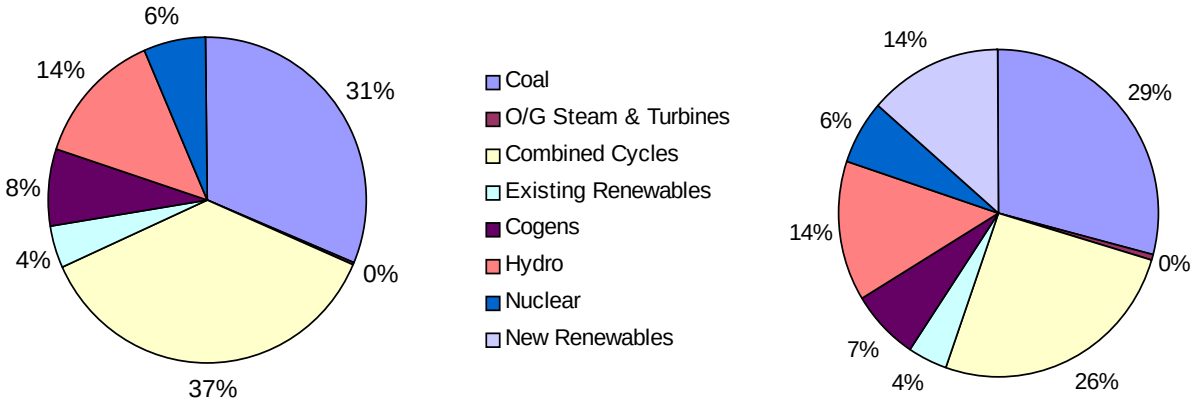


Figure 7. Generation Mix in 2018: Business-As-Usual and Meeting 10/20 Goals.



Business as Usual **Meeting 10/20 Goals**

As illustrated in Figures 6 and 7, wind power dominates the growth in new renewable energy generation capacity and the increased use of renewable energy displaces new gas-fired generation. While these results illustrate only the impact from meeting the 10/20 renewable generation goal, similar impacts occur with increased energy efficiency. The key point illustrated by the projected change in the mix of generation capacity from meeting the 10/20 goal and preserving and expanding energy conservation efforts is that new renewable power generation and energy conservation compete against new conventional capacity additions without significantly affecting existing electricity generating sources.

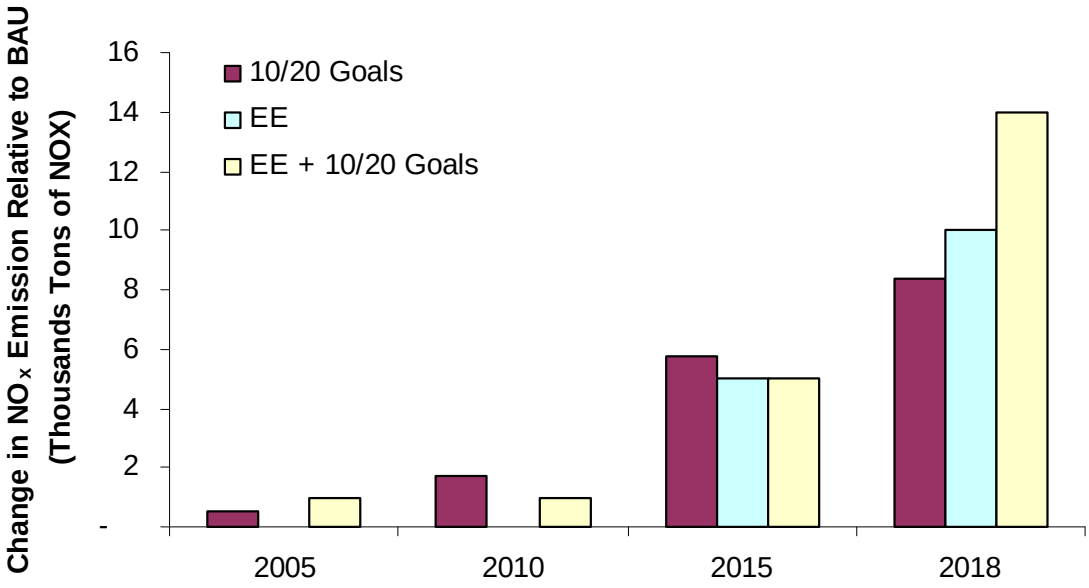
(3) Emissions Reductions.

The analyses completed by the WRAP indicate that meeting the 10/20 renewable energy goal and implementing the recommendations developed by the Air Pollution Prevention Forum as "best practices" to preserve and expand energy conservation can serve as cost-

effective air pollution prevention strategies because they provide emissions reductions at modest costs or with some savings.

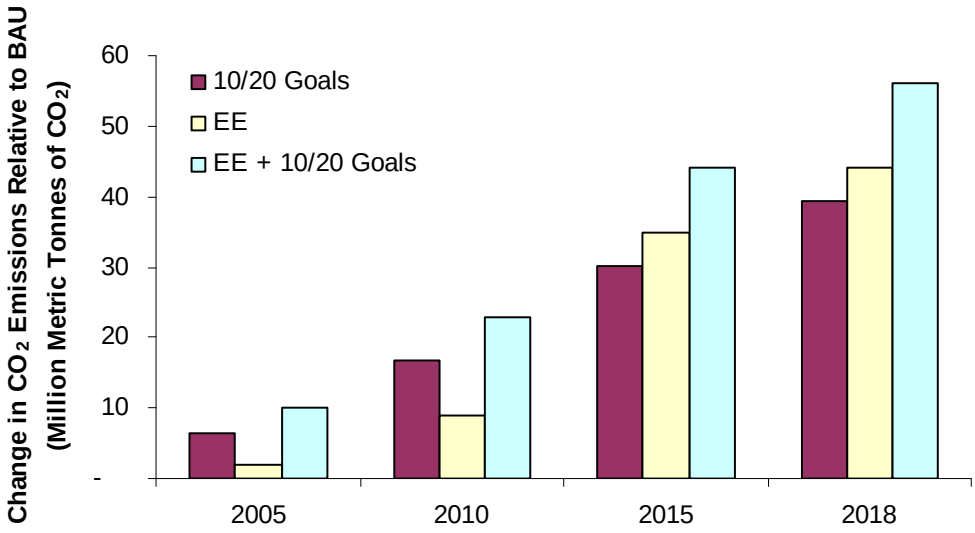
The fact that renewable energy capacity additions and energy efficiency are likely to compete against generation from new gas-fired facilities affects the projected emissions reductions from meeting the 10/20 renewable energy goal and implementing more aggressive energy efficiency programs. As illustrated in Figure 8, the WRAP estimates the potential reduction in NO_x emissions from meeting the 10/20 renewable energy goal and preserving and expanding energy conservation efforts will likely be between 8,000 tons and 14,000 tons, 1 percent to 2 percent relative to Business-As-Usual. In Figure 8, the bar labeled "10/20 goals" represents NO_x emissions reductions from a scenario in which the 10/20 goal is meet, the one marked "EE" represents NO_x emissions reductions from a scenario in which the Air Pollution Prevention Forum energy efficiency recommendations are implemented and the one labeled "EE + 10/20 goals" represents NO_x emissions reductions from the policy scenario in which both the 10/20 goal and the energy efficiency recommendations have been fully accomplished.

Figure 8. Potential NO_x Emissions Reductions from Meeting the 10/20 Goal and Implementing Energy Efficiency Recommendations.



Achieving the 10/20 renewable energy goal and pursuing energy efficiency aggressively also leads to reductions in CO_2 emissions through the displacement of new fossil fuel generation. As illustrated in Figure 9, CO_2 emissions reductions in 2018 from meeting the 10/20 goal and preserving and expanding energy conservation efforts have been projected to range between 40 million and 55 million metric tones, 10 percent to 14 percent relative to Business-As-Usual.

Figure 9. Potential CO_2 Emission Reductions From Meeting the 10/20 Goal and EE.



The WRAP modeling suggests accomplishing the 10/20 renewable energy goal and preserving and expanding energy conservation efforts do not reduce SO_2 emissions because the regional SO_2 trading program proposed under the Annex is the controlling factor in reducing SO_2 emissions. Since the trading program creates a monetary value for emissions reductions, any potential for emissions reductions is fully offset by increases in SO_2 emissions from sources affected by the trading program. In other words, SO_2 emissions in 2013 and 2018 will reflect the emissions caps specified by the Annex. However, meeting the 10/20 renewable energy goal and preserving and expanding energy conservation efforts could decrease the cost of the SO_2 trading program by as much as $7 million in 2018, about 10 percent of its projected cost,[42] and could displace 1,200 MW to 1,700 MW of new scrubber capacity by 2018.

(4) Visibility Improvements.

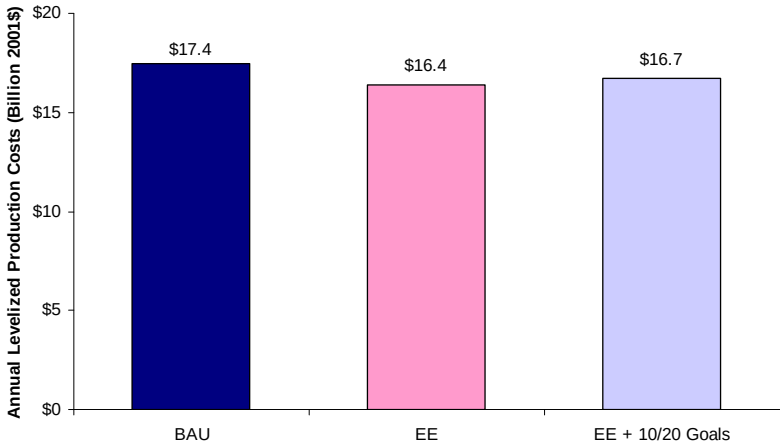
Projections of visibility improvements for the 16 Class I areas on the Colorado Plateau are provided in Table 23 found in Part K. These projections include the combined effects of all measures in this SIP, including air pollution prevention programs. Although emission reductions and visibility improvements from air pollution prevention programs are expected at some level, they were not explicitly calculated because the resolution of

[42] *Economic Assessment of Implementing the 10/20 Goals and Energy Efficiency Recommendations,* page 36.

the regional air quality modeling system is not currently sufficient to show any significant visibility changes resulting from the marginal nitrogen oxide emission reductions described above for air pollution prevention programs.

(5) Cost Savings and Secondary Regional Economic Impacts.
Achieving the 10/20 renewable energy goal and implementing the Air Pollution Prevention Forum efficiency recommendations could be done for a modest production cost increase or with some financial savings. In particular, preserving and expanding energy conservation efforts could yield net, levelized annual production costs[43] savings of $750 million to $1 billion, 4 percent to 7 percent relative to Business-As-Use. These net savings reflect the cost of implementing the energy efficiency recommendations, the avoided investment costs for transmission and distribution system upgrades, and the reductions in electricity and steam production costs resulting from lower electricity demand. Figure 10 compares the production costs estimated for Business-As-Usual and those resulting from taking recommended steps to preserve and expand energy conservation efforts across the transport region.

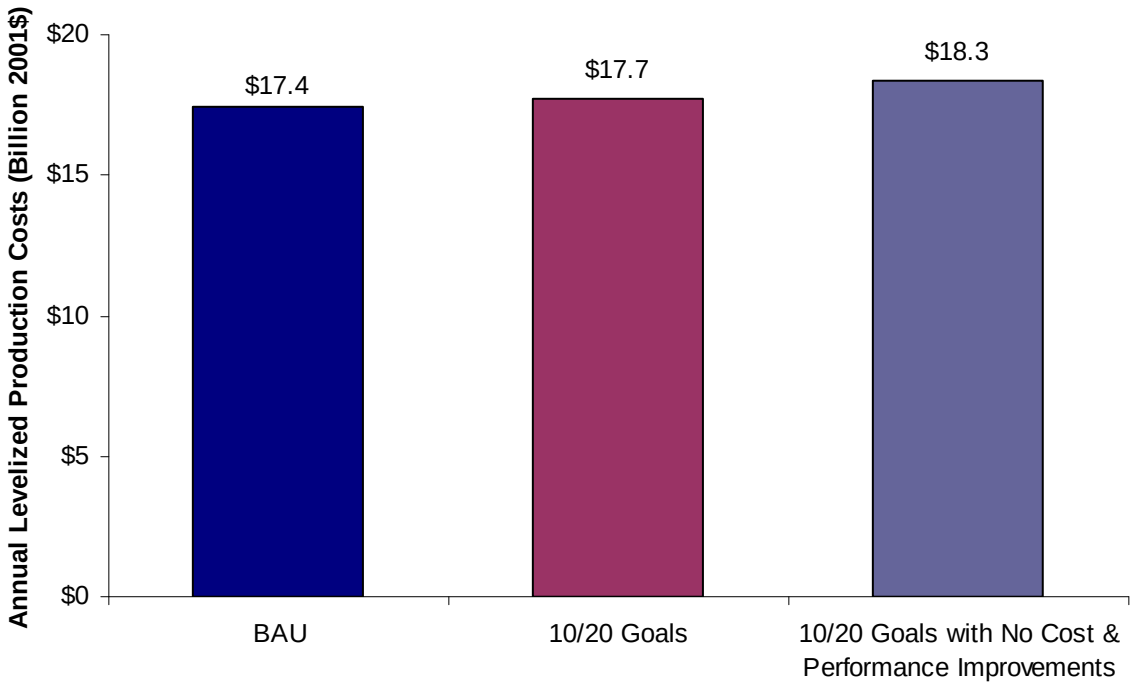
Figure 10. Annual Levelized Production Costs for Business-As-Usual and Efficiency.



Accomplishing the10/20 renewable energy goal by itself will increase annual levelized production costs modestly. Electricity production costs could rise between $300 million and $900 million, 2 percent to 5 percent compared to Business-As-Usual. This increase is largely driven by the capital investments in new renewable energy generation capacity and is offset by production cost savings from displaced fossil fuel generation. Figure 11 compares the annual levelized production costs associated with Business-As-Usual and meeting the 10/20 renewable energy goal with and without cost and performance improvements that may occur over the planning period.

[43] Annual levelized production costs reflect the capital, fuel and operation and maintenance expenditures associated with the production of electricity and industrial steam levelized over the years 2005 – 2022. These modeled production costs do not include the sunk costs (capital cost or carrying charges) of existing units.

Figure 11. Annual Levelized Production Costs for BAU and Meeting the 10/20 Goal.



Achieving the 10/20 renewable energy goal and preserving and expanding energy conservation efforts has little or no impact on the regional economy. Most of the estimated regional impacts are less than one half of one percent. Table 18 summarizes the annual average secondary region economic impacts from meeting the 10/20 renewable energy goal and pursuing energy efficiency improvements more aggressively.

Table 18. Annual Average (2005-2020) Changes for Key Economic Indicators

	Employment		Gross Regional Product		Personal Disposable Income	
	(Persons)	(% Change)	(Million 2001$)	(% Change)	(Million 2001$)	(% Change)
10/20 Goals	627	0.00%	-312	-0.01%	73	0.00%
Energy Efficiency (EE)	8,415	0.02%	450	0.02%	776	0.04%
10/20 Goals + EE	4,097	0.01%	-58	0.00%	547	0.03%

The regional economic analysis suggests that meeting the 10/20 renewable energy goal and preserving and expanding energy conservation efforts may, on average, lead to an increase in economic activity. Over time, there may be small increases in regional economic activity in the early years and a small decline in later years from air pollution prevention programs. The impacts from 2005 to 2015 are largely the result of investments made in new renewable energy generation that increase labor demand and have secondary impacts on output and income. Following the investment and construction boom, the region could see some decline in employment, gross regional product and personal disposable income.

In general, accomplishing the 10/20 renewable energy goal probably will lead to small increases in employment and personal income along with a small decline in gross

regional product. Preserving and expanding energy conservation efforts within the Transport Region results in small increases in employment, personal disposable income and gross regional product. This is sparked by new energy conservation investments.

10. Utah Programs to Meet the Regional Renewable Energy Goals

a. Summary of Utah Programs

Following the findings of the Grand Canyon Visibility Transport Commission and the Air Pollution Prevention Forum, the Western Regional Air Partnership (WRAP) found that energy efficiency and renewable energy can be effective tools to reduce regional haze and can reduce emissions, improve visibility, reduce energy costs and provide secondary environmental and economic benefits to the region. The WRAP also concluded that implementing both renewable energy and energy efficiency program and policy measures together will yield larger emissions benefits than either energy efficiency or renewable energy measures alone would yield. The U.S. Environmental Protection Agency made similar presumptions in promulgating Section 309(d)(8) of the Regional Haze Rule.

The inclusion of energy efficiency and renewable energy programs in the State Implementation Plan and estimated emission reductions and impacts from them does not cause such programs and estimates to become mandatory and/or federally enforceable. These programs are voluntary state and local programs that were never intended to be federally enforceable.[44] The WRAP has explicitly expressed its expectation that these programs will be implemented consistent with local economic, regulatory, and political conditions while protecting cultural resources and values. These programs may be modified, changed, expanded, redirected or eliminated and new programs may be adopted and implemented without seeking approval from the federal government. The projected emission reductions are estimates only. It is expected that these programs and their associated emissions impacts will change over time without requiring a SIP revision. Utah will, as required, report its progress toward meeting the regional 10/20 renewable energy goals in the periodic SIP reviews required under 40 CFR 51.309(d)(10).

Pursuant to 40 CFR 51.309(d)(8)(vi), Table 19 lists the programs that the State of Utah will employ to make its contribution toward meeting the regional renewable energy goals of supplying 10 percent of its power needs from renewable sources by 2005 and 20 percent by 2015.

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[44] The GCVTC goal is 10 percent of generation from renewable resources in 2005 and 20 percent in 2015. With respect to the requirements of Section 309(d)(8), achieving the 10/20 goal is not mandatory or "enforceable." This section of the rule simply establishes an "enforceable" requirement for states "to assess progress toward a goal established by the GCVTC with respect to renewable energy." To the extent they are not able meet the goal, states are required to provide an explanation of why the goals cannot be met. See 64 FR 35754, July 1, 1999. *Regional Haze Regulations Final Rule.*

Table 19. Utah Renewable Energy Program Descriptions

PROGRAM TYPE	INDIVIDUAL PROGRAMS
Utility Integrated Resource Planning	PacifiCorp Integrated Resource Planning – Renewable Additions
	UAMPS Integrated Resource Planning
Net Metering	Utah Net Metering Program
Green Pricing	PacifiCorp Blue Sky Marketing Program
Financial Incentives	Renewable Energy Systems Tax Credit Program
Government Endorsed Green Power Purchases	Supplemental Environmental Project Program
	Salt Lake City Climate Action Plan Program
Technical Assistance	Million Solar Roofs Partnership Program

b. Potential for Renewable Energy Resources

(1) Renewable energy potential and areas where renewable energy can supply power.

The renewable energy resource potential in Utah and its geographic distribution across the state have been characterized succinctly in the *Renewable Energy Atlas of the West*.[45] The Atlas was assembled using best available renewable energy resource maps and data. Data and map sources have been scrupulously documented. The Atlas was used as a source for preparing this section. The existing data and maps are useful to policymakers as a tool for planning. They serve their intended function within the context of the Utah Regional Haze Implementation Plan.

The potential to generate power from renewable energy sources reported in this section is based on the total estimated availability of each type of renewable energy source within Utah. The power production potential for each type of renewable resource is an estimate of what could be developed, not an estimate of what will be developed during any future period of time. The estimates are presented to document that Utah has sufficient renewable energy resource potential to meet the regional goals of generating 10% of its power from renewable resources by 2005 and 20% by 2015. In fact, Utah has the potential to generate much more than would be required to simply meet the regional goals. During the periodic SIP reviews required under 40 CFR 51.309(d)(10), an update of information required under 40 CFR 51.309(d)(8) will be incorporated into the Utah Regional Haze Implementation Plan revisions.

[45] Land and Water Fund of the Rockies, Northwest Sustainable Energy for Economic Development, and GreenInfo Network with support from the Hewlett Foundation and the Energy Foundation. *Renewable Energy Atlas of the West: A Guide to the Region's Resource Potential.* Available at www.energyatlas.org.

(a) Solar energy potential and distribution. The potential to generate power from incident solar radiation in Utah is estimated to be 69,000,000 MWh/yr. Most of this potential is located in the southern and southwestern portions of Utah. Assuming that the systems used to transform Utah's solar energy potential to power operate at a 20 percent capacity factor[46], there is potential to install approximately 39,400 MW of solar power capacity in Utah. Presently, solar power production costs significantly more than other means for generating power. As a consequence, the vast majority of Utah's solar power potential is not economical to develop for utility system electricity sales at this time. Figure 12 characterizes the distribution and relative potential of the solar energy resource in Utah.

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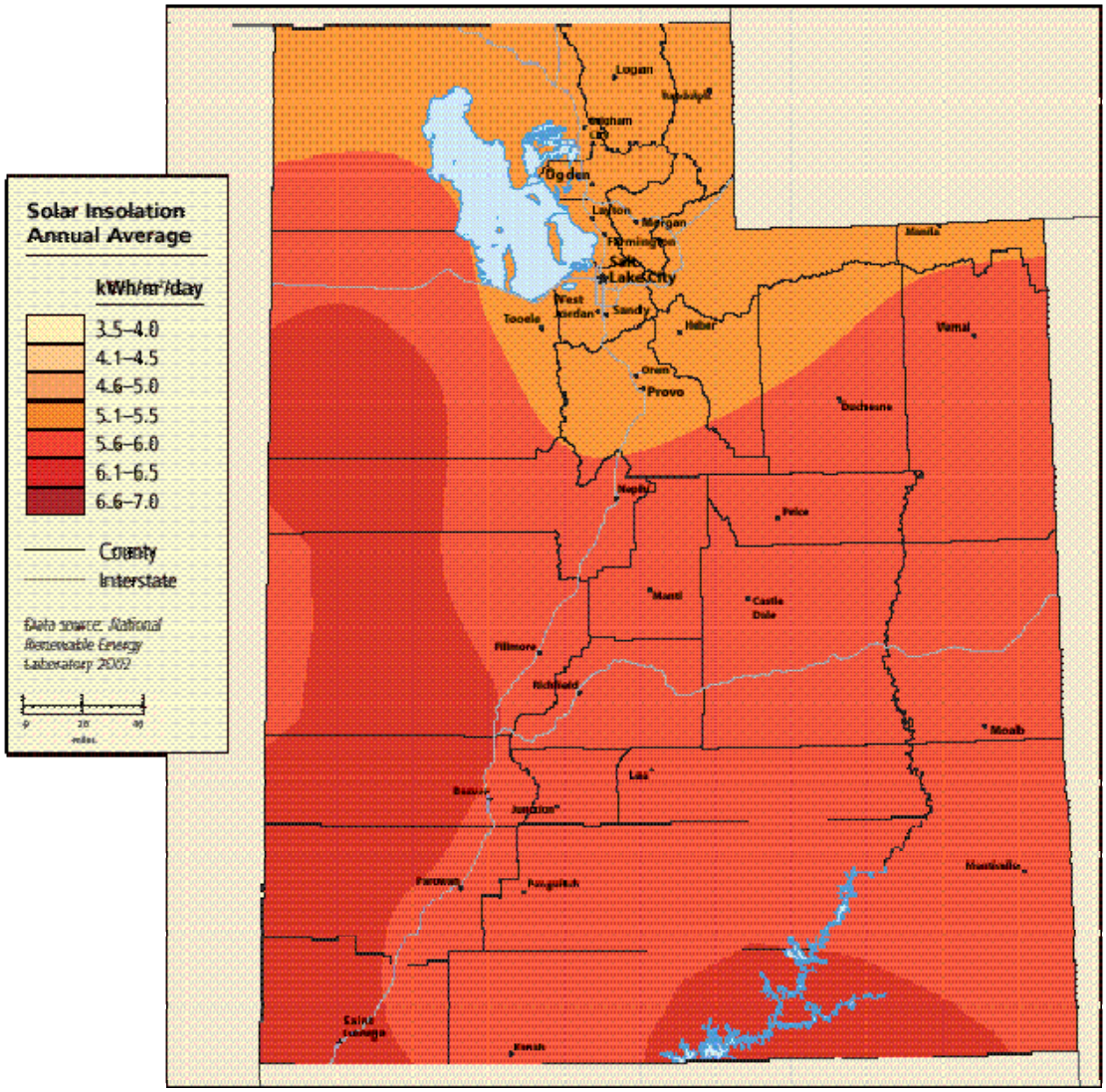
[46] "Capacity factor" is a value used to express the average percentage of full power production capacity achieved or expected over a given period of time. For example, a generating facility that operates at an average of 60% of its normal full capacity over a measured period has a capacity factor of 0.6 for that period. A capacity factor can apply to an individual generating unit or any collection of generating units. In mathematical terms this can be expressed as:

Installed renewable capacity	x	capacity factor for the renewable source	=	renewable power production

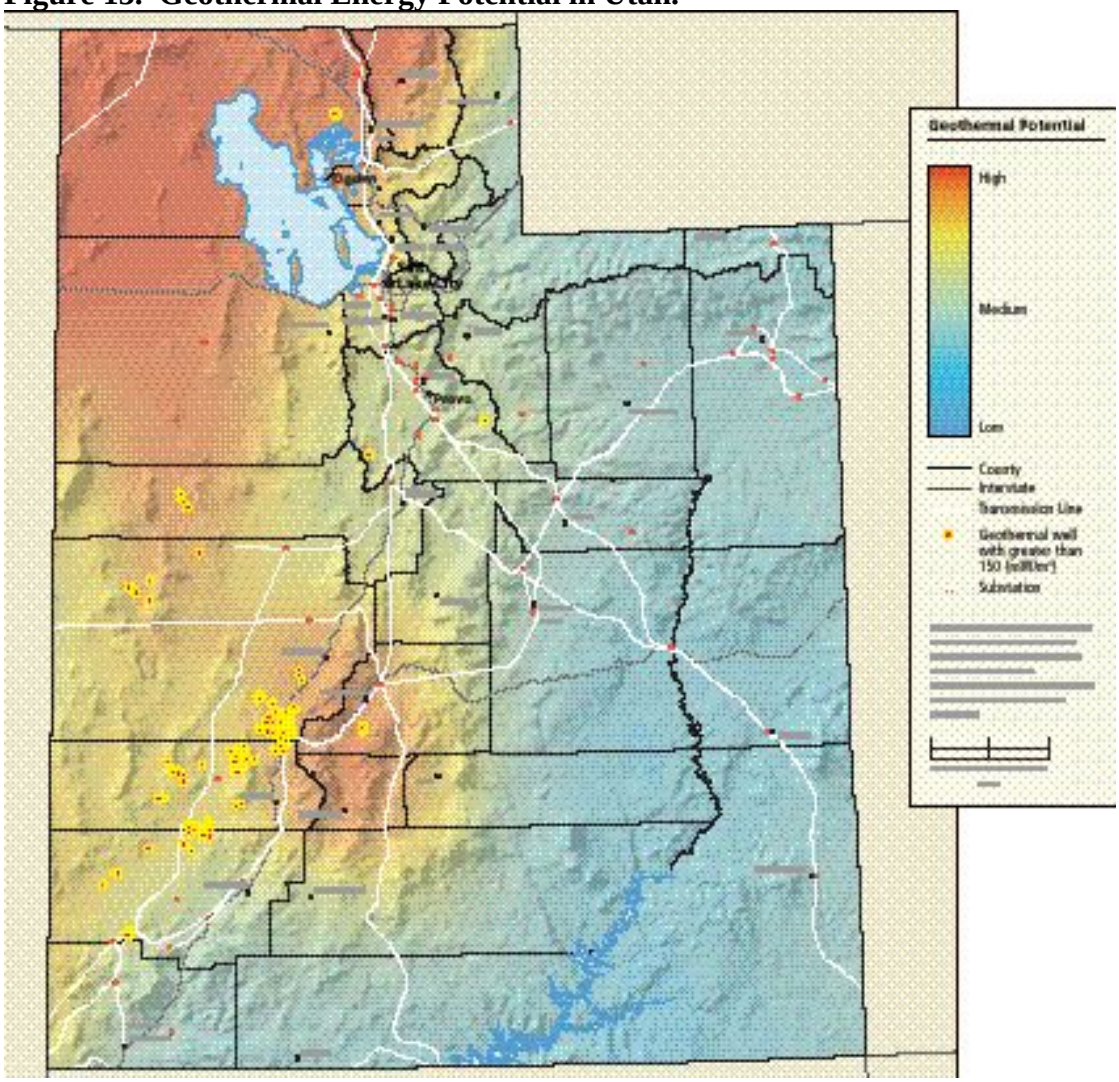
Since the availability of many renewable energy sources varies throughout the day and from day to day, renewable power generators operate at only a portion of their full power production capacity. The capacity factors used in this section to convert the potential power production in Utah from each type of renewable energy source to an estimate of the potential installed renewable energy capacity for each type of renewable resource were developed by the Utah Energy Office based on their experience and information reported in professional papers. It was done to permit readers to more easily compare Utah's existing installed capacity and power production with the installed capacity and power production that might be possible in the future from Utah's renewable energy resources.

Figure 12. Solar Energy Potential in Utah.



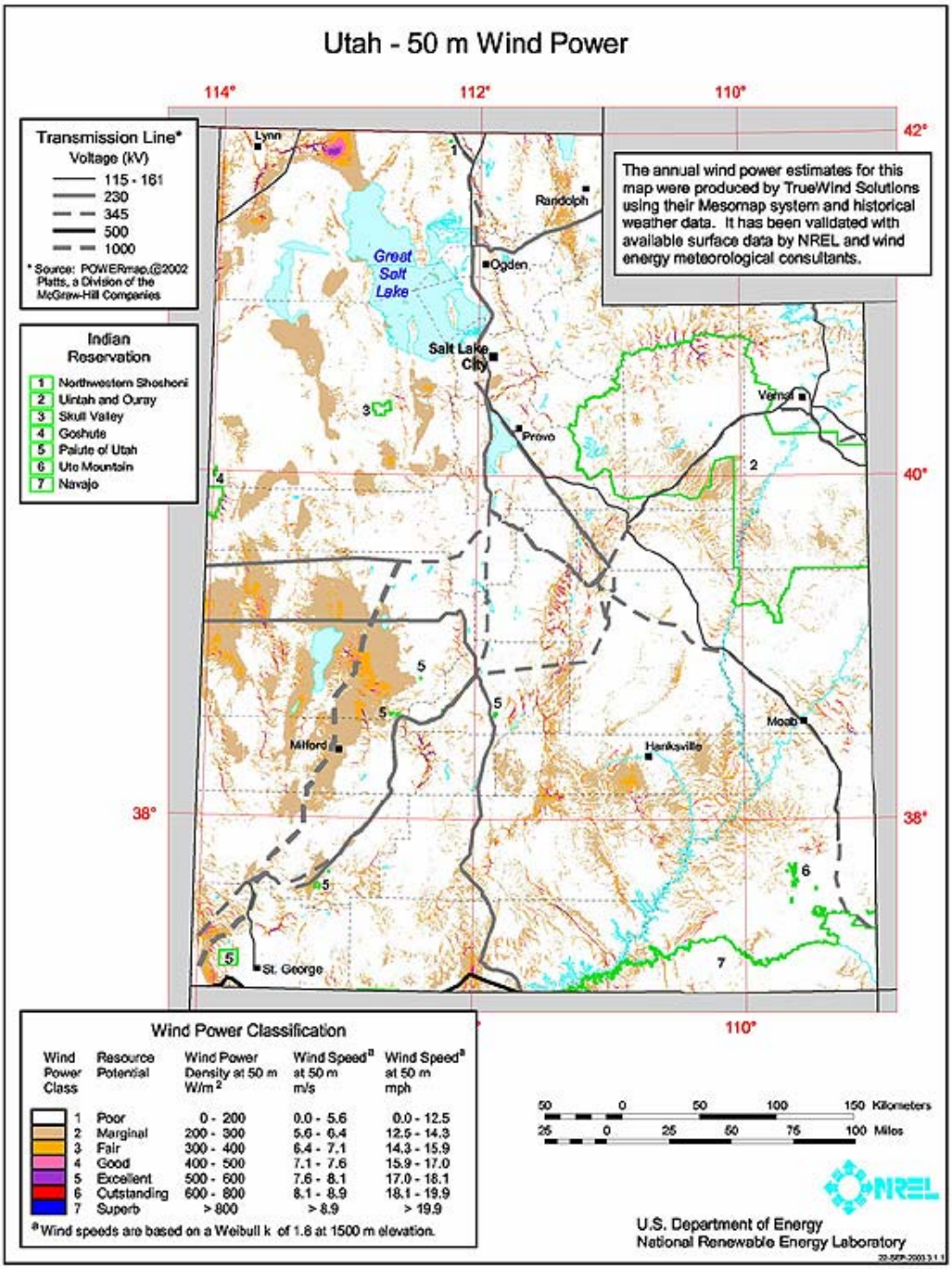
(b) Geothermal energy potential and distribution. Utah is one of the few states to have developed geothermal power plants, 39.8 MW of generation capacity. Utah has substantial, additional, undeveloped geothermal power production potential. The potential to generate power from geothermal sources in Utah is estimated to be 9,000,000 MWh/yr. Assuming that systems used to transform Utah's geothermal energy potential to power operate at a 60 percent capacity factor, there is potential to install approximately 1,700 MW of geothermal generating capacity in Utah. Figure 13 characterizes the distribution and relative potential for producing electricity from geothermal sources in Utah.

Figure 13. Geothermal Energy Potential in Utah.



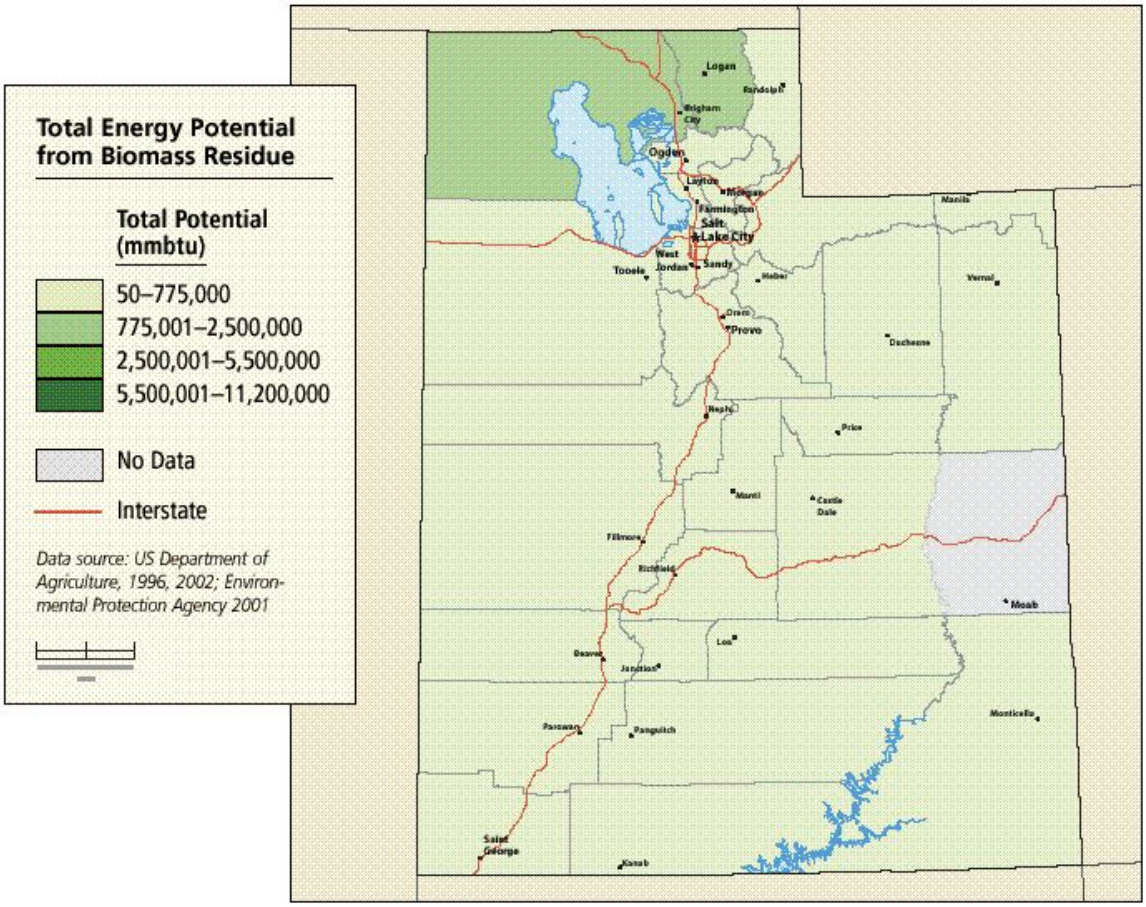
(c) Wind energy potential and distribution. Some areas of Utah have excellent wind energy resources that may be suitable for utility-scale development. The potential to generate power from wind in Utah is estimated to be 23,000,000 MWh/yr. Figure 7 roughly characterizes the distribution and relative potential of the wind energy resource in Utah. The most recent map and estimate of the developable wind resource potential in Utah has been prepared by the Utah Energy Office and the National Renewable Energy Laboratory, and is included below as Figure 14. Assuming that systems used to transform Utah's wind energy potential to power operate at a 32 percent capacity factor, there is potential to install approximately 8,200 MW of wind generating capacity in Utah. Most of the wind energy potential in Utah comes from areas with lower power production capability. Wind power developers generally want to build only in the windiest areas to assure their competitiveness in electricity markets. As a consequence, only a fraction of Utah's overall wind potential will be attractive for wind development in the near term.

Figure 14. Wind Energy Potential in Utah.



(d) Biomass energy potential and distribution. The potential to generate power from landfill gas and plant and animal wastes in Utah is estimated to be 1,000,000 MWh/yr. Most of this potential is located in the northern and northwestern portions of Utah. Assuming that systems used to transform Utah's biomass energy potential to power operate at an 80% capacity factor, there is potential to install approximately 140 MW of biomass generating capacity in Utah. Figure 15 characterizes the distribution and relative potential for generating power from biomass in Utah.

Figure 15. Biomass Energy Potential in Utah.



(e) Landfill gas energy potential. The estimated power production potential from landfill gas in Utah that is embedded in the biomass map and energy production projections was derived from the Environmental Protection Agency Landfill Methane Outreach Program database (2001). The detailed landfill gas database for Utah is presented in Table20.

Table 20. Utah Land-fill Gas Resources

Project ID #	Landfill ID #	LMOP Territory	Landfill Name	Landfill City	Landfill County	Landfill State	WIP (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner	Project Status	Project Developer	Utilization Type (Direct-Use vs Electricity)	Specific Utilization Type	Capacity (MW)	LFG Flow to Project (mmscfd)	Emission Reductions (MMTCO2E)
1619	1542	3	Salt Lake Valley LF	Salt Lake	Salt Lake	UT	6,700,000	1982	2020	Salt Lake Valley Solid Waste Management Council	Construction	DTE Energy	Direct	Boiler			0.242
1604	1527	3	City of Logan Sanitary Landfill	Logan	Cache	UT	1,400,000	1961	2016	City of Logan	Potential		Electricity				
1630	1553	3	Beaver County LF	Beaver	Beaver	UT	107,648	1968	2014	Beaver City	Unknown		Direct				
1625	1548	3	Blanding LF	Blanding	San Juan	UT	50,780	1956	1995	Blanding City	Unknown		Direct				
1617	1540	3	Bountiful City Sanitary LF	West Bountiful	Davis	UT	2,171,531	1960	2058	City of Bountiful	Unknown		Direct				
1598	1521	3	Brigham City LF	Brigham	Box Elder	UT	693,000	1960	1995	Box Elder County	Unknown		Direct				
1606	1529	3	Callao LF		Juab	UT		1970			Unknown		Direct				
1621	1544	3	Carbon County LF	Price	Carbon	UT	280,000	1956	1995	Carbon County	Unknown		Direct				
1626	1549	3	City of Monticello LF	Monticello	San Juan	UT	36,000	1960	1995	Max Dalton	Unknown		Direct				
1618	1541	3	Davis County Solid Waste Management SSD LF	Layton	Davis	UT	1,840,150	1959	2022	Wasatch Energy Systems	Unknown		Direct				
1642	1565	3	Duchesne County LF	Duchesne	Duchesne	UT		1984	2044	Duchesne & Wasatch Counties	Unknown		Direct				
180128	2074	3	ECDC	East Carbon		UT					Unknown						
1622	1545	3	Emery County LF	Castledale	Emery	UT	212,184	1983	2024	Emery County	Unknown		Direct				
1609	1532	3	Eskdale LF		Millard	UT					Unknown		Direct				
1631	1554	3	Garfield County/John's Valley LF	Garfield	Garfield	UT	16,200	1992	2044	Garfield County	Unknown		Direct				
1632	1555	3	Garfield County/Ticaboo LF	Garfield	Garfield	UT	8,852	1993	2014	Garfield County	Unknown		Direct				
1610	1533	3	Garrison LF	Garrison	Millard	UT	660	1986	2094	Millard County	Unknown		Direct				
1624	1547	3	Grand County LF	Moab	Grand	UT	76,300	1960	2004	Grand County	Unknown		Direct				
1623	1546	3	Green River LF	Green River	Emery	UT	79,205	1965	1995	Green River City	Unknown		Direct				
1599	1522	3	Grouse Creek LF	Grouse Creek	Box Elder	UT	1,760	1980	1995	Box Elder County	Unknown		Direct				
1633	1556	3	Iron County/ Armstrong Pit LF	Cedar	Iron	UT	44,962	1993	2014	Iron County	Unknown		Direct				
1635	1558	3	Kane County/Glendale LF	Glendale	Kane	UT	6,560	1988	2094	Western Kane County SSD# 1	Unknown		Direct				
1634	1557	3	Kane County/Kanab LF	Kanab	Kane	UT	39,680	1981	2044	Western Kane County SSD# 1	Unknown		Direct				
1641	1564	3	Manila City LF	Manila	Daggett	UT	32,120	1974	1995	Manila City/Daggett County	Unknown		Direct				
1611	1534	3	Millard County LF	Delta	Millard	UT	67,650	1986	2034	Millard County	Unknown		Direct				
1607	1530	3	Nephi LF	Nephi	Juab	UT	18,300	1987	2044	Nephi City	Unknown		Direct				

Table 20. (Continued) Utah Land-fill Gas Resources

Project ID #	Landfill ID #	LMOP Territory	Landfill Name	Landfill City	Landfill County	Landfill State	WIP (tons)	Year Landfill Opened	Landfill Closure Year	Landfill Owner	Project Status	Project Developer	Utilization Type (Direct-Use vs Electricity)	Specific Utilization Type	Capacity (MW)	LFG Flow to Project (mmscfd)	Emission Reductions (MMTCO2E)
1645	1568	3	North Utah County Special Service District LF		Utah	UT	1,707,965	1964	1993		Unknown		Direct				
1600	1523	3	Park Valley LF	Park Valley	Box Elder	UT	2,400	1980	1995	Box Elder County	Unknown		Direct				
1608	1531	3	Partoun LF		Juab	UT					Unknown		Direct				
1614	1537	3	Payson City LF	Payson	Utah	UT	616,029	1950	2014	Payson City Corporation	Unknown		Direct				
1646	1569	3	Provo LF	Provo	Utah	UT	1,131,000	1963	1991	City of Provo	Unknown		Direct				
1605	1528	3	Rich County LF	Laketown	Rich	UT	40,688	1981	2030	Rich County	Unknown		Direct				
1627	1550	3	San Juan County/Bluff LF	Bluff	San Juan	UT	1,600	1980	1995	San Juan County	Unknown		Direct				
1628	1551	3	San Juan County/Halls Crossing LF	Halls Crossing	San Juan	UT	9,464	1970	1995	San Juan County	Unknown		Direct				
1629	1552	3	San Juan County/Mexican Hat LF	Mexican Hat	San Juan	UT	1,600	1980	1995	San Juan County	Unknown		Direct				
1612	1535	3	Sanpete SLF Coop	Spring City	Sanpete	UT	108,396	1989	2066	Sanpete SLF Coop	Unknown		Direct				
1615	1538	3	Santaquin County LF	Santaquin	Utah	UT	262,080	1900	1995	Santaquin City	Unknown		Direct				
1613	1536	3	Sevier County/Sage Flat LF	Glenwood	Sevier	UT	70,200	1993	2024	Sevier County	Unknown		Direct				
1601	1524	3	Snowville LF	Snowville	Box Elder	UT	8,100	1970		Snowville Town	Unknown		Direct				
1616	1539	3	South Utah County SSD/Bayview LF	Utah	Utah	UT	1,100,000	1991	2094	South Utah Valley Solid Waste District	Unknown		Direct				
1637	1560	3	Summit County/Three Mile Canyon LF	Wanship	Summit	UT	358,896	1986	2026	Summit County	Unknown		Direct				
1638	1561	3	Tooele Army Depot LF #1	Tooele	Tooele	UT			1995	Commander Tead	Unknown		Direct				
1639	1562	3	Tooele Army Depot LF #2	Tooele	Tooele	UT			1995	Commander Tead	Unknown		Direct				
1620	1543	3	Transjordan LF	South Jordan	Salt Lake	UT	8,622,936	1955	2021	Trans-Jordan Cities	Unknown		Direct				
1602	1525	3	Tremonton LF	Tremonton	Box Elder	UT	184,600	1970	1995	Box Elder County	Unknown		Direct				
1643	1566	3	Uintah County/Vernal City LF	Vernal	Uintah	UT	2,773,000	1950	2008	Uintah County and Vernal City	Unknown		Direct				
1636	1559	3	Washington County Solid Waste SSD #1 LF	Washington	Washington	UT	1,292,000	1978	2067	Washington County	Unknown		Direct				
1644	1567	3	Weber County LF	Ogden	Weber	UT	3,500,000	1966	1996	Weber County	Unknown		Direct			0.8	
1640	1563	3	Wendover City LF	Wendover	Tooele	UT	118,260	1970	1996	Wendover City	Unknown		Direct				
1603	1526	3	Yost LF	Yost	Box Elder	UT	800	1980	1995	Box Elder County	Unknown		Direct				

J. OTHER GCVTC RECOMMENDATIONS

1. Regulatory History and Requirements

The recommendations of the GCVTC are presented throughout the June 1996 final report with varying degrees of specificity. Not all are included in the Regional Haze Rule. However, some of the recommendations were intended as a menu of options, with no expectation that any geographic area would implement all of them. The GCVTC pointed out in its final report that:

> "Some of the Commission's recommendations ask the EPA to take specific actions or institute particular **programs**, in cooperation with the tribes, states and federal agencies as implementing bodies. Other recommendations provide a range of potential policy or strategy **options for consideration** by the EPA and implementing entities. As the EPA develops policies and takes actions based on this report, this distinction between "actions" and "options" should be maintained with diligence. That is, recommendations intended as policy options should not become mandated actions or regulatory programs." [**BOLD** emphasis in original.][47]

2. Other State of Utah Long-term Strategy Components

a. Evaluation of Additional Grand Canyon Visibility Transport Commission Recommendations.

Pursuant to 40 CFR 51.309(d)(9), Utah has evaluated the "additional" recommendations of the Grand Canyon Visibility Transport Commission to determine if any of these recommendations can be practicably included in this implementation plan. Utah reviewed the GCVTC's 1996 report, *Recommendations for Improving Western Vistas*, to identify those recommendations that were not incorporated into Section 309 of the Regional Haze Rule.

b. Implementation of Additional Recommendations.

Based on the evaluation made by the State of Utah, no additional measures have been identified as being practicable or necessary to demonstrate reasonable progress. *Report to the Environmental Protection Agency and the Public to Satisfy the Requirements of 40 CFR 51.309(d)(9)* includes a complete list of all additional recommendations and their status.[48] This report is to be reviewed and updated if necessary in 2008, 2013, and 2018.

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[47] *Recommendations for Improving Western Vistas*, page i.

[48] Utah Division of Air Quality. *Report to the Environmental Protection Agency and the Public to Satisfy the Requirements of 40 CFR 51.309(d)(9)*. Salt Lake City, Utah. December, 2003.

K. PROJECTION OF VISIBILITY IMPROVEMENT ANTICIPATED FROM LONG-TERM STRATEGY

The Western Regional Air Partnership performed extensive analysis and modeling in order to determine the impact of the regional haze program on visibility at the 16 Class I areas on the Colorado Plateau. This work was performed by several contractors under the direction of various technical and policy forums of the WRAP.

This work began with development of a comprehensive inventory of emissions throughout the region for all categories of sources. In addition, econometric models and new technology profiles were used to project changes in those emissions over time that are expected from implementation of current requirements under the CAA. The WRAP also estimated emission changes resulting from the programs contained in the long-term strategy for regional haze under 40 CFR 51.309.

The emission inventories and projections were used by the WRAP Regional Modeling Center to estimate aerosol concentrations and visibility at each of the 16 Class I areas. WRAP also developed estimates of aerosol concentrations and visibility for the non-GCVTC Class I areas. The WRAP Regional Modeling Center used the Community Multi-scale air Quality (CMAQ) model to estimate aerosol concentrations from the emission inventories and projections.

Emission inventories and modeling results are generated from the technical work conducted by the WRAP, which evaluated the visibility improvements resulting from the application of the regional haze control strategies and programs. The WRAP developed a Technical Support Document (TSD) that contains detailed descriptions of the emissions inventory and projection methods as well as the air quality modeling techniques and results. The following sections contain an overview of the projected changes in emissions and visibility resulting from the implementation of the Regional Haze Rule.

1. Effect on Emissions of Long-term Strategy Components

a. Inventory Methodology and Scope

The base WRAP emission inventories used for assessment of visibility included the following pollutants:

- Volatile Organic Compounds (VOCs);
- Oxides of Nitrogen (NO_X);
- Carbon Monoxide (CO);
- Sulfur Dioxide (SO_2);
- Particulate Matter smaller than 10 microns (PM_{10});
- Particulate Matter smaller than 2.5 microns ($PM_{2.5}$); and
- Ammonia (NH_3).

For visibility modeling, the $PM_{2.5}$ emissions inventory was broken into components, or species, representing the key visibility impairing species of interest. This breakdown is necessary since each component has a different effect on visibility. These $PM_{2.5}$ species are organic carbon particles (OC), elemental carbon particles (EC), and other fine particles such as soils and dusts. The factors used to allocate $PM_{2.5}$ into its components are based on source specific speciation factors. In addition, the coarse material (CM) fraction of PM_{10} (i.e., PM_{10} minus $PM_{2.5}$) was also computed, since coarse particulate matter has a different effect on visibility than fine particulate matter.

The geographic domain for the inventory included the 22 states west of the Mississippi River, and portions of Mexico and Canada. A detailed base year emission inventory was developed for 1996 and included emissions from all of the following categories of sources:

- Area Sources;
- Stationary Point Sources;
- Mobile Sources (both on-road and non-road);
- Road Dust (from both paved and unpaved road surfaces);
- Fire Emissions (agricultural burning, prescribed fire, and wild fire); and
- Biogenic Sources.

In support of the WRAP Regional Haze air quality modeling efforts after 2003, the WRAP Regional Modeling Center (RMC) developed annual emissions inventories for the 2002 actual emissions base case, a planning case to represent the 2000-04 regional haze baseline period using averages for key emissions categories, and a 2018 base case of projected emissions determined using factors known at the end of 2005 and 2007 with a final update in 2008. Each of these inventories has undergone a number of revisions throughout the development process with input from UDAQ staff, to arrive at the final versions used for air quality modeling. The WRAP emission inventories developed by the RMC include:

- The 2002 base case emissions scenario is referred to as “2002 Base Case” or “Base02”. The purpose of the Base02 inventory is to represent the actual conditions in calendar year 2002 with respect to ambient air quality and the associated sources of criteria and particulate matter air pollutants. The Base02 emissions inventories are used to validate the air quality model and associated databases by demonstrating acceptable model performance with respect to replicating observed particulate matter air quality.
- The 2000-04 baseline period planning case emission scenarios are referred to as the “Plan02”series. The purpose of the Plan02 inventories is to represent baseline emission patterns based on average, or “typical”, conditions. This inventory series (cases Plan02 a, b, c) was developed in sequence to diagnose inventory problems and true up the representativeness and accuracy of the emissions for

planning purposes. This inventory provides a basis for comparison with the future year 2018 projected emissions.

- Three 2018 future-year emission scenarios were developed. These emission inventories are used to represent conditions in 2018 with respect to sources of criteria and particulate matter air pollutants, taking into consideration growth and controls. Modeling results based on this emission inventory are used to define the future year ambient air quality and visibility metrics.
- Base Case (base18b) is a modeling case with estimated emissions growth plus all controls "on the books" as of December 2004 without BART or the Section 309 SO2 milestone reductions.
- Preliminary Reasonable Progress Case (PRP18) is the modeling case with a refined emissions growth estimate plus all emission controls "on the books" as of May 2007, including presumptive limits or known SO2 BART controls on electric generating units (EGU).
- Final Reasonable Progress Case (FRP18) is a future modeling case with a refined emissions growth estimate plus all emission controls "on the books" as of May 2007, including all BART controls in the WRAP region and limits defined in the Section 309 SO2 milestone "better than BART" program." The RMC anticipated that FRP 18 modeling will be complete by the third quarter of 2008.

UDAQ staff reviewed the Utah emission inventory for consistency and provided feedback to WRAP on areas of the inventory that should be improved in the future. UDAQ staff concluded that the 1996 and 2002 inventories were adequate for regional haze modeling given the uncertainties in any emission inventory process. UDAQ staff also reviewed the 2018 emission growth and projection factors used to develop the 2018 inventory and found the projection to be within the range expected from long range economic projections.

b. Projected Changes in Emissions for Utah and the GCVTC Region

The changes in overall emissions for the State of Utah are summarized in Table21. As shown, emissions of sulfur dioxide are expected to decrease by 33% by 2018 from the 1996 levels. This reduction is due primarily to the long-term strategy for stationary sources of sulfur dioxide described in Part E that will generate a 60% reduction in emissions from stationary sources in the three states that are participating in the Western Regional Milestones and Backstop Trading Program by 2018 from a 1990 baseline. Also, emissions of oxides of nitrogen and particulate matter ($PM_{2.5}$) in the state are expected to decline by 36% and 38%, respectively, due to the implementation of new federal engine standards and fuel standards described in Part F and BART controls for NO_x and $PM_{2.5}$ described in Part D. The emission inventories for VOC and coarse particulate matter (CM) are also shown, but it is difficult to compare the 1996 and 2018 inventories for these pollutants due to significant changes in the methodology for estimating emissions from dust, fire, and oil and gas production. Therefore a percent change is not shown for those pollutants.

Table 21. Summary of the Change in Emissions from 1996-2018 for Utah Sources

	(Thousands of Tons per Year)(Plan 02d – PRP 18a)				
	VOC	NO_x	SO_2	$PM_{2.5}$*	CM
1996	172	270	67	85	64
2002	186	227	54	53	98
2018	233	172	45	53	110
% Change (1996-2018)		-36%	-33%	-38%	

*$PM_{2.5}$ includes organic carbon, elemental carbon, and fine soils/dusts.

Table 22 shows similar emission reductions for the nine-state GCVTC region, except that regionally, sulfur dioxide emissions will be reduced by 53% by 2018 from 1996 levels. The reason Utah's reduction of sulfur dioxide is smaller than that in the nine states is that the level of pollution controls on facilities in Utah was generally better than that in several other states. Emissions of NO_x and PM will decrease in the region by 57% and 31% respectively. The detailed county-level emission inventories for the entire WRAP region are included in the 2003 and 2008 WRAP TSDs.

Table 22. Changes in Emissions from 1996 - 2018 for 9 GCVTC States

	(Thousands of tons per year)(Plan 02d – PRP 18a)				
	VOC	NO_x	SO_2	$PM_{2.5}$*	CM
1996	3,325	3,952	1,063	1,197	1,171
2002	2,449	2,241	675	832	1,886
2018	2,760	1,683	503	832	2,104
% Change (1996-2018)	-17%	-57%	-53%	-31%	80%

*$PM_{2.5}$ includes organic carbon, elemental carbon, and fine soils/dusts.

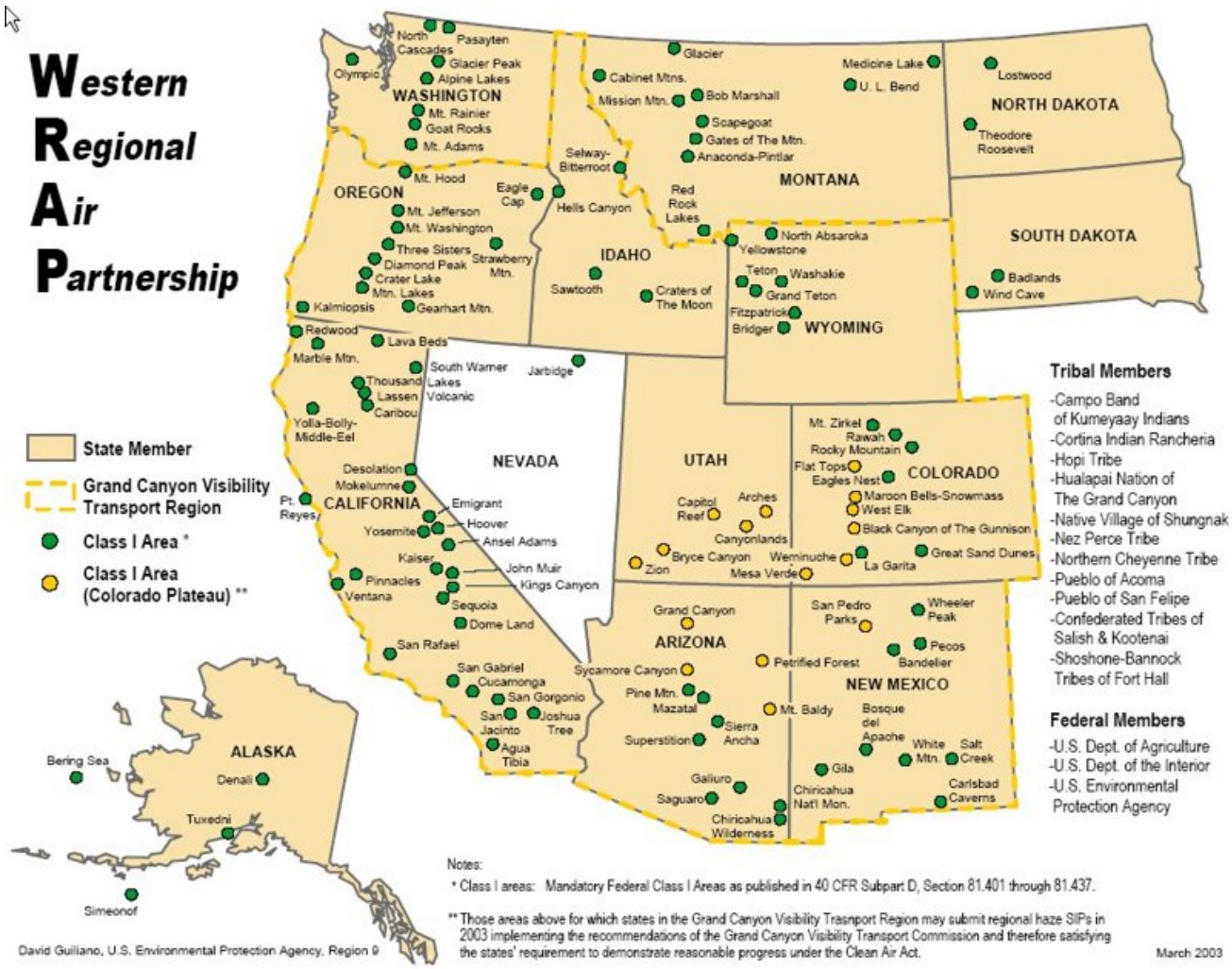


Figure 16. Class I Areas in the WRAP Region

The emission reductions in Utah occur throughout the state and will therefore benefit all Class I areas outside of Utah that might be impacted by emissions from Utah. Figure 16 shows the Class I areas in the WRAP region. The Class I areas that are not on the Colorado Plateau are indicated by green dots.

Northern Utah. The urban area in northern Utah that may impact Class I areas in Idaho, Nevada and Wyoming will have a significant reduction in NOx emissions from mobile sources as described in Section XX.F of this plan. Mobile (on-road and non-road) NOx emissions in the four main urban counties (Weber, Davis, Salt Lake, and Utah) are projected to decrease by 42,000 tons/yr or 61% between 2002 and 2018. Mobile sources dominate the NOx emission inventory in Utah's urban area. Class I areas that have some days when nitrates are a significant contributor to visibility impairment, such as Craters of the Moon National Park, will benefit from the NOx emission reductions during those episodes. As can be seen from the following graphs in Figure 17, the contribution to nitrate on the 20% worst days from sources in Utah decreases substantially between 2002

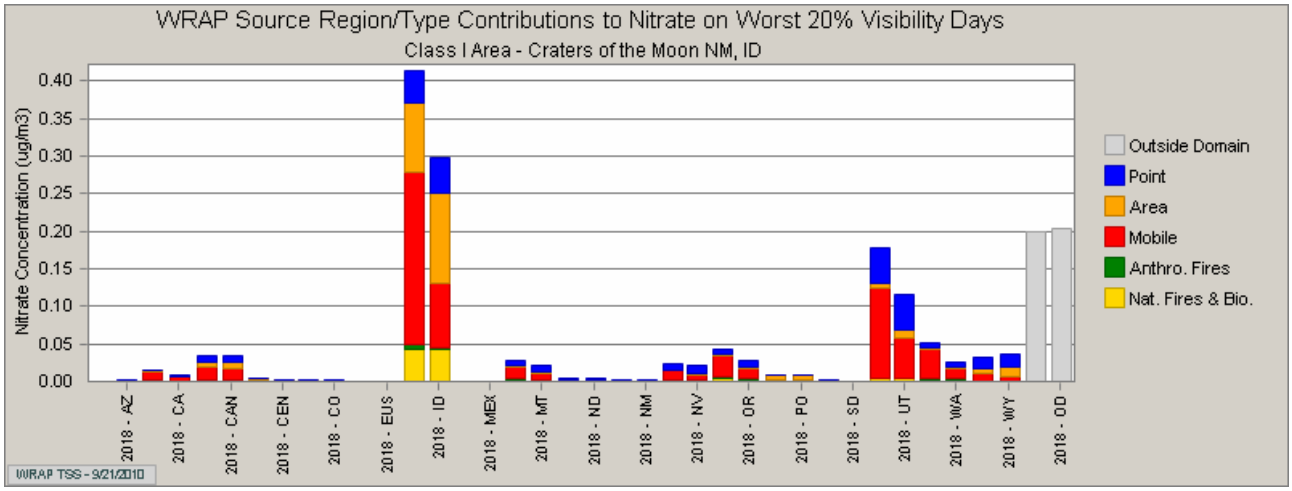
and 2018 at Craters of the Moon in Idaho, Bridger and Fitzpatrick Wilderness Areas in Wyoming, and Jarbidge Wilderness Area in Nevada. The contribution to sulfates at the same Class I areas is also shown, but is not significant at any of the sites. Figures 17 through 19 were drawn from the PM Source Apportionment Technique (PSAT) modeling completed by the WRAP in 2006 to attribute the visibility impact at Class I areas to surrounding states. The PSAT modeling was based on the Plan 02c and Base 18b inventories that included growth estimates for all sources, as well as emission reductions that were already in the works such as the Tier 2 emission reductions for vehicles. In the Base 18b inventory, point source emissions for both NOx and SO_2 were projected to increase due to assumptions about growth in Utah.

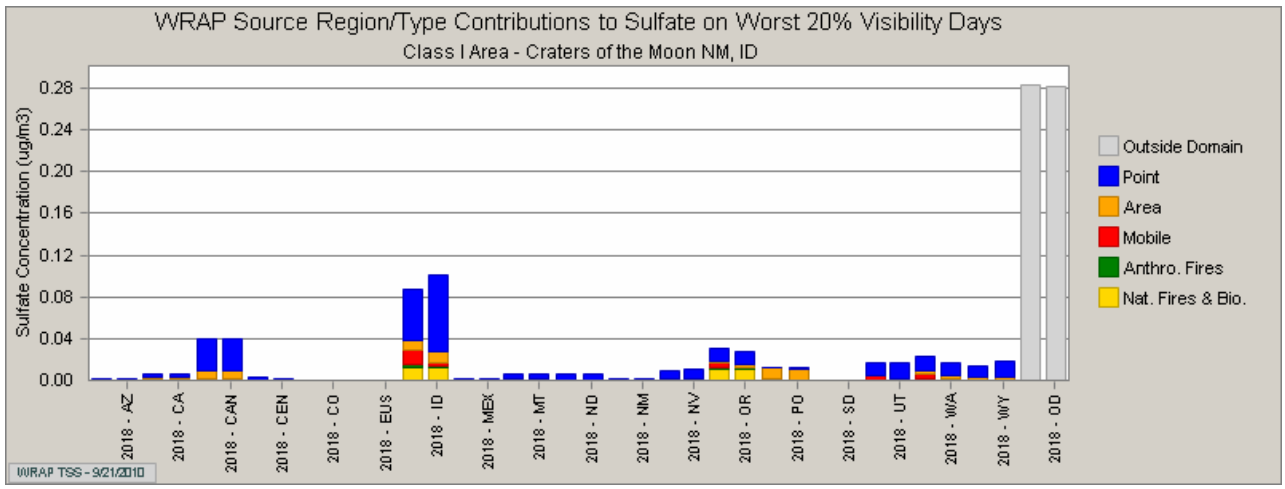
Later inventories developed by the WRAP (Plan 02d and Prp 18a) include some, but not all, of the stationary source emission reductions due to the SO_2 milestones and BART. These inventories show a significant decrease in stationary source NOx and SO_2 emissions. Table 25 shows the difference between the Plan 02c and 02d inventories, and the Base 18b and PRP18a inventories.

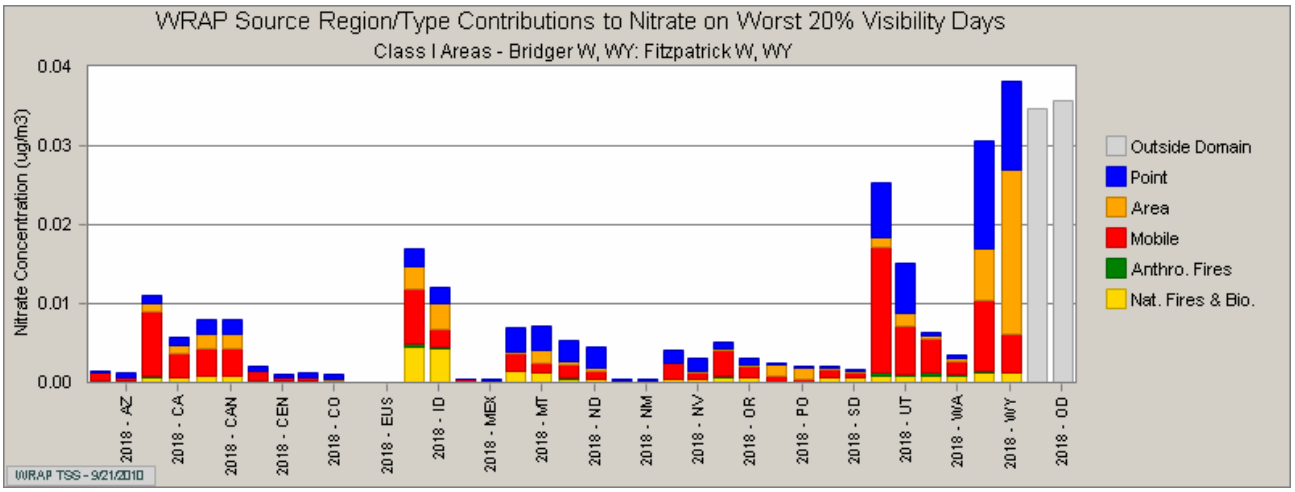
Table 23. Comparison of WRAP Inventories for Utah.

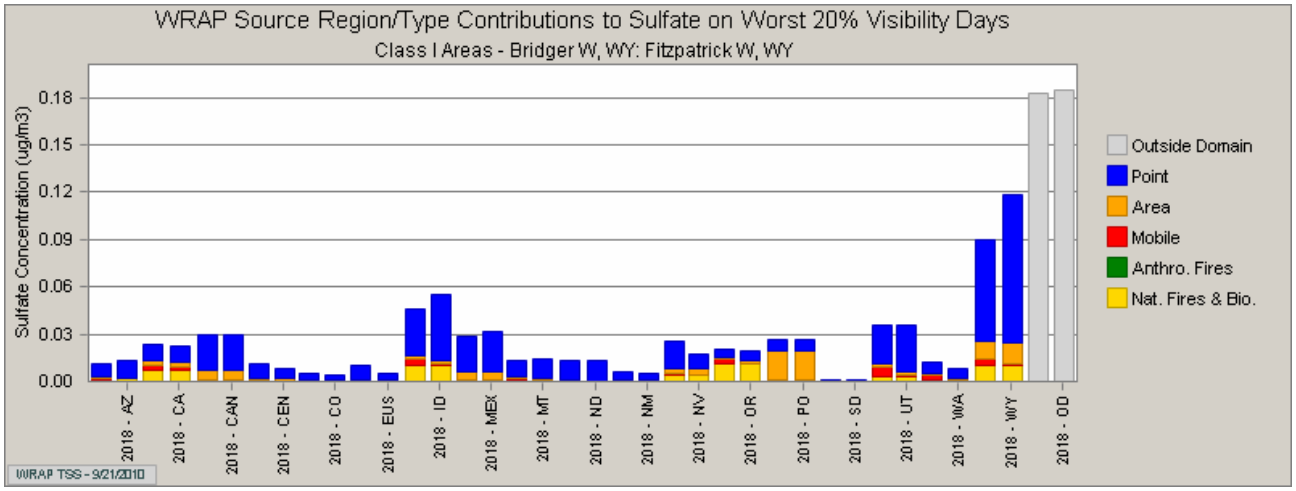
	Scenario	Year	Point	Anthro Fire	Natural Fire	Biogenic	Area	WRAP Area O&G	On-Road Mobile	Off-Road Mobile
Nitrogen Oxides	Plan02c	2002	91067	321	8942	12597	6147	5316	77381	47100
	Base18b	2018	97009	229	8942	12597	8462	13456	27364	28426
Nitrogen Oxides	Plan02d	2002	84237	321	8942	12597	6146	3335	77381	47100
	Prp18a	2018	79846	229	8942	12597	8462	6297	27364	28426
Sulfur Oxides	Plan02c	2002	43373	81	3095	3449	147	0	1893	4919
	Base18b	2018	53587	62	3095	3597	5	0	433	432
Sulfur Oxides	Plan02d	2002	42183	81	3095	0	3449	17	1893	4919
	Prp18a	2018	38292	62	3095	0	3597	1	433	432

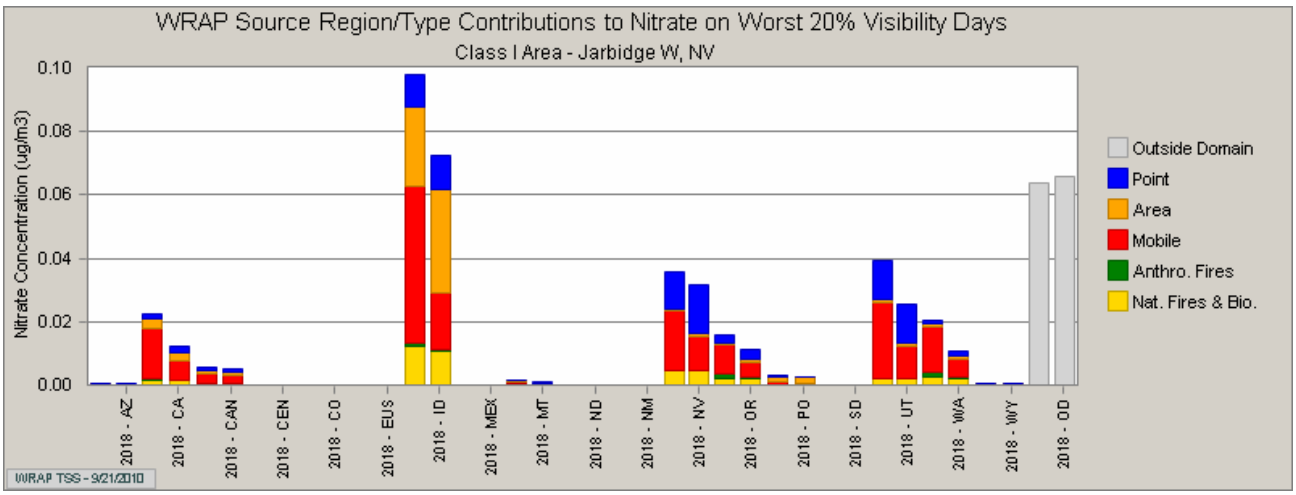
Because the PSAT modeling does not include all of the stationary source reductions it is most useful to show the benefits of mobile source reductions and also to show the relative degree of visibility impact at neighboring Class I areas from Utah vs other states.


WRAP Source Region/Type Contributions to Nitrate on Worst 20% Visibility Days
Class I Area - Craters of the Moon NM, ID
Nitrate Concentration (ug/m3)
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
2018 - AZ
2018 - CA
2018 - CAN
2018 - CEN
2018 - CO
2018 - EUS
2018 - ID
2018 - MEX
2018 - MT
2018 - ND
2018 - NM
2018 - NV
2018 - OR
2018 - PO
2018 - SD
2018 - UT
2018 - WA
2018 - WY
2018 - OD
Outside Domain
Point
Area
Mobile
Anthro. Fires
Nat. Fires & Bio.
WRAP TSS - 9/21/2010


WRAP Source Region/Type Contributions to Sulfate on Worst 20% Visibility Days
Class I Area - Craters of the Moon NM, ID
Sulfate Concentration (ug/m3)
0.28
0.24
0.20
0.16
0.12
0.08
0.04
0.00
2018 - AZ
2018 - CA
2018 - CAN
2018 - CEN
2018 - CO
2018 - EUS
2018 - ID
2018 - MEX
2018 - MT
2018 - ND
2018 - NM
2018 - NV
2018 - OR
2018 - PO
2018 - SD
2018 - UT
2018 - WA
2018 - WY
2018 - OD
Outside Domain
Point
Area
Mobile
Anthro. Fires
Nat. Fires & Bio.
WRAP TSS - 9/21/2010


WRAP Source Region/Type Contributions to Nitrate on Worst 20% Visibility Days
Class I Areas - Bridger W, WY: Fitzpatrick W, WY
Nitrate Concentration (ug/m3)
0.04
0.03
0.02
0.01
0.00
2018 - AZ
2018 - CA
2018 - CAN
2018 - CEN
2018 - CO
2018 - EUS
2018 - ID
2018 - MEX
2018 - MT
2018 - ND
2018 - NM
2018 - NV
2018 - OR
2018 - PO
2018 - SD
2018 - UT
2018 - WA
2018 - WY
2018 - OD
Outside Domain
Point
Area
Mobile
Anthro. Fires
Nat. Fires & Bio.
WRAP TSS - 9/21/2010





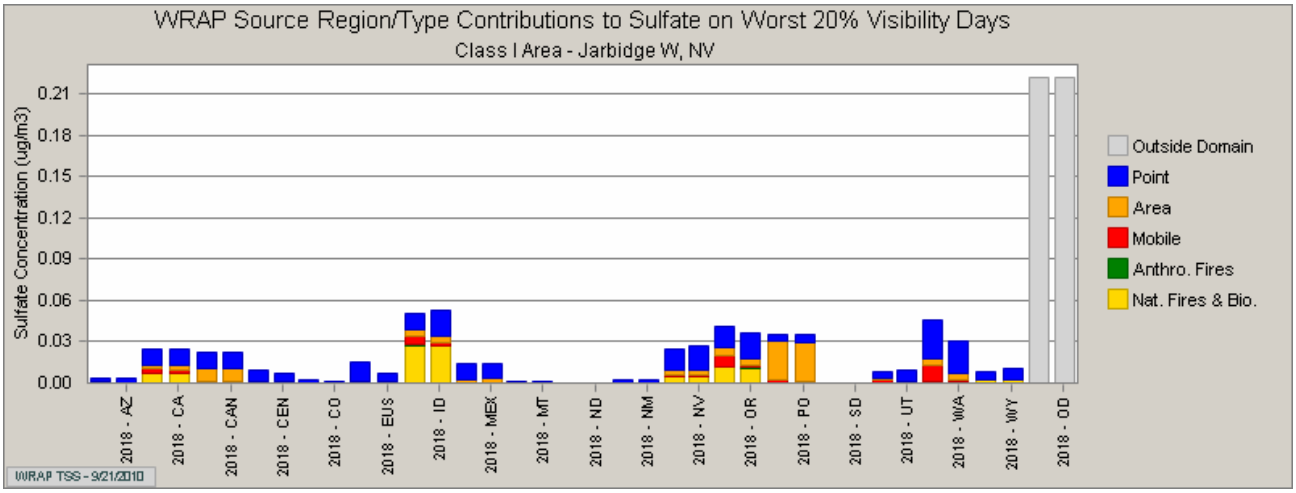
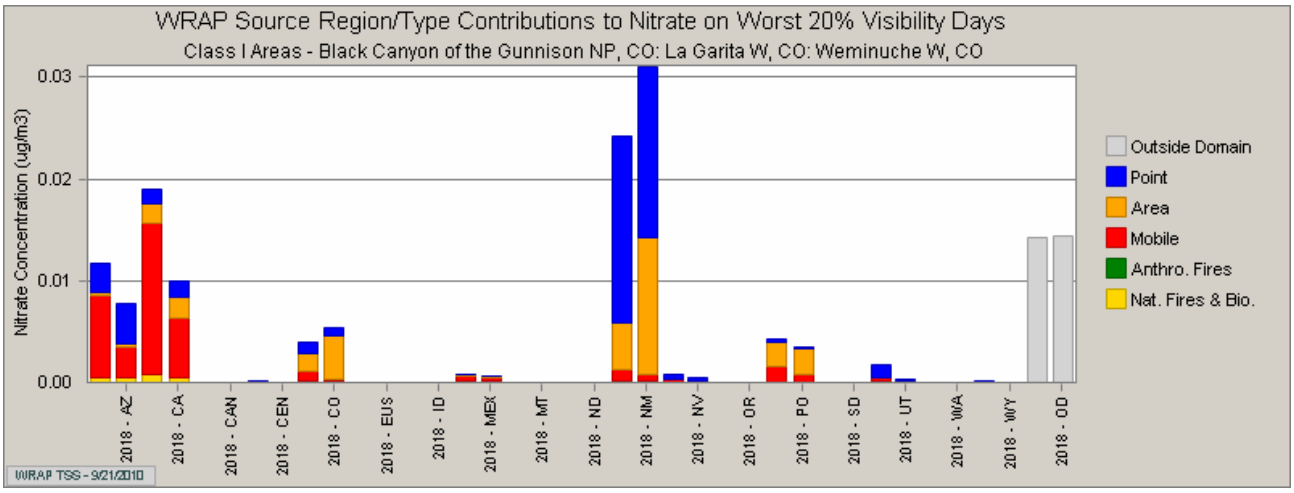
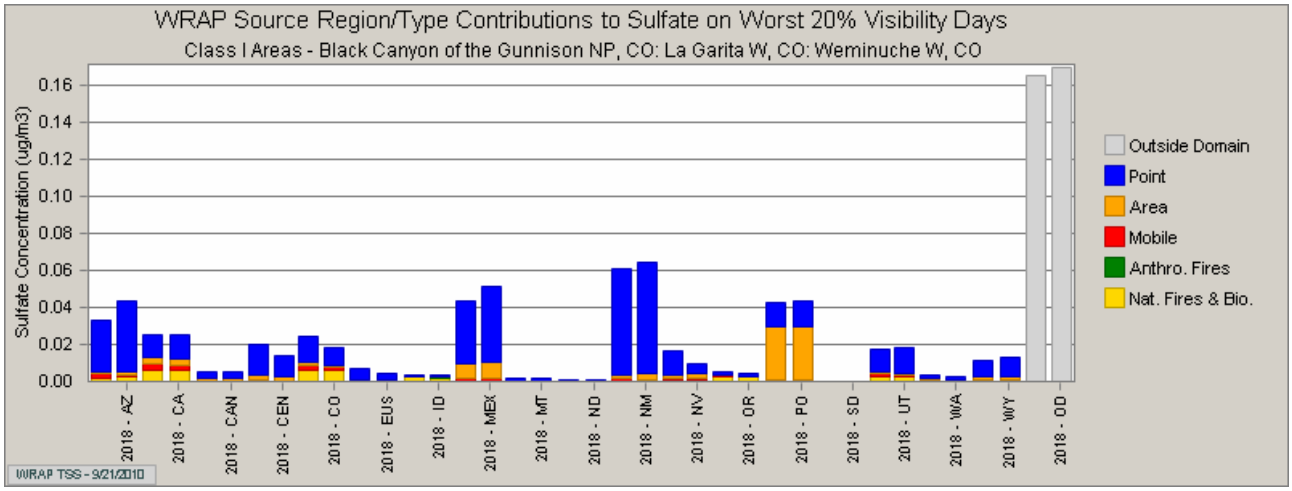
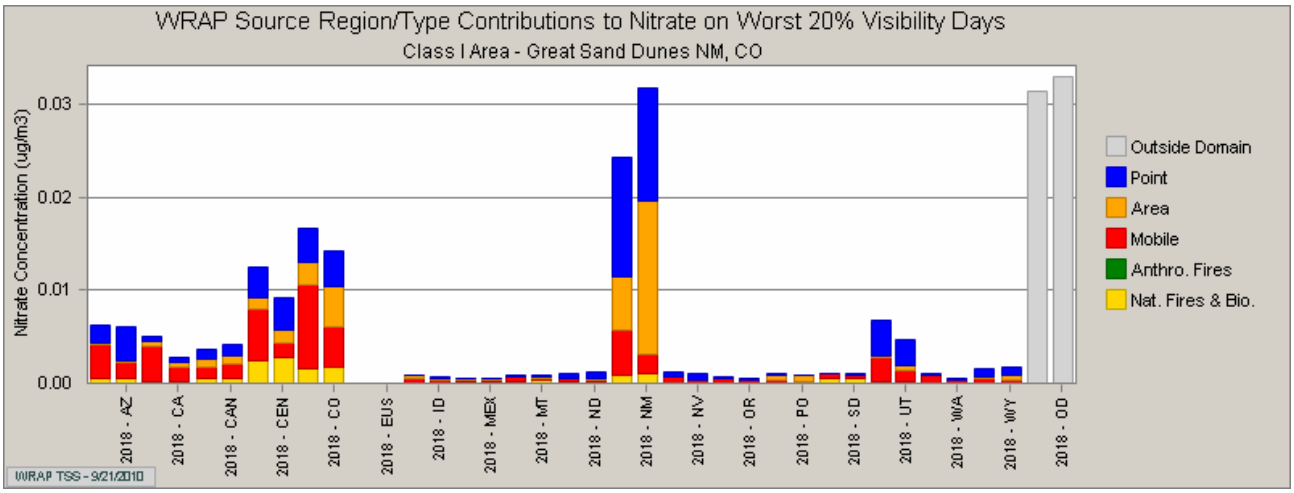


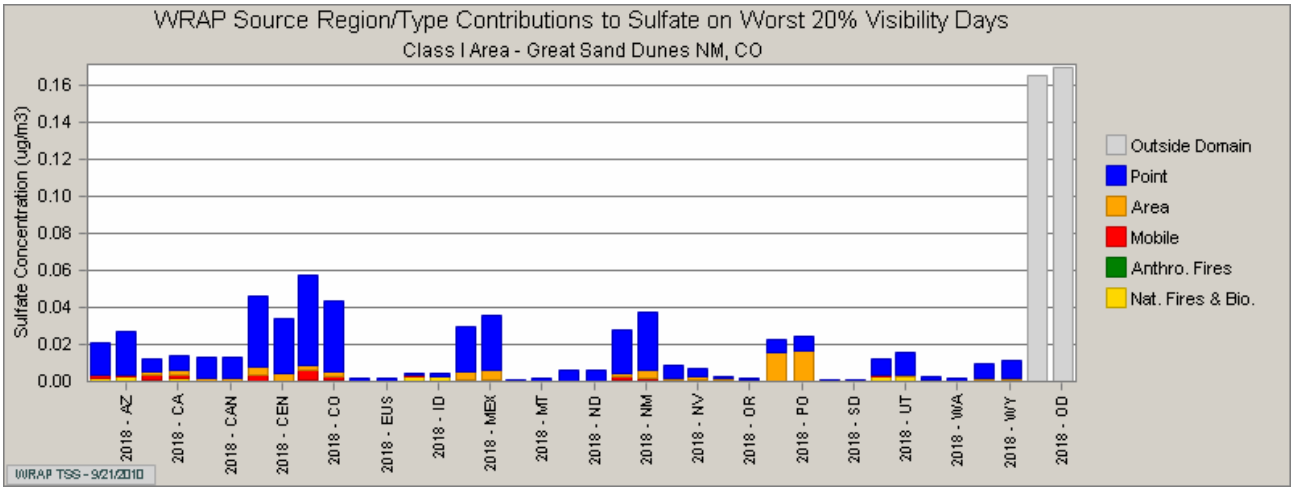
Figure 17. Class I Areas with Contributions from Northern Utah

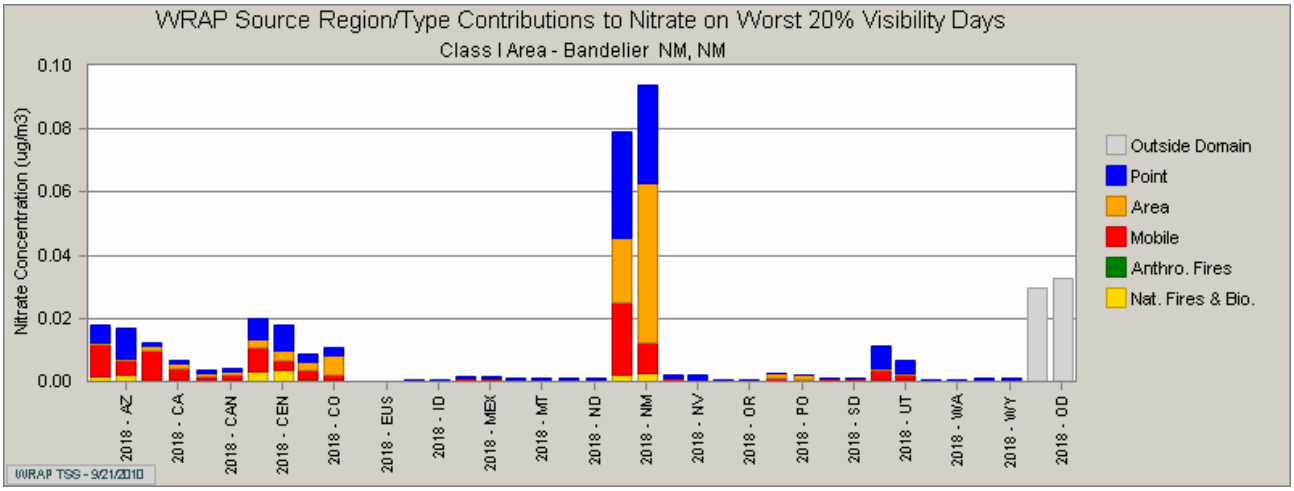
- Central and Southern Utah. As described in Section XX.D.6 of this plan, two BART-eligible plants in central Utah are projected to decrease SO_2 emissions by 13,200 tons and NOx emissions by 6,200 tons between 2002 and 2018. Central and Southern Utah are sparsely populated and the inventory is dominated by point sources. The exception is Washington County that is becoming more urban due to the growth of St. George and the inventory is therefore dominated by mobile source emissions. In Washington County, NOx emissions from mobile sources (on-road and non-road) are projected to decrease by 2,300 tons or 57% between 2002 and 2018. These emission reductions will benefit Class I areas in southern Colorado, New Mexico and Arizona that may be affected by emissions from Utah. The nearby Class I areas that would see the greatest benefit are part of the 16 Class I areas on the Colorado Plateau. As can be seen in Figure 18, Class I areas that are not on the Colorado Plateau show some benefit, but in general the impact from sources in Utah is not significant at La Garita Wilderness Area and Great Sand Dunes National Monument in Colorado, Bandalier National Monument in New Mexico and Mazatal and Pine Mountain Wilderness Areas in Arizona.

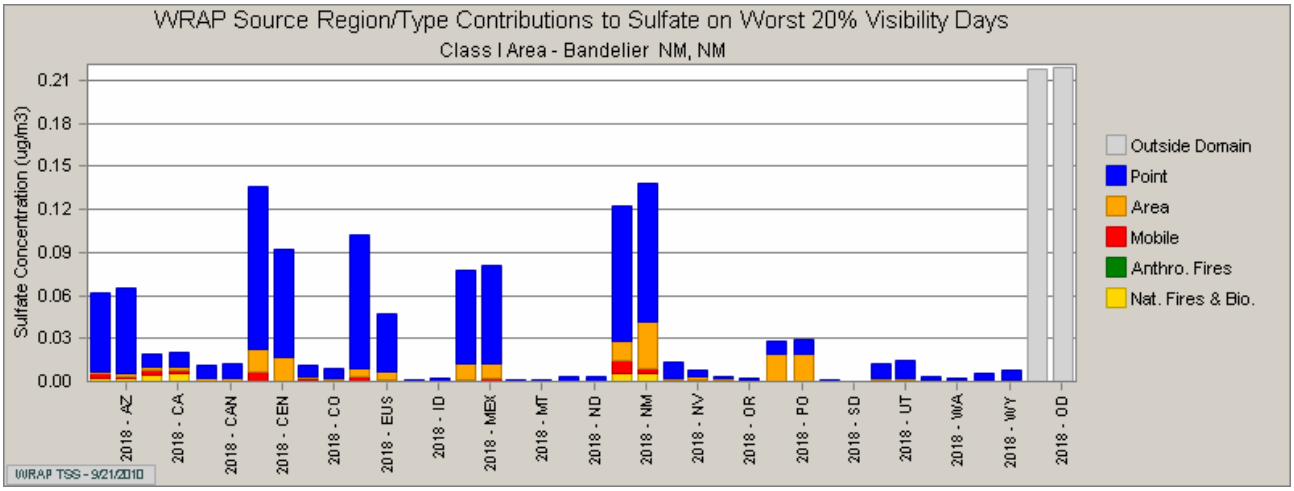


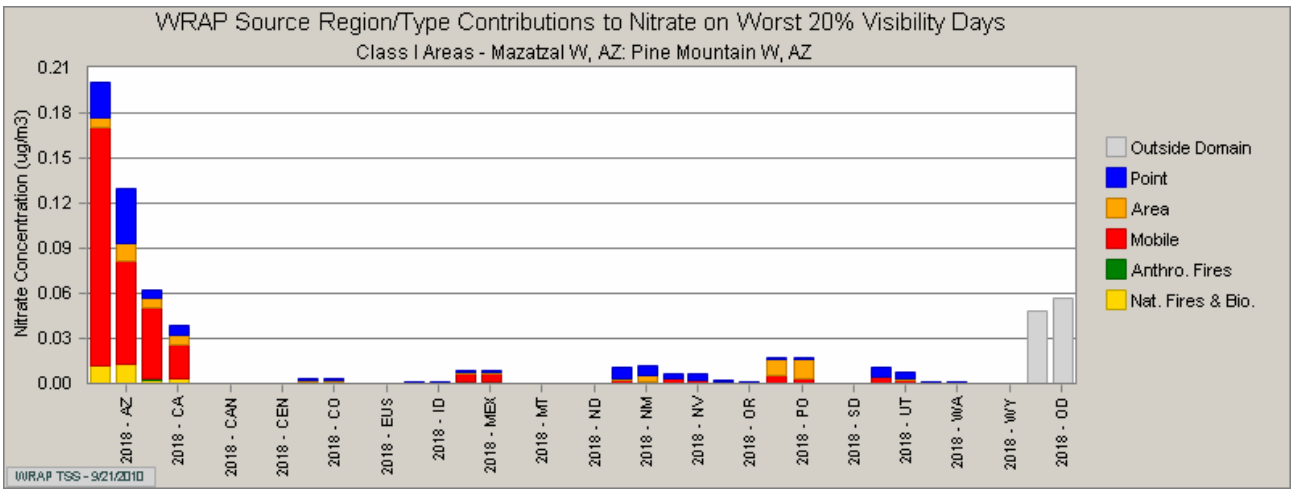



WRAP Source Region/Type Contributions to Nitrate on Worst 20% Visibility Days
Class I Area - Great Sand Dunes NM, CO
Nitrate Concentration (ug/m3)
0.03
0.02
0.01
0.00
2018 - AZ
2018 - CA
2018 - CAN
2018 - CEN
2018 - CO
2018 - EUS
2018 - ID
2018 - MEX
2018 - MT
2018 - ND
2018 - NM
2018 - NV
2018 - OR
2018 - PO
2018 - SD
2018 - UT
2018 - WA
2018 - WY
2018 - OD
Outside Domain
Point
Area
Mobile
Anthro. Fires
Nat. Fires & Bio.
WRAP TSS - 9/21/2010


WRAP Source Region/Type Contributions to Sulfate on Worst 20% Visibility Days
Class I Area - Great Sand Dunes NM, CO
Sulfate Concentration (ug/m3)
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
2018 - AZ
2018 - CA
2018 - CAN
2018 - CEN
2018 - CO
2018 - EUS
2018 - ID
2018 - MEX
2018 - MT
2018 - ND
2018 - NM
2018 - NV
2018 - OR
2018 - PO
2018 - SD
2018 - UT
2018 - WA
2018 - WY
2018 - OD
Outside Domain
Point
Area
Mobile
Anthro. Fires
Nat. Fires & Bio.
WRAP TSS - 9/21/2010


WRAP Source Region/Type Contributions to Nitrate on Worst 20% Visibility Days
Class I Area - Bandelier NM, NM
Nitrate Concentration (ug/m3)
0.10
0.08
0.06
0.04
0.02
0.00
2018 - AZ
2018 - CA
2018 - CAN
2018 - CEN
2018 - CO
2018 - EUS
2018 - ID
2018 - MEX
2018 - MT
2018 - ND
2018 - NM
2018 - NV
2018 - OR
2018 - PO
2018 - SD
2018 - UT
2018 - WA
2018 - WY
2018 - OD
Outside Domain
Point
Area
Mobile
Anthro. Fires
Nat. Fires & Bio.
WRAP TSS - 9/21/2010





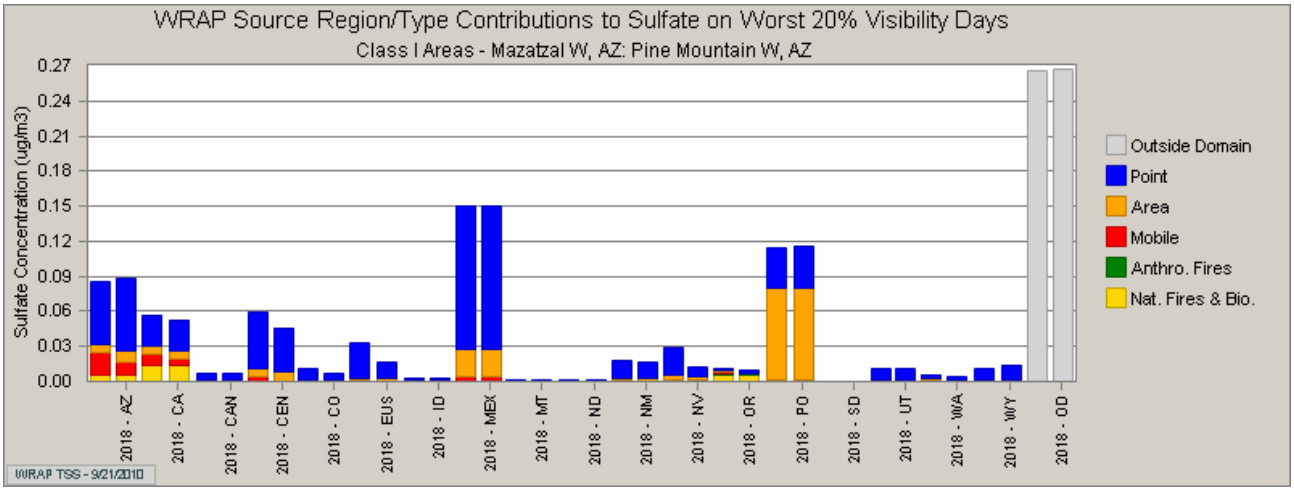
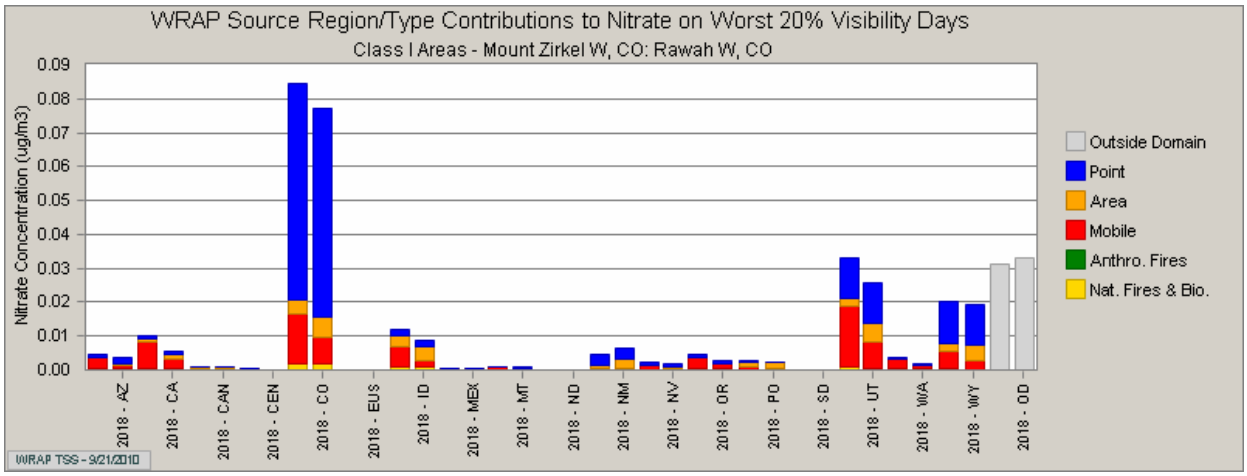
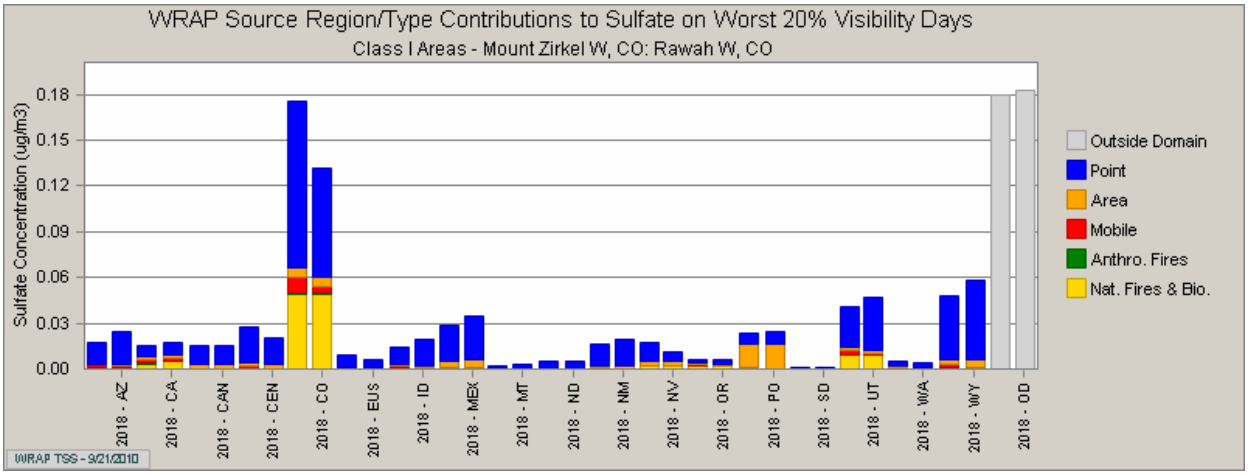


Figure 18. Class I Areas with Impacts from Central Utah.

- Eastern Utah. Oil and Gas emissions dominate the inventory in eastern Utah and are increasing between 2002 and 2018. Approximately 90% of current emissions from oil and gas development in Uintah and Duchesne Counties in Eastern Utah occur on land that is under the jurisdiction of the Ute Indian Tribe of the Uintah Ouray Reservation and is therefore not covered by Utah's SIP[49]. The Deseret Generation and Transmission, Bonanza Power Plant is also under the jurisdiction of the Ute Indian Tribe. These emissions may affect Class I areas in Northeastern Colorado and the State of Utah expects that this impact will be addressed in the TIP or FIP that is developed for the Ute Tribe.





[49] Phase III Oil and Gas Inventory: *Final Report, Development of Baseline 2006 Emissions from Oil and Gas Activity in the Uinta Basin*, Environ, March 25, 2009, page 39.

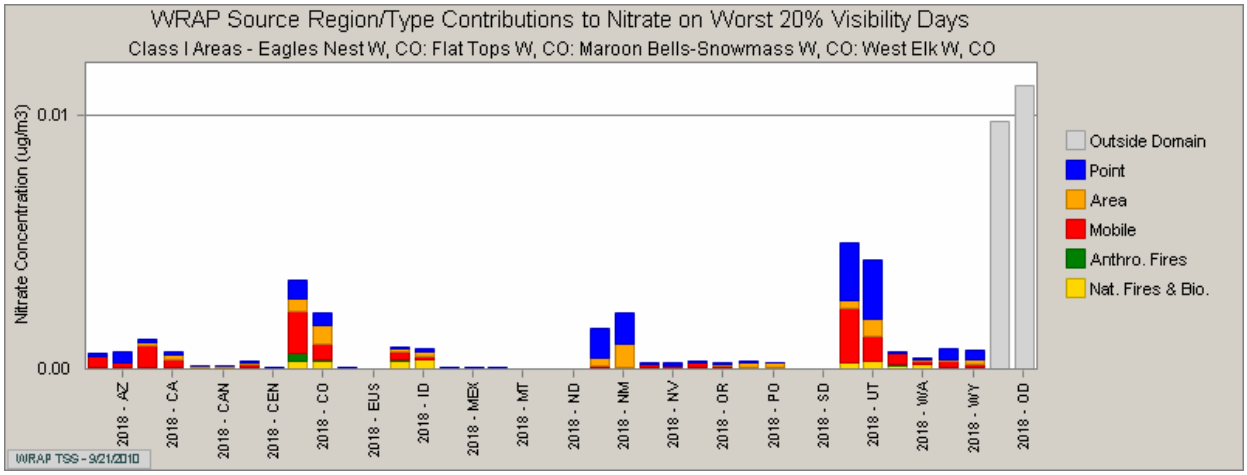


Figure 19. Class I Areas with Impacts from Eastern Utah, including the Ute Indian Reservation that is not covered by Utah's Regional Haze SIP.

2. Projected Changes in Visual Air Quality

a. Applicable Class I Areas

This projection of visibility improvement covers the 16 Class I areas of the Colorado Plateau, as defined in 40 CFR 51.309(b)(1).

b. Projected Visibility Improvement

Pursuant to 40 CFR 51.309(d)(2), Table 23 indicates the projected visibility improvement for each of the 16 Class I Areas on the Colorado Plateau. The table below compares the monitored 2000-04 baseline visibility conditions in deceviews[50] for the 20% Best and 20% Worst days to the projected visibility improvement resulting from the 2018 Base Case (Base 18b) and 2018 Preliminary Reasonable Progress (PRP18a) modeling scenarios completed to date.

All 16 Colorado Plateau Class I areas show a projected visibility improvement for 2018 using the monthly averages on the 20% Worst average visibility days, and no degradation on the 20% Best average visibility days for each monitoring site. The monthly average method for projecting visibility improvement is an allowed variation of EPA guidance.[51] The monthly averaging method was chosen because it was the shortest averaging period

[50] Deciview means a measurement of visibility impairment. Its method of calculation is defined in 40 CFR 51.301, and is reprinted in Appendix A. Lower deciview numbers indicate better visibility, while higher numbers indicate more impaired visibility.

[51] WRAP Technical Analysis Forum, *Technical Recommendations on Monitoring Metrics for Regional Haze Planning, 3/23/2007*

for making the future visibility projections, while avoiding the use of the EPA specific days method that only assesses improvements on the Worst and Best days observed during one year (2002) of the 2000-04 baseline monitoring period.

The visibility improvement observed in the 16 Colorado Plateau Class I areas is not as significant as might be expected considering the large emission reductions that are projected to occur in the region. This is because the 20% worst days are dominated by wildfire emissions that temporarily overwhelm all other sources in the region. International emissions and dust storms can also be a major factor on the 20% worst days. These emission sources are not controllable and therefore little improvement is seen during these episodes. The metric required by the regional haze rule focuses on the 20% worst days; thus the visibility benefits on those days when fires and other uncontrollable sources are not dominating the inventory are not as apparent. It is perhaps more revealing to focus on the improvements that will occur on the 20% best days when visibility is already excellent. Visibility is expected to improve on the best days at most of the Colorado Plateau Class I areas (including all five Class I areas in Utah). The emission reductions from stationary sources, mobile sources and controllable fire emissions will provide a benefit every day of the year even though that benefit may not be as obvious when fires are burning in the region.

Table 24. Projected Visibility Improvement

		Visibility Impairment in Deciviews*					
		20% Worst Visibility Days			20% Best Visibility Days		
			Projected Visibility (*Monthly Average Method*)			Projected Visibility (*Monthly Average Method*)	
Colorado Plateau Class I areas under §309(d)(2)	**State**	**2000-04 Regional Haze Rule Baseline Monitoring Data**	**2018 Base Case (Base18b)**	**2018 Preliminary Reasonable Progress Case (PRP18a)**	**2000-04 Regional Haze Rule Baseline Monitoring Data**	**2018 Base Case (Base18b)**	**2018 Preliminary Reasonable Progress Case (PRP18a)**
Grand Canyon National Park	AZ	11.7	11.4	11.3	2.2	2.2	2.1
Mount Baldy Wilderness	AZ	11.9	11.5	11.4	3	2.9	2.8
Petrified Forest National Park	AZ	13.2	12.9	12.9	5	4.9	4.8
Sycamore Canyon Wilderness	AZ	15.3	15.1	15.1	5.6	5.6	5.6
Black Canyon of the Gunnison National Park Wilderness	CO	10.3	10.1	9.9	3.1	2.9	2.9
Flat Tops Wilderness	CO	9.6	9.2	9	0.7	0.6	0.5
Maroon Bells Wilderness	CO	9.6	9.2	9	0.7	0.6	0.5
Mesa Verde National Park	CO	13	12.8	12.6	4.3	4.1	4
Weminuche Wilderness	CO	10.3	10.1	9.9	3.1	2.9	2.9
West Elk Wilderness	CO	9.6	9.2	9	0.7	0.6	0.5
San Pedro Parks Wilderness	NM	10.2	10	9.8	1.5	1.3	1.2
Arches National Park	UT	11.2	11	10.9	3.8	3.6	3.5
Bryce Canyon National Park	UT	11.6	11.3	11.2	2.8	2.7	2.6
Canyonlands National Park	UT	11.2	11	10.9	3.8	3.6	3.5
Capitol Reef National Park	UT	10.9	10.6	10.5	4.1	4	3.9
Zion National Park	UT	13.2	13	13	5	4.7	4.7

* Data are from: http://vista.cira.colostate.edu/TSS/Results/HazePlanning.aspx --> Modeling --> Visibility Projections

L. PERIODIC IMPLEMENTATION PLAN REVISIONS

1. Periodic Progress Reports for Demonstrating Reasonable Progress.

Pursuant to 40 CFR 51.309(d)(10)(i), the State of Utah shall submit to EPA, as a SIP revision, periodic progress reports for the years 2013 and 2018 for the purpose of demonstrating reasonable progress in Class I areas within Utah, and Class I areas outside Utah that are affected by emissions from Utah. This demonstration may be conducted by the WRAP, with assistance from Utah, and shall address the elements listed under 40 CFR 51.309(d)(10)(i)(A) through (G), as summarized below:

- Implementation status of 2003 SIP measures;
- Summary of emissions reductions;
- Assessment of most/least impaired days;
- Analysis of emission reductions by pollutant;
- Significant changes in anthropogenic emissions;
- Assessment of 2003 SIP sufficiency; and
- Assessment of visibility monitoring strategy.

2. Actions To Be Taken Concurrent with Periodic Progress Reports.

Pursuant to 40 CFR 51.309(d)(10)(ii), the State of Utah shall take one of the following actions based upon information contained in each periodic progress report:

- Provide a negative declaration statement to EPA saying that no implementation plan revision is needed if reasonable progress is being made, in accordance with section L.1 above;

- If the state finds that the implementation plan is inadequate to ensure reasonable progress due to emissions from outside the state, Utah shall notify EPA and the other contributing state(s), and initiate efforts through a regional planning process to address the emissions in question. The State of Utah shall identify in the next progress report the outcome of this regional planning effort, including any additional strategies that were developed to address the plan's deficiencies;

- If the state finds that the implementation plan is inadequate to ensure reasonable progress due to emissions from another country, Utah shall notify EPA and provide information on the impairment being caused by these emissions; or

- If the state finds that the implementation plan is inadequate to ensure reasonable progress due to emissions from within Utah, Utah shall develop additional

strategies to address the plan deficiencies and revise the implementation plan no later than one year from the date that the progress report was due.

M. STATE PLANNING/INTERSTATE COORDINATION AND TRIBAL IMPLEMENTATION

1. Participation in Regional Planning and Coordination

Pursuant to 40 CFR 51.309(d)(11), the State of Utah has participated in regional planning and coordination with other states in developing its emission reduction strategies under 40 CFR 51.309, related to protecting the 16 Class I areas of the Colorado Plateau. This participation was through the Western Regional Air Partnership (WRAP). Appendix D of this implementation plans illustrates the interstate planning and coordination programs developed by WRAP and the State of Utah's participation in regional planning and interstate coordination.

2. Applicability to Tribal Lands

Pursuant to 40 CFR 51.309(d)(12), and in accordance with the Tribal Authority Rule, the Tribe whose lands are surrounded by the State of Utah has the option to develop a regional haze TIP for its lands to assure reasonable progress in the 16 Class I areas of the Colorado Plateau. As such, no provision of this chapter of the implementation plan shall be construed as being applicable to tribal lands.

3. Interstate Coordination

Pursuant to 40 CFR 51.308(d)(3)(i), the State of Utah has participated in regional planning and coordination with other states in developing management strategies for emissions from within the State that would contribute to visibility impairment in a mandatory Class I Federal area outside of the State. The 16 Class I areas of the Colorado Plateau are excluded from the consultation provisions of 51.308 given the reasonable progress and visibility improvement requirements under Section 309. Consultation participation was conducted through the Western Regional Air Partnership (WRAP). A more detailed description of the goals, objectives, management, and decision-making structure of the WRAP has been included in Appendix D. The following WRAP forums have provided consultation opportunities between states on emission management strategies:

- Economic Analysis Forum
- Stationary Sources Forum
- Emissions Forum
- Technical Analysis Forum
- Fire Emissions Forum
- Sources In and Near Class I Areas Forum
- Air Pollution Prevention Forum

- Mobile Sources Forum
- Dust Emissions Forum

Opportunities for consultation on emission strategies provided through the WRAP are documented in more detail in Appendix D.

Changes in visibility impairing emissions from sources in the State of Utah are projected to show significant decreases by 2018 from 1996 levels. Based on WRAP modeling projections and current emission inventories, oxides of nitrogen (NOx), sulfur dioxide (SO_2), and particulate matter ($PM_{2.5}$) are expected to decrease in Utah 36%, 33% and 38% respectively. These reductions are due primarily to the long-term strategy developed in conjunction with western states through the WRAP. Decreases in SO_2 for stationary sources are described in Part E. Emission reductions of NOx and $PM_{2.5}$ are due to the implementation of new federal engine standards and fuel standards described in Part F and BART controls for NO_x and $PM_{2.5}$ described in Part D.

Utah State Implementation Plan

Section XX

Regional Haze

APPENDICES

Addressing Regional Haze Visibility Protection for the Mandatory Federal Class I Areas Required Under 40 CFR 51.309

Complete Document Available On-line at
http://www.airquality.utah.gov/SIP/Regionalhazesip/regionalhaze.htm

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A. DEFINITIONS

Applicable Definitions from 40 CFR 51.301, in effect on July 1, 2007

BART-eligible source means an existing stationary facility as defined in this section.

Best Available Retrofit Technology (BART) means an emission limitation based on the degree of reduction achievable through the application of the best system of continuous emission reduction for each pollutant, which is emitted by an existing stationary facility. The emission limitation must be established, on a case-by-case basis, taking into consideration the technology available, the costs of compliance, the energy and non-air quality environmental impacts of compliance, any pollution control equipment in use or in existence at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology.

Deciview means a measurement of visibility impairment. A deciview is a haze index derived from calculated light extinction, such that uniform changes in haziness correspond to uniform incremental changes in perception across the entire range of conditions, from pristine to highly impaired. The deciview haze index is calculated based on the following equation (for the purposes of calculating deciview, the atmospheric light extinction coefficient must be calculated from aerosol measurements):

Deciview haze index = 10 $1n_e$ (b_{ext}/10 Mm^{-1}).
Where b_{ext} = the atmospheric light extinction coefficient, expressed in inverse megameters (Mm^{-1}).

Existing stationary facility means any of the following stationary sources of air pollutants, including any reconstructed source, which was not in operation prior to August 7, 1962, and was in existence on August 7, 1977, and has the potential to emit 250 tons per year or more of any air pollutant. In determining potential to emit, fugitive emissions, to the extent quantifiable, must be counted.

Fossil-fuel fired steam electric plants of more than 250 million British thermal units per hour heat input,
Coal cleaning plants (thermal dryers),
Kraft pulp mills,
Portland cement plants,
Primary zinc smelters,
Iron and steel mill plants,
Primary aluminum ore reduction plants,
Primary copper smelters,
Municipal incinerators capable of charging more than 250 tons of refuse per day,
Hydrofluoric, sulfuric, and nitric acid plants,
Petroleum refineries,

Lime plants,
Phosphate rock processing plants,
Coke oven batteries,
Sulfur recovery plants,
Carbon black plants (furnace process),
Primary lead smelters,
Fuel conversion plants,
Sintering plants,
Secondary metal production facilities,
Chemical process plants,
Fossil-fuel boilers of more than 250 million British thermal units per hour heat input,
Petroleum storage and transfer facilities with a capacity exceeding 300,000 barrels,
Taconite ore processing facilities,
Glass fiber processing plants, and
Charcoal production facilities.

Federal Class I area means any Federal land that is classified or reclassified Class I.

Federal Land Manager means the Secretary of the department with authority over the Federal Class I area (or the Secretary's designee) or, with respect to Roosevelt-Campobello International Park, the Chairman of the Roosevelt-Campobello International Park Commission.

Federally enforceable means all limitations and conditions which are enforceable by the Administrator under the Clean Air Act including those requirements developed pursuant to parts 60 and 61 of this title, requirements within any applicable State Implementation Plan, and any permit requirements established pursuant to Sec. 52.21 of this chapter or under regulations approved pursuant to part 51, 52, or 60 of this title.

Geographic enhancement for the purpose of §51.308 means a method, procedure, or process to allow a broad regional strategy, such as an emission trading program designed to achieve greater reasonable progress than BART for regional haze, to accommodate BART for reasonably attributable impairment.

Implementation plan means, for the purposes of this part, any State Implementation Plan, Federal Implementation Plan, or Tribal Implementation Plan.

Indian tribe or tribe means any Indian tribe, band, nation, or other organized group or community, including any Alaska Native village, which is federally recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians.

In existence means that the owner or operator has obtained all necessary preconstruction approvals or permits required by Federal, State, or local air pollution emissions and air quality laws or regulations and either has (1) begun, or caused to begin, a continuous program of physical on-site construction of the facility or (2) entered into binding

agreements or contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the facility to be completed in a reasonable time.

Least impaired days means the average visibility impairment (measured in deciviews) for the twenty percent of monitored days in a calendar year with the lowest amount of visibility impairment.

Major stationary source and major modification mean major stationary source and major modification, respectively, as defined in Sec. 51.166.

Mandatory Class I Federal Area means any area identified in part 81, subpart D of this title.

Most impaired days means the average visibility impairment (measured in deciviews) for the twenty percent of monitored days in a calendar year with the highest amount of visibility impairment.

Natural conditions includes naturally occurring phenomena that reduce visibility as measured in terms of light extinction, visual range, contrast, or coloration.

Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

Reasonably attributable means attributable by visual observation or any other technique the State deems appropriate.

Reasonably attributable visibility impairment means visibility impairment that is caused by the emission of air pollutants from one, or a small number of sources.

Regional haze means visibility impairment that is caused by the emission of air pollutants from numerous sources located over a wide geographic area. Such sources include, but are not limited to, major and minor stationary sources, mobile sources, and area sources.

State means ``State'' as defined in section 302(d) of the CAA.

Stationary Source means any building, structure, facility, or installation, which emits or may emit any air pollutant.

Visibility impairment means any humanly perceptible change in visibility (light extinction, visual range, contrast, coloration) from that which would have existed under natural conditions.

Applicable Definitions from 40 CFR 51.309, in effect on July 1, 2003

16 Class I areas means the following mandatory Class I Federal areas on the Colorado Plateau: Grand Canyon National Park, Sycamore Canyon Wilderness, Petrified Forest National Park, Mount Baldy Wilderness, San Pedro Parks Wilderness, Mesa Verde National Park, Weminuche Wilderness, Black Canyon of the Gunnison Wilderness, West Elk Wilderness, Maroon Bells Wilderness, Flat Tops Wilderness, Arches National Park, Canyonlands National Park, Capital Reef National Park, Bryce Canyon National Park, and Zion National Park.

Transport Region State means one of the States that is included within the Transport Region addressed by the Grand Canyon Visibility Transport Commission (Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, and Wyoming).

Commission Report means the report of the Grand Canyon Visibility Transport Commission entitled ``Recommendations for Improving Western Vistas," dated June 10, 1996.

Fire means wildfire, wildland fire (including prescribed natural fire), prescribed fire, and agricultural burning conducted and occurring on Federal, State, and private wildlands and farmlands.

Milestone means the maximum level of annual regional sulfur dioxide emissions for a given year, assessed annually, through the year 2018, consistent with paragraph (d)(4) of this section.

Continuous decline in total mobile source emissions means that the projected level of emissions from mobile sources of each listed pollutant in 2008, 2013, and 2018, are less than the projected level of emissions from mobile sources of each listed pollutant for the previous period (i.e., 2008 less than 2003; 2013 less than 2008; and 2018 less than 2013).

Base Year means the year for which data for a source included within the program were used by the WRAP to calculate emissions as a starting point for development of the milstone required by paragraph (d)(4)(i) of this section.

Definitions for the Fire Program

Agricultural Fuel or Agricultural Burning means any fire ignited by management actions to meet specific objectives (i.e., managed to achieve resource benefits) on agricultural land.

Alternatives to Fire means non-burning techniques that replace fire and that are used to achieve a particular land management objective, including but not limited to reduction of

fuel loading, manipulation of fuels, enhancement of wildlife habitat, and ecosystem restructuring.

Emission Reduction Techniques means techniques for controlling emissions from prescribed fires to minimize the amount of emission output per unit or acre burned.

Fire means wildfire, wildland fire(including prescribed natural fire), prescribed fire, and agricultural burning conducted and occurring on federal, state and private wildlands and farmlands.

Land Manager means any federal, state, local, or private entity that owns, administers, directs, oversees or controls the use of public or private land, including the application of fire to the land.

Prescribed fire or ***prescribed burn*** means any fire ignited by management actions to meet specific objectives, such as achieving resource benefits.

Wildfire means any unwanted, non-structural fire.

Wildland means an area in which development is essentially non-existent, except for pipelines, power lines, roads, railroads, or other transportation or conveyance facilities.

Wildland Fire means all types of fire occurring in the wildland, except for fire on agricultural land.

Wildland Fire Used for Resource Benefits means naturally ignited wildland fire that is managed to accomplish specific prestated resource management objectives in predefined geographic areas.

Definitions for the Western Emission Backstop Trading Program

Account Certificate of Representation means the completed and signed submission required to designate an Account Representative for a Western Emission Backstop (WEB) source or an Account Representative for a general account.

Account Representative means the individual who is authorized through an Account Certificate of Representation to represent owners and operators of the WEB source with regard to matters under the WEB Trading Program or, for a general account, who is authorized through an Account Certificate of Representation to represent the persons having an ownership interest in allowances in the general account with regard to matters concerning the general account.

Act means the Clean Air Act, as amended, 42 U.S.C. 7401, *et seq*.

Actual Emissions means total annual SO_2 emissions as reported to the executive secretary in accordance with the requirements R307-250-9 or R307-150, as applicable.

Allocate means to assign allowances to a WEB source in accordance with sections XX.E.3.a. through XX.E.3.e of this plan.

Allowance means the limited authorization under the WEB Trading Program to emit one ton of SO_2 during a specified control period or any control period thereafter subject to the terms and conditions for use of unused allowances as established by R307-250.

Allowance limitation means the tonnage of SO_2 emissions authorized by the allowances available for compliance deduction for a WEB source for a control period under R307-250-12(1) on the allowance transfer deadline for that control period.

Allowance Tracking System means the system where allowances under the WEB Trading Program are recorded, held, transferred and deducted.

Allowance Tracking System account means an account in the Allowance Tracking System established for purposes of recording, holding, transferring, and deducting allowances.

Compliance account means an account established in the Allowance Tracking System under R307-250-8(1) for the purpose of recording allowances that a WEB source might hold to demonstrate compliance with its allowance limitation.

Control period means the period beginning January 1 of each year and ending on December 31 of the same year, inclusive.

Emissions tracking database means the central database where SO_2 emissions for WEB sources as recorded and reported in accordance with R307-250 are tracked to determine compliance with allowance limitations.

Emission Unit means any part of a stationary source, which emits or has the potential to emit any pollutant subject to regulation under the Clean Air Act.

EPA Administrator means the Administrator of the United States Environmental Protection Agency or the Administrator's duly authorized representative.

Existing source means a stationary source that commenced operation before the Program Trigger Date.

Floor allocation means the amount of allowances set by the executive secretary in accordance with this Plan that represents the minimum necessary for a source to operate under stringent control assumptions.

General account means an account established in the Allowance Tracking System under R307-250-8 for the purpose of recording allowances held by a person that are not to be used to show compliance with an allowance limitation.

Milestone means the maximum level of stationary source regional sulfur dioxide emissions for each year from 2003 to 2018, established according to the procedures in section XX.E.1 of this plan.

New WEB Source means a WEB source that commenced operation on or after the Program Trigger Date.

New Source Set-aside means a pool of allowances that are available for allocation to new WEB sources and modified WEB sources that have increased capacity in accordance with the provisions of Section E.3.c of this plan.

Opt-in means to choose to participate in the WEB Trading Program by following the procedures in R307-250-4(4) and to comply with the terms and conditions of the R307-250.

Program Trigger Date means the date that the executive secretary determines that the WEB Trading Program has been triggered in accordance with the provisions of section XX.E.1.b of this plan.

Reducible allocation means the amount of allowances set by the executive secretary in accordance with section XX.E.3.a(2)(i) of this plan that represents, for each source, emissions in excess of the floor allocation that shall be reduced over time as the regional milestone is decreased.

Retired source means a WEB source that has received a retired source exemption as provided in R307-250-4(5).

Special Reserve Compliance Account means an account established in the allowance tracking system under R307-250-8(1) for the purpose of recording allowances that a WEB source might hold to demonstrate compliance with its allowance limitation for emission units that are monitored for sulfur dioxide in accordance with 250-9(1)(b).

Stationary source means any building, structure, facility or installation that emits or may emit any air pollutant subject to regulation under the Clean Air Act.

Ton means 2000 pounds and, for any control period, any fraction of a ton equaling 1000 pounds or more shall be treated as one ton and any fraction of a ton equaling less than 1000 pounds shall be treated as zero tons.

Tracking System Administrator means the person designated by the executive secretary as the administrator of the WEB Allowance Tracking System and the emission tracking database.

Tribal Set-Aside means an 2,500-ton SO_2 WEB allowance allocated to tribes on an annual basis. The tribes will decide how to distribute the allowances in the set-aside

among tribes in the region. The set-side is intended to ensure equitable treatment for tribal economies and to prevent barriers to economic development.

Trigger refers to the activation of the WEB Trading Program for SO_2 in accordance with section XX.E.1 of this plan.

WEB source means a stationary source that meets the applicability requirements of R307-250-4

WEB Trading Program refers to the Western Backstop (WEB) Trading Program Rule, R307-250, that shall be triggered as a backstop in accordance the provisions in section XX.E.1 of this plan to ensure that regional SO_2 emissions are reduced.

Western Regional Air Partnership (WRAP) means the collaborative effort of tribal governments, state governments, and federal agencies to promote and monitor implementation of recommendations from the Grand Canyon Visibility Transport Commission authorized under Section 169B(f) of the Clean Air Act, and to address other common Western regional air quality issues.

B. WEB MODEL RULE MONITORING PROTOCOLS

Protocol WEB-1: SO_2 Monitoring of Fuel Gas Combustion Devices

1. Applicability

(a) The provisions of this protocol are applicable to fuel gas combustion devices at petroleum refineries.

(b) Fuel gas combustion devices include boilers, process heaters, and flares used to burn fuel gas generated at a petroleum refinery.

(c) Fuel gas means any gas which is generated and combusted at a petroleum refinery. Fuel gas does not include(1) natural gas, unless combined with other gases generated at a petroleum refinery, (2) gases generated by a catalytic cracking unit catalyst regenerator, (3) gases generated by fluid coking burners, (4) gases combusted to produce sulfur or sulfuric acid, or (5) process upset gases generated due to startup, shutdown, or malfunctions.

2. Monitoring Requirements

(a) Except as provided in paragraphs (b) and (c) of this Section 2, fuel gas combustion devices shall use a continuous fuel gas monitoring system (CFGMS) to determine the total sulfur content (reported as H_2S) of the fuel gas mixture prior to combustion, and continuous fuel flow meters to determine the amount of fuel gas burned.

(1) Fuel gas combustion devices having a common source of fuel gas may be monitored for sulfur content at one location, if monitoring at that location is representative of the sulfur content of the fuel gas being burned in any fuel gas combustion device.

(2) The CFGMS shall meet the performance requirements in Performance Specification 2 in Appendix B to 40 CFR Part 60, and the following:

(i) Continuously monitor and record the concentration by volume of total sulfur compounds in the gaseous fuel reported as ppmv H_2S.

(ii) Have the span value set so that the majority of readings fall between 10 and 95% of the range.

(iii) Record negative values of zero drift.

(iv) Calibration drift shall be 5.0% of the span, for initial certification and daily calibration error tests.

(v) Methods 15A, 16, or approved alternatives for total sulfur, are the reference methods for the relative accuracy test. The relative accuracy test shall include a bias test in accordance with paragraph 4.(c) of this section.

(3) All continuous fuel flow meters shall comply with the provisions of section 2.1.5 of Appendix D to 40 CFR Part 75.

(4) The hourly mass SO_2 emissions rate for all the fuel gas combustion devices monitored by this approach shall be calculated using the following equation:

$$E_t = (C_S)(Q_t)(K)$$

where: E_t = Total SO_2 emissions in lb/hr from applicable fuel gas combustion devices
C_S = Sulfur content of the fuel gas as H_2S(ppmv)
Q_t = Fuel gas flow rate to the applicable fuel gas combustion devices (scf/hr)
$K = 1.660 \times 10^{-7}$ (lb/scf)/ppmv

(b) In place of a CFGMS in paragraph (a) of this Section 2, fuel gas combustion devices having a common source of fuel gas may be monitored with an SO_2 CEMS, a flow CEMS, and (if necessary) a moisture monitoring system at only one location, if the CEMS monitoring at that location is representative of the SO_2 emission rate (lb SO_2/scf fuel gas burned) of all applicable fuel gas combustion devices. Continuous fuel flow meters shall be used in accordance with paragraph (a), and the fuel gas combustion device monitored by a CEMS shall have separate fuel metering.

(1) Each CEMS for SO_2, flow, and (if applicable) moisture, shall comply with the operating requirements, performance specifications, and quality assurance requirements of 40 CFR Part 75.

(2) All continuous fuel flow meters shall comply with the provisions of section 2.1.5 of Appendix D to 40 CFR Part 75.

(3) The SO_2 hourly mass emissions rate for all the fuel gas combustion devices monitored by this approach shall be determined by the ratio of the amount of fuel gas burned by the CEMS-monitored fuel gas combustion device to the total fuel gas burned by all applicable fuel gas combustion devices using the following equation:

$$E_t = (E_m)(Q_t)/(Q_m)$$

where: E_t = Total SO_2 emissions in lb/hr from applicable fuel gas combustion devices
E_m = SO_2 emissions in lb/hr from the CEMS-monitored fuel gas combustion device, calculated using Equation F-1 or (if applicable) F-2 in Appendix F to 40 CFR Part 75
Q_t = Fuel gas flow rate (scf/hr) to the applicable fuel gas combustion devices
Q_m = Fuel gas flow rate (scf/hr) to the CEMS-monitored fuel gas combustion device

(c) In place of a CFGMS in paragraph (a) of this section, fuel gas combustion devices having a common source of fuel gas may be monitored with an SO_2 - diluent CEMS at only one location, if the CEMS monitoring at that location is representative of the SO_2 emission rate (lb SO_2/mmBtu) of all applicable fuel gas combustion devices. If this option is selected, the owner or operator shall conduct fuel gas sampling and analysis for gross calorific value (GCV), and shall use continuous fuel flow metering in accordance with paragraph (a) of this Section 2, with separate fuel metering for the CEMS-monitored fuel gas combustion device.

(1) Each SO_2-diluent CEMS shall comply with the applicable provisions for SO_2 monitors and diluent monitors in 40 CFR Part 75, and shall use the procedures in section 3 of Appendix F to Part 75 for determining SO_2 emission rate (lb/mmBtu) by substituting the term SO_2 for NO_x in that section, and using a K factor of 1.660×10^{-7} (lb/scf)/ppmv instead of the NO_x K factor.

(2) All continuous fuel flow meters and fuel gas sampling and analysis for GCV to determine the heat input rate from the fuel gas shall comply with the applicable provisions in sections 2.1.5 and 2.3.4 of Appendix D to 40 CFR Part 75.

(3) The SO_2 hourly mass emissions rate for all the fuel gas combustion devices monitored by this approach shall be calculated by using the following equation:

$$E_t = (E_m)\,(Q_t)(GCV)/10^6$$

where:

E_t = Total hourly SO_2 mass emissions in lb/hr from the applicable fuel gas combustion devices
E_m = SO_2 emission rate in lb/mmBtu from the CEMS - monitored fuel gas combustion device
Q_t = Fuel gas flow rate (scf/hr) to the applicable fuel gas combustion devices
GCV = Fuel Gross Calorific Value (Btu/scf)
10^6 = Conversion from Btu to million Btu

(d) Calculate total SO_2 mass emissions for each calendar quarter and each calendar year based on the emissions in lb/hr and Equations F-3 and F-4 in Appendix F to 40 CFR Part 75, Appendix F.

3. Certification/Recertification Requirements

All monitoring systems are subject to initial certification and recertification testing as follows:

(a) The owner or operator shall comply with the initial testing and calibration requirements in Performance Specification 2 in Appendix B to 40 CFR Part 60 and paragraph 2 (a)(2) of this section for each CFGMS.

(b) Each CEMS for SO_2 and flow or each SO_2-diluent CEMS shall comply with the testing and calibration requirements specified in 40 CFR Part 75, section 75.20 and Appendices A and B, except that each SO_2-diluent CEMS shall meet the relative accuracy requirements for a NO_x-diluent CEMS (lb/mmBtu).

(c) A continuous fuel flow meter shall comply with the certification and quality-assurance requirements in sections 2.1.5 and 2.1.6 to Appendix D to 40 CFR Part 75.

4. Quality Assurance/Quality Control Requirements

(a) A quality assurance/quality control (QA/QC) plan shall be developed and implemented for each CEMS for SO_2 and flow or the SO_2-diluent CEMS in compliance with sections 1, 1.1, and 1.2 of Appendix B to Part 75.

(b) A QA/QC plan shall be developed and implemented for each continuous fuel flow meter and fuel sampling and analysis in compliance with sections 1, 1.1, and 1.3 of Appendix B to 40 CFR Part 75.

(c) A QA/QC plan shall be developed and implemented for each CFGMS in compliance with sections 1 and 1.1 of Appendix B to 40 CFR Part 75, and the following:

(i) Perform a daily calibration error test of each CFGMS at two gas concentrations, one low level and one high level. Calculate the calibration error as described in Appendix A to 40 CFR Part 75. An out of control period occurs whenever the error is greater than 5.0% of the span value.

(ii) In addition to the daily calibration error test, an additional calibration error test shall be performed whenever a daily calibration error test is failed, whenever a monitoring system is returned to service following repairs or corrective actions that may affect the monitor measurements, or after making manual calibration adjustments.

(iii) Perform a linearity test once every operating quarter. Calculate the linearity as described in Appendix A to 40 CFR Part 75. An out of control period occurs whenever the linearity error is greater than 5.0 percent of a reference value, and the absolute value of the difference between average monitor response values and a reference value is greater than 5.0 ppm.

(iv) Perform a relative accuracy test audit once every four operating quarters. Calculate the relative accuracy as described in Appendix A to 40 CFR Part 75. An out of control period occurs whenever the relative accuracy is greater than 20.0% of the mean value of the reference method measurements.

(v) Using the results of the relative accuracy test audit, conduct a bias test in accordance with Appendix A to 40 CFR Part 75, and calculate and apply a bias adjustment factor if required.

5. Missing Data Procedures

(a) For any period in which valid data are not being recorded by an SO_2 CEMS or flow CEMS specified in this section, missing or invalid data shall be replaced with substitute data in accordance with the requirements in Subpart D of 40 CFR Part 75.

(b) For any period in which valid data are not being recorded by an SO_2-diluent CEMS specified in this section, missing or invalid data shall be replaced with substitute data on a rate basis (lb/mmBtu) in accordance with the requirements for SO_2 monitors in Subpart D of 40 CFR Part 75.

(c) For any period in which valid data are not being recorded by a continuous fuel flow meter or for fuel gas GCV sampling and analysis specified in this section, missing or invalid data shall be replaced with substitute data in accordance with missing data requirements in Appendix D to 40 CFR Part 75.

(d) For any period in which valid data are not being recorded by the CFGMS specified in this section, hourly missing or invalid data shall be replaced with substitute data in accordance with the missing data requirements for units performing hourly gaseous fuel sulfur sampling in section 2.4 of Appendix D to 40 CFR Part 75.

6. Monitoring Plan and Reporting Requirements

In addition to the general monitoring plan and reporting requirements of Section I of this Rule, the owner or operator shall meet the following additional requirements:

(a) The monitoring plan shall identify each group of units that are monitored by a single monitoring system under this Protocol WEB-1, and the plan shall designate an identifier for the group of units for emissions reporting purposes. For purpose of submitting emissions reports, no apportionment of emissions to the individual units within the group is required.

(b) If the provisions of paragraphs 2.(b) or (c) are used, provide documentation and an explanation to demonstrate that the SO_2 emission rate from the monitored unit is representative of the rate from non-monitored units.

Protocol WEB-2: Predictive Flow Monitoring Systems for Kilns with Positive Pressure Fabric Filter

1. Applicability

The provisions of this protocol are applicable to cement kilns or lime kilns that (1) are controlled by a positive pressure fabric filter, (2) combust only a single fuel, no fuel blends, and (3) have operating conditions upstream of the fabric filter that the WEB source documents would reasonably prevent reliable flow monitor measurements. This protocol does not modify the SO_2 monitoring requirements in section I of this Rule.

2. Monitoring Requirements

(a) A cement or lime kiln with a positive pressure fabric filter shall use a predictive flow monitoring system (PFMS) to determine the hourly kiln exhaust gas flow.

(b) A PFMS is the total equipment necessary for the determination of exhaust gas flow using process or control device operating parameter measurements and a conversion equation, a graph, or computer program to produce results in cubic feet per hour.

(c) The PFMS shall meet the following performance specifications:

(1) Sensors readings and conversion of sensor data to flow in cubic feet per hour must be automated.

(2) The PFMS must allow for the automatic or manual determination of failed monitors. At a minimum a daily determination must be performed.

(3) The PFMS shall have provisions to check the calibration error of each parameter that is individually measured. The owner or operator shall propose appropriate performance specifications in the initial monitoring plan for all parameters used in the PFMS comparable to the degree of accuracy required for other monitoring systems used to comply with this Rule. The parameters shall be tested at two levels, low: 0 to 20% of full scale, and high: 50 to 100% of full scale. The reference value need not be certified.

(4) The relative accuracy of the PFMS must be $\leq$ 10.0% of the reference method average value, and include a bias test in accordance with paragraph 4(c) of this section.

3. Certification Requirements

The PFMS is subject to initial certification testing as follows:

(a) Demonstrate the ability of the PFMS to identify automatically or manually a failed monitor.

(b) Provide evidence of calibration testing of all monitoring equipment. Any tests conducted within the previous 12 months of operation that are consistent with the QA/QC plan for the PFMS are acceptable for initial certification purposes.

(c) Perform an initial relative accuracy test over the normal range of operating conditions of the kiln. Using the results of the relative accuracy test audit, conduct a bias test in accordance with Appendix A to 40 CFR Part 75, and calculate and apply a bias adjustment factor if required.

4. Quality Assurance/Quality Control Requirements

A QA/QC plan shall be developed and implemented for each PFMS in compliance with sections 1 and 1.1 of Appendix B of 40 CFR Part 75, and the following:

(a) Perform a daily monitor failure check.

(b) Perform calibration tests of all monitors for each parameter included in the PFMS. At a minimum, calibrations shall be conducted prior to each relative accuracy test audit.

(c) Perform a relative accuracy test audit and accompanying bias test once every four operating quarters. Calculate the relative accuracy (and bias adjustment factor) as described in Appendix A to 40 CFR Part 75. An out of control period occurs whenever the flow relative accuracy is greater than 10.0% of the mean value of the reference method.

5. Missing Data

For any period in which valid data are not being recorded by the PFMS specified in this section, hourly missing or invalid data shall be replaced with substitute data in accordance with the flow monitor missing data requirements for non-load based units in Subpart D of 40 CFR Part 75.

6. Monitoring Plan Requirements

In addition to the general monitoring plan requirements of Section I of this Rule, the owner or operator shall meet the following additional requirements:

(a) The monitoring plan shall document the reasons why stack flow measurements upstream of the fabric filter are unlikely to provide reliable flow measurements over time.

(b) The initial monitoring plan shall explain the relationship of the proposed parameters and stack flow, and discuss other parameters considered and the reasons for not using those parameters in the PFMS. The [state or tribe] may require that the subsequent monitoring plan include additional explanation and documentation for the reasonableness of the proposed PFMS.

C. PROJECTION OF VISIBILITY IMPROVEMENT

A. Modeling Scenarios

Improvement in visibility for the 16 Colorado Plateau Class I areas was modeled for two scenarios, the results of which are shown in Tables 22 and 23 in Part K of this SIP.

Control Strategies

The WRAP modeled two control scenarios for 2018, with and without optimal smoke management. The results are found in the WRAP TSD. Scenario 1 is designed to assess the effect of the Grand Canyon Visibility Transport Commission (GCVTC) recommended control strategies, comparing the 1996 modeled base case to the visibility improvement resulting from the implementation of the following GCVTC strategies: the sulfur dioxide Annex Milestones, the regional pollution prevention program, maintenance of existing base smoke management programs, and accounting for the 2018 base case emissions (known and adopted federal, tribal, state, and local control programs in the contiguous WRAP region). Visibility changes resulting from regional implementation of state pollution prevention programs were modeled by the Regional Modeling Center, as part of the other Section 309 control strategies. Visibility changes resulting from implementation of pollution prevention programs by individual states or tribes were not modeled. Emissions changes from state or tribal pollution prevention programs, and the resulting visibility changes are small, based on the regional pollution prevention emissions analysis, but are accounted for in the regional modeling.

Scenario 2 is designed to assess the effect of the implementation of enhanced smoke management programs, as reflected in the WRAP Fire Emissions Joint Forum's 2018 optimal smoke management inventory. Enhanced smoke management programs were recommended by GCVTC and are required in Section 309(d)(6) of the Regional Haze Rule. This scenario uses the emissions inventories from Scenario 1, except the optimal smoke management inventory was substituted for fire emissions. Thus, the results for Scenario 2 are a comparison of visibility changes resulting from emission reductions between the 2018 baseline smoke management and 2018 optimal smoke management fire inventories.

Modeling results projecting visibility improvement in 2018

Visibility at the 16 Class I areas on the Colorado Plateau was estimated for the 2018 Scenario 1 and Scenario 2 control strategies. Tables 22 and 23 display the improvements in visibility from the 2018 base case (i.e., without the strategies included in this Plan) to the 2018 controlled case with all the strategies included in this Plan. In all cases, visibility is expected to be better with this Plan than without it.

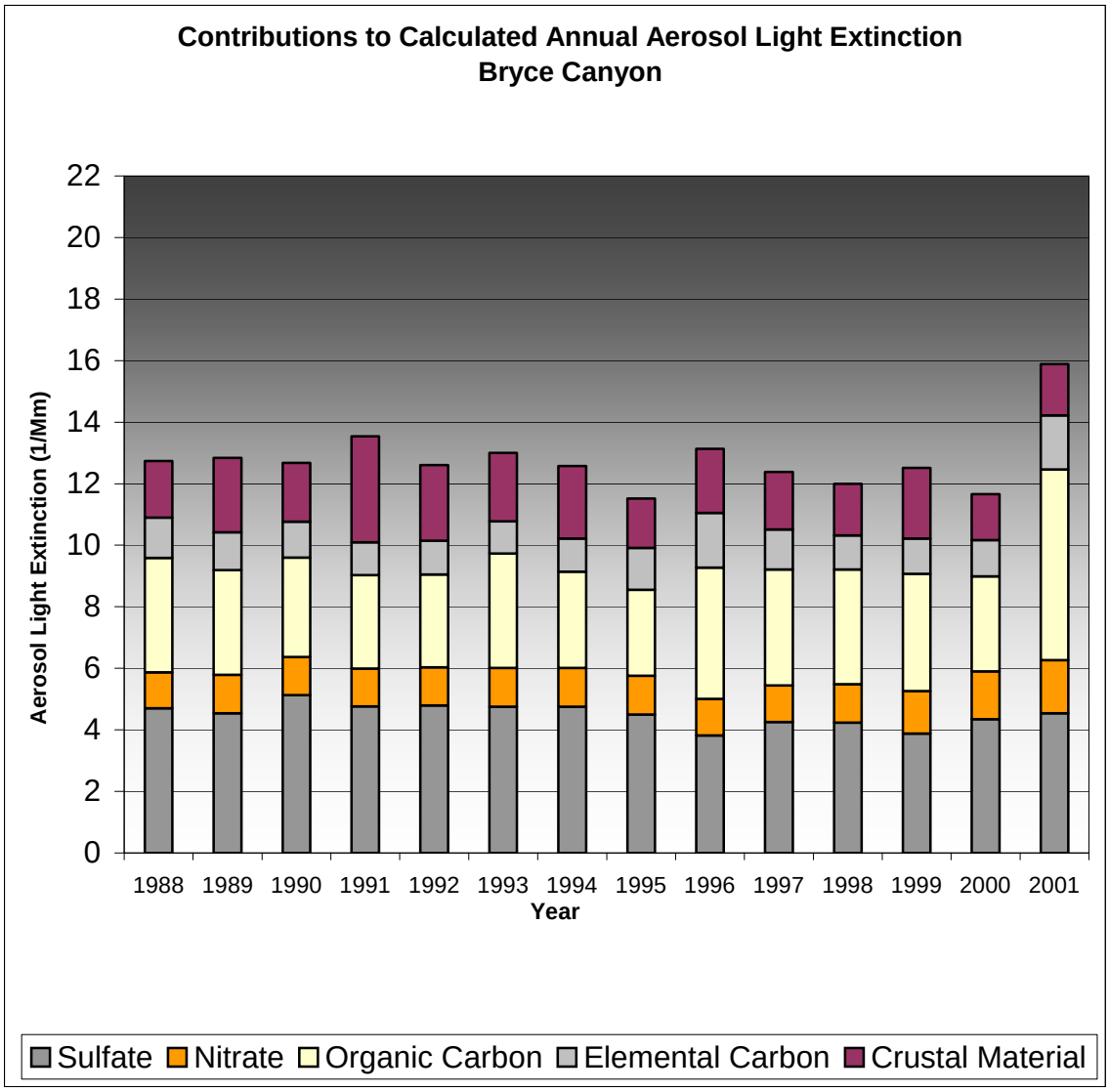
Visibility estimates for Scenarios 1 and 2 are found in the WRAP Technical Support Document, Chapter 2. A comparison of the visibility estimates for 2018 Scenarios 1 and 2 at the 16 Class I areas on the Colorado Plateau for the worst 20% and best 20% days reveals that 2018 Scenario 2 always estimated improved visibility as compared to 2018 Scenario 1. That is, the optimal smoke management programs produces visibility improvements over the base smoke management programs across all 16 Class I areas for both the worst 20% and best 20% days.

Visibility Measurements over the Years

The National Park Service conducted visibility monitoring at Utah's parks for many years, but the data is not comparable because improvements in equipment have been made. The only modern data available for a lengthy period is from Bryce and Canyonlands since 1988. IMROVE monitors were installed at Zion and Capitol Reef in 2001, though the Zion monitor was moved to a more appropriate site in the spring of 2003. There is too little data available from those monitors to draw any conclusions about trends in visibility or the sources of visibility impairment.

Displayed below are charts summarizing more than a decade of data from IMPROVE monitors at Bryce and Canyonlands National Parks. Projections of visibility for 2018 have been added.

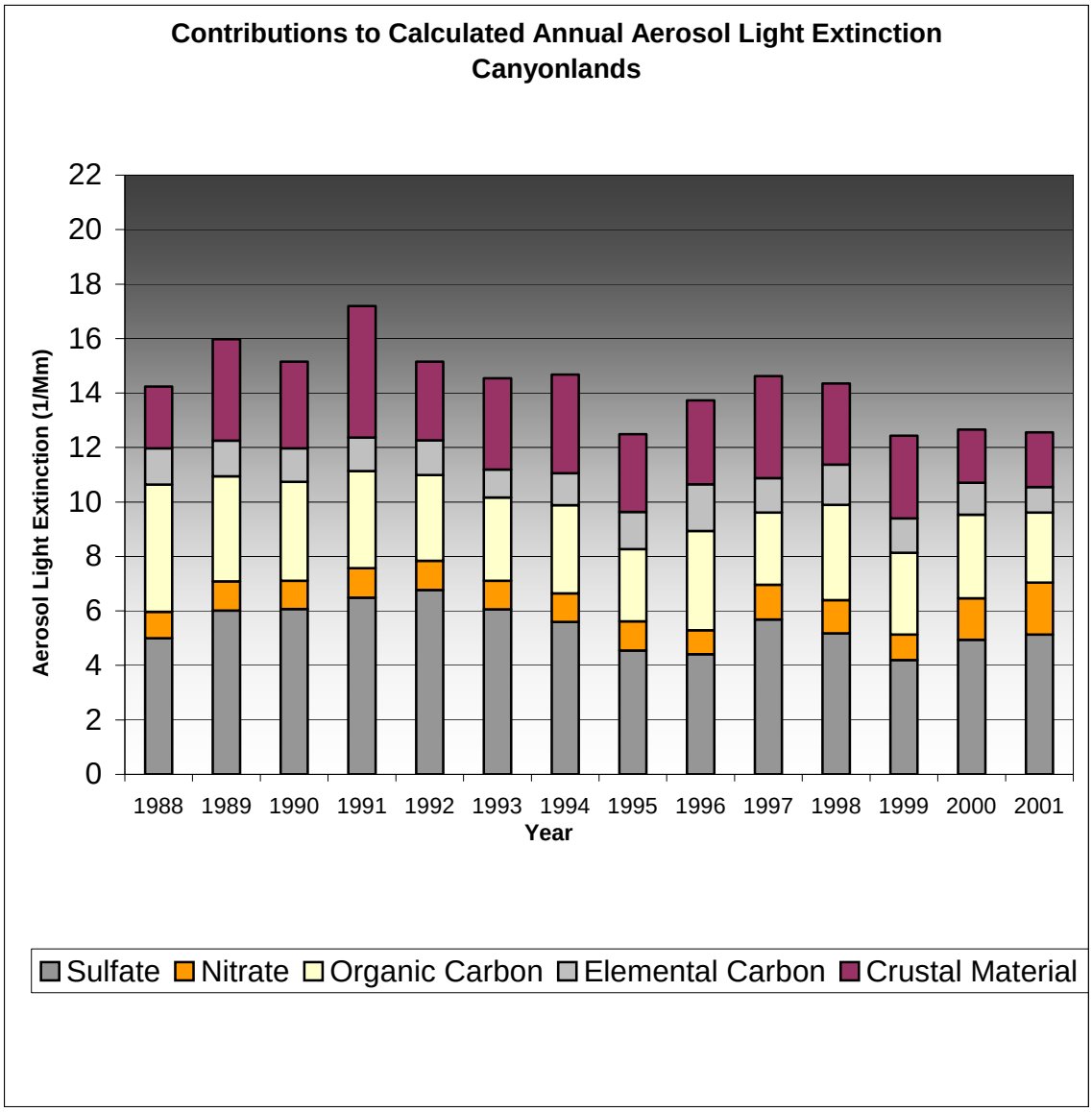
Figure1 Appendix. Contributions to Light Extinction at Bryce Canyon



Sources: 1988-2001 data from IMPROVE Web site.

The only trend apparent in this chart is the small decline in sulfates over the period. Larger amounts of organic and elemental carbon in 1996 and 2001 are probably attributable to fires.

Figure 2 Appendix. Contributions to Light Extinction at Canyonlands



Sources: 1988-2001 data from IMPROVE Web site.

Again, the chart shows a decline in sulfates over the period and a possible small increase in nitrates.

D. WRAP INTERSTATE AND REGIONAL PLANNING ACTIVITIES

A. Overview of Western Regional Air Partnership

The Western Regional Air Partnership (WRAP) is the regional planning organization for the development of regional haze State Implementation Plans (SIPs) in the west. The following overview was drawn from a fact sheet prepared by the WRAP and can be found at www.wrapair.org.

What is the Western Regional Air Partnership--the WRAP?

The WRAP is a voluntary organization of western states, tribes and federal agencies. It was formed in 1997 as the successor to the Grand Canyon Visibility Transport Commission, which made over 70 recommendations in June 1996 for improving visibility in 16 national parks and wilderness areas on the Colorado Plateau. The Partnership promotes, supports and monitors the implementation of those recommendations throughout the West. The WRAP is also implementing regional planning processes to improve visibility in all Western Class I areas by providing the technical and policy tools needed by states and tribes to implement the federal regional haze rule. The WRAP is administered jointly by the Western Governors' Association (WGA) and the National Tribal Environmental Council (NTEC).
The WRAP recognizes that residents have the most to gain from improved visibility and that many solutions are best implemented at the local, state, tribal or regional level with public participation.

Who belongs to the WRAP?

The WRAP is made up of western states, tribes and federal agencies. The states are Alaska, Arizona, California, Colorado, Idaho, Montana, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming. Tribal board members include Campo Band of Kumeyaay Indians, Confederated Salish and Kootenai Tribes, Cortina Indian Rancheria, Hopi Tribe, Hualapai Nation of the Grand Canyon, Native Village of Shungnak, Nez Perce Tribe, Northern Cheyenne Tribe, Pueblo of Acoma, Pueblo of San Felipe, and Shoshone-Bannock Tribes of Fort Hall. Representatives of other tribes participate on WRAP forums and committees. Participation is encouraged throughout the Western states and tribes. Federal participants are the Department of the Interior (National Park Service and Fish & Wildlife Service,) the Department of Agriculture (Forest Service), and the Environmental Protection Agency.

How does the WRAP make decisions?

The WRAP's committees and forums seek consensus among the governmental partners and stakeholders including large and small businesses, academia, environmental groups and other public interest representatives. Scientific findings and policy options are presented to policy makers and the public for appropriate discussion and response. The

WRAP is committed to bringing together all those who may contribute to or be affected by poor air quality. Findings and policy options go before the WRAP Board.

How is the WRAP funded and Who does the work?

The Western Governors' Association in Denver and the National Tribal Environmental Council in Albuquerque receive funding from the U.S. EPA to administer and support the WRAP and its committees and forums. The majority of the work is done by individuals serving on the WRAP committees and forums, with assistance from staff and outside contractors. Work plans are prepared by the WRAP forums and work products are reviewed by the forums and the co-directors. The WRAP recognizes the great contribution from organizations and individuals who contribute often un-reimbursed time and effort to committee and forum work.

How can individuals and organizations be involved in the WRAP's work and decisions?

The WRAP's success depends on the participation of concerned and informed participants who devote time and energy to this endeavor. Committees and forums are continuously accepting applications for a number of appointments. See our Web site, www.wrapair.org if you are interested in getting involved.

B. WRAP Committees and Forums

The following overview of the current WRAP committees and forums was drawn from a fact sheets prepared by the WRAP and can be found at www.wrapair.org.

Initiatives Oversight Committee

The Initiatives Oversight Committee is responsible for establishing and overseeing the work of forums that develop policies and programs to improve and protect our air quality. IOC forums are:

The Air Pollution Prevention Forum (AP2)
The Air Pollution Prevention Forum is tasked with developing energy conservation initiatives and programs to expand the use of renewable energy sources. They are working to find, and encourage use of, energy sources that minimize air pollution.

The Economic Analysis Forum (EAF)
This Forum assists with studies to evaluate the economic effects of air quality programs being developed by the WRAP to diminish haze throughout the West.

Sources In and Near Class 1 Areas Forum (Class 1)
This Forum is looking at pollution sources in and near federally mandated Class 1

areas to determine their impact on visibility in those areas. The group also will address mitigation and outreach options.

The Mobile Sources Forum (MSF)
This Forum addresses the impact of motor vehicles and other mobile sources of pollution. For example, the Forum developed a plan presented to the WRAP, suggesting a revision of U.S. Environmental Protection Agency rules regarding the production of low-sulfur fuel by small refineries. The Forum also recommended reforms for off-road emissions and diesel fuel.

Technical Oversight Committee (TOC)

The Technical Oversight Committee's tasks are to identify and manage technical issues and to establish and oversee the work of forums and work groups that are developing and analyzing, scientific information related to air quality planning in the West.
TOC forums and work groups include:

The Air Quality Modeling Forum (AQMF)
This Forum identifies, evaluates the performance of, and applies mathematical air quality models, which can be used to quantify the benefits of various air quality programs for reducing haze in the western United States.

The Ambient Monitoring and Reporting Forum (AMRF)
This Forum oversees the collection, use, and reporting of ambient air quality and meteorological monitoring data as needed to further the WRAP's overall goals.

The Emissions Forum (EF)
This Forum is developing the first comprehensive inventory of haze-causing air emissions in the West, including a comprehensive emissions tracking and forecasting system. The forum also monitors trends in actual emissions and forecasts emissions reductions anticipated from current regulations and alternative control strategies.

Attribution of Haze Work Group (AoH)
This Work Group is preparing guidance for states and tribes regarding both the types of pollution emitters and the regions in which pollutants contribute to visibility impairment in national parks and other Class 1 wilderness areas. Three state and three tribal representatives form the work group along with all members of the Technical Oversight Committee and one representative each from the Initiatives Oversight Committee, the technical and joint forums and the Tribal Data Development Work Group.

The Tribal Data Development Work Group (TDDWG)
This Work Group is identifying gaps in air quality data for tribal lands and working with tribes to collect that data. While some tribes have adequate staff and

equipment for such an undertaking, many lack the manpower and technical resources to accomplish the work on their own. This Work Group is providing help by both enhancing the tribes' ability to collect the necessary data and establishing an organized way to standardize and catalogue the information for subsequent analysis.

Joint Technical and Policy Forums

Joint Forums address both technical issues and policy. Both the TOC and the IOC have oversight.

The Dust Emissions Joint Forum (DEJF)
This Forum is seeking first to improve the methods for estimating dust emissions and their inputs in air quality models. The Forum also is examining the extent of dust impacts and strategies to reduce dust emissions.

The Fire Emissions Joint Forum (FEJF)
The Grand Canyon Commission confirmed that forest fires contribute significantly to visibility problems and that the use of prescribed fire is expected to increase as a forest management tool. The Fire Emissions Joint Forum is developing measures to reduce the effects of prescribed fires and is examining emissions from all kinds of fire, whether ignited naturally or by humans. The Forum is considering public health and nuisance effects as well as visibility impacts. It will develop a tracking system for fire emissions and management techniques to minimize emissions. This Forum is working to coordinate with and gain the full cooperation of federal, tribal, state, and local agencies as well as private landowners, forest managers, and the agriculture community.

The Stationary Sources Joint Forum (SSJF)
The Stationary Sources Joint Forum, formerly the Market Trading Forum, developed the details of an emissions trading program to achieve cost-effective reductions from industrial sources of sulfur dioxide. The Forum first set emission milestones for sulfur dioxide between now and 2018 and then designed a trading program to be triggered if these emission targets are exceeded. The Forum is now examining other industrial source emissions, such as oxides of nitrogen and particulate matter, and is assisting WRAP members in compliance with the stationary source provisions of the regional haze rule.

Other Committees/Forums

Air Managers' Committee (AMC)
This Committee provides a venue for tribal and state air managers to deal with regulatory issues they face related to the WRAP process. The group, joined by air managers from the U.S. Environmental Protection Agency and federal land

management agencies, also aids communication linkages between the air managers and the other technical and policy forums.

Communications Committee
The Communications Committee facilitates the exchange of information among the WRAP Committees and Forums. The Committee also is charged with developing materials to help the general public understand the WRAP process and participate in its decision-making. A primary means of communication is through this Web site.

Planning Group
This group helps to provide coordination among the IOC, TOC, Air Managers Committee, and Communications Committee, whose co-chairs sit on the group. Among its duties are: administrative oversight and budget coordination as well as coordination to prevent duplication among forums.

*All of the above groups are formally recognized by the WRAP. Additional ad-hoc, task-specific work groups may be formed within a forum or a committee to work on shorter-term assignments.

C. Utah's Participation in the Regional Process

Utah has been an active participant in interstate coordination and planning initiatives to address visibility impairment and regional haze. The following is a brief summary of the committees and forums where Utah was an active member, and in many cases was co-chair of the committee or forum. Further information regarding the hundreds of meetings and conference calls that have occurred over the last 10 years can be found on the WRAP webpage at www.wrapair.org.

1991 – 1996 Grand Canyon Visibility Transport Commission

1997 – 2003 Western Regional Air Partnership, Annex and 2003 SIP Development

1. WRAP Co-Chair
2. Initiatives Oversight Committee Co-Chair
3. Market Trading Forum Co-Chair
4. Pollution Prevention Forum Co-Chair
5. Air Managers Committee member
6. Communications Committee member
7. Dust Emissions Joint Forum member
8. Emissions Forum member
9. Fire Emissions Joint Forum member
10. Air Monitoring and Reporting Forum member
11. Air Quality Modeling Forum member

12. Utah provided data and reviewed materials prepared by the remaining WRAP forums and workgroups where Utah did not have direct representation and used those materials in Utah's 2003 SIP.

2004 – 2008 Western Regional Air Partnership, 2008 SIP Development

1. 309 Coordinating Committee member
2. Air Managers Committee member
3. Implementation Work Group member
4. Stationary Sources Joint Forum member
5. Technical Analysis Forum member
6. Attribution of Haze Work Group member
7. Utah provided data and reviewed materials prepared by the remaining WRAP forums and workgroups where Utah did not have direct representation, and provided significant technical expertise during the development of the Technical Support System and regional modeling.

The State of Utah was a team member in the development of or has used the following WRAP work products in the 2008 update to Utah's implementation plan:

1. Western Backstop SO_2 trading Program Model Rule
2. Technical Support System Website
3. Regional Modeling Center
4. VIEWS Website
5. Causes of Haze Website
6. IWG work products
7. GIS Landuse Database
8. Ao Phase II Project
9. Enhanced Smoke Management Programs
10. Fire Tracking Systems
11. Oil/Gas Area Source Emissions/Controls
12. EGU NOx Controls
13. Stationary/Area Source Data Pivot Tables
14. Stationary/Area Source Emission Projections
15. General BART Information
16. Identifying BART-Eligible Sources

The extensive collaboration and consultation that has occurred through the WRAP provided a regional view of a regional problem that could not have been addressed by one state independently.